Smart Card Alliance

Leadership
for an
Expanding
Industry

SECURITY OF THINGS
TRUST IN THE INTERNET OF THINGS

Annual Review 2016

Smart Card Alliance

Securing mobile life.

Giesecke & Devrient works behind the screens to secure today's connected society and envision the needs of tomorrow. We design, build and operate innovative solutions that secure mobile life.

As a worldwide leader in Mobile Security solutions, we have unparalleled experience in the emerging mobile payment market and offer the full range of payment options from card to cloud. We leverage decades of experience to deliver best-in-class Secure Elements and remote credential lifecycle management, plus OTA, HCE, digital wallets, tokenization, EMV and TSM services.

We delivered the first subscription management platform in 2012 and continue to lead IoT and M2M developments. In the emerging IoT and Smart Wearables market, G&D partners with both established enterprise players and innovative start-ups to incorporate the highest level of security in IoT communications and transactions.

Giesecke & Devrient has been trusted by mobile network operators, technology companies, financial institutions and world governments to secure their physical currencies and digital assets for over 160 years.

Get to know us at www.gi-de.com.

Giesecke & Devrient
Creating Confidence.

Advantis is a multi-application solution based on international EMV Chip Technology standards

Its Maxims are: *Flexibility and Reliability*

Flexibility

MULTI-APPLICATION

- Credit/Debit
- Transport applications
- e-purse
- Data storage (loyalty, biometry, health, university, access control...)
- PKI (authentication, electronic signature)

MULTI-PROVIDER

- Various chip manufacturers
- Global and local card manufacturers
- Multitude of personalization companies

MULTI-BRAND

- Domestic
- International
  - Visa
  - MasterCard

MULTI-INTERFACE

- Contactless)))
- Contact

100% Reliability

With over 1 billion cards issued with this technology, **Advantis** is a relevant technological reference in the sector.

AMERICA

EUROPE

ServiRed

ANNUAL REVIEW CONTENTS

Year of Milestones and Accomplishments

This 2016 Annual Review reflects the best of what this organization has been in the past, present and future. The tremendous work highlighted in this report reflects the diversity of our business interests across many verticals, the breadth and depth of the members we represent, and the determination and commitment of all the industry professionals who contribute their knowledge and leadership towards expanding the market for smart card and related secure chip technologies.

2016 has been a year of important milestones and accomplishments for the Smart Card Alliance, the Smart Card Alliance Latin America (SCALA), and the EMV Migration Forum. I was one of those determined industry professionals back in 2001 who helped usher the Smart Card Alliance into existence. In the 15 years since, the Smart Card Alliance has helped build the payments, mobile, and identity credentialing markets into booming examples of the value of secure chip technology incorporated in various forms.

CONTINUING TO LEAD

The present is represented by the continued expansion of the EMV Migration Forum as a thriving, independent chapter organization successfully leading the U.S. implementation of EMV chip technology across the largest and most complex payments market in the world. It started out as an idea from the Alliance board in 2012: to create a forum where financial card issuers, merchants, processors, payments networks, and technology suppliers could address issues that require broad cooperation and coordination across many constituents in the payments space. Through this, all companies involved in the transition to EMV chip technology would work together to ensure that the migration of EMV-enabled cards, devices, and terminals would be efficient, timely and effective. Last year we passed the important October 2015 milestone marking when fraud liability policy changed for in-store chip card payments.

Passing the target date didn't mean EMV migration work was complete; we recognized there was still a significant amount of work to be done for EMV in addition to addressing mobile payments and card-not-present payments. The Forum members strongly supported expanding the mission of the organization to begin looking to a future beyond EMV payments. As a result, the U.S. Payments Forum sprung from the work of the EMV Migration Forum. Already, the newly-named and expanded organization has looked to a future beyond EMV payments.

SOLID FOUNDATION FOR FUTURE

The future of the Smart Card Alliance will be tied to the continued digitization of payments and authentication of the identity of persons and things through the rapid expansion of connected devices and applications in the cloud. The Internet of Things (IoT) is expected to reach 21 billion devices by 2020, and securing all those devices will be a challenge. Fortunately, many of our members who have been the core smart card technology innovators in payments, identity, and mobile have already positioned their companies to supply hardware and software security solutions for the Internet of Things. That gives the Smart Card Alliance a solid foundation of individuals with the knowledge, experience, and vision of security from their work in other markets to lead others in building ecosystems with internet-connected devices for applications in payments, transportation, smart home electronics, healthcare, and smart cities.

The Smart Card Alliance is composed today of many of the same individuals and organizations who have supported us over the past 15 years. These industry leaders have collaborated on educational projects through industry councils and workshops, and provided training and certification for the next generation of leaders. The new National Center for Advanced Payments and Identity Security, which opened last year near, is one example of how the Alliance is preparing for the future. Board chairman Brian Russell writes more about this in his letter on the opposite page.

I wish everyone continued success. As we operate in the present and prepare for future changes, I believe that our organization will remain strong and provide industry leadership for all forms of secure technology – just as we have for card-based secure technology.

Randy Vanderhoof
Executive Director,
Smart Card Alliance

Thank you for your membership and for your dedication to this organization that I am privileged to lead.

YEAR IN REVIEW:
A MESSAGE FROM BRIAN RUSSELL, SMART CARD ALLIANCE CHAIR, 2015-2016

Great Expectations Yield Tremendous Results

My first term as Chairman of the Board of Directors has been exciting, fruitful and energizing. Having previously served as Treasurer, I knew the duties, time commitments and responsibilities facing the board, but as I conclude this first year as Chair, I have a better look at the enormous amount of energy, work and dedication that board members employ to keep this organization as relevant and necessary as ever, as we watch the rapid movement within the industries we represent and serve.

TEAM EFFORT

I have always believed that we are stronger as an industry body, working collaboratively and in community to effectively move smart card based technology into the far reaches of society and the consumers' hands for everyday use. This year, we have seen remarkable strides in that expansion and have taken a look at positioning our organization to better reflect such expansion. We are no longer restricted by the ID-1 form factor, but are morphing to use the same security technology to adapt to our digital environment. We can only accomplish this movement with the full engagement of our organization, operating as one unit and capitalizing on our combined strength.

The organization made great strides in supporting the EMV migration, with the EMV Migration Forum establishing itself as the industry leader in this key market development. This organization was a shining example of broad, cross industry cooperation in handling a very complex migration of the payments market to a new security platform. The organization was a success not just from the industry view but from the individual participants. The cross-industry cooperation was so valuable that Forum members agreed to continue to work on key emerging payments and security topics and expanded its focus under the new name, U.S. Payments Forum. Taking on tokenization, encryption, card-not-present fraud, mobile and contactless payments – in addition to the continued migration to EMV chip payments – demonstrates to me an excellent example of the value this organization, and its members, bring to the industry.

TRAINING A SUCCESS STORY

Another one of our challenges – and success in our expansion –was realized this year by establishing the National Center for Advanced Payments and Identity Security in Crystal City, Virginia – just outside of Washington, D.C. Our new training center realizes a long sought-after goal to expand our formal training capabilities beyond the CSCIP and CSEIP training and certification programs we created in 2009 – and gives us a permanent home to provide ongoing workshops, symposiums, courses and testing facilities. We were able to create this state-of-the-art facility with a grant from Heartland Payment Systems and are happy to see it actively being used. We all acknowledge the positive impact that education, especially within our own community, can have on our desire to further smart card technology use and implementations across our ever-connected society. Enhancing professional education, skills and foundational knowledge gives rise to new innovation and allows for a new generation of colleagues to drive our mission forward.

The Smart Card Alliance continues to work closely with government agencies to drive awareness and implementation of identity platforms, such as the federal Personal Identity Verification (PIV) credential, and to provide guidance and best practices in support of the U.S. National Strategy for Trusted Identities in Cyberspace (NSTIC). We have seen an explosion of new use cases in the Internet of Things (IoT) space, from pet tracking to utility metering. The new use cases bring new customers and new end users to smart card technology, providing value for each of our members, and we have set up a new IoT Security Council to address the opportunities in this exciting new area.

Brian Russell
Senior Vice President, Financial Institutions and Transit
U.S. Mobile Security Division, Giesecke & Devrient

I am pleased with all the progress we have made throughout 2016 and look forward to our prospects for 2017. Expect to see some exciting changes in the coming year.

ALLIANCE MANAGEMENT

RANDY VANDERHOOF
Executive Director
rvanderhoof@smartcardalliance.org

Randy Vanderhoof is the Executive Director of the Smart Card Alliance. The Smart Card Alliance is a not-for-profit, multi-industry association of over 200 member companies working to stimulate the understanding, adoption, use and widespread application of smart card technology. The Alliance invests heavily in education on the appropriate uses of technology for identification, payment and other applications and strongly advocates the use of smart card technology in a way that protects privacy and enhances data security and integrity. 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.

In addition to his leadership role with the Smart Card Alliance, in August 2012 Randy became the Director of the EMV Migration Forum (since renamed the U.S. Payments Forum), an independent, cross-industry organization established to support the alignment of global payment networks, regional payment networks, issuers, processors, merchants, and industry suppliers. The organization promoted the efficient, timely, and effective introduction of EMV chip technology and other new and emerging payments technologies in the United States that protect the security of, and enhance opportunities for payment transactions within the United States.

Prior to joining the Smart Card Alliance, he spent a majority of his professional career in management positions with a number of global organizations involving smart card identity and payments technology.

Randy is a graduate of Saint Joseph's University in Philadelphia, PA with a BS in Management Marketing. He received his MBA from Rider University in Lawrenceville, NJ.

EDGAR BETTS
Associate Director, SCALA
ebetts@sca-la.org

Edgar Betts came to the Alliance in March 2005 to help develop and complete the Market Development Cooperator Program (MDCP) grant for Latin America issued by the International Trade Administration to the Alliance. After working with key industry organizations to create the Smart Card Alliance Latin America (SCALA) chapter, he was appointed Associate Director. Prior to joining the Smart Card Alliance, Edgar was the Executive Director and Co-Founder of the Smart Card Division for Integra Group Corporation, responsible for the promotion, distribution, and implementation of smart card and RFID solutions for the Central American and Caribbean markets. Prior to that he worked under the Director of Electronic Business Technologies at the U.S. General Service Administration (GSA).

BRYAN ICHIKAWA
Consultant, Event Marketing and Sales
bichikawa@smartcardalliance.org

Bryan Ichikawa serves as a consultant to the Smart Card Alliance, and is responsible for Marketing and Sales for the organization's events and conferences. Bryan has more than 30 years of security technology, systems integration, and program management experience. He previously worked for Deloitte, Unisys, and Thomson Media, responsible for conferences and exhibitions. He holds a B.A. from Lynchburg College.

KRISTIN KREBS
Coordinator, Conference Services
kkrebs@smartcardalliance.org

Kristin Krebs is responsible for supporting event and conference logistics for the Smart Card Alliance and U.S. Payments Forum. She is a graduate of Katherine Gibbs College.

NICOLE LAUZON
Membership
nlauzon@smartcardalliance.org

Nicole Lauzon is responsible for membership management and database support for both the Smart Card Alliance and U.S. Payments Forum. A 2005 graduate of Douglass College at Rutgers University, she joined the Alliance in 2009.

DEBRA MARSHALL
Director, Communications
dmarshall@smartcardalliance.org

Debra Marshall is Communications Director for both the Smart Card Alliance and the U.S. Payments Forum. Her responsibilities include developing and editing monthly and quarterly newsletters for the two organizations, maintaining website content, creating original copy, and supervising logo and branding development. She oversees the COE program, handles daily and weekly news digests for members, and coordinates all written announcements, updates and news alerts. Debbie graduated cum laude with a B.A. in Communications from Seton Hall University.

CATHY MEDICH
Director, Strategic Programs
cmedich@smartcardalliance.org

Cathy Medich is Director of Strategic Programs the Smart Card Alliance, as well as for the U.S. Payments Forum. In these roles, she manages marketing and industry initiatives, directs industry council and working committee activities, and manages strategic projects. Working with member teams, Cathy leads the development of educational resources covering priority topics for the industry. Cathy has over 20 years of experience in marketing and strategic planning for technology businesses, including consulting engagements or positions with Hewlett-Packard, VeriSign, Verifone and CommerceNet. Cathy has B.S. and M.S. degrees in Electrical Engineering and Com-

puter Science from M.I.T. and an M.B.A. from the Wharton Graduate School.

JACLYN SAUVÉ
Manager, Conference Services
jsauve@smartcardalliance.org

Jaclyn Sauvé is the Manager of Conference Services for the Smart Card Alliance and U.S. Payments Forum, leading the logistic support team responsible for all conference operations. Jaci also supports each conference program committee as a speaker liaison and the Sales and Marketing staff by managing all Exhibitor and Sponsor communications. Jaci holds a degree in Communications / Media with a concentration in video production from Western Connecticut State University.

MIKE STROCK
Project Coordinator, Industry Councils
mstrock@smartcardalliance.org

Mike Strock serves as the Project Coordinator for Industry Councils for the Smart Card Alliance. He joined the Smart Card Alliance in late 2014 after supporting projects and Working Committee efforts for the U.S. Payments Forum (formerly EMV Migration Forum) since June 2013, a role he continues. Prior to his experience with the SCA and Forum, Mike supported EMVCo and GlobalPlatform. Mike holds a Master's of Science in Business Administration from Texas A&M and a B.A. in both Public Relations and Spanish from Weber State University.

LARS SUNEBORN
Director, Training Programs
lsuneborn@smartcardalliance.org

Lars Suneborn is responsible for directing all of the Alliance training programs for members and industry professionals. He works to promote the industry credentials to organizations, leads training classes, and arranges corporate training courses. Before joining the Smart Card Alliance in 2014, Lars worked for more than 30 years in the security industry for HIRSCH Electronics and Oberthur Technologies, where his numerous achievements included developing the concept and implementation plan for a nationwide ePACS network. Lars attended Aso Technical, Stockholm, Sweden.

SHELBEY VOTAPEK
Consultant, Communications
svotapek@smartcardalliance.org

Shelbey Votapek joined the Smart Card Alliance in 2013. She currently manages all electronic communications for the Alliance and U.S. Payments Forum. Shelbey oversees the maintenance of the web sites and assists on various projects for both the Alliance and Forum, including newsletter distribution, member awards and recognition and Annual Review advertising. Prior to becoming a consultant with the Alliance, Shelbey worked for Verizon Wireless, Realogy Corporation and Comcast.

She has a Master's of Business Administration from Centenary College and a Bachelor's Degree in International Business and Marketing from Fairfield University.

BOARD OF DIRECTORS

2015-2016 EXECUTIVE COMMITTEE
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Vice Chair: Jack Jania, Gemalto
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Assistant Treasurer: Kirk Brafford, Deloitte & Touche LLP
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Willy Dommen, Accenture
Allen Friedman, Ingenico
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Simon Hurry, Visa Inc.
Thomas Lockwood, NextGenID
Michael Nash, Xerox
Thomas Parker, Infineon Technologies
Elinor Smith, Discover Financial Services
Garfield Smith, Oberthur Technologies
Kelly Urban, First Data Corporation

2016-2017 DIRECTORS
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Willy Dommen, Accenture
Allen Friedman, Ingenico
Melanie Gluck, MasterCard
Simon Hurry, Visa Inc.
Thomas Lockwood, NextGenID
Oliver Manahan, Infineon Technologies
Elinor Smith, Discover Financial Services
Garfield Smith, Oberthur Technologies

MEMBERSHIP BENEFITS

Your membership dollars support council initiatives, networking meetings and industry events, website upgrades, monthly and quarterly newsletters, daily industry news, educational programs, industry advocacy and media outreach efforts that all contribute to the understanding, adoption, use and widespread application of smart card technology in North and Latin America.

Our strategy for the coming year is to continue to engage the many diverse aspects of our industry and bring together the providers and users of the technology in a friendly, open community.

Members and their organizations enjoy:
- ✓ **Networking** – Establishing valuable contacts to help your organization improve and grow, using meetings and events to maximize business opportunities
- ✓ **Lower research or implementation costs** – Sharing work with peers from other organizations to reduce the time and cost needed to evaluate new business models, think through and plan complex implementation details, develop best practices and resolve industry issues
- ✓ **Advance knowledge** – Gaining market advantage by getting information and acting on it before many "outsiders" know it is happening
- ✓ **Growing the pie** – Working collectively with other organizations and end users to help to grow the size of the smart card technology industry

The Smart Card Alliance is a unique organization where users, issuers and suppliers meet to exchange ideas, discuss common issues and work together to develop and expand the use of all types of integrated circuit "chip" cards and alternative smart card technology form factors in the Americas. Members come from all industry sectors, including financial, retail, transit, corporate, government, healthcare and mobile, along with the technology and solution providers that service these sectors.

"The top benefits are the connections and the knowledge shared that allow our company to develop more effective strategies"

Greg Coogan
Infineon Technologies Americas Corp.
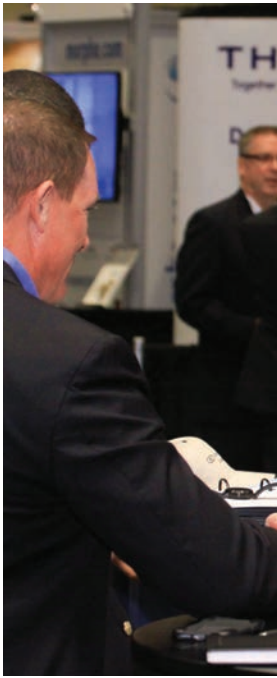
> "Benefits include staying up to date on the latest industry trends and challenges of other member organizations, contributing to industry standards, and having the chance to connect with other industry leaders"
>
> *Justin Gage*
> *Consult Hyperion USA Inc.*

✓ Alliance meetings and conferences
✓ Company visibility
✓ Information, research and education
✓ Support for standards and industry interoperability
✓ Outreach to government and commercial organizations
✓ Innovative ways of approaching common business goals
✓ Training and professional development

2016 MEMBER SURVEY
REPORT ON MEMBER SATISFACTION AND VALUE OF ALLIANCE ACTIVITIES

Each year the Smart Card Alliance conducts an annual member survey to understand what members value and how satisfied members are with our programs and deliverables. For the 2016 survey, 159 individuals from 68 member organizations responded, with good representation from all membership levels.

VALUE OF ALLIANCE ACTIVITIES

As with past years, members indicated that they highly valued the Alliance communications, events/meetings, and resources/deliverables. Activities rated as highest value in the 2016 survey were:

- Communications: Smart Card Alliance members-only website; email announcements about Alliance events; EMV Connection website
- Events/meetings: complimentary and discounted registration to Alliance events; networking opportunities; speaking opportunities at Alliance events
- Resources/deliverables: white papers/resources on the members-only website; CSEIP program; member contact information on the members-only website

"Being active in the committees helps Tyco stay on top of the latest developments in our industry. And the exhibiting opportunities are very beneficial"

Rick Focke
Tyco Security Products

SATISFACTION WITH ALLIANCE ACTIVITIES

In addition to requesting input on what activities members value, the survey asks members for their satisfaction with Alliance programs and deliverables. Top rated activities (rating greater than 4 on a scale of 1-5) from 2016 included:

- Payments Summit
- Council white papers and reports
- Email announcements about Alliance events
- Smart Card Alliance members-only web site
- Industry Council participation
- EMV Connection web site

OVERALL MEMBER SATISFACTION

As with previous years, we ask members to give us a numeric score between 0-99 to gauge overall satisfaction, with 90-99 indicating high satisfaction; 80-89 indicating satisfaction; 70-79 indicating low satisfaction, with improvement needed; and 0-69 indicating dissatisfaction.

This year our average satisfaction rating was 83.9, indicating continued satisfaction with Alliance programs. Satisfaction is good across all member categories, with 90.6% of members rating the Alliance above 80. As we've seen in past years, active members have a higher satisfaction rating than non-active members (86.6 rating for active members) and our Council and U.S. Payments Forum members also give the Alliance higher ratings (87.2 and 85.0 ratings, respectively).

Figure 1 shows the satisfaction rating by member category.

FIGURE 1. SATISFACTION RATING BY MEMBERSHIP LEVEL
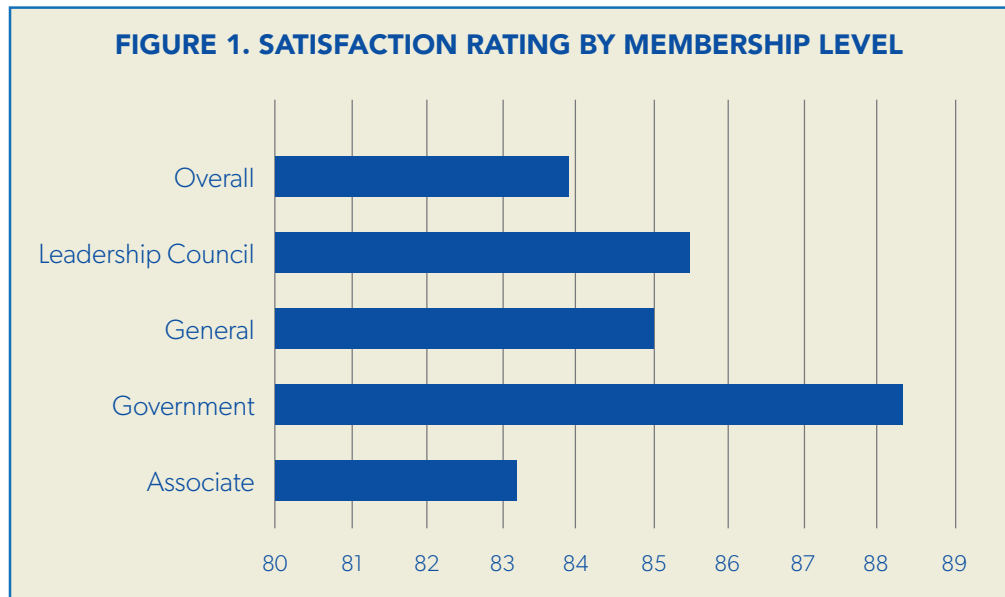
FUTURE ACTIVITIES AND DIRECTIONS

We use the survey to get input on what are the most important topics for Alliance activities in the coming year. We had a mix of responses this year. Payments, mobile and EMV ranked very high, as they have in the past; however, IoT and identity authentication/trust platforms also had strong responses. We've already made significant strategic moves for new topics – expanding the charter of the EMV Migration Forum and rebranding it as the U.S. Payment Forum; and launching the new IoT Security Council and Security of Things conference.

CHANGE AHEAD?

We also had a strong positive response on whether members would support rebranding the organization and changing its focus to embrace technology beyond smart cards. 89.3% of respondents indicated that they would support this strategic change. Stay tuned for more news on this in the coming months!

ALLIANCE PARTICIPATION AND ENGAGEMENT

Each year, we also get feedback from the survey that there are a significant number of members who are unaware of Alliance programs or who would like to get more engaged. Key ways be more engaged are:

- Make sure that you're getting our monthly member bulletins and daily new digest. Contact Debra Marshall, dmarshall@smartcardalliance.org, if you're not on our member email lists
- Create a login to the Alliance members-only site. Member resources and contacts are posted on the site, along with proceedings from all past Alliance conferences

"The Smart Card Alliance is the best organization for this industry space. Our organization gets information, and when possible, participation benefits from membership"

Mark Kroncke
Invoke Technologies

- Follow us on Twitter (@SmartCardOrgUSA) and Facebook or join one of our LinkedIn Groups.
- Join one of our seven Industry Councils and collaborate with your peers on projects to help move smart card and chip technology ahead in our different vertical markets
- Attend one of our conferences, webinars, workshops or training programs for education and networking opportunities

We value all members' opinions on how the Alliance is meeting your needs and what you would like to see us do differently. We'd love to hear more from you!

We thank everyone who responded to the 2016 member survey!

MEMBERSHIP LIST

- A LA CARD Marketing and Consulting Services Limited
- Abanacle Corp.
- ABNote North America
- Accenture
- ACI Worldwide
- ACT Canada
- Advanced Card Systems, Ltd.
- Advantis
- Allegion
- AMAG Technology, Inc.
- American Express
- Argotechno
- ATSL TeleSoft (Pvt) Ltd.
- Benefit Resource, Inc
- BetterBuyDesign
- Brivo
- CertiPath Inc.
- CH2M
- Chase Card Services
- Consult Hyperion
- CPI Card Group
- Cryptomathic Inc
- Cubic Transportation Systems, Inc.
- Dallas Area Rapid Transit (DART)
- Datawatch Systems, Inc
- Defense Manpower Data Center
- Department of Homeland Security
- Department of the Interior
- Discover Financial Services
- E4 Security Consulting, LLC
- Entrust Datacard
- EPX-Electronic Payment Exchange
- Euro Tech Sales LLC
- Exponent, Inc.
- FEITIAN Technologies Co., Ltd.
- FIME
- First Data Corp.
- FIS
- FIS, Open Test Solutions
- Fiserv
- FiTeq, Inc.
- Galitt US
- Gallagher Group Limited
- GEMALTO
- General Services Administration
- Genfare
- Georgetown University - UIS - Facilities & Safety Control Systems
- Giesecke & Devrient
- Glenbrook Partners, LLC
- Global Enterprise Technologies Corp.

- Hewlett-Packard Enterprise Services
- HID Global
- Hillsborough Transit Authority
- ICMA
- Identification Technology Partners, Inc.
- IDmachines LLC
- InComm
- Infineon Technologies
- Ingenico, North America
- Init Innovations in Transportation
- Initiative for Open Authentication
- INSIDE Secure
- Integrated Security Technologies, Inc.
- Intelligent Parking Concepts LLC
- Interac Association/Acxsys Corporation
- Intercede Limited
- Invoke Technologies
- IPS Group, Inc.
- IQ Devices
- Jack Henry Processing Solutions
- JCB International Credit Card Co., Ltd.
- KICTeam, Inc.
- KONA I co. Ltd.
- Leidos, Inc.
- Lenel Systems International
- LGAI Technological Center S.A. (Applus+ Laboratories)
- LTK Engineering Services
- Malaysian Electronic Payment System SDN BHD (MEPS)
- Massachusetts Bay Transportation Authority
- MasterCard Worldwide
- Metropolitan Transportation Authority
- Metropolitan Transportation Center
- Moneris
- Monitor Dynamics
- Morpho (Safran)
- MorphoTrust USA
- Multos International PTE LTD
- NASA
- National Institute of Standards and Technology
- NBS Technologies, Inc.
- NextGen ID, Inc.
- NXP Semiconductors
- Nxt-ID, Inc
- Oberthur Technologies
- Pinellas Suncoast Transit Authority
- Port Authority of NY/NJ
- Port Authority Transit Corporation
- PPG TESLIN Substrate Products

- Prime Factors, Inc.
- Q-Card Company
- Quadagno & Associates, Inc
- Raak Technologies
- Rambus Bell ID
- SAIC - Science Applications International Corporation
- San Francisco Bay Area Rapid Transit District (BART)
- San Mateo County Transit District
- Scheidt & Bachmann USA
- Secure Missions Solutions, Inc.
- SecureKey Technologies
- SHAZAM
- Signet Technologies, Inc.
- Smartrac N.V.
- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Stanley Black & Decker
- STMicroelectronics
- Superintendencia de Banca, Seguros y Administradoras de Fondos de Pensiones
- SureID, Inc.
- Systems Engineering, Inc.
- Thales
- The Utah Transit Authority
- The Will-Burt Company
- TransLink
- Tri County Metropolitan Transportation District of Oregon
- TSYS
- Tyco Integrated Security
- Tyco Software House
- Tyfone
- U.S. Department of State
- U.S. Department of Transportation/ Volpe Center
- U.S. Government Printing Office
- Ultra Electronics Card Systems
- Underwriters Laboratories (UL)
- Valid USA
- Vantiv
- VeriFone
- Visa
- Vix Technology
- Wells Fargo
- Xerox
- XTec, Inc.
- Zebra Technologies Corporation
- Zeva

As of September 30, 2016

LEADERSHIP COUNCIL

accenture

AMERICAN EXPRESS

ch2m

DATAWATCH SYSTEMS

DISCOVER GLOBAL NETWORK

First Data

FIS

gemalto security to be free

Giesecke & Devrient

Infineon

ingenico GROUP

JCB

leidos

MasterCard Worldwide

oberthur TECHNOLOGIES THE M COMPANY

SAIC

TSYS

VALID

vantiv

VISA

xerox

XTEC

ZEBRA

zeva

MEMBER PROFILES

In our Smart Card Talk industry newsletter, we turn the spotlight on a Leadership Council member company. This popular feature focuses on both the company's membership point of contact and his or her company, offering an opportunity for members to learn more about the business profiles of their professional colleagues. Access the complete interviews by visiting the Smart Card Alliance website.

FEBRUARY 2016 MEMBER PROFILE

CH2M

CH2M is a global, employee-owned company with deep experience in high-speed rail, program management, public-private partnerships, and design. They are recognized as an industry leader in assisting transit and rail clients with the design, procurement, and implementation of electronic fare payment systems.

Brian Stein

Smart Card Talk spoke about the company's profile and offerings with Brian Stein, a Senior Project Manager with CH2M's Transportation Business Group in North America. He has nearly 20 years of transit automated fare collection and parking systems experience, coupled with hardware and software engineering, project management, business development, sales and marketing knowledge.

"Smart card technology, in particular, plays a vital role in such systems as access control, identity management, and automatic payment and fare control," said Stein. "Our staff has developed innovative fare solutions for transit and rail operators that optimize their objectives and meet passenger needs. Our professionals are experts in the analysis and development of fare systems, including project management, fare policy, pricing, structure and fare system design, testing, installation and procurement management."

Technology obsolescence, along with the rapid growth of newer technologies, makes it difficult to keep up and stay abreast of information, said Stein. "A strong part of our service offerings is the ability to educate and inform our clients about the different technologies and the pluses and minuses each has as it relates to the needs of our transit and rail clients," he explained. "CH2M is well known as a reliable and trusted third-party advisor, who puts the clients' interests first."

AUGUST 2016 MEMBER PROFILE

VANTIV

Vantiv is the largest PIN debit acquirer in the U.S. and second largest merchant acquirer. The company enables merchants of all sizes to accept and process credit, debit and prepaid payments. Vantiv offers payment services to financial institutions, including card issuer processing, payment network processing, fraud protection, card production, prepaid program management, ATM driving, among other network gateway and switching services.

Ray Moorman

Smart Card Talk spoke about the company's profile and offerings with Ray Moorman, Senior Leader of Product at Vantiv. With more than a decade of experience in the payments industry, Moorman is currently focused on EMV solutions. Previous positions at Vantiv saw him in operations, acquisition, integration and products.

"EMV is a hot topic right now, and we're educating merchants and partners about the need for chip card processing. In the majority of cases, we combine EMV with tokenization and point-to-point encryption. These technologies not only fight against the four threats – fraud, data compromise, PCI non-compliance, and financial loss– but also allow businesses to process NFC payments like Apple Pay and other mobile wallets."

"We operate in the last three feet of payments, so the solutions brought to market need to work correctly, 100% of the time, otherwise commerce stops," added Moorman. "The U.S. payment system is one of the largest and most complex in the world and it involves many independent players across the ecosystem working together," Moorman continued. "We need to enable the right technologies for our clients, when they want them and how they want them delivered."

In an increasingly connected and automated world, data has to be protected from manipulation or theft. This is true both in mature applications such as chip cards for payment and ID, and emerging segments like mobile payments, machine authentication and security for IoT devices and autonomous vehicles

INFINEON TECHNOLOGIES

Infineon Technologies AG is a world leader in semiconductor solutions. In the chip card and security segment, Infineon is the second largest supplier worldwide of microcontroller-based chip card ICs used to provide hardware security for a wide variety of system applications.

Smart Card Talk spoke about the company's profile and offerings with Arnaud Moser, Director of Marketing and Business Development for Chip Card and Security ICs for the Americas. A physicist and engineer, Moser's main focus is to build and maintain Infineon's leadership in the payment, government ID and transportation business.

"Many companies and individuals now recognize the value of security, but there still is a widespread belief that devices and systems can be protected using software alone. This leaves exploitable weaknesses that may result in breaches that damage the companies and people affected and might slow growth of new markets. Data has to be protected from manipulation or theft and machine-to-machine (M2M) communications security is critical," he said.

While the classic applications for smart card technology remain a growth driver for the market segment and an important part of Infineon's overall business, applications of the underlying technology are growing in the fields of device authentication and M2M communication. "In fact," Moser said, "smart card technology and the related expertise in implementing hardware-based security for electronic systems are critical in all of the markets defined by the term 'Internet of Things.' Infineon's long history and market leadership in the smart card business position the company for equivalent leadership in these emerging market segments."
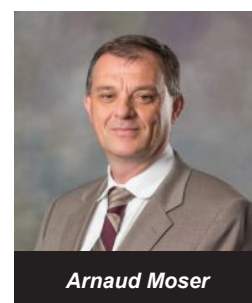
Arnaud Moser

MEMBER RECOGNITION PROGRAM

ALLIANCE RECOGNIZES OUTSTANDING MEMBER COMPANIES

The Smart Card Alliance Center of Excellence (COE) was created to recognize an elite mix of member companies who, each year, reach the highest level of active participation in the Alliance by making outstanding contributions in the form of providing valuable time, talent and resources across a wide mix of Alliance activities.

Member involvement is not measured by how large an organization is, but by the actions of that organization and the commitment of its employees when it comes to engaging in industry activities and helping to fulfill the mission of the Smart Card Alliance.

In 2016, 23 member companies received the COE designation. We are proud of the 17 returning recipients, and thrilled to welcome the 6 new member organizations.

Inclusion in this exclusive level is directly related to the following criteria members demonstrated in 2015-2016:

- Industry Council recognition for Honor Roll participants or Top Contributor to one or more of our Industry Councils
- Council officer position elected by peers
- Number of employees with LEAP/CSCIP/CSEIP training and certification
- Corporate CSCIP training and certification participation
- Alliance conference and event sponsorship of $5,000 or greater in the last year
- Supporting membership in multiple chapters (SCALA) or affiliated organizations (U.S. Payments Forum-formerly the EMV Migration Forum)

Congratulations to the companies for their continued involvement in Alliance activities.

SMART CARD ALLIANCE CENTER OF EXCELLENCE (COE) PROFILE EXCERPTS

MARCH 2016 PROFILE
Consult Hyperion

A 2015 Smart Card Alliance Center of Excellence (COE) recipient, Consult Hyperion is a company with 30 years of experience. Its professionals are recognized thought leaders in the field of secure Digital Financial Services (DFS), as well as experts throughout every step of the retail payments value chain, from authentication, access control and networks, to transactional systems, clearing and settlement, scheme and regulatory compliance and emerging trends at the point of sale. They deliver high value projects to clients around the world, ranging from global payment brands to national governments, regulators, financial institutions, telecoms operators, non-governmental organizations and their suppliers.

APRIL 2016 PROFILE
Hewlett Packard Enterprise

A 2015 COE recipient, Hewlett Packard Enterprise is an industry-leading technology company, delivering services and business solutions for customers worldwide in multiple industry segments. Their solutions help protect organizations by building security into the fabric of the enterprise. This allows them to proactively detect and respond to threats and support recovery in the event of an incident. The company provides advanced technologies in security, cloud, networking, software and data infrastructure to enable workplace productivity, protect the digital enterprise, empower the data driven organization and transform it to a hybrid infrastructure. Hewlett Packard Enterprise has over 80 patents and 51 years of experience.

CONGRATULATIONS TO THE 2016 RECIPIENTS

This year we are delighted to announce the 23 member companies who comprise the 2016 class of Center of Excellence (COE) organizations. These COE recipients will be recognized in a number of ways throughout 2017.

- Advanced Card Systems
- American Express
- CPI Card Group
- Chase Card Services (NEW)
- Discover Financial Services
- First Data
- Gemalto
- Giesecke & Devrient
- Heartland Payment Systems (NEW)
- Hewlett-Packard Enterprise Services

- Infineon Technologies (NEW)
- Ingenico, North America
- Intercede Limited (NEW)
- MasterCard Worldwide
- NXP Semiconductors
- Oberthur Technologies
- TSYS
- Underwriters Laboratories (UL)
- Valid USA (NEW)
- Visa
- Wells Fargo (NEW)
- Xerox
- XTec, Inc.

JUNE 2016 PROFILE
ID Technology Partners

A 2015 COE recipient, ID Technology Partners (IDTP) is a leading engineering and consulting firm specialized in the critical elements of identification systems. IDTP provides objective, unbiased support for ID system design, development, operation and deployment. A small firm, the company boasts over 250 years of combined biometric technology staff experience, and is approaching 200 years of identification program and smart card technology staff experience. IDTP enjoys a national-level reputation in smart card credentialing and biometric identification disciplines with career-veteran experts recognized for real-world project experience, and extensive involvement in developing standards, compliance testing tools and industry best practices.

SEPTEMBER 2016 PROFILE
Oberthur Technologies (OT)

A 2015 Smart Card Alliance Company of Excellence (COE) recipient, Oberthur Technologies (OT) is a world leader in embedded digital security that protects individuals when they connect, authenticate or pay. Serving clients in 169 countries, OT's focus is to design security solutions embedded in the objects and equipment used by hundreds of millions of people every day. The company, strategically positioned in high growth markets, offers embedded security software solutions for "end-point" devices and associated remote management solutions to a portfolio of international clients, including banks and financial institutions, mobile operators, authorities and governments, as well as manufacturers of connected objects and equipment.

TRAINING AND CERTIFICATION PROGRAMS

National Center for Advanced Payments and Identity Security

A SMART CARD ALLIANCE INITIATIVE

The Smart Card Alliance is strongly committed to offering industry education programs, training opportunities and resources so that individuals and organizations can get in-depth education on smart card technology, applications and implementation best practices. Through its active membership composed of leading technologists and practitioners in payments, identity, government and other sectors, the Alliance currently provides a large number of educational resources examining important industry issues or implementation considerations, summarizing best practices and informing stakeholders on latest developments in secure smart card technology.

NATIONAL CENTER FOR ADVANCED PAYMENTS AND IDENTITY SECURITY

One of the biggest achievements, and most notable expansion, of our already robust training and education mission was the opening of the National Center for Advanced Payments and Identity Security. Located in Crystal City, VA, just outside of Washington, D.C., this permanent facility serves as the venue for live, interactive and dynamic educational activities hosted by the Alliance, including workshops, educational courses, briefings, symposiums, and training and certification testing for the Certified Smart Card Industry Professional program (CSCIP) and Certified System Engineer ICAM PACS (CSEIP) training and certification program (CSEIP).

The center was established through a grant from Heartland Payment Systems in support of the mission to better protect consumers' privacy, and advance the security of payments and identity through education programs on best industry practices and advances in security technology. The activities of the Smart Card Alliance Educational Institute, which conducts educational workshops at Alliance events, is now part of the center.

"The CSCIP program provides comprehensive information and knowledge about the different aspects related to smart card payments requirements and has been instrumental in increasing my knowledge in many of the related aspects"

**Sam Boutros,
ACI Worldwide**
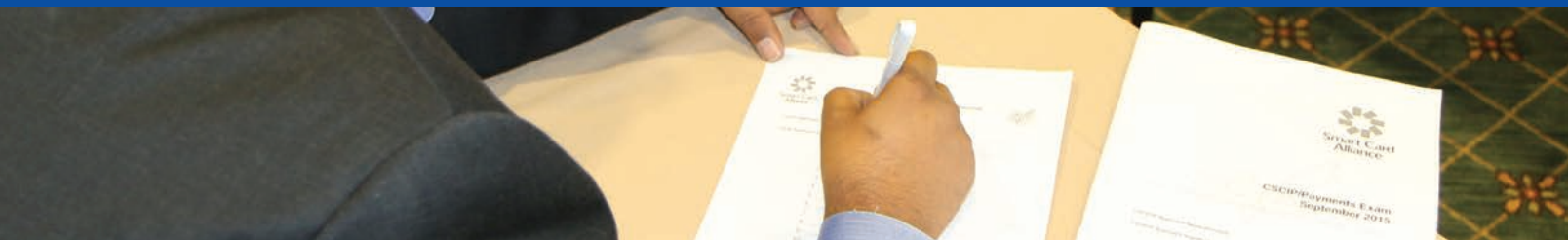
LEAP

The [Leadership, Education, and Advancement Program (LEAP)](#) is an online resource for smart card professionals. Its purpose is two-fold:

- To advance education and professional development
- To manage and confer, based on a standardized body-of-knowledge exam, the CSCIP designation

LEAP provides members with resources and materials including white papers, FAQs, position papers and archives of webinars, workshops and conference proceedings in the access control, payments, identity, healthcare, mobile and transportation markets, all of which are updated regularly. LEAP membership also offers opportunities for individuals to further their careers and showcase their professionalism within the industry. LEAP is especially valuable for new entrants to the market or professionals working for small organizations without access to full Smart Card Alliance membership benefits.

CSEIP

The [Certified System Engineer ICAM PACS (CSEIP) training and certification program](#) has been extremely popular in the two years since it was established. This GSA-approved training program provides the training and certification required for E-PACS engineers employed by commercial organizations that are looking to bid on GSA procurement agreements for access control systems.

To ensure that procurements of approved E-PACS for GSA managed facilities are installed properly, GSA requires that all billable work performed on such systems be done using certified system engineers

The classroom training curriculum includes learning objectives that provide system engineers with the knowledge to properly implement E-PACS, and hands-on training demonstrates the engineer's abilities to set up, test and configure access control features within the security system.

CSCIP

The Smart Card Alliance offers three Certified Smart Card Industry Professional credentials: CSCIP, CSCIP/Government and CSCIP/Payments. CSCIP is an internationally recognized credential for smart card industry professionals. The CSCIP program prepares professionals to gain advanced levels of smart card technology and applications knowledge, and then move on to complete training and pass a multi-part exam.

Regardless of the specific credential, CSCIP certifications require demonstrated proficiency in a broad body of industry knowledge, including:

- Smart card technology fundamentals
- Security
- Application and data management
- Identity and access control usage models
- Mobile and Near Field Communication (NFC) usage models
- Payments usage models

The Alliance's CSCIP Smart Card Technology and Applications Training Course Modules serve as the primary review materials for the CSCIP certification exam. Training and exam preparation classes led by seasoned smart card industry experts further solidify the technical and broad smart card business applications training experience. The Alliance maintains and updates its training materials to reflect industry changes.

> The CSCIP certification has become the benchmark for executives in increasingly competitive markets where proven expertise is critical. Through corporate and individual training programs, the Alliance offers professionals training and tools to earn the certification and differentiate themselves from their peers. At the same time, corporate participation in these programs demonstrates employers' commitment to developing and maintaining highly skilled workers.

CSCIP AND CSEIP RECIPIENTS

"I have been involved with PACS on federal projects for over 20 years. …the training provided me the foundation, contacts and knowledge to proceed and succeed. I now know what I didn't know. I now understand GSA's direction for future projects and how to set-up and test aligned with government-wide specifications. This knowledge has allowed me the ability to discuss with end users and manufacturers the requirements. Besides being invaluable to me, the customers I serve who have not attended the class will soon have a source of knowledge for providing a properly implement E-PACS system"

Derrick Parker
Defender Security and Communication Company

As of June 30, 2016, the Smart Card Alliance had awarded CSCIP and CSEIP certifications to 447 executives globally since the programs' inception. CSCIP was established in 2009, and CSEIP was established in 2014.

2016 CSEIP RECIPIENTS

- Aric Ament, Stanley Security Solutions
- Antonio Araujo, PowerComm
- Sherinda Barrow, Open Options
- John Bodolay, Acme Technical Group, LLC
- Flavio Breyer, Open Options
- Gabriel Ciurescu, MC Dean, Inc
- Julian Figueroa, HID Global
- Michael Friedel, Federal Bureau of Investigation
- Perry Galloway, Brivo Systems, LLC
- Sterling Gawthrop, PowerComm
- Ken George, Caprock Consulting Group
- Benjamin Globus, Securityhunter
- Baher Guirguis, SigNet Technologies
- Sean Hernandez, Identiv
- Corey Hewitt, Signet Technologies, Inc.
- Dana Kellogg, Brivo Systems, LLC
- Jim Kemp, COLSA Solutions
- Larry Lillard, RFI Enterprise Inc.
- Joe McCollum, Identiv
- Jared Murry, Access Systems Inc
- Dennis Nalli, IMS Government Solutions
- Jeffrey Ogborn, Aventura Technologies
- Opy Robbins, Bergelectric

- Rodney Rourk, Department of the Navy, Space and Naval Warfare Systems Center Atlantic
- Freddy Salas, TIC Security
- Jared Schmall, World Telecom & Survelliance, Inc
- Don Smith, HLCG
- Todd Soderstrom, Security Install Solutions, Inc.
- DeWayne Somers, Orion Management LLC
- Nicholas Suarez, General Services Administration
- Rodney Taylor, Office of the Comptroller of the Currency
- Jason Tesori, Bergelectric
- Bill Thomas, DoJ - Executive Office US Attorneys
- Maniram Tiwari, Tyco Integrated Security
- Ricardo Torres, Siemens Industry, Inc.
- Anthony Tran, Star Asset Security, LLC
- Jon Waters, Signet Technologies, Inc.
- Delbert Wheeler, HID Global

As of June 30, 2016

2016 CSCIP/P RECIPIENTS

- Honore Afene, Underwriter Laboratories
- Amy Andrijevic, TSYS
- Jose M. Arroyo Castejon, ICC Solutions Limited
- Shannon Baker, TSYS
- Jennifer Besenski, LTK Engineering Services
- Naresh Bhandar, Cognizant Technology Solutions
- Philippa Bremer, MasterCard Worldwide
- Greg Brown, JPMorgan Chase
- Chin-Hwang Chen, Underwriter Laboratories
- Joe Cisneros, CPI Card Group
- Kim Clepper, TSYS
- Julie Dunn, CPI Card Group
- Carla Epp, TSYS
- Joel Fitts, TSYS
- Keith Flemons, LTK Engineering Services
- Kitty Flowers, TSYS
- Lisa Forsythe, TSYS
- Mathias Göthberg, Gemalto AB
- Andrew Graham, TSYS

- Shivaansh Gupta, Clear2Pay
- Anthony Hale, TSYS
- Jaison Jacob, Underwriter Laboratories
- Lauren Jebens, CPI Card Group
- Eric Johnson, TSYS
- Donnis Jones, TSYS
- Michael Karabasz, TSYS
- A.N.M Khaleqdad Khan, KONA I
- Dinesh Babu Kolavennu, Underwriter Laboratories
- Margaret Liu, Underwriter Laboratories
- Frank Luo, Underwriter Laboratories
- Christy Lynch, TSYS
- Naisha Mack, Underwriter Laboratories
- Vincent Mak, Gemalto
- Brandie Matsuda, CPI Card Group
- Mark McGee, TSYS
- Ashley McPhail, TSYS
- Randi Muniz, CPI Card Group
- Michael Murray, TSYS
- Ujval Mysore, American Express
- Janusz Orlowski, Gemalto
- Sundar Palanisamy, TSYS
- Devesh Pandit, E4 Security Consulting

- Asim Patra, Underwriter Laboratories
- Melissa Patterson, TSYS
- Marsha Pierce, CPI Card Group
- Karen Piester, TSYS
- Srinivasa Prasad Pothineedu, TSYS
- Katie Potter, CPI Card Group
- Manish Raje, Underwriter Laboratories
- Margaret Rajski, Discover
- Felipe Riso Bezerra Leite, Underwriter Laboratories
- Hitesh Shah, CPI Card Group
- Payal Shah, TSYS
- William Sharpe, TSYS
- Heather Spence, TSYS
- Essi Tasker, TSYS
- Michael Terrell, TSYS
- Ron Tyler, TSYS
- Bart van Hoek, Underwriter Laboratories
- McKaila Wakelee, CPI Card Group
- Robert Ward, MasterCard Worldwide
- Gary Wood, Gemalto
- Venkanna Yarlagadda, TSYS
- Rial Zuly, Gemalto

As of June 30, 2016

2016 CSCIP/G RECIPIENTS

- Linda Boese, HP Enterprise
- Andrew Burtnick, HP Enterprise
- Aparna Docibhotla, HP Enterprise
- Clayton Ice, HP Enterprise
- Greg Mendenhall, HP Enterprise
- Jamie Pollard, HP Enterprise
- Safia Hack, Booz Allen Hamilton
- Medge Canseco, Secure Mission Solutions
- John Aranha, XTec, Inc.
- Frank Luo, Underwriter Laboratories
- Jeffery Poulson, XTec, Inc.

- James Francis, HP Enterprise
- George Hsieh, HP Enterprise
- David Landon, HP Enterprise
- Mary Kay Laux, HP Enterprise
- Keith Matherne, HP Enterprise
- Bill McCann, HP Enterprise
- Shari McGee, HP Enterprise
- Kate Murphy, HP Enterprise
- Cheryl Nally, HP Enterprise
- Geoff Olinde, HP Enterprise
- Samnang Yuk, ICF International

As of June 30, 2016

2016 CSCIP RECIPIENTS

- Mario Egoavil, PS2U
- Steven Mehler, Washington Metropolitan Area Transit Authority (WMATA)
- Dennis Nguyen, Washington Metropolitan Area Transit Authority (WMATA)

As of November 15, 2016

For a list of all CSCIP recipients go to: http://www.smartcardalliance.org/activities-leap-cscip-registry/

2016 PROFESSIONAL CERTIFICATION TRAINERS

GUY BERG, CSCIP Trainer
Federal Reserve Bank of Minneapolis

Guy has twenty plus years' experience working in the payments industry with a diverse background ranging from merchant acquiring and terminal hardware and software development to fraud mitigation solutions and mobile contactless consulting. Guy recently joined the Federal Reserve Bank of Minneapolis after spending that last four years at MasterCard as an EMV migration and contactless payments consultant. Previous to that Guy worked on EMV migrations globally in various capacities including as President of Collis America an EMV and mobile consulting firm serving North and South America. In his current position Guy manages the Payment, Standards and Outreach Group at the Federal Reserve Bank of Minneapolis with responsibilities for advocating payment efficiencies, payment security standards development and adoption, and payment fraud mitigation research and outreach.

BRETT CHEMALY, CSCIP Trainer
Discover Financial Services

Brett works for Discover Financial Services as Senior Manager: Strategic Alliances - Global Commerce, where he manages debit implementations in the U.S. market and Discover's technical components of their Global Alliances business. Prior to joining Discover, he was employed within MasterCard's Emerging Payments team based in Toronto, Canada, where he was responsible for managing and consulting on MasterCard's chip programs on both sides of the border. Prior to that, Brett spent eight years with the MasterCard Chip Centre of Excellence based in London and Belgium where he consulted extensively across Europe and the Middle East to both issuing and acquiring institutions. Brett is a native of South Africa, holding a Bachelor of Commerce Degree from Rhodes University.

BRYAN ICHIKAWA,
CSCIP and CSEIP Trainer
Bryan Ichikawa LLC

Bryan Ichikawa is a globally recognized expert in biometrics, smart cards, security, credentialing and identity and access management. He holds two patents for data security and user privacy in communications systems, and is a contributing author of "Smart Cards – Seizing Strategic Business Opportunities." As a result of his expertise, he has assisted professionals in the identification, design, integration and deployment of these technologies to deliver complete and comprehensive management solutions.

GILLES LISIMAQUE, CSCIP Trainer
ID Technology Partners

Gilles Lisimaque is a Partner with ID Technology Partners, a leading consulting firm in Washington, DC, supporting high assurance identification solutions. Gilles, who has more than 25 years of experience developing smart card solutions, has worked with most aspects of smart cards including chip design, manufacturing, packaging, operating system design, application development, international standards, reader interfaces, and host applications. He holds multiple patents on smart card security and smart card operating system design and has held high-level seats with numerous smart card and security forums, associations and standards bodies including AFNOR, ANSI, ISO and ISTPA (International Security, Trust and Privacy).

GERALD SMITH, CSCIP Trainer
ID Technology Partners

Gerald Smith is a Senior Consultant with ID Technology Partners, a leading consulting firm in Washington, DC, supporting high assurance identification solutions. He has more than 30 years of experience deploying card solutions. Gerald has worked with all aspects of smart cards including chip manufacturing, packaging, operating system design, virtual machines, application development, reader interfaces, and host applications. He is a National Merit Award recipient from the U.S. INCITS standards organization (InterNational Committee for Information Technology Standards), the central U.S. forum dedicated to creating technology standards for the next generation of innovation, as well as an ISO project editor on smart card standards.

LARS SUNEBORN,
CSCIP and CSEIP Trainer
Smart Card Alliance

Lars Suneborn is a recognized Physical Access Control Systems (PACS) subject matter leader. He has developed and conducted customized, agency specific training courses and courseware as well as Train-the-Trainer activities for a wide variety of U.S., Canadian and British security agencies at facilities worldwide. He is also former chairman of the Smart Card Alliance Access Control Council.

RICK UHRIG, CSCIP Trainer
XTec, Inc.

Rick Uhrig is a Senior Manager with XTec, Inc., a leading provider of trusted products and services for authentication and security solutions. Rick has more than 30 years of experience designing, developing and evaluating information security solutions, including over 16 years with smart card solutions.

With PPG TESLIN® substrate, there's security in numbers

230,000,000
Driver's Licenses

25
Years

500,000,000
e-Passports

240,000,000
National IDs

50,000,000
Other Secure Government Credentials

90
Countries

25,000,000
Certificates

TESLIN® substrate has been trusted for more than two decades by governments and other institutions around the world to make credentials more secure.

As a stand-alone material or as part of complex multi-component secure credentials, *Teslin* substrate can be embedded with program-specific security features to deter document forgery and enhance credential authentication.

In addition to accepting printed high-resolution security features, *Teslin* substrate reproduces high-definition color photos, enables laser-engraving and forms exceptional bonds with security inks, laminates, coatings and patches to permanently expose any evidence of tampering.

Durable, yet flexible, *Teslin* substrate also helps cushion and protect embedded eID electronics against mechanical stress, greatly increasing eID service life in ways that stiff printable plastics can't.

When you're ready to design a secure and durable credential that's easy to authenticate and difficult to replicate, visit teslin.com/numbers. And discover why, with *Teslin* substrate, there's security in numbers.

PPG

2016 CONFERENCES AND EVENTS

9TH ANNUAL SMART CARD ALLIANCE PAYMENTS SUMMIT

Loews Royal Pacific • Orlando, FL • April 4-7, 2016

More than 800 professionals gathered for this re-engineered event by co-locating with the International Card Manufacturers Association's 26th annual EXPO. In the new format, attendees built their own experience by choosing from the many card manufacturing and personalization topics, in addition to the advanced payments technology and business applications.

Conference presenters discussed delivering technology that is personal, fast and transparent. Some of the more popular topics and sessions focused on:
• Rings, fitness bands and sunglasses consumers can use as "wearable" payment devices
• Approaches to defeat hackers with EMV and tokenization by eliminating sensitive payment information from payment networks
• Presence-sensing transportation fare payment systems that eliminate the need to tap to pay

Part of the co-location benefit was an exhibit hall open to all attendees that featured over 100 exhibitors and vendors.

SECURING FEDERAL IDENTITY 2016

Ronald Reagan Building and International Trade Center • Washington, DC • June 6, 2016
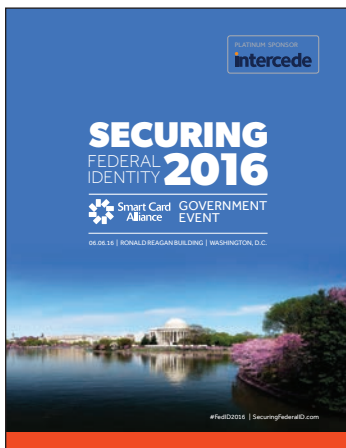
Cybersecurity, strong authentication, and derived credentials drove this event, also known for the past 15 years as the "Government Conference." Speakers from the federal government and security industry discussed adoption of strong authentication platforms in government, PIV credentials, and physical and logical access control. Attendees also heard updates from the Office of Management and Budget (OMB) and the General Services Administration (GSA).

Relevant points made by presenters and panels included:
• An uptick in the number of PIV credentials issued and used
• Increase in the percentage of government using PIV for accessing networks securely
• The ability of government agencies to spot unauthorized activity quickly before data is lost

Attendees also had opportunities to participate in Q&A sessions and talk informally with speakers during networking breaks.

SMART CARD ALLIANCE SECURITY OF THINGS 2016

Hilton Rosemont/Chicago O'Hare • Rosemont, IL • October 18-19, 2016

IoT device and data security challenges and solutions highlighted this new event, which featured more than 40 speakers. Keynotes, panels and track sessions examined the most important aspects of security related to a cross-section of different IoT markets. Attendees heard about security, privacy and authentication in the rapidly growing IoT ecosystem, and learned of challenges and next steps.

Conference presenters all agree that security needs to be built into the design of IoT devices and ecosystems, and not be an afterthought. Along with the "security by design" affirmation, discussions included:
• A big picture look at IoT security, followed by separate technology and application track sessions
• The importance of securing valuable data generated by connected devices
• Differences between IoT and IT security

This well-received event helped to solidify the Council's role in the widespread adoption of security awareness and standards.

SAVE THE DATE FOR THESE 2017 EVENTS
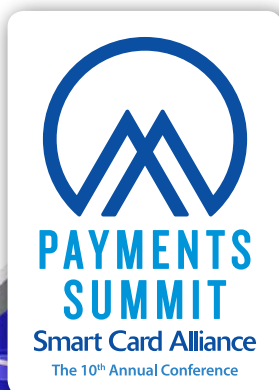
2016 EVENT PHOTOS

The conferences and events produced by the Smart Card Alliance are specifically tailored to cover every vertical market. These meetings also allow our collective industry knowledge and technology expertise to extend beyond the edges of the organization. Our conferences are always infused with fresh new insights from industry leaders. Industry councils also meet in person at these events, allowing for valuable one-on-one interaction and group collaboration.

EXECUTIVE DIRECTOR LETTER HIGHLIGHTS

One of the most popular sections of the monthly Smart Card Alliance newsletters is the letter from Executive Director Randy Vanderhoof. Check out his thoughts during a very busy year for the Alliance and the industry. To read the complete letters, visit the Smart Card Alliance website.

MAKING PREDICTIONS

January is a time for boundless optimism, when everything seems possible and concerns about troubles from the past are now an unpleasant memory. Back in the office, ready to begin anew, I'm looking forward to 2016, and I hope you are, too. It's time for my annual New Year's predictions, and perhaps they are slightly influenced by boundless optimism of a clean start ahead. I'll take the leap and give you some of my thoughts for the industry in 2016: EMV payments become normal; mobile wallets and payments take off; contactless EMV cards are still in the game; and merchants become serious about card-not-present fraud mitigation. Here is hoping this year brings nothing but good news and fond memories in next year's recap.

NEW OPPORTUNITIES TO LEARN

Even though there isn't a conference this month, February is not without another milestone. We recently marked the official opening of the Smart Card Alliance's new facility – the National Center for Advanced Payments and Identity Security in Crystal City, (Arlington) VA – just outside of downtown Washington, DC. This is a permanent training and education center to house our education programs, including the Certified Smart Card Industry Professional (CSCIP) training, certification, and testing program and the Certified System Engineer ICAM PACS (CSEIP) program. With this new facility, the Smart Card Alliance will be able to greatly expand education and collaboration programs aimed at improving security across multiple markets and subject areas, including payment security, identity security and privacy protection, and provide both face-to-face and online events and assets.

THE MOBILE WALLET

Somewhat lost in all the focus on EMV are some important developments happening on the mobile wallet front. We have Apple Pay, Samsung Pay, and Android Pay spreading their payments services across a widening array of mobile devices. Hundreds of financial institutions, and more than a million merchant acceptance locations are in place. In parallel, major transit agencies are embracing mobile ticketing options that blend together the mobile wallets experience with apps designed to provide real-time information and ticketless and cardless access to buses, subways, and trains. Major transit operators in places like Chicago, Dallas, Washington DC, New York City, New Jersey, and Philadelphia have active mobile ticketing projects underway. It's a good reminder that EMV is not the only activity across the payments landscape.

IOT NEEDS IDENTITY SECURITY TOO

A new network of connected devices, called the Internet of Things (IoT), has drawn the interest of many of our member organizations who provide secure chips and services related to applications for chip technology. Every market that has been an adopter of smart card technology and secure solutions also has an interest in IoT. So it makes sense that the Smart Card Alliance has an important role to play in making IoT more secure as well. We are currently establishing the Internet of Things Security Council, which we hope will define a security framework for the Internet of Things and explain how the same chip security and identity management approaches that are applied for systems involving people can work effectively at securing things.

THE GOVERNMENT SECURITY MARKETPLACE

Our annual Government Conference coming up in a few weeks has undergone a complete make-over. During planning, we realized that most people wanted to learn about the new identity management and security programs that are coming, rather than look back on past successes and existing standards and policies for using chip-enabled PIV credentials for physical access for the federal market. Consequently, the one-day Securing Federal Identity 2016 event will be a highly-focused, high-energy event that will concentrate on how federal agencies are using PIV and PIV-I credentials as strong, two-factor authentication devices to secure federal networks. Another topic will be how federal programs are extending the use of the PIV credential's identity management and authentication capabilities to mobile devices through the use of derived credentials.

CHECK-OUT TIME

June 16

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Much talk surrounds the slow speed of EMV chip transactions and the delays merchants are experiencing getting their businesses EMV certified so they can begin accepting chip cards. The truths about what transaction times are and why so many merchants are not yet EMV certified are hard to come by, but it's important to note that the EMV check-out experience, like just about everything else related to the U.S. EMV migration, is different in the U.S. than it is in most other countries. There are many variables which affect the transaction time, most of which are invisible to the consumer. My opinion? Let consumers adjust to the new technology and allow retailers and processors to work out the prompting, timing and transaction routing ripples over time.

THE WILD WEST OF MOBILE WALLETS

July 16

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

We are coming up on five years with various forms of mobile wallets in the U.S. market. We've seen the mobile operator-centric model, the mobile device-centric model, the merchant-centric model, the bank-centric model, the mobile OS-centric model, the mobile browser-centric model and the payment brand-centric model. Each has unique differences and limitations. In most cases, mobile wallet choices are limited by the mobile device, and the device is limited by where you shop. Consumers want something easy to use where they shop that doesn't require switching equipment. I believe that in the near future, market forces will align with consumer demand and mobile wallet lovers won't have to wonder when the promise of ubiquitous, convenient, tap-and-go payments on their mobile device will be a reality.

MAKING THE RIGHT CONNECTIONS

August 16

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Many common amenities are becoming Internet-connected, and as such, are part of a growing ecosystem of connected devices called the Internet of Things (IoT). But how safe are they, and who is monitoring whether they meet expected security standards? We believe security is under-appreciated and underfunded by the suppliers of devices connected to the Internet of Things. As a result, we recently formed the Internet of Things Security Council, and launched a new web portal called the IoT Security Connection. This information web portal is part of our focus to provide educational resources and guidance for implementing secure IoT architectures using embedded security and privacy technology. The portal is geared toward technology and service providers, IT and security experts, integrators, consultants and anyone interested in IoT.

TACKLING CHALLENGES

September 16

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	
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24	25	26	27	28	29	30

Aligning the Smart Card Alliance organization to support its members and followers to get in front of changing technology trends is an increasingly challenging task. Perhaps it is the accelerating rate at which business and technology trends seem to shift in comparison to the smart card advances we were facing years ago. Or it could mean technology migration that was directly tied to the smart card form factor has gone the way of the phone booth, the corner book store, and the daily print newspaper, and has been replaced by a new ecosystem with new business drivers and economic models. Adapting to the changing pace of innovation and the new role for secure chip technology in emerging markets is now a necessity, not a choice.

A SECURE MISSION

October 16

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
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22	23	24	25	26	27	28
29	30	31				

Recent events have driven home the importance of developing sound technology and policy around securing the Internet of Things (IoT). Distributed denial of service attacks (DDOS) were executed by unknown hackers who used thousands of Internet-connected security cameras and digital video recorders to flood targets with a massive volume of commands that affected significant parts of service providers' networks. The Alliance has historical knowledge of security vulnerabilities, and has been raising awareness about how secure chip technology addresses these problems. Through our new IoT Security Council we're working with member companies and industry professionals to address these security vulnerabilities. It's incumbent upon us to step up and guide the IoT industry on the proper way to secure the expected 21 billion IoT devices by 2020.

A FUTURE FOR CONTACTLESS PAYMENTS BEYOND EMV?

November 16

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

In the next year, issuers and merchants will look at their plans beyond EMV and envision what the next generation of consumer payments might bring. They'll have a decision to make, too. Do they stick with first generation EMV contact-only cards for another three to four year lifecycle, or do they move forward and add contactless features to their EMV cards? Adding those features are in the interest of advancing consumer convenience, speed, and desire to replace cash for more low value transactions. The next generation of consumer payments is going to be largely influenced by the EMV transition just completed for most bank card issuers, and one that is almost reaching the mid-way point with most merchants. I'll be watching with interest.

WEB SITE HIGHLIGHTS

SMART CARD ALLIANCE ON THE INTERNET

The Smart Card Alliance web site offers industry news, white papers and publications, event information and proceedings, educational resources, links to slideshows, webinars, member press releases and Alliance newsletters. With nearly 20,000 average site visits per month, the site is a popular destination for members and supporters to learn all about Alliance activities and technology and application information.

NEW IN 2016:
PUBLICATIONS, TRAINING,
IOT SECURITY PORTAL

- Smart Card Alliance Publications: Seven new white papers, position papers or infographics on healthcare convergence, PIV-enabled physical access control systems, FIDO, EMV payments and transit open payments
- National Center for Advanced Payments and Identity Security: New site for training programs offered at the National Center
- IoTSecurityConnection.com: New content portal with educational resources on IoT security

www.smartcardalliance.org

MOST POPULAR:
TOP ACCESSED PUBLICATIONS
AND WHITE PAPERS

- EMV and NFC: Complementary Technologies that Deliver Secure Payments and Value-Added Functionality
- Contactless EMV Payments: Benefits for Consumers, Merchants and Issuers
- Smart Card Technology and the FIDO Protocols
- Smart Card Technology in U.S. Healthcare: Frequently Asked Questions
- Reference Enterprise Architecture for Transit Open Payment System
- Healthcare Identity Authentication and Payments Convergence: A Vision for the Healthcare Industry
- Host Card Emulation (HCE) 101
- NFC Non-Payments Use Cases

SOCIALLY ACTIVE

We have five LinkedIn Groups and more than 4,000 followers on Twitter. Follow us! We've sent out more than 1,300 tweets in 2016. Also check us out on LinkedIn:

- Government Smart ID– 2,276 members
- Smart.Payments– 1,682 members
- Healthcare Identity Management– 193 members
- LEAP– 650 members

www.linkedin.com/groups/112856

www.twitter.com/smartcardorgusa

THE EMV CONNECTION

http://www.emv-connection.com/

We also maintain the EMV Connection website, which features EMV educational resources for issuers, merchants, acquirers/processors and consumers. The site had nearly 100,000 visits from more than 72,500 unique visitors in 2016. The site also houses new resources from the U.S. Payments Forum, including:

- EMV Chargeback Best Practices
- Best Practices in Support of EMV Instant Issuance
- Merchant Processing during Communications Disruption
- PIN Bypass in the U.S. Market
- How the U.S. Common Debit AIDs Facilitate Debit Transaction Routing and Ensure Durbin Compliance
- Cardholder Verification Methods: Concepts, Implementations, and Impacts

U.S. PAYMENTS FORUM

We have a dedicated section on the EMV Connection website on U.S. Payments Forum news and activities. We also have a members-only portal, that contains additional information exclusive for members.

www.emv-connection.com

INDUSTRY COUNCILS

Through seven industry councils, the Smart Card Alliance proactively addresses topics of concern in the different vertical markets for smart card technology. Alliance members lead Council activities and contribute to a wide variety of projects, including white papers, webinars, workshops, web resources, position papers and industry commentary. The results of the councils' work help to drive smart card technology implementations in the U.S. and provide authoritative educational material for both the U.S. and international markets.

ACCESS CONTROL

The Access Control Council focused on supporting government initiatives in 2016, submitting comments on critical GSA and NIST specifications related to PIV card implementation and drafting a position paper on the impact of new OMB guidance on PIV-enabled access control systems. Over 40 member organizations participate in the Council.

HEALTH AND HUMAN SERVICES

The Health and Human Services Council had a very active year, publishing two white papers on the impact of EMV migration on the healthcare industry and the opportunities that EMV-enabled point-of-sale terminals offer for accepting smart patient ID cards. More than 25 member organizations participate in the Council.

IDENTITY

The Identity Council collaborated with the FIDO Alliance and published a white paper on smart card technology and the FIDO protocols. Identity Council members also participated in defining and launching the new IoT Security Council, which has a strong identity management focus. More than 35 member organizations participate in the Council.

IOT SECURITY

The IoT Security Council was launched in 2016, with strong member participation from all industry verticals. Council activities focused on developing the Council charter and priorities, planning the new Security of Things conference program, and developing a white paper on the need for embedded hardware security in IoT applications. Over 60 member organizations are participating in the new Council.

MOBILE

The Mobile Council redefined its charter in 2016 to expand activities beyond NFC and focus projects on the security of applications in mobile devices and tethered wearables. The Council published two white papers and continued its focus on education by starting development of three new white papers and hosting a webinar. The Council is made up of more than 60 member organizations.

PAYMENTS

The Payments Council focused on providing educational resources on contactless payments and other new technologies. The Council published white papers on contactless payments benefits, EMV and NFC, then leveraged those resources to create infographics and host a webinar. Over 60 member organizations participate in the Council.

TRANSPORTATION

The Transportation Council published a reference architecture for transit open payment systems and a white paper on EMV and parking. The Council continued its work on multimodal payments convergence and launched a new project to provide an educational resource on mobile ticketing and NFC. More than 55 member organizations participate in the Council.

A Look at Our Councils in 2016
Council Productivity Remains High, Participation Increases

This past year saw continued strong participation and quality deliverables from all of our industry councils, as well as the launch of the new Internet of Things (IoT) Security Council, development of a revised charter for the Mobile Council, and expansion of other council activities into new technologies and topics.

NEW COUNCIL GENERATES ENTHUSIASM

The IoT Security Council captured a significant amount of member enthusiasm this year. IoT ecosystems cut across all of our traditional markets and have already experienced significant security vulnerabilities. Council members collaborated on the program for our first Security of Things conference and produced an initial set of foundational principles and materials for promoting embedded security for IoT applications and ecosystems. The Council has plans for an ambitious program in 2017 to provide educational resources for IoT ecosystem stakeholders and to advocate for industry collaboration and a strong security infrastructure for IoT applications and devices.

EMV was a strong theme for the councils, even as the U.S. moved past the October 2015 EMV liability shift. The Transportation Council updated the its white paper on the impact of EMV in the parking industry, adding details on technical and implementation considerations. The Health and Human Services Council took it further – looking at the EMV point-of-sale migration as an opportunity for convergence for both payments and patient identity and establishing a vision for "Healthcare 2.0" to address the many challenges that the healthcare industry has with fraud, waste, and abuse.

EXPANDING PRIORITIES

The Payments Council moved beyond EMV migration, with projects launched to promote contactless EMV payments for issuers and merchants and to provide educational resources on other new technologies, such as tokenization and blockchain-based applications. With new cross-collaboration policies with the U.S. Payments Forum, the Council hopes to attract contributions from an even broader set of industry participants for its projects next year.

Our Mobile Council shifted its emphasis, developing a new charter and name so that the council can take on projects covering all interface technologies and security approaches. The charter revision sparked multiple new projects on mobile identity authentication, tokenization, credential provisioning, and the use of the Trusted Execution Environment. As with IoT applications, mobile considerations are important for all industry segments, so we expect more cross-council collaboration in projects going forward.

The Transportation, Access Control and Identity Councils also completed a variety of projects – developing a reference architecture for a transit open payments systems, providing commentary to NIST, GSA and OMB on critical standards and publications, and completing a white paper on smart card technology and the FIDO protocols. The breadth of council projects is driven by member priorities and interest – keeping Alliance deliverables relevant to the most important industry topics.

As we move into 2017, all councils have new steering committees and officers, and members show continued enthusiasm to support to industry efforts promoting smart card and embedded security technologies.

We thank all of our council members for their time, expertise and enthusiasm in leading and contributing to council projects that contribute to growing the market for our members' products and technologies and to improving the security of critical applications and ecosystems in the U.S. market.

> THE BREADTH OF COUNCIL PROJECTS IS DRIVEN BY MEMBER PRIORITIES AND INTEREST – KEEPING ALLIANCE DELIVERABLES RELEVANT TO THE MOST IMPORTANT INDUSTRY TOPICS.

Cathy Medich
Director, Strategic Programs
Smart Card Alliance

ACCESS CONTROL COUNCIL

MISSION: Accelerate the widespread acceptance, usage, and application of smart card technology for physical and logical access control

OFFICERS
- Chair: Dave Helbock, XTec, Inc.
- Vice Chair: Frazier Evans, Booz Allen Hamilton
- Secretary: Steve Rogers, IQ Devices

STEERING COMMITTEE
- Dave Adams, HID Global
- Steve Allen, Stanley Security
- Sal D'Agostino, IDmachines
- Frazier Evans, Booz Allen Hamilton
- Daryl Hendricks, GSA
- Dave Helbock, XTec, Inc.
- Ryan Kaltenbaugh, AMAG Technology
- Lolie Kull, Hewlett Packard Enterprise
- Stafford Mahfouz, Tyco Software House
- Robert Merkert, Sr., Advanced Card Systems Ltd.
- Ahmed Mohammed, Oberthur Technologies
- Roger Roehr, Roehr Consulting
- Steve Rogers, IQ Devices
- Mike Sulak, U.S. Dept. of State
- Mike Zercher, NXP Semiconductors

TOP CONTRIBUTORS
- Mark Dale, XTec, Inc.
- Lolie Kull, Hewlett Packard Enterprise
- Steve Rogers, IQ Devices
- Adam Shane, AMAG Technology

HONOR ROLL
- Mark Dale, XTec, Inc.
- Tony Damalas, SigNet Technologies
- Jatin Deshpande, Giesecke&Deverient
- Frazier Evans, Booz Allen Hamilton
- David Helbock, XTec, Inc.
- Russ Kent, Hewlett Packard Enterprise
- Lolie Kull, Hewlett Packard Enterprise
- Brad McGoran, Exponent
- Roger Roehr, Roehr Consulting
- Steve Rogers, IQ Devices
- Adam Shane, AMAG Technology
- Rob Zivney, ID Technology Partners

ACTIVITIES
- Submission of comments to GSA on the "FIPS 201 Evaluation Program Functional Requirements & Test Cases (FRTC), Version 2.0.0" (August 2015)
- Submission of comments to NIST on draft NISTIR 8055, "Derived Personal Identity Verification (PIV) Credentials Proof of Concept Research" (August 2015)
- Submission of comments to NIST on the NIST SP 800-116 Rev. 1 Draft A "Recommendation for the Use of PIV Credentials in Physical Access Control Systems (PACS)" (January 2016)
- In-person meeting at the National Center for Advanced Payments and Identity Security (June 2016)
- Smart Card Alliance Commentary: OMB Circular A-130 2016 - Managing Information as a Strategic Resource (September 2015)
- Relationships with IBIA and SIA

ACCESS CONTROL COUNCIL MEMBER ORGANIZATIONS

ABnote • Accenture • Advanced Card Systems Ltd. • Allegion • AMAG Technology • Booz Allen Hamilton • CertiPath • CH2M • Cubic Transportation Systems, Inc. • Datawatch Systems • Defense Manpower Data Center • Department of Homeland Security • Entrust Datacard • Exponent, Inc. • Gallagher Group Limited • Gemalto • General Services Administration • Giesecke & Devrient • Hewlett Packard Enterprise • HID Global • Identification Technology Partners Inc. • IDmachines • Initiative for Open Authentication • IQ Devices • Lenel Systems International • NXP Semiconductors • Oberthur Technologies • Quantum Secure Inc. • Roehr Consulting • SAIC – Science Applications International Corporation • Safran Identity & Security • Secure Missions Solutions • SecureKey Technologies • SigNet Technologies, Inc. • Stanley Security Solutions • STMicroelectronics • SureID, Inc. • Tyco Software House • U.S. Department of State • Ultra Electronics Card Systems • U.S.Department of Transportation/Volpe Center • Wells Fargo • XTec, Inc.

Council Worked with NIST, GSA, Others to Address Cyber Security

As usual, 2016 was a year full of activities for the Access Control Council. Most notably, smart cards are increasingly accepted as the credential of choice for securely authenticating identity, determining appropriate levels of information access and controlling physical access. To further advance the adoption of high security smart card-based access control systems, the council assisted with multiple Federal government efforts focused on implementing multi-factor authentication and addressing cyber security needs.

INTERACTION WITH GOVERNMENT

The Council continued to engage with the Federal government, specifically the National Institute of Standards and Technology (NIST) and General Services Administration (GSA), to review and comment on various documents that facilitate and describe the advantages of smart cards. Earlier in the year, the council worked energetically during the open comment period for the NIST PACS recommendation document, SP 800-116. The council contributed over 100 comments to NIST. The latest developing project with GSA is development of a "playbook" to demystify the authentication techniques of using a PIV credential with PACS.

Late in the summer, the Office of Management and Budget (OMB) released a revised Circular A-130. The Council created a position paper to highlight the impact of the OMB Circular A-130 2016 update on the access control industry and on government agencies procuring and implementing access control systems. The position paper focuses on highlighting relevant changes in the 2016 update to A-130, discussing the impact of these changes on the Federal government and commercial industry, and outlining issues to be considered in complying with A-130 for selected topic areas.

CSEIP SUCCESSES

In 2014, GSA approached the Smart Card Alliance about setting up a training and certification program, which resulted in the launch of our Certified System Engineer ICAM PACS (CSEIP) program. 2016 was another successful year for the CSEIP training and certification. The certification has gained traction not only with the security system integrators and specifiers, but also has benefited government end-users and contract specialists. A rapidly expanding number of Federal agencies are now requiring service providers to have relevant staff CSEIP-certified as a pre-requisite to be considered for contract awards and to participate in the agencies' EPACS upgrades. Representatives from more than 50 different organizations have attended the course since its inception.

All indications are that 2017 will be just as busy and exciting! Many of the projects the Council is involved in require collaboration and cooperation with other industry organizations and the Federal government, with whom we enjoy very productive partnerships and who contribute greatly to our joint successes.

Thank you to all of you who continue to support the Access Control Council and for your contributions. It is my great honor to serve as chair.

> A RAPIDLY EXPANDING NUMBER OF FEDERAL AGENCIES ARE NOW REQUIRING SERVICE PROVIDERS TO HAVE RELEVANT STAFF CSEIP-CERTIFIED AS A PRE-REQUISITE TO BE CONSIDERED FOR CONTRACT AWARDS AND TO PARTICIPATE IN THE AGENCIES' EPACS UPGRADES. REPRESENTATIVES FROM MORE THAN 50 DIFFERENT ORGANIZATIONS HAVE ATTENDED THE COURSE SINCE ITS INCEPTION.

David Helbock, Jr.
Senior Sales Engineer
XTec, Inc.

HEALTH AND HUMAN SERVICES COUNCIL

MISSION: Promote the adoption of smart cards for healthcare and human services applications and within the national health IT infrastructure and educate the healthcare market on why smart card technology is the appropriate solution for healthcare identity management applications

OFFICERS
- Chair: Morgan Richard, XTec, Inc.
- Vice Chair: David Batchelor, LifeMed ID

STEERING COMMITTEE
- Stefan Barbu, NXP Semiconductors
- David Batchelor, LifeMed ID, Inc.
- Robert Merkert, Sr.,
  Advanced Card Systems Ltd.
- Morgan Richard, XTec, Inc.

TOP CONTRIBUTORS
- David Batchelor, LifeMed ID, Inc.
- John Ekers, ABnote
- Bryan Russell, XTec, Inc.

HONOR ROLL
- David Batchelor, LifeMed ID
- Joan Christensen, First Data
- John Ekers, ABnote
- Kathleen Finnegan, First Data
- Thomas McNeila, First Data
- Morgan Richard, XTec, Inc.
- Bryan Russell, XTec, Inc.

ACTIVITIES
- EMV 101 for the Healthcare Industry white paper (September 2015)

- The Benefits of Strong Authentication for the Centers for Medicare and Medicaid Services, response to the GAO report, Potential Uses of Electronically Readable Cards for Beneficiaries and Providers (September 2015)

- American Health Information Management Association (AHIMA) 2015 conference (September 2015)

- "Patient Identity and Digital Matching: A New Approach," session at theHIMSS 2016 Conference (February 2016)

- Healthcare Identity Authentication and Payments Convergence: A Vision for the Healthcare Industry white paper (February 2016)

- Healthcare 2.0: A New Paradigm for a Secure and Streamlined Healthcare Industry infographic (April 2016)

- "Healthcare 2.0" poster session at the National Association of Healthcare Access Management (NAHAM) conference (May 2016)

- In-person meeting at the National Center for Advanced Payments and Identity Security (June 2016)

- Relationships with HIMSS, Medical Identity Fraud Alliance (MIFA), NAHAM, Secure ID Coalition and Workgroup for Electronic Data Interchange (WEDI)

HEALTH AND HUMAN SERVICES COUNCIL MEMBER ORGANIZATIONS

ABnote • Accenture • Advanced Card Systems Ltd. • Booz Allen Hamilton • Clear2Pay • Deloitte & Touche LLP • First Data • Fiserv • Gemalto • Giesecke & Devrient • Hewlett Packard Enterprise • Ingenico • Initiative for Open Authentication • Leidos • Lenel Systems International • LifeMed ID, Inc. • MasterCard • NXP Semiconductors • Oberthur Technologies • PPG Industries, Inc. • Rambus Bell ID • SAIC – Science Applications International Corporation • SecureKey Technologies • STMicroelectronics • SureID, Inc. • Thales e-Security • Tyco Software House • U.S. Department of State • Verifone • Xerox • XTec, Inc.

A Busy Year of Projects and Conferences

The Health and Human Services Council collectively agreed that the goals in 2016 were to focus on educating the public and influencing healthcare stakeholders to understand the benefits of strong authentication, specifically smart card technology. The Council completed a number of projects, such as an infographic, speaking submissions for conferences and white papers that highlighted the identity problem in the complex healthcare market and identified why a higher level of assurance is necessary vs. continue to use user names and passwords.

In 2016, the Council proudly finalized our infographic titled, "Healthcare 2.0: A New Paradigm for a Secure and Streamlined Healthcare Industry." This infographic has been recognized by multiple organizations, including the Workgroup for Electronic Data Interchange (WEDI), and was presented at the National Association of Healthcare Access Management (NAHAM) annual conference. The Council is excited to continue to promote the infographic through an upcoming viewpoint paper and at other events!

CURRENT STATE OF HEALTHCARE IDENTITY MANAGEMENT

The current healthcare environment is a complex, fragmented and highly regulated network. A number of converging factors highlight the need to rethink the current models of operations for public and private organizations. There is no "silver bullet" to solve all of the current challenges. Areas in need of attention continue to be: patient identity; patient healthcare record management; medical identity theft; medical fraud; patient privacy; and the security and portability of identity and healthcare records. Additionally, healthcare organizations are reviewing and moving toward mobile solutions. One of the key tasks in creating healthcare policy is to solve the problems of properly identifying patients and healthcare providers, matching healthcare records, and identifying those that have authorized access to protected health information (PHI). Strong authentication is not the only solution for solving all identity management challenges, but it is the cornerstone for any solid solution. Smart card technology has already been globally proven to be effective at protecting identity, privacy, and commerce in today's Internet-era, and is well-suited to the challenges of the American healthcare system. Currently, countries such as Germany, France, Austria, Belgium and the Czech Republic have issued national healthcare cards.

> STRONG AUTHENTICATION IS NOT THE ONLY SOLUTION FOR SOLVING ALL IDENTITY MANAGEMENT CHALLENGES, BUT IT IS THE CORNERSTONE FOR ANY SOLID SOLUTION.

PROJECT HIGHLIGHTS

It was a great year for the Health and Human Services Council! We are small, but that does not stop our members from having a lot of energy! This year we invited multiple guest speakers to educate the Council members (and their guests) on subjects that influence the healthcare identity management market, including updates on legislation and potential synergies with other organizations. The council published a follow-on white paper to "EMV 101 for the Healthcare Industry, in collaboration with Payments Council members. This paper, titled "Healthcare Identity Authentication and Payments Convergence: A Vision for the Healthcare Industry," outlines a vision for merging healthcare identity authentication and payments. Council representatives were also selected to present at the HIMSS 2016 conference on patient identity and workflow management and the new infographic was exhibited at the 2016 NAHAM annual conference.

FUTURE PROJECTS

Future projects include promoting messages in our infographic and developing the business case and statement of work for a customer advisory board. We look forward to another successful year and welcome new participation. Thank you to all of the current Council members for your ideas, dedication, participation and efforts.

Morgan Richard
Manager, U.S. Health Care
XTec, Inc.

Healthcare Identity Authentication and Payments Convergence: A Vision for the Healthcare Industry

The United States is currently in the process of adopting EMV, a global standard used by payment applications residing on chip cards, point-of-sale (POS) systems, and payment terminals. The U.S. move to EMV chip payments is driven by the payments industry's desire to reduce card fraud, provide global interoperability, and enable more secure payment transactions. Meanwhile, healthcare-related fraud is at an all-time high. There is clearly an immediate need to increase security for healthcare identity authentication and payments.

Healthcare Identity Authentication and Payments Convergence outlines a vision for merging healthcare identity authentication and payments and provides insight into the opportunities and challenges afforded to the healthcare community as the U.S. migrates to EMV. The goal of the convergence vision is to leverage available technology to add healthcare identity authentication applications to the current payments infrastructure.

The white paper examines potential scenarios for convergence and explores the implementation considerations associated with each scenario.

SCENARIOS FOR CONVERGENCE

Healthcare identity authentication and payment convergence can be realized through a variety of technological options, involving either back- or front-end integration. Back-end integration requires agreement across a network of payment and healthcare provider systems and on a platform definition (including API functionality). In addition, having a financial processor's system perform transactions directly with a healthcare provider's system requires significant security oversight and compliance. In contrast, front-end integration at a POS terminal or on a chip card can be managed without complex cross-industry involvement; both chip cards and POS terminals are designed to support multiple applications (e.g., an EMV payment application and a healthcare identity application).

The white paper describes the integration requirements, benefits, and risks associated with four scenarios that exemplify front-end integration:

- Scenario 1: two chip cards and one multi-application POS terminal
  Two chip cards perform independent transactions on the same POS terminal, which runs two separate applications to route transaction information to the appropriate back-end system
- Scenario 2: one multi-application chip card and one multi-application POS terminal
  A single chip card hosts two applications that use the same POS terminal. One chip card application manages financial payment transactions; the second application manages

healthcare identity authentication. The POS terminal runs two separate applications to route transaction information to the appropriate back-end system
- Scenario 3: one chip card with a "special" payment application
  In a variation of Scenario 2, a special payment application on the chip card provides non-payment transaction support.
- Scenario 4: mobile healthcare transactions
  Mobile transactions can use Near Field Communications (NFC) with a POS terminal that supports contactless payment transactions. The mobile application could use a derived credential from any of the above scenarios to facilitate a mobile transaction for healthcare identity authentication or payment

IMPLEMENTATION CONSIDERATIONS

The healthcare industry faces challenges in implementing both EMV chip payment and healthcare identity authentication applications. The white paper explores these challenges, which include the cost of implementation, the speed with which adoption occurs, the complexity associated with issuing multiple applications, new mobile requirements, and support for interoperable standards.

RECOMMENDATIONS

Healthcare industry requirements can only be met using secure technologies that do not sacrifice the quality of patient care. Smart card solutions consistently meet all security standards and can address current types of healthcare fraud. The U.S. is moving quickly to EMV chip technology for credit and debit card payments; the healthcare industry has the opportunity to leverage the resulting new infrastructure to reduce fraud significantly and improve patient identity authentication.

The white paper recommends that healthcare organizations leverage proven smart card-based technology, including the EMV payments infrastructure. Organizations that upgrade to EMV benefit from enhanced payments security and reduced fraud. The healthcare industry will experience maximum benefit if adoption is uniform and the EMV chip infrastructure is also leveraged for healthcare identity authentication.

ABOUT THE WHITE PAPER

This white paper was developed by the Smart Card Alliance Health and Human Services Council to outline a vision for healthcare identity authentication and payments convergence and to provide insight into the opportunities and challenges afforded to the healthcare community as the U.S. migrates to EMV.

Participants involved in the development of this white paper included: ABnote; Ingenico; MasterCard; LifeMed ID Inc.; Verifone; Visa Inc.; XTec, Inc.

Healthcare 2.0: A New Paradigm for a Secure and Streamlined Healthcare Industry

Healthcare spending losses to fraud and abuse total $272 billion a year, but no single part of the healthcare system is responsible. Each stage of healthcare has risks of fraud, errors, waste and abuse. These vulnerabilities can be reduced at every stage by implementing an identity management system based on smart card technology.

The infographic, "Healthcare 2.0: A New Paradigm for a Secure and Streamlined Healthcare Industry," depicts the impact of smart card technology on the future of healthcare identity authentication, and suggests how current challenges can be solved through interoperability, increased security, and multi-factor authentication.

The infographic (shown in the figure below) provides an overview of the state of today's healthcare market, and the existing impact of medical identity theft, fraud and abuse, and patient matching errors. It then shows the solutions that can be implemented to make healthcare more secure at every stage, including:

- Strong authentication, using a secure chip-based identity verification process
- Secure payment, using a secure chip-based payment method such as EMV
- Chain of trust, establishing a trust anchor and assuring the system is worthy of trust
- Accountability, ensuring acceptance and responsibility for action

The infographic also includes a detailed outline (not shown) of all of the stages of care – pre-treatment, treatment, documentation, billing and post-treatment– with key risks of fraud, errors, waste and abuse at each stage and the secure solutions that can address those risks.
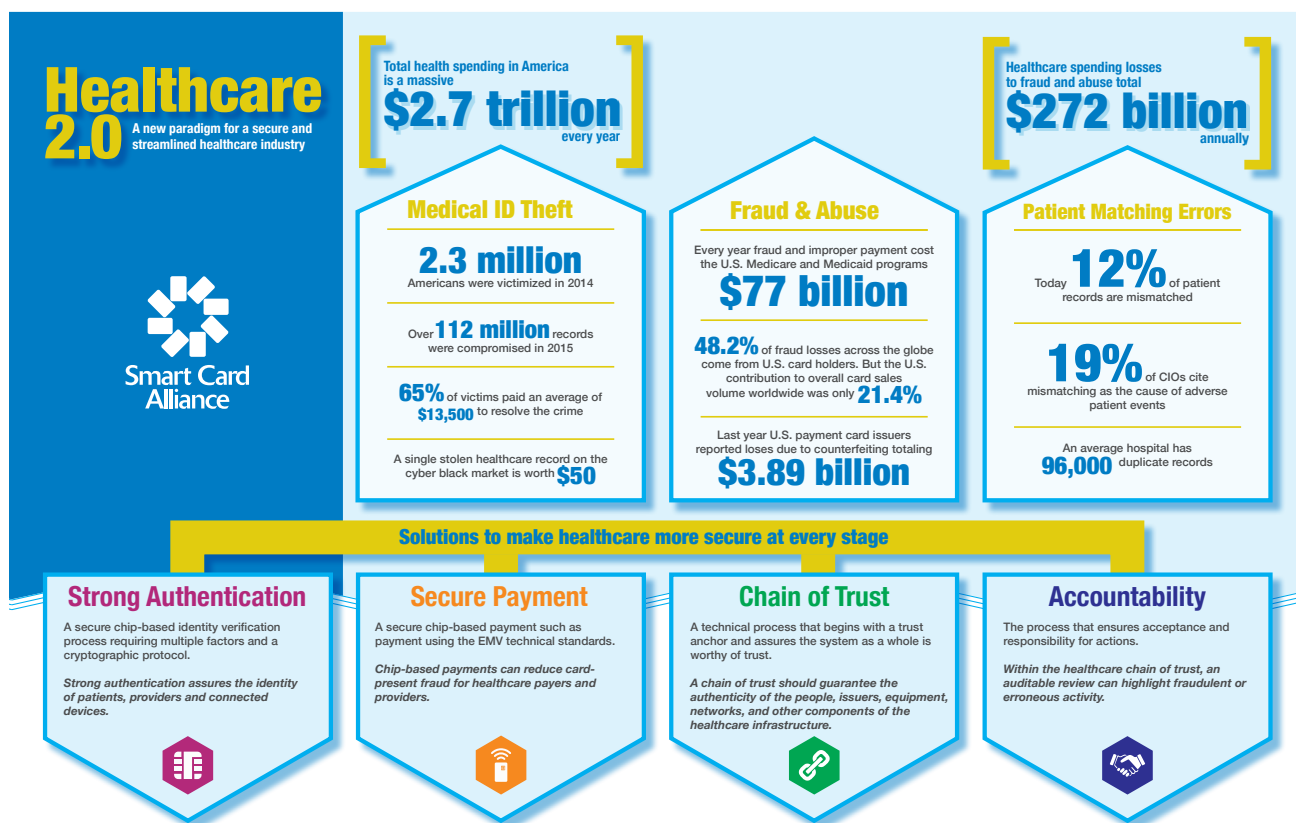
The infographic has been used in Council presentations at healthcare industry events to showcase the benefits of smart card technology for healthcare identity management and authentication.

ABOUT THE INFOGRAPHIC

This infographic was developed by the Smart Card Alliance Health and Human Services Council to depict the impact of smart card technology on the future of healthcare identity authentication, and suggest how current challenges can be solved through interoperability, increased security, and multi-factor authentication. Participants involved in the development of this infographic included: ABnote; First Data; Gemalto; LifeMed ID Inc.; XTec, Inc.

Healthcare 2.0
A new paradigm for a secure and streamlined healthcare industry

Smart Card Alliance

Total health spending in America is a massive
$2.7 trillion every year

Healthcare spending losses to fraud and abuse total
$272 billion annually

Medical ID Theft

2.3 million
Americans were victimized in 2014

Over 112 million records were compromised in 2015

65% of victims paid an average of $13,500 to resolve the crime

A single stolen healthcare record on the cyber black market is worth $50

Fraud & Abuse

Every year fraud and improper payment cost the U.S. Medicare and Medicaid programs
$77 billion

48.2% of fraud losses across the globe come from U.S. card holders. But the U.S. contribution to overall card sales volume worldwide was only 21.4%

Last year U.S. payment card issuers reported loses due to counterfeiting totaling
$3.89 billion

Patient Matching Errors

Today 12% of patient records are mismatched

19% of CIOs cite mismatching as the cause of adverse patient events

An average hospital has 96,000 duplicate records

Solutions to make healthcare more secure at every stage

Strong Authentication
A secure chip-based identity verification process requiring multiple factors and a cryptographic protocol.

Strong authentication assures the identity of patients, providers and connected devices.

Secure Payment
A secure chip-based payment such as payment using the EMV technical standards.

Chip-based payments can reduce card-present fraud for healthcare payers and providers.

Chain of Trust
A technical process that begins with a trust anchor and assures the system as a whole is worthy of trust.

A chain of trust should guarantee the authenticity of the people, issuers, equipment, networks, and other components of the healthcare infrastructure.

Accountability
The process that ensures acceptance and responsibility for actions.

Within the healthcare chain of trust, an auditable review can highlight fraudulent or erroneous activity.

IDENTITY COUNCIL

MISSION: Promote best policies and practices concerning person and machine identity, including strong authentication and the appropriate authorization across different use cases

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- Chair: Frazier Evans, Booz Allen Hamilton
- Vice Chair: Neville Pattinson, Gemalto
- Secretary: Sal D'Agostino, IDmachines

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- Ahmed Mohammed, Oberthur Technologies

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- Steve Rogers, IQ Devices
- Rob Zivney, ID Technology Partners

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- Michael Poitner, NXP Semiconductors

HONOR ROLL
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- Don Campbell, SureID, Inc.

- Peter Cattaneo, Identiv
- Sal D'Agostino, IDmachines
- Emmanuelle Dottax, Oberthur Technologies
- Frazier Evans, Booz Allen Hamilton
- Michael Poitner, NXP Semiconductors
- Jenya Rivkin, Infineon Technologies

ACTIVITIES
- Smart Card Technology and the FIDO Protocols white paper, in collaboration with the FIDO Alliance (April 2016)

IDENTITY COUNCIL MEMBER ORGANIZATIONS

Accenture • Advanced Card Systems Ltd. • Booz Allen Hamilton • CertiPath • CH2M • Consult Hyperion • Defense Manpower Data Center • Department of Homeland Security • Entrust Datacard • Exponent, Inc. • Fiserv • Gemalto • General Services Administration • Giesecke & Devrient • Hewlett Packard Enterprise • HID Global • Identification Technology Partners Inc. • IDmachines • Infineon Technologies • Initiative for Open Authentication • IQ Devices • Kona I • Lenel Systems International • Multos International • NextGen ID, Inc. • NIST • NXP Semiconductors • Oberthur Technologies • Quantum Secure • SAIC – Science Applications International Corporation • SecureKey Technologies • SigNet Technologies, Inc. • SureID, Inc. • Tyco Software House • Tyfone • Ultra Electronics Card Systems • U.S. Department of State • Visa Inc. • Wells Fargo • Xerox • XTec, Inc.

Security and Identity Protection Remain Priorities

As I look back on this year, I am reminded of the challenges that threatened security and identity in government and business. The release of the Panama Papers, continued releases from the Snowden breach, and other challenges and threats have shown us that identity protection and data security are paramount to a successful 2017. Industry and government are the cornerstones of these efforts. The more we deploy strong two-factor authentication and the more we protect data with encryption, the more we will diminish the impacts of cyber-attacks.

A RISE IN PIV USAGE

We have seen the Department of Defense (DoD) benefit from the use of the Common Access Card (CAC) thus reducing cyber-attacks by 46% overall. The Federal government has been deploying the Personal Identification Verification (PIV) Card for federal employees and the PIV-Interoperable (PIV-I) Card for non-federal employees. The PIV Card has been used for physical security but is gradually making a steady impact on logical security authentication by removing the username/password vulnerability. This year Trevor Rudolph, chief of the eGov Cyber Unit for the Executive Office of the President (EOP) and the Office of Management and Budget (OMB), reported the success of OMB's use of PIV cards to authenticate users on federal systems since the Cybersecurity Sprint initiative of summer 2015. Rudolph cited that civilian PIV Card usage rose from 42% to 72% as a result, and is now over 80%. Incidents relating to authentication decreased by 16% in the last two quarters of FY15, per Rudolph.

Director of the Federal Identity, Credential, and Access Management (FICAM) Program at the General Services Administration (GSA), Jim Sheire also shared successes from the increased agency adoption of PIV, reporting a 20% increase in PIV issuance from GSA USAccess since the OMB initiative launched.

Contrary to Terry Halvorsen, the Defense Department CIO who wants to phase out the CAC over the next two years, I believe there is a long and fruitful future for the CAC in DoD along with introducing some alternative forms of authentication technology for applications where the full CAC features are not needed.

ADVANCEMENTS FOR 2017

Another advancement we should focus on in 2017 is the progression of e-Government and e-services within government. Ultimately, e-Government in the U.S. will provide programs that enable:

- Effective and nimble response to solve America's most significant concerns in a secure digital manner
- A digitally collaborative environment where employees are encouraged to do what is in the best interest of Government and people
- A rapid and effective response to critical events ,providing better outcomes for the public and increasing public trust
- Enhanced employee engagement, innovation and productivity through access to tools they need to efficiently share knowledge, collaborate and innovate

A recent case study in Estonia's government concerned improving security, reducing ID fraud and creating trusted online access options. These are high on any government's agenda, with a call for greater security features and the necessary legislation to implement them. Estonia was able to create and deploy national eID cards that allow citizens to use government services online, i.e., to register the birth of a child or marriage, buy train tickets and more. Most of these services in the U.S. require time and travel; in Estonia those tasks are accomplished by logging into an account and submitting the information via a secure site.

The GSA has launched a new eGov initiative called 18F after the end of the previous GovConnect program. Part of the GSA Technology Transformation Service, 18F helps other federal agencies build, buy and share efficient and easy-to-use digital services. While still far away from the achievements of Estonia, all eyes are on 18F to put the U.S. into an eGov future of secure and efficient online services.

Neville Pattinson, CISSP, CIPP, CSCIP
Senior Vice President of Government Sales Gemalto North America

As I close 2016, I look forward to 2017 as the year of derived mobile PIV credentials (a variation of the physical PIV credential) coming into usage and hope the U.S. can benefit from 18F as an eGov.

Smart Card Technology and the FIDO Protocols

The Fast IDentity Online (FIDO) Alliance is a 250-member organization with one goal: to design simple, secure online user authentication. To achieve that goal, the FIDO Alliance undertakes the following activities:

- Developing technical specifications that define an open, scalable, interoperable set of mechanisms for the online authentication process
- Obtaining formal standardization for the specifications
- Operating industry programs to help ensure worldwide adoption of the specifications

Smart Card Technology and the FIDO Protocols describes the role of smart card technology in enhancing the security of FIDO implementations. The white paper includes the following content:

- An overview of strong authentication
- A description of FIDO principles and protocols
- A description of the security benefits achieved using smart card technology in FIDO protocol implementations
- Use cases that currently implement FIDO protocols with smart card technology

The white paper covers only the identity authentication process. Identity management and proofing processes are outside this white paper's scope.

WHY FIDO?

The de facto standard for online authentication is to require a user name and password. However, password-only authentication is susceptible to a wide range of attacks, and issues are associated with all of the technologies available to improve online authentication security. FIDO addresses these issues with two protocols: a simple enrollment protocol and a highly secure authentication protocol.

FIDO PROTOCOLS

The FIDO authentication protocols, called Universal Second Factor (U2F) and Universal Authentication Framework (UAF),

are designed to support robust authentication while providing a superior user experience and protecting user privacy. They are also intended to implement a user experience that combines ease of use with proof of intent: proof of a user's physical presence activates the protocol. The protocols are supported by published specifications.

The protocols rely on standard public key cryptography that requires neither a public

key infrastructure nor certificate authorities or complex policies. They do require a FIDO *authenticator*—a hardware or software appliance possessed by the user of the online service. The process by which they function involves two phases—a set-up phase and an authentication phase. Use of the protocols delivers strong token assurance but does not address identity assurance.

UAF AND U2F EXPERIENCE

PASSWORDLESS EXPERIENCE (UAF standards)

ONLINE AUTH REQUEST | LOCAL DEVICE AUTH | SUCCESS

1 — $10,000 TRANSFER NOW — TRANSACTION DETAIL

2 — SHOW A BIOMETRIC

3 — DONE
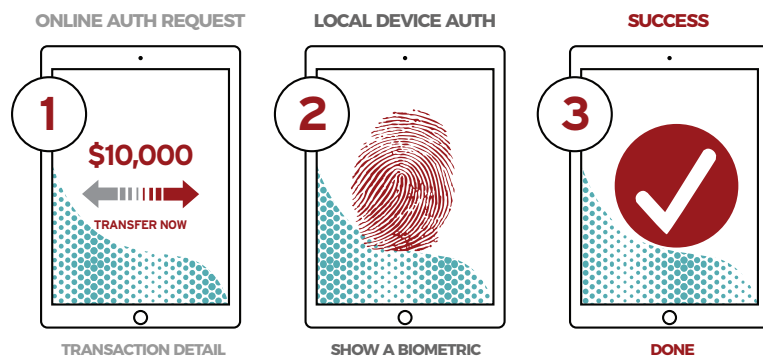
SECOND FACTOR EXPERIENCE (U2F standards)

ONLINE AUTH REQUEST | LOCAL DEVICE AUTH | SUCCESS

1 — LOGIN & PASSWORD

2 — INSERT DONGLE PRESS BUTTON

3 — DONE

FIDO AND SMART CARD TECHNOLOGY

Implementing the FIDO protocols using smart card technology can strengthen the security of the identity authentication process and share the benefits of smart card technology with a wider audience.
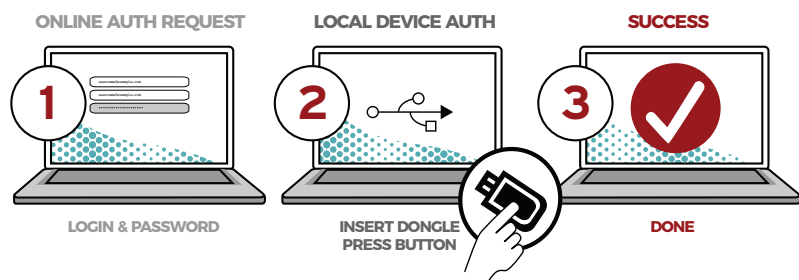
Smart cards contain memory and processors that are protected physically. The processor includes either one external interface or two separate interfaces that are controlled by the processor. Running the software that implements the FIDO protocols on the processor in a smart card chip or embedded secure element physically isolates the software from the device hosting the Web browser, allowing the software to execute securely. Both the code and the data are encrypted. In addition, they are protected hardware security features in the chip and module packaging.

Vendors creating FIDO authenticators can take advantage of smart card security features and at the same time provide a secure environment to host other security-critical applications, such as pay-

ment or transport. A variety of use cases are included to illustrate that the combination of FIDO protocols and smart card technology provides a range of benefits.

ABOUT THE WHITE PAPER

This white paper was developed by the Smart Card Alliance Identity Council, in collaboration with the FIDO Alliance, to describe the role of smart card technology in implementations of the FIDO protocols.

Participants involved in the development of this white paper included: CertiPath; CH2M; Deloitte and Touche LLP; Gemalto; IDmachines; Infineon Technologies; Initiative for Open Authentication (OATH); Safran Identity & Security; NXP Semiconductors; Oberthur Technologies; SAIC; SureID, Inc.; XTec, Inc.
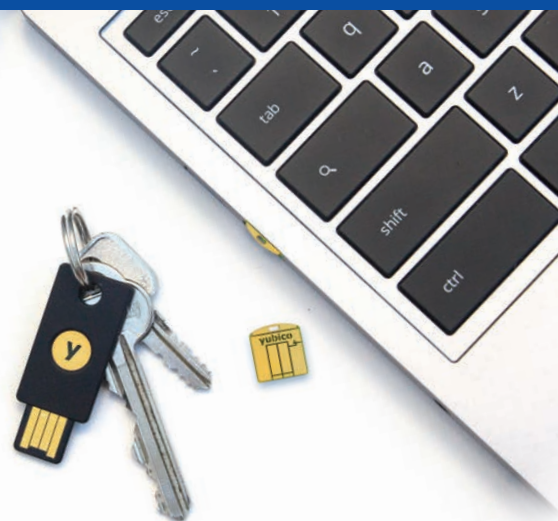
IOT SECURITY COUNCIL

MISSION: Develop and promote best practices and provide educational resources on implementing secure IoT architectures using "embedded security and privacy"

OFFICER
- Chair: Willy Dommen, Accenture

INTERIM LEADERSHIP COMMITTEE
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- Gonda Lamberink, UL
- Sami Nassar, NXP Semiconductors
- Nicholas Vondrak, Safran Identity & Security
- Christopher Williams, Exponent

ACTIVITIES
- Development and approval of Council charter (March 2016)
- Member survey on priority vertical markets, use cases and projects (2016)
- Framework for Council discussions on the IoT ecosystem and security requirements (May 2016)
- www.IoTSecurityConnection.com content portal (August 2016)
- Embedded hardware security for IoT applications white paper (in process)

IOT SECURITY COUNCIL MEMBER ORGANIZATIONS

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New Council Generates Energy and Excitement

It has been a few years since a new council was organized within the Smart Card Alliance. Over the last year, we organized a new council focused on IoT (Internet of Things) security at the device level. Interestingly, the greatest accomplishment this past year was not getting the group organized - typically an enormous task. This was because the team, with their broad range of experience and expertise, jelled very quickly. Defining the IoT ecosystem in such a manner to provide a frame of reference and a common understanding turned out to be our most significant accomplishment.

ALL THINGS IOT

As we very quickly discovered, IoT is a very broad term liberally applied throughout the media. Depending on background, IoT conjures up a very different vision to different people. For example, smart cities and fitness devices are all IoT. However, while each of these verticals is referred to as IoT, they have very different characteristics. The definition and IoT ecosystem framework developed by the new Council required broad participation, and not surprising for the Alliance, it's a very collegial group. This work will now serve as the basis for moving forward with future projects.

ADDRESSING THE CHALLENGES

As we move forward in 2017, there are several future challenges that we need to address. The first challenge is to figure out the industry verticals that the Council should focus on. Over the last year as we were organizing the Council, it became quite clear that IoT touches virtually every industry in one form or another. We recognized that it would be impractical to focus on every vertical. However, a project completed for one vertical may be applicable to another with some modification or optimization. The second challenge is how to best deliver the Alliance message about the value our activities can provide across the IoT ecosystem, particularly in securing the IoT at the device level. The Smart Card Alliance is all about securing the credentials that identify a user or device to an ecosystem. With our entry into IoT, we have to reach a broader and much more diverse audience for our "message." This circumstance represents a change from the existing councils that are tightly focused on a specific function (e.g., identity management) or industry (e.g., payments or transportation).

> WITH OUR ENTRY INTO IOT, WE HAVE TO REACH A BROADER AND MUCH MORE DIVERSE AUDIENCE FOR OUR "MESSAGE." THIS CIRCUMSTANCE REPRESENTS A CHANGE FROM THE EXISTING COUNCILS THAT ARE TIGHTLY FOCUSED ON A SPECIFIC FUNCTION (E.G., IDENTITY MANAGEMENT) OR INDUSTRY (E.G., PAYMENTS OR TRANSPORTATION).

The third challenge is to attract members from industries and suppliers that have not been traditionally participating in Alliance activities. This challenge also includes attracting new participants from existing members. Many of our member companies have significant IoT activities and related services. The value of any organization corresponds to the level of participation of the members. Now that the IoT Security Council is up and running, we need to "beef-up" membership; both new participants from existing Alliance member organizations and, most importantly, new member companies from the different IoT verticals.

So in closing, I thank everyone who has been a part of getting the IoT Security Council up and running. And, I am looking forward to some really great pieces of work that will be produced in the next the few years as we continue to move "secure" IoT further into our daily lives.

Willy Dommen
Senior Manager
Accenture

MOBILE COUNCIL

MISSION: Raise awareness and accelerate the adoption of secure payments, loyalty, marketing, promotion/coupons/offers, peer-to-peer, identity, and access control applications using mobile and tethered wearable devices

OFFICERS
- Chair: Sadiq Mohammed, MasterCard
- Vice Chair: Sree Swaminathan, First Data

STEERING COMMITTEE
- Maarten Bron, UL
- Rob Canterbury, NXP Semiconductors
- Stu Cox, Giesecke & Devrient
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- Mike English, Heartland Payment Systems
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- Hank Chavers, GlobalPlatform
- David deKozan, Cubic Transportation System
- Chris Edwards, Intercede
- Ana Egan, Discover Financial Services
- Frazier Evans, Booz Allen Hamilton
- Scott Hagstrom, ABnote
- Sarah Hartman, TSYS
- Peter Ho, Wells Fargo
- Simon Laker, Consult Hyperion
- Christine Lopez, Vantiv
- Don Malloy, Initiative for Open Authentication
- Pedro Martinez, Gemalto
- Robert Merkert, Sr., Advanced Card Systems Ltd.
- Steve Mott, BetterBuyDesign
- Manish Nathwani, SHAZAM
- Akif Qazi, Discover Financial Services
- Lokesh Rachuri, Capgemini
- JC Raynon, Verifone
- Steve Rogers, IQ Devices
- Tony Sabetti, CPI Card Group
- Gerry Schoenecker, Ingenico
- Adam Smitherman, TSYS
- Chandra Srivastava, Visa Inc.
- Brian Stein, CH2M
- Sridher Swaminathan, First Data
- Tom Zalewski, Aikon Consulting

ACTIVITIES
- 2015 NFC Solutions Summit Workshop, Implementation Considerations for NFC and other Mobile Technologies: Payments and Beyond (October 2015)
- NFC Non-Payments Use Cases white paper (December 2015)
- EMV and NFC: Complementary Technologies Enabling Secure Contactless Payments white paper, in collaboration with the Payments Council (December 2015)
- New Council name and charter (March 2016)
- In-person meeting at 2016 Payments Summit (April 2016)
- EMV Tokenization webinar (November 2016)
- Mobile identity authentication white paper (in process)
- Trusted Execution Environment (TEE) 101 white paper (in process)
- Mobile profiles and provisioning white paper (in process)
- Relationships with GlobalPlatform and NFC Forum

MOBILE COUNCIL MEMBER ORGANIZATIONS
ABnote • Accenture • Advanced Card Systems Ltd. • Allegion • American Express • AT&T Mobility Services LLC • Booz Allen Hamilton • Capgemini • CH2M • Chase Card Services • Clear2Pay • Consult Hyperion • CPI Card Group • Cubic Transportation Systems, Inc. • Datawatch Systems • Department of Homeland Security • Discover Financial Services • Entrust Datacard • Exponent, Inc. • FIME • First Data • FIS • Fiserv • Gemalto • Giesecke & Devrient • Heartland Payment Systems • Hewlett Packard Enterprise • HID Global • Identification Technology Partners Inc. • Incomm • Infineon Technologies • Ingenico • Initiative for Open Authentication • INSIDE Secure • Interac Association/Acxsys Corporation • Intercede Limited • IQ Devices • Kona I • Lenel Systems International • MasterCard • Natural Security • NBS Technologies • NXP Semiconductors • Oberthur Technologies • Quadagno & Associates • Quantum Secure Inc. • Rambus Bell ID • Safran Identity & Security • SecureKey Technologies • SHAZAM • STMicroelectronics • SureID, Inc. • Thales e-Security • TSYS • Underwriters Laboratories (UL) • Valid USA • Vantiv • Verifone • Visa Inc. • Vix Technology • Wells Fargo • Xerox • XTec, Inc.

Mobile Devices: Getting Smarter and Better and Looking You in the Eye

For those not actively involved in council activities, you may not have noticed the council name change. After extensive debate we decided to change the council name from "Mobile and NFC Council" to simply "Mobile Council." This aligns nicely with other council names such as the Payments Council and Identity Council, but more importantly, gives the council a broader remit to look at all things mobile. I feel very satisfied with the tremendous effort and focus on NFC and the numerous NFC-related white papers and webinars that the council developed in the last few years. This has definitely led to a greater industry understanding of NFC as a mainstream technology that is now available on almost all mobile devices. Looking forward, mobile devices are only going to get smarter and better, and potentially be bundled with newer technologies, and that is where the council will be focusing its future work.

In the last year or so there have been three key market trends that have been impacting mobile devices and that have driven council activities:

- Authentication – the ability to use mobile devices in different ways to authenticate the user
- Tokenization – the ability to have unique credentials for specific devices
- Trusted Execution Environments (TEEs) – the ability to securely store and process sensitive data on mobile devices

LOOKING FORWARD, MOBILE DEVICES ARE ONLY GOING TO GET SMARTER AND BETTER, AND POTENTIALLY BE BUNDLED WITH NEWER TECHNOLOGIES, AND THAT IS WHERE THE COUNCIL WILL BE FOCUSING ITS FUTURE WORK.

AUTHENTICATION ABOUNDS

The council developed a white paper on mobile authentication, which provides a detailed look into new, innovative authentication methods. Most flagship smart phones now come standard with fingerprint readers, and users are increasingly getting comfortable with using their fingerprint to unlock their devices and to authenticate themselves for various services. Samsung, Microsoft and a few others are further pushing the envelope with the introduction of iris or retina scan technology to authenticate users. MasterCard has also been actively experimenting and promoting other facial recognition methods with a product called *Identity check,* or colloquially referred to as "Selfie-Pay" to authenticate a payment via facial recognition.

From a mobile payments perspective, one key technology behind many of the commercially deployed wallets is tokenization. Tokenization quietly adds layers of security in the background. As a result, the technology is not well understood. In order to provide education around tokenization, the Mobile Council hosted a webinar on "EMV Tokenization" in November, which was very well-attended.

PROTECTION NEEDS

While tokenization eliminates the need for using the primary account number (PAN) in many devices, there is still a need to protect tokens, keys and other sensitive data on mobile devices. One technology gaining momentum is the Trusted Execution Environment (TEE), which is being built into many new devices to store and process sensitive data. The council is currently working on a "TEE 101" white paper on this latest technology.

Wearables are also seeing increasing consumer adoption and many of the technologies that we're discussing may be equally applicable to these devices. The mobile space continues to bring excitement and innovation and I am very privileged to be leading the Mobile Council and working with greatest minds in this space. I sincerely thank you for all your efforts and urge you to continue to participate in Mobile Council activities to share your insights and knowledge and bring about greater understanding of these technologies to the wider industry.

Sadiq Mohammed
Senior Business Leader, Vice President
Mastercard - Enterprise Security Solutions

NFC Non-Payments Use Cases

Contactless payment is the most common use of Near Field Communication (NFC) technology in mobile devices. Apple Pay, Android Pay, and Samsung Pay are three prominent examples of contactless payment solutions that leverage NFC technology and mobile device security to enable convenient, secure payment. However, NFC technology has other, non-payments uses.

NFC Non-Payments Use Cases describes such uses in situations that also require a secure user credential and that have actually been implemented. Content includes:
- An overview of NFC technology
- Detailed descriptions of various non-payments use cases
- Approaches to securing sensitive user credentials for non-payment applications

A variety of mobile applications can take advantage of NFC to implement secure and convenient transactions. Common among many such applications is the need to provision a credential to a mobile device, store the credential on the device, and use the credential for a transaction. In addition, different use cases involve different ecosystem participants and have different requirements for security and operational performance.

By highlighting innovative implementations and security approaches that protect sensitive user credentials, this white paper provides a vision for business cases that could drive the use of NFC beyond payments.

NFC OVERVIEW

NFC is a standards-based, short-range wireless communication technology for transferring data between smart phones and similar mobile devices. NFC is widely available for devices running a variety of operating systems and is supported in over 330 phone models, tablets, and other mobile devices.

NFC can be implemented in three different operating modes:
- Reader/writer, which enables NFC devices to read and write information to NFC tags
- Peer-to-peer, which enables NFC devices to exchange data and share files
- Card emulation, which enables NFC devices to function as contactless smart cards

The overview identifies the various standards with which NFC complies and the ecosystem participants and lists potential uses.

USE CASES

Non-payments use cases are explored in four categories:
- Marketing, where NFC can be used for loyalty applications and coupons and offers
- Identity and access, where NFC can be used for hospitality check-in, travel boarding passes, physical access control, vehicle access control, and healthcare tracking and monitoring
- Ticketing, where NFC can be used for transit ticketing and event ticketing
- Gaming, meaning electronic games played on a handheld device

The use-case descriptions identify the associated value proposition, list ecosystem participants, and discuss relevant implemen-

tation considerations. The real-world examples are described in detail.

SECURITY CONSIDERATIONS

NFC can be used to present a user credential or virtualize a plastic card. One key question for non-payments use cases is how to protect the cryptographic credentials and sensitive data associated with a credential or card.

The paper suggests two different technical approaches to achieving security: using the secure element in the mobile device, or using host card emulation (HCE). Storing credentials in a secure element protects them just as a physical contactless smart card protects them; however, provisioning a secure element requires the use of a complex ecosystem. Using HCE technology means that NFC commands can be routed to an application running in the

device's operating system; however, HCE implementations must implement additional security approaches to ensure that sensitive information and transactions are protected.

IMPLEMENTATION CHALLENGES

While some challenges are unique to a particular use case, others are common:

- Infrastructure challenges
- Credential security model challenges
- Absence of consistency across device types
- NFC accessibility or availability challenges
- Lack of industry-wide standards

The white paper suggests that for non-payments applications to become commonplace, challenges must be addressed at the industry or ecosystem level.

ABOUT THE WHITE PAPER

This white paper was developed by the Smart Card Alliance Mobile Council to provide an educational resource that highlights the different NFC use cases beyond payments, cites commercial and pilot use case implementations, and discusses security and implementation considerations.

Participants involved in the development of this white paper included: Advanced Card Systems Ltd.; Booz Allen Hamilton; Capgemini USA Inc.; CH2M Hill; Cubic Transportation Systems, Inc.; Discover Financial Services; First Data Corporation; Fiserv; Giesecke & Devrient; Heartland Payment Systems; Identification Technology Partners; Ingenico; Intercede; IQ Devices; Morpho; NXP Semiconductors; Oberthur Technologies; Underwriters Laboratories (UL).

- › Easy and economical transition to contactless
- › Superior contactless performance
- › Fastest time to market
- › Superior quality and reliability

Chip module with antenna at the rear side of the module

Chip card antenna

Radio communication between chip card antenna and chip module antenna

Master the shift towards contactless

Infineon's dual interface cards with Coil on Module (CoM) technology supports all applications

Thanks to CoM, issuers and merchants can bring consumers security, speed and convenience of payment and other applications while removing the traditional obstacles associated with dual interface cards.

Infineon's CoM technology, which uses inductive coupling, allows card manufacturers to use their existing "contact" cards production lines to produce dual interface cards, therefore optimizing cost of ownership, quality and reliability, and supply chain flexibility.

www.infineon.com/payment

(Infineon)

PAYMENTS COUNCIL

MISSION: Facilitate the adoption of chip-enabled payments and payment applications in the U.S. through education programs for consumers, merchants, issuers, acquirers/processors, government regulators, mobile telecommunications providers and payments service providers

OFFICERS
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- Secretary: Ellie Smith, Discover Financial Services

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- Brady Cullimore, American Express
- Terry Dooley, SHAZAM
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- David Worthington, Rambus Bell ID

ACTIVITIES
- EMV and NFC: Complementary Technologies Enabling Secure Contactless Payments white paper, in collaboration with the Mobile Council (December 2015)
- Payments Summit pre-conference workshop, The Changing Payments Landscape in the U.S.: Strategic Considerations for Issuers and Merchants (April 2016)
- In-person meeting at 2016 Payments Summit (April 2016)
- Contactless EMV Payments: Benefits for Consumers, Merchants and Issuers white paper (June 2016)
- Contactless EMV Payments: Opportunities for Merchants and Issuers webinars (October and November 2016)
- Contactless EMV payments infographic (in process)
- EMVCo PAR use cases white paper (in process)
- Blockchain and smart card technology white paper (in process)
- Contactless payments Q&A update (in process)
- Relationship with U.S. Payments Forum

PAYMENTS COUNCIL MEMBER ORGANIZATIONS

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The Next Wave in Payments Innovation: Contactless

With the EMV fraud liability shift in our rearview mirrors and EMV on its way to reach ubiquity, the payments ecosystem has been busy adjusting to the change from swipe to dip. But the dip and then "wait" piece of the equation has been a bit of a bumpy ride, leading to merchant resistance and customer dissatisfaction.

SHIFT IN FOCUS

In 2016, the Payments Council has shifted its focus to promoting a solution to these issues as well as providing the next wave in payment innovation: contactless technology. Over the past decade, contactless payments have been deployed and adopted successfully around the world. The need for speed and security has brought contactless technology again to the forefront of the ecosystem, and the Payments Council worked on several projects to address the previous issues and ensure successful contactless deployments in the U.S.

COUNCIL RESOURCES

With publication of the white paper "Contactless EMV Payments: Benefits for Consumers, Merchants and Issuers," the Payments Council detailed the numerous benefits, the increased value add and the amplified return on investment associated with the implementation of contactless EMV. Research shows consumers enjoy added convenience, speed and ease of use, while issuers and merchants enjoy faster transaction times, increased number of transactions and displacement of the cash payments. An updated Q&A developed by the Payments Council addressed recent security concerns and risk of fraud to consumers. By educating the public and the ecosystem on combining contactless payments with EMV we can expect these concerns to diminish and adoption to increase. In further educational initiatives, the Payments Council hosted two well-attended webinars in late fall of 2016 on the opportunities that contactless EMV payments offer to merchants and issuers. The webinars answered the most important questions about the adoption of contactless payments, such as: how contactless fits into today's payment industry, what is different from earlier adoption attempts, and why now is the ideal time to adopt contactless.

> OVER THE PAST DECADE, CONTACTLESS PAYMENTS HAVE BEEN DEPLOYED AND ADOPTED SUCCESSFULLY AROUND THE WORLD. THE NEED FOR SPEED AND SECURITY HAS BROUGHT CONTACTLESS TECHNOLOGY AGAIN TO THE FOREFRONT OF THE ECOSYSTEM, AND THE PAYMENTS COUNCIL WORKED ON SEVERAL PROJECTS TO ADDRESS THE PREVIOUS ISSUES AND ENSURE SUCCESSFUL CONTACTLESS DEPLOYMENTS IN THE U.S.

UPCOMING IN 2017

In 2017, the Payments Council will continue to serve as the industry's leading educator and resource. The time for contactless is now, and we look forward to guiding the industry to a more secure, convenient and innovative payment ecosystem.

I am honored to serve as Chair of the Payments Council and would like to thank all participants for their hard work and valued contributions.

Jack Jania
Senior Vice President
of Strategic Partnerships
Gemalto

EMV and NFC: Complementary Technologies Enabling Secure Contactless Payments

EMV is a global standard for secure debit and credit payments. EMV-compliant payments protect against the use of counterfeit, lost, or stolen cards and skimming. Merchants, issuers, and processors in the United States are currently in the final stages of upgrading their infrastructures to accept EMV-compliant payments.

NFC is a set of standards enabling proximity-based communication between consumer electronic devices (mobile phones, tablets, personal computers). NFC supports an extremely simple man-machine interface, facilitating its use for mobile payment.

NFC and EMV are companion technologies. NFC applies to how devices communicate; EMV applies to payments made with contact and contactless chip cards or with a mobile NFC device emulating a contactless chip card.

The *EMV and NFC* white paper clarifies how EMV chip payment and NFC communications technologies are used together. The white paper covers the following key topics:
- The current status in the United States of EMV migration and NFC
- How EMV chip cards, contactless payments, and NFC interrelate
- Critical issues to consider before implementing contactless EMV-compliant payments

CURRENT STATUS
The mandated changeover to EMV has been progressing rapidly in the U.S., especially among issuers and consumers. Merchants have been somewhat slower to adopt the technology. The white paper includes recent statistics on adoption rates by all three types of stakeholders and suggests what issues may have to be addressed to facilitate adoption.

The status of contactless payment is slightly different. Contactless chip cards were first issued in the U.S. in 2004. However, adoption rates were sluggish in comparison to the rates in countries implementing contactless payment after EMV chip migration. But interest in contactless payments has recently increased, and issuers are now considering dual-interface cards and new mobile strategies.

Many terminals now support both contactless and contact payments, and as merchants and acquirers install terminals to support contact EMV chip card support, merchants may choose to support contactless payments as well.

TECHNOLOGY AND PAYMENT METHOD INTERRELATIONSHIP
How EMV chip, contactless, and NFC for contactless payments interrelate requires an understanding of several processes:
- How EMV chip cards are provisioned
- How EMV chip cards are used at the merchant point-of-sale

- How payment account credentials are provisioned into mobile NFC devices
- How mobile NFC devices are used for contactless payments

The white paper describes each process and indicates where and how they intersect.

CRITICAL IMPLEMENTATION CONSIDERATIONS
The white paper identifies and discusses the following issues for merchants and issuers who are considering whether to implement contactless payment with EMV chip cards and mobile NFC devices:
- How to migrate POS systems from contactless magnetic stripe data to contactless EMV
- What types of transactions to accept
- What cardholder verification methods to implement
- Whether to allow offline transactions
- How to ensure a satisfactory consumer experience
- What costs will be incurred
- How contactless payment adoption is affected by usability factors including mobile NFC device availability

No "one size fits all" recommendation can dictate whether and when to implement contactless payments. New mobile NFC devices currently available in the U.S. market support contactless payment and can be used at the same POS systems that accept contactless payment cards. In combination with the EMV liability shift, this development has motivated many merchants to consider how to best future-proof their solutions. The paper concludes, however, that contactless payment using mobile NFC devices is best regarded as a companion solution, rather than a replacement for the card form factor.

ABOUT THE WHITE PAPER
This white paper was developed by the Smart Card Alliance Mobile and NFC Council and Payments Council to describe how EMV and NFC constitute companion technologies and clarify how they work together to enable secure payments.

Participants involved in the development of this white paper included: Advanced Card Systems; American Express; Bell ID; Capgemini; CH2M; Chase Paymentech; CPI Card Group; Discover Financial Services; First Data Corporation; Fiserv; Gemalto; Giesecke & Devrient; GlobalPlatform; Ingenico; Metropolitan Transportation Authority (MTA); NXP Semiconductors; Oberthur Technologies; Quadagno & Associates; TSYS; Verifone; Visa Inc.; Wells Fargo; Whole Foods; Xerox.

Contactless EMV Payments: Benefits for Consumers, Merchants, and Issuers

Contactless payments do not require physical contact between a consumer's payment device and a point-of-sale (POS) terminal. The consumer's payment device can assume a variety of form factors, including cards, Near Field Communication (NFC)-enabled smart phones, and wearables. Contactless transactions are cryptographically secure and generate a unique code for each transaction.

Contactless credit and debit card payments were first introduced in the United States in 2005; over the past decade, contactless payments have been deployed and adopted successfully around the world. However, adoption has lagged in the U.S. The absence of a critical mass of contactless-enabled cards and POS terminals impeded migration, and the anticipated business opportunity was never realized.

CURRENT CHANGES TO THE CONTACTLESS ENVIRONMENT

Contactless payment transactions originally emulated magnetic stripe data transactions. Currently, however, payments technology based on the EMV standard is being rolled out in the U.S. The move to EMV brings with it global interoperability as well as the highest standard of security. In addition, contactless EMV transactions are perceived to be much faster than contact transactions.

In light of these developments, the *Contactless EMV Payments* white paper offers a fresh look at contactless payments in the current U.S. payments environment that is embracing both EMV and NFC-enabled mobile devices. The white paper addresses relevant questions about the adoption of contactless payments, focusing on mass adoption of contactless EMV payments using both cards and NFC-enabled mobile devices, by exploring the following topics:

- Where contactless fits in today's payment industry
- The difference between current adoption attempts and earlier attempts
- Why now is the ideal time to go contactless

The paper describes the numerous benefits afforded to consumers, issuers, and merchants who embrace contactless EMV payments. These benefits include enhanced convenience for consumers and stronger security for issuers, who can facilitate the required migration to EMV by issuing dual-interface cards. Merchants realize improved transaction speeds and additional payment options, since enabling for contactless payments enables all payment devices that support NFC-based contactless payments, including smart phones and wearables. And fortuitously, merchants migrating to EMV find that typically their new POS equipment already supports contactless transactions.

BENEFITS OF CONTACTLESS ACCEPTANCE

Simple, secure, quick and intuitive

New Cardholder Verification Methods

Use of Current Infrastructure
Contactless-capable EMV acceptance devices

Point of Entry Throughput
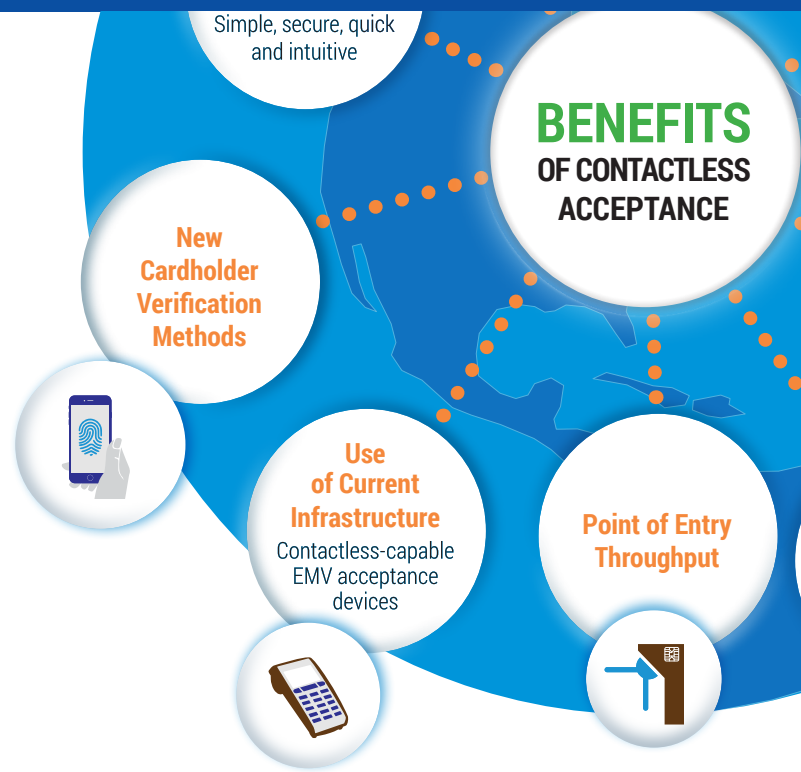
ROLE OF TRANSIT

The paper suggests that transit can play a key role in promoting contactless payments in the U.S. market. Proprietary transit fare payment systems in cities such as Chicago, Philadelphia, New York, and London are being replaced or upgraded to rely on technologies that adhere to global payment industry standards. Such "open" payment systems allow transit customers to pay fares with contactless bank cards at transit points of entry. Experience in London indicates that contactless transit payments drive "top of wallet" consumer behavior and increased use at contactless-enabled merchants located close to transit stations.

In addressing these topics, the paper includes lessons learned in Australia, Canada, and the United Kingdom about the relationship between EMV chip technology and the adoption of contactless payments. In addition to detailing the benefits of adopting contactless payments, including the benefits to issuers of dual-interface card issuance, the paper summarizes implementation issues for merchants and issuers who are considering contactless payments.

ABOUT THE WHITE PAPER

This white paper was developed by the Smart Card Alliance Payments Council to describe the value propositions of contactless EMV payments for issuers and merchants.

Smart Card Alliance members who contributed to the white paper included: Advanced Card Systems; American Express; Bell ID; Capgemini; CH2M; Chase Commerce Solutions; CPI Card Group; Discover Financial Services; First Data Corporation; Fiserv; Gemalto; Giesecke & Devrient; GlobalPlatform; Ingenico Group; Metropolitan Transportation Authority (MTA); NXP Semiconductors; Oberthur Technologies; Quadagno & Associates; TSYS; Verifone; Visa Inc.; Wells Fargo; Xerox.

TRANSPORTATION COUNCIL

MISSION: Promote the adoption of interoperable contactless smart card payment systems for transit and other transportation services and accelerate the deployment of standards-based smart card payment programs within the transportation industry

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- Jean Pare, Xerox
- Craig Roberts, Incomm
- Brian Stein, CH2M
- Tim Weisenberger, U.S. Department of Transportation/Volpe Center

ACTIVITIES
- Reference Enterprise Architecture for Transit Open Payment System white paper (March 2016)
- In-person meeting at 2016 Payments Summit (April 2016)
- EMV and Parking white paper update, in collaboration with the International Parking Institute (IPI) (May 2016)
- Multimodal Payment Convergence white paper (in process)
- Mobile Ticketing and NFC webinar (in process)
- Relationships with IPI and U.S. Payments Forum

TRANSPORTATION COUNCIL MEMBER ORGANIZATIONS

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Payments Converge Across Transportation Modes

New technology and innovation continued to transform the transportation sector over the past year, especially in how we plan, track, and pay for travel. Increasingly, operating agencies see opportunities to integrate their core service with emerging services such as bike sharing, car sharing, and ride sourcing, as well as with existing services such as parking and tolling; this new collaborative business model operates in several major cities across the U.S. where companies such as Uber and Lyft actively participate with trip planning on agency websites.

TRAVEL INTEGRATION

The flexibility and convenience of mobile devices has created the opportunity and facilitated the integration of travel services that allow users to plan multi-modal trips and pay fares to improve their mobility in and around urban areas. The Transportation Council work activities have focused on the movement toward the convergence of mobility services and payments. Specifically, the Council worked with the Association of Commuter Transportation to develop a white paper about multimodal payments convergence. The paper describes different types of convergence, including: the use of common technologies, joint customer accounts and integrated mobile apps for payments. The white paper provides case studies for each type of payments convergence. As new types of transportation services emerge, integrated payment is seen as an important element of a seamless approach to mobility.

DEPLOYMENT TIMES

Open payments and open architecture, of course, have been the goals of many transportation operators as they move toward next generation systems. It is interesting to note, however, that 2016 marked the 10th anniversary of the open payment pilot project led by New York City's Metropolitan Transportation Authority (MTA) in collaboration with MasterCard and Citibank, which had equipped turnstiles with readers at 23 stations along the Lexington Avenue Line on Manhattan's East Side. Following this successful pilot, many predicted that rapid data processing and faster transaction speeds combined with contactless bank card issuance would steer the industry toward open payments; however, this has not been the case. In fact, deployment of open systems has been slow in coming. Currently, only two U.S. transit operators, Utah Transit Authority in Salt Lake City and the Chicago Transportation Authority, accept bank issued cards or payments via mobile wallets. Both systems still rely heavily upon agency issued cards due to the lack of bank contactless card issuance.

Daily journeys using contactless in London

LONDON'S MODEL

Fortunately, there is hope. Across the pond, Transport for London (TfL) has become the model for bank card fare payment thanks to a favorable banking climate that includes elements critical to open fare payment acceptance:

- Risk sharing
- Abundant contactless cards
- Offline data authentication

Both tourists and Londoners alike have embraced the technology, and usage has grown steadily since its 2014 launch. As the graph below indicates, daily riders with contactless cards have reached 1.2 million out of the daily 15 million trips.

Can U.S. transit operators hope to replicate the TfL model? Although undoubtedly a steep climb, transportation agencies and authorities are banding together and actively engaging the payment ecosystem through the Smart Card Alliance and the U.S. Payments Forum to communicate the industry's unique requirements and the benefits available for riders, operators, and banks.

It's been my great privilege to serve as the chair of the Transportation Council over the past year.
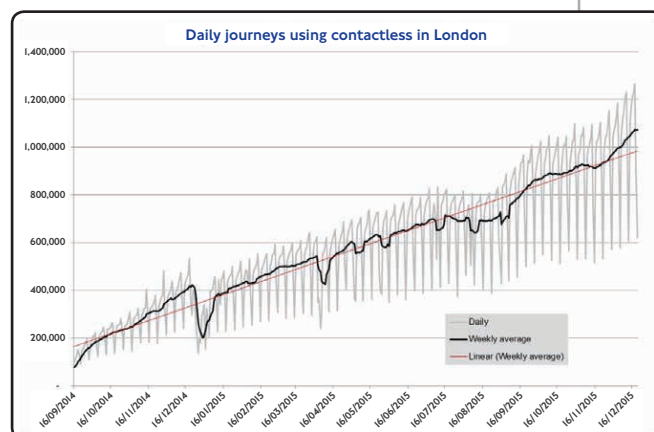
Gerald Kane
Senior Project Planner
New Payment Technologies
SEPTA

EMV and Parking

As the United States moves to an EMV-compliant payments infrastructure, parking industry stakeholders throughout the payments value chain need to learn about EMV. The October 2015 EMV fraud liability shift makes it imperative that stakeholders review their current payments infrastructure and develop a strategy for EMV migration.

This Smart Card Alliance and International Parking Institute white paper helps the parking industry understand the transition to EMV and the fraud liability shift. The white paper covers the critical aspects of deploying EMV-compliant solutions within the parking infrastructure. The paper is intended primarily for parking merchants and suppliers and for integrators of parking equipment, software, and support services.

The *EMV and Parking* white paper provides the following information:

- An overview of EMV migration, including historical background
- An explanation of the features of EMV chip technology and a description of different implementation options
- Key milestones and guidance for U.S. EMV migration
- Key considerations for parking industry stakeholders who want to accept and process EMV chip transactions in both attended and unattended environments
- The relationship between EMV, U.S. contactless payment card transactions, and contactless payments using NFC-enabled mobile devices

The paper includes a list of references that constitute additional educational resources. An appendix provides an overview of in-app mobile parking payments, highlighting additional options for parking owners who are developing long-term payment strategies.

EMV MIGRATION

Parking industry stakeholders should currently be investing resources to prepare for migration to EMV. Key migration considerations include the following:

- Choice of hardware (chip card reader and PIN pad)
- Impact of EMV messaging changes, including requirements for both physical and logical interface changes
- Requirements for testing and certification, including requirements for EMVCo terminal-type approval
- Terminal management requirements
- Effect of EMV compliance on functionality, including offline, payment, and security functionality

- Cardholder experience, including terminal placement and use instructions

Parking equipment manufacturers and owners should begin by conducting an impact analysis to anticipate the scope of the migration effort.

EMV DEPLOYMENT AND PARKING PAYMENT

The authors recommend that parking owners review their overall payment strategy to determine what functionality is needed to support EMV and the other payment methods currently in use, such as contactless payments from EMV chip cards or NFC-enabled mobile devices.

In addition, the deployment of EMV chip cards has different implications for different parking scenarios and for different payment processes: in-lane cashiering, pay-on-foot devices, and pay-in-lane devices. The paper identifies two key considerations: whether retail-style EMV chip-enabled POS terminals are suitable for use in certain parking payment locations, and whether to support chip-and-signature or chip-and-PIN transactions. The paper explores the implications for attended and unattended environments and addresses operational impacts, implementation requirements, effects on transaction speeds, costs, and staff and customer training. Since the POS acceptance infrastructure is changing with EMV, the paper also examines whether parking owners should consider supporting contactless transactions from contactless EMV chip cards and NFC-enabled mobile devices.

ABOUT THE WHITE PAPER

This white paper was developed by the Smart Card Alliance Transportation Council in partnership with the International Parking Institute (IPI) to educate parking industry stakeholders across the payments value chain about the critical aspects of deploying an EMV solution as part of their parking infrastructure.

The initial white paper was published in June 2015, with an update in May 2016. Participants involved in the development of the May 2016 white paper update included: 20/20 Parking Consultants; Aberdeen Management Group; CH2M; CPI Card Group; Cubic Transportation Systems; Dallas Area Rapid Transit (DART); GO Systems & Solutions; Lumin Advisors; MasterCard; Metropolitan Transportation Authority (MTA); Metropolitan Transportation Commission (MTC); Moneris Solutions; Quadagno & Associates; Southeastern Pennsylvania Transportation Authority (SEPTA); Visa Inc.; Walker Parking Consultants.

Reference Enterprise Architecture for Transit Open Payment System

Transportation industry payments systems are evolving to an open payments model, with payments converging across multiple modes and industries. This Smart Card Alliance Transportation Council white paper describes a reference enterprise architecture, called the Transit Open Payment System (TOPS) framework, for open payment in the public transportation space. An enterprise architecture describes how an organization uses technologies, services, and data to meet business needs, policies, and goals. Managers are thereby provided with visibility into dependencies among people, processes, technologies, and performance. The transportation industry needs a reference architecture so stakeholders can tailor their products and services to be interoperable and to provide mobility and a seamless transfer across transportation modes.

BENEFITS

The TOPS framework accommodates diverse environments and provides the following benefits:

- Establishes a general framework for how open payments systems work across vendors, industries, and processes in a technology agnostic environment
- Showcases assumptions, patterns, and strategies used to implement the system
- Enables reuse and portability of system elements, interoperability, best-of-breed selection, application of proven solutions, and selection of future

system migration alternatives

- Identifies critical forces, business processes, organizational roles and responsibilities, and data needs

The framework aligns transit fare payment stakeholders with standard practices that support interoperability, reusability, and industry-scale economic benefits. The framework provides a model for implementing a seamless fare payment system that traverses transportation modes, jurisdictions, markets, and technologies. TOPS can help the industry adopt new and emerging technologies, driven by business processes and standardized information, services, and technology.

METHODOLOGY

To create the TOPS framework, the Council working group reviewed the purposes of a reference enterprise architecture, researched current academic and industry frameworks, developed a description of how the architecture should be modeled, and then detailed a recommended approach.

RECOMMENDED MODEL

An enterprise architecture comprises five layers. Four layers are internal to a business: business processes, information (and data), applications (and services), and technologies. The fifth layer, drivers, specifies the external and internal forces that drive the business, such as business strategy, regulations, and customer expectations.

The white paper defines the content of these basic layers for transit, defining terminology and identifying transit-specific considerations, and where applicable, describes sublayers. It also includes the definitions for and relationships between layer contents. The current paper treats only the driver layer in detail; however, additional material is planned for future updates.

ABOUT THE WHITE PAPER

This white paper was developed by the Smart Card Alliance Transportation Council to support developers, integrators, procurers, and users of open payment systems for transit and transportation services with a framework for specifying, developing, integrating and managing the lifecycle and evolution of these systems.

Participants involved in the development of this white paper included: Accenture, American Express, CH2M, Consult Hyperion, Discover Financial Services, Giesecke & Devrient, GO Systems and Solutions, Infineon Technologies, INIT Innovations in Transportation, MasterCard, Metropolitan Transportation Commission (MTC), NXP Semiconductors, OTI America, Southeastern Pennsylvania Transportation Authority (SEPTA), Underwriters Laboratories (UL), U.S. Department of Transportation/Volpe Center, Utah Transit Authority (UTA), Visa Inc., Xerox.

2016: A TIME FOR EXPANSION

EMV Migration Forum Changes Name to US Payments Forum
EXPANDS FOCUS TO ADDITIONAL EMERGING PAYMENTS TECHNOLOGIES

Since its formation on July 31, 2012, the EMV Migration Forum was instrumental in the progress of the U.S. migration to EMV chip technology by providing the organization to facilitate essential cooperation and coordination across the whole payments ecosystem, including retailers, card issuers, networks, acquirers, processors, technology providers and industry associations. In August 2016, the EMV Migration Forum changed its name to the U.S. Payments Forum and broadened its focus to include other new and emerging payments technologies in the U.S., including tokenization, card-not-present transactions, point-to-point encryption, and mobile and contactless payments. The migration to chip payments is still in process

by the U.S. payments ecosystem, and will remain a top priority for the U.S. Payments Forum.

U.S. EMV CHIP MIGRATION STATUS AND CONTINUED FOCUS

The remarkable progress seen in the U.S. chip migration is a direct result of the commitment and cooperation from the entire payments industry. Support of the migration, especially aiding those segments that have not completed their implementation or are working out further challenges related to their implementations, continues under the expanded charter.

Over the last four years, the Forum created many resources to educate and provide

chip technology implementation guidance, including white papers, webinars, educational video recordings, campaigns and websites. Notable contributions included:

- Defining the technical approach for implementing Durbin-compliant EMV debit for the U.S. market
- Providing educational resources for consumers, merchants and issuers, including the GoChipCard.com website
- Publishing guidance on key technical considerations, including minimum card and terminal requirements and transaction processing during communications disruptions
- Hosting and supporting meetings and working committees to facilitate discussion of EMV implementation across multiple stakeholders
- Providing recommended communications best practices for issuers and merchants

EMV STATE OF THE MARKET

As of this writing, approximately one third of U.S. merchants are enabled to accept chip cards, and about three quarters of consumers have at least one chip card in their wallet. As more payment acceptance points, such as in-store point-of-sale termi-

> The transition to the U.S. Payments Forum capitalizes on the strong, existing organization that networks, issuers, merchants, processors, and industry suppliers already know and trust, allowing the entire industry to come together to ensure successful implementation of these new technologies.

nals, ATMs and automated fuel dispensers become enabled for EMV, fewer opportunities for counterfeit card fraud, the largest source of in-store card fraud in the U.S. will remain.

- Chip-enabled merchants have indicated that chip-on-chip transactions are increasing at a solid rate, with larger enabled merchants seeing most of their transactions as chip transactions
- As merchant enablement continues through the rest of this year and into next year, expect to see chip-on-chip transactions become a bigger proportion of overall transactions
- The Forum continues to identify pain points with the EMV migration and address issues to help move merchant enablement forward, and help the industry reach the goal of widespread chip card acceptance to remove counterfeit fraud from the system

U.S. PAYMENTS FORUM MEMBERSHIP

The U.S. Payments Forum membership is made up of former EMV Migration Forum members, which includes global and domestic payments networks, financial card issuers, payments processors, merchants, acquirers, industry suppliers and industry associations, and other new constituent groups representing mobile payments, e-commerce services, cloud payments, and new technologies. The breadth of the Forum's membership is intended to ensure that all stakeholders participate in projects that will help to shape the future of the U.S. payments industry.

U.S. PAYMENTS FORUM ACTIVITIES

Other payment technologies require the same breadth of stakeholder engagement, cooperation and coordination for successful implementation in the U.S. The Forum addresses those new and emerging payments technologies, and also focuses on segments that have unique requirements including hospitality, grocery, petroleum,

transportation and ATM. Activities have included:

- Providing best practices and actionable guidance on technical issues, consumer awareness and other non-proprietary issues relating to industry-wide adoption and implementation of new payments technologies
- Facilitating the potential coordination of process-related elements of the payments infrastructure that impact multiple stakeholders
- Engaging in projects to facilitate consumer adoption and allow for a more consistent consumer experience
- Providing implementation feedback on proposed new payments specifications to standards bodies

FORUM RESOURCES RECAP

The U.S. Payments Forum has provided a number of resources to provide EMV implementation guidance and optimization approaches for the industry. These resources include:

- "Optimizing Transaction Speed at the Point of Sale," a white paper detailing approaches to help speed up EMV chip transactions and their potential impact on stakeholders within the U.S. payments ecosystem
- "EMV Chargeback Best Practices," a white paper that provides guidelines for ensuring proper authorization, as well as avoiding and mitigate invalid chargebacks
- EMV Minimum Requirements matrix, outlining minimum requirements of EMV chip deployment for various payment networks, with recent updates covering faster EMV solutions the major card brands
- On-demand access to "Best Practices in Support of EMV Instant Issuance," a webinar recording that details implementation and best practices for development of an EMV instant issuance program

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- Kristy Cook, Target
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- Allen Friedman, Ingenico

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- Ellie Smith, Discover Financial Services
- Jamie Topolski, Fiserv
- Tom Pouliot, Unionpay
- Bob Woodbury, FIS/NYCE

EMV Migration Progress – Another Milestone Reached

When the EMV Migration Forum was formed in August 2012, the U.S. payments marketplace had just come to the realization of how big a job the conversion of 1.2 billion payment cards, 5 million merchant locations, and more than 12 million payments terminals was going to be. The changes that started to reshape the entire consumer payments ecosystem did not happen all at once. Within our membership, we convened a broad mix of payments leaders and debated complex issues during four years of determined and sometimes contentious movement towards EMV adoption.

Today, approximately one-third of U.S. merchants are enabled to accept chip cards, and about three-quarters of consumers have at least one chip card in their wallet. As more payment acceptance points, such as in-store point-of-sale terminals, ATMs and automated fuel dispensers become enabled for EMV, fewer opportunities will remain for counterfeit card fraud, the largest source of in-store card fraud in the U.S.

The U.S. is in the midst of a large, complex migration that cannot be summarized by a single year's activity. While there has been a lot of talk about October 2015 being the "anniversary of the U.S. chip migration," it was really just one key date for fraud liability policy changes for in-store chip card payments. There will be many more payments industry milestones to acknowledge and celebrate in the coming years, thanks to the committed organizations that supported the EMV Migration Forum.

As for the near term, there are significant objectives ahead, not only to complete the EMV migration, but to plan beyond EMV for the ongoing changes involving mobile payments, contactless, and card-not-present security once the EMV migration reaches maturity in a few years – especially considering the size and complexity of the U.S. payments market.

> THE U.S. PAYMENTS FORUM IS ALREADY ADDRESSING A VARIETY OF NEW AND EMERGING PAYMENTS TECHNOLOGIES THAT PROTECT THE SECURITY OF, AND ENHANCE OPPORTUNITIES FOR, PAYMENT TRANSACTIONS WITHIN THE U.S.

To provide expanded support for the payments ecosystem, the EMV Migration Forum changed its name to the U.S. Payments Forum this past summer. The U.S. Payments Forum continues to support the chip migration while also broadening its focus to these other new and emerging payments technologies in the U.S.

The U.S. Payments Forum is already addressing a variety of new and emerging payments technologies that protect the security of, and enhance opportunities for, payment transactions within the U.S. In addition to the ongoing migration to chip technology, new Forum topic areas include tokenization, card-not-present transactions, point-to-point encryption, and mobile and contactless payments.

The remarkable progress we've seen in U.S. chip migration to date is a direct result of the commitment and cooperation that has been present in the EMV Migration Forum from the entire payments industry. Over the summer, it seemed an appropriate time to shift some of that attention and energy towards implementing payments innovations that are going to leverage the new upgraded networks, payments devices, and point-of-sale systems in physical stores and also look at helping merchants and issuers solve the challenges of online commerce and omni-channel consumer shopping.

Our EMV Migration Forum members can look back on their past accomplishments and feel confident about continuing their mission under the U.S. Payments Forum. Now is the time for additional organizations who are the next generation of payments innovators, especially providers of mobile payments, tokenization, card-not-present fraud and encryption solutions, to join the EMV crusaders in the U.S. Payments Forum and help keep the U.S. the most advanced payments market in the world.

Randy Vanderhoof
Director,
U.S. Payments Forum

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- Xerox

As of September 30, 2016

U.S. PAYMENTS FORUM WORKING COMMITTEES

The U.S. Payments Forum has had five working committees and two special interest groups active in 2016 focused on different topics relevant to EMV migration, and is now establishing a new working committee for 2017 to work on expanded topics. The working committee topics and activities are chosen by Forum members based on critical issues discussed in the Forum meetings. Forum members can join any working committee and lead or participate in committee projects. Projects are defined by the committee members to focus on the critical issues or challenges that impact implementation of EMV and other emerging payments technologies in the U.S. Working committees meet at U.S. Payments Forum in-person meetings and in regular teleconferences.

ATM Working Committee. The ATM Working Committee goal is to explore the challenges of EMV migration for the U.S. ATM industry, work to identify possible solutions to challenges, and facilitate the sharing of best practices with the various industry constituents, with the goal result being more positive EMV migration experience for consumers. The Working Committee provides input, solutions, and expertise that are specific to the needs of the ATM channel to other Forum working committees.

- Working Committee co-chairs: Stuart Mackinnon, Columbus Data Services; Ron Schnittman, Bank of America; David Tente, ATMIA

Card-Not-Present Fraud Working Committee. The Card-Not-Present Fraud Working Committee goal is to create a comprehensive best practices strategy to mitigate card-not-present fraud in the new EMV chip card environment, using a balanced approach considering all key stakeholders – issuers, consumers, merchants, acquirers, networks and third parties. Working Committee projects included reviewing and assembling lessons learned from other country migrations, benchmarking potential tools used to address fraud, monitoring fraud levels, collaborating with other organizations to understand fraud costs, and providing best practices for online fraud management.

- Working Committee co-chairs: Teresa Bryan, MasterCard; Ben Dominguez, Visa; Malcolm Nunes, Fiserv

Communication and Education Working Committee. The Communication and Education Working Committee goal is to deliver communications best practices and educational resources for key payments industry stakeholders that promote an efficient, timely and effective implementation of EMV-enabled cards and payment credentials, devices and terminals and emerging payments technologies in the United States.

- Working Committee co-chairs: Lori Breitzke, E&S Consulting; Marie Doloc, Arroweye Solutions, Inc.; Mansour Karimzadeh, SCIL EMV Academy

Mobile and Contactless Payments Working Committee. With the expansion of the U.S. Payments Forum charter, members identified mobile and contactless payments as the priority topic for new activities. The Mobile and Contactless Payments Working Committee is being formed to explore the challenges associated with implementation of mobile and contactless payments in the U.S. market, identify possible solutions to challenges, and facilitate the sharing of best practices with all industry stakeholders.

Petroleum Working Committee. The Petroleum Working Committee is for all interested parties to work collaboratively to identify, review and resolve challenges associated with implementation of EMV within the U.S. petroleum and convenience market. The Petroleum Working Committee includes payment networks, petroleum and convenience merchants, petroleum-specific acquirers, petroleum and convenience POS vendors and fuel dispenser manufacturers, and other organizations servicing the petroleum and convenience category.

- Working Committee co-chairs: Kara Gunderson, CITGO Petroleum Corporation; Tomas Levy, Gilbarco; Terry Mahoney, W. Capra Consulting Group

Testing and Certification Working Committee. The Testing and Certification Working Committee goal is to discuss the challenges with EMV certification and define approaches for achieving certification to meet the payment brand milestones for fraud liability shift. Areas for focus include: education on the testing and certification that is required for different industry stakeholders; evaluation of current processes to define approaches for streamlining testing and certification.

- Working Committee co-chairs: Randy Burnette, Verifone; Cindy Kohler, Visa Inc.

Special Interest Groups

The U.S. Payments Forum has two special interest groups (SIGs), one for merchants and one for issuers. The Merchant SIG is led by Kristy Cook, Target. The Issuer SIG is led by Jesse Lee, Wells Fargo.

Special Topic Groups

At each U.S. Payments Forum meeting, "birds-of-a-feather" sessions are held to discuss topics of interest to specific groups. 2016 meetings have included sessions focused on the hospitality and grocery merchant segments and sessions focused on tokenization and the EMVCo Payment Account Reference (PAR) specification.

U.S. PAYMENTS FORUM RESOURCES

The U.S. Payments Forum had an active year, developing business and technical resources to assist with EMV migration and continuing outreach and education initiatives for issuers, merchants and ATM owners and operators. All published resources are available on the EMV Connection web site.
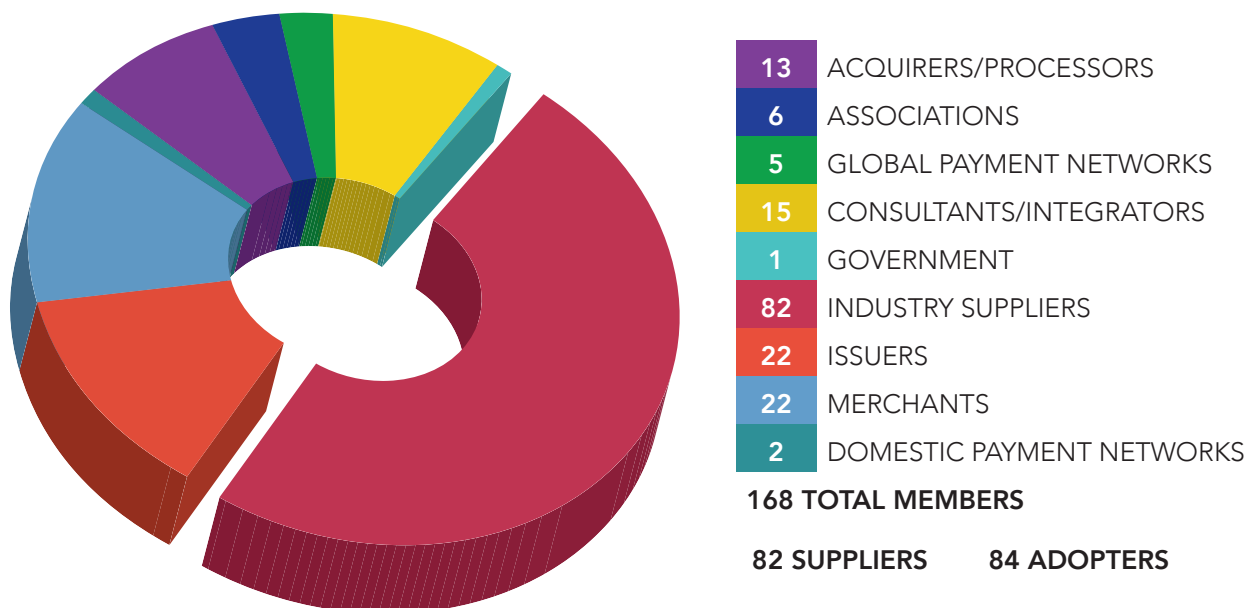
Business and Technical Resources

- EMV Best Practices Web Resource, providing a searchable web resource for easy-to-find answers on commonly asked questions about best practices for implementing EMV chip technology
- EMV Chargeback Best Practices white paper, discussing the appropriate treatment and mitigation of counterfeit and lost/stolen chip liability shift chargebacks for contact chip cards used in attended transactions
- EMV Implementation Guidance: Fallback Transactions guidance, outlining potential causes of fallback transactions and actions that can be taken to address the problem
- EMV Testing and Certification White Paper: Current Global Payment Network Requirements for the U.S. Acquiring Community, defining the current processes required to test EMV chip transactions with American Express, Discover, MasterCard, and Visa (updated in 2016)
- Merchant Processing during Communications Disruption white paper, discussing best practices for merchants processing EMV chip transactions when communications are disrupted

- Minimum EMV Chip Card and Terminal Requirements – U.S. matrix, defining the minimum card and terminal EMV requirements for payment networks (updated in 2016)
- Optimizing Transaction Speed at the POS white paper, describing three categories of approaches to help speed transactions and discussing their potential impacts for each stakeholder group in the U.S. payments ecosystem: "Faster EMV" solutions, contactless/Near Field Communication (NFC) transactions, and other EMV checkout optimization practices
- PIN Bypass in the U.S. Market, providing an educational resource on PIN Entry Bypass, how it can be implemented in the U.S. market, other actions that may process transactions allowing selection of cardholder verification method, and how those actions differ from PIN Entry Bypass

Educational Webinars and Workshops

- Best Practices in Support of EMV Instant Issuance webinar, providing an educational resource for issuers that documents the best practices for transitioning an existing instant issuance solution to support the issuance of EMV chip cards
- EMV Chargeback Best Practices webinar, discussing the appropriate treatment and mitigation of counterfeit and lost/stolen chip liability shift chargebacks for contact chip cards used in attended transactions
- "Implementing EMV at the ATM" workshop, with sessions held at Forum meetings and at the National ATM Council NAC2016 conference

U.S. PAYMENTS FORUM MEMBERSHIP MIX

13	ACQUIRERS/PROCESSORS
6	ASSOCIATIONS
5	GLOBAL PAYMENT NETWORKS
15	CONSULTANTS/INTEGRATORS
1	GOVERNMENT
82	INDUSTRY SUPPLIERS
22	ISSUERS
22	MERCHANTS
2	DOMESTIC PAYMENT NETWORKS

168 TOTAL MEMBERS

82 SUPPLIERS **84 ADOPTERS**

LATIN AMERICA CHAPTER

MISSION: Stimulate the understanding, adoption, use and widespread application of smart cards in the Americas.

SCALA Overview

SCALA, the Latin American and Caribbean chapter of the Smart Card Alliance, works to stimulate the comprehension, interoperability, convergence, evolution, and widespread use of innovative applications of emerging digital technologies with integrated circuit components in the region. Through specific projects including the development industry best practices, technical documents, specifications, educational programs, market research, advocacy, a digital center of excellence, open forums and relationships with industries affected by related technologies. SCALA keeps its members and partners connected to the industry leaders of each of the related sectors. The SCALA chapter is proud to be a leader on the impact and value of smart cards and related technologies in Latin America and the Caribbean.

Areas of Leadership:

Financial Inclusion, Contactless Payments, Open Payments, Tokenization, Biometric Payments, Digital Currency, 3D Secure 2.0, Identity Payments, Identity of Devices, Public Key Infrastructure – PKI, Frictionless Payments, Access Control, Reciprocal Recognition of Identity, Derived Identity, Mobile ID, E-Gov, E-Passport, Healthcare, Multi-Application, and Related Applications.

The **D**igital **C**enter **o**f **E**xcellence

The Digital Center of Excellence (CED)

The Digital Center of Excellence is a training center for the development of industry professionals and market leaders on emerging digital technologies that provide both theoretical and practical training to reduce the risk of the implementations of digital secure technologies. This is done through education, best practices, and the expansion of innovation. It also provides a pathway for professionals to enter the industry and also become recognized experts in digital technologies.

The Digital Center of Excellence is a joint effort with the National Bureau of Science, Technology and Innovation – SENACYT, The City of Knowledge Foundation - FCDS, and SCALA, who work together to expand the knowledge, awareness, and innovative use of digital secure technologies. The result is a strong educational and training component that helps academic organizations bridge the knowledge gap necessary for today's digital world.

SCALA Councils

PAYMENTS COUNCIL

The SCALA Payments Council focuses on facilitating the adoption and convergence of chip-enabled payments systems and related applications in Latin America and the Caribbean. Bringing together industry stakeholders, payment leaders, and suppliers, the council works to reduce the barriers to adopting of emerging digital technologies in projects related to EMV, open payments, contactless payments, mobile payments, e-commerce and other payments projects. The Council's goal is to promote the value of chip-enabled payments and related components to the market to improve the security and quality of service.

Council Projects
The Council works on projects to provide educational resources for innovation in and convergence of smart card related implementation for financial inclusion, transportation, and payments. They played a key role in the development of the Open Payment Initiative in Transportation in the region; the focus was the evolution of payments in transportation as the industry moves toward a system that accepts dual-interface EMV compliant cards such as prepaid, debit and credit cards, as well as using these initiatives to promote financial inclusion of marginalized populations.

IDENTITY COUNCIL

SCALA's Identity Council focuses on promoting adequate policies and best practices concerning the implementation secure interoperable identity credentials and related applications within the Latin American and Caribbean regions. The Council addresses the challenges of secure identity by developing guidelines for organizations, so they can realize the benefits that secure identity delivers, and works on projects to raise awareness of the issues that organizations and the public face in implementing and using identity systems. Council members share their experiences in a non-partisan manner with industry leaders, organizations, government agencies, countries' authorities, and international bodies, in order to find solutions to the problems faced and to seek the development of collaboration among the sectors and countries impacted by identity.

Open Specification
The Council has development of an open specification for the reciprocal recognition of national identity documents, moving forward toward a system that allows different countries to electronically validate the identity credential information of another. The specification also contemplates the interoperability of multiple applications in a single credential, allowing the authenticity of the credential and traceability of the validation to guarantee the compliance of basic human rights.

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- Inter American Development Bank
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- NXP Semiconductors
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- Registro Publico de Panama
- Safran Morpho
- Sertracen
- Servired, S.A.
- Smartrac Technology Group
- Ultra Electronics Card Systems
- VeriFone Inc
- Visa

As of September 30, 2016

To learn more about SCALA, visit www.sca-la.org.

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