



Payments Outlook 2016

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* Views expressed are strictly the author's.



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2016 themes

- Continued strong secular electronic-payments growth
 - China
 - Payments on general-purpose domestic cards in 2014 grew 52% yoy in 2014 -a) accelerating from 44% yoy growth in 2013 -b)
 - Pos terminals increased a whopping 49% in 2013 –b)
 - For foreign networks & processors China remains a giant one-off, impossible to ignore, but not prudent to bank on.
 - In India general-purpose card payments increased 24.6% yoy in 2014 –c)
 - European Union 2013 yoy general-purpose card-payments growth as 9.6% –d)
 - US general-purpose 2014 card-payments growth was 7.8% -e)
 - Global 2014 general-purpose card-payments growth was 14.2% - f)
- Fierce network and processor competition
- Payments anywhere, anytime
- Continued frenzied innovation on the edge
- Attempts to innovate and introduce new competitors at the center
- Regulatory challenges in US, Europe and China

(a- Nilson Report March, 2015 (b- Bank for International Settlements. Transactions are on domestic cards.

(c- Reserve Bank of India (d- ECB (e – Nilson Report February, 2015 (f- Nilson Report March, 2015. Payment transactions for Visa, MasterCard, Amex, Discover/Diners Club, China UnionPay and JCB

Payment systems

- Retail-Payment Networks
 - MasterCard & Visa firing on all cylinders,
 - Amex, Discover, China UnionPay, PayPal, Alipay, Tenpay et al, would-be disruptor Bitcoin, faster ACH and MNO-centric schemes, taking a range of approaches to compete and increase or establish network value.
- Digital-wallet maelstrom, land-rush on
- Processing land grab, bundling value around payments, and vertical integration

Payment systems

- Global – MasterCard and Visa
 - World’s largest retail network Visa reestablished as a coherent global network with one set of management and ownership.
- Tier-two and aspiring global
 - Amex
 - Coming off a tough year with loss of Costco, Jet Blue and Fidelity co-brand relationships and presumptive Chenault successor Ed Gilligan
 - Marriott acquiring Starwood, potentially putting Starwood cobrand relationship at risk.
 - Reinstated enforcement of contractual anti-steering provision for merchants. –a)
 - China UnionPay
 - Discover/Diners Club
 - Full-suite, semi-open network
 - Acceptance partnerships with a host of networks including JCB, China UnionPay, Rupay, PayPal, Eufiserv, BCC, Eufiserv, Interswitch, et al
 - Majority of business proprietary
 - Losing share

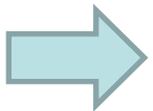
(a- “AmEx reinstates rule prohibiting merchant steering,” WSJ, December 21, 2015

Payment systems

- JCB
- PayPal
- Alipay making headway building global acceptance.
 - In December, 2015 Wirecard announced it will provide Alipay acceptance. Stripe, Adyen, Worldpay et al already do.
- M-Pesa
 - In April, 2015 initiated cross-border payments between Kenya and Tanzania
 - In December, 2015 launched in 11th country, Ghana
 - Partnership with Western Union
- Regional
 - Eufiserv
 - MercadoPago
- National and aspiring national
 - Traditional card networks: Interac, Star, Cartes Bancaires, Girocard, NYCE, Pulse, BCC, Bancomat Mister Cash, Elo, Rupay, Verve/Interswitch et al

Payment systems

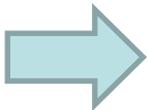
- For the first time in years First Data seems interested in revivifying Star. Is it too late? Star has > 2 million merchants and ATMs. Introduced pinless debit. Could add credit. Within First Data processing ecosystem of thousands of issuer and millions of merchants could enhance Star value proposition with robust, card-linked rewards à la Cardlytics.
- E-commerce, mobile, and ACH-anchored networks: Ideal, Sofort, Tenpay, Dwolla, Zapp, Paym, Paytm, Swish, EcoCash, bKash, BBM, Smart Money, Globe Cash et al



- Network effects rule
- Most new payment networks fail
- Path to critical mass and therefore relevance vital
- Branded retail payment networks with critical mass enjoy powerful network effects. Still two genuinely global retail payment schemes: MasterCard and Visa

PayPal

- PayPal
 - Leading multinational network, wallet, processor, and issuer
 - First digital wallet to scale. Second in terms of payment volume and users after Alipay
 - Effort to go to the physical pos thus far unsuccessful
 - Acquired white-label wallet provider Paydiant. Coupled with retail credit (Bill Me Later) potentially bolsters retailer value proposition
 - Omnichannel launch with Macy's covers online, in-store and in-app channels
 - One Touch– Powerful attempt to defend friction edge, which is under assault by an array of digital wallets. Available in 23 national markets. ~ 10 million consumers and 1 million merchants participating.
- Predictions:
 - Continued “take-rate” erosion
 - Collaborate with some open payments wallets by nonpayments-company platforms such as Android Pay, Samsung Pay and Apple Pay.
 - Cobranded wallets and credit with retailers
 - Increased partnering for acceptance and issuance



National/continental network champions

- **Russia – Mir**
 - In July, 2014 national network processor JSC NPCPS owned by the Russian central bank launched.
 - Mir payment-card scheme owned by Russian central bank launched. 35 Russian banks have joined.
 - In December, 2015 7 Russian banks began issuing cobranded Mir cards -a)
- **Brazil – Elo**
 - Domestic payment scheme jv between Banco de Brasil, Bradesco and Caixa Economica Federal, using Visa as a processor, targeted at low-income customers and government-benefit recipients. ELO now has ~ 7% of Brazil's domestic card market. -b)
- **India - RuPay**
 - August, 2013 DNS was the first bank to issue RuPay debit cards. In 2013 RuPay cards increased to 13 million, up from just 200,000 at the end of 2012. -b)
 - Plans to support credit cards in 2016
 - JCB and Discover partnerships. Cobranded JCB/Rupay card issuance and a joint JCB-acceptance business in India to start mid-2016 -c)

(a- "Russian Banks Issue First 'Mir' Payment Cards," Sputnik news, December 15, 2015

(b- "Brazil's Elo credit card in deal to use Discover global network," Reuters, August 20, 2015

(c- "NPCI and JCB enter into strategic partnership for JCB acceptance and card issuing in India," NPCI, June 29, 2015

National/continental network champions

- China – China UnionPay
 - Established in 2002 by PBOC administrative diktat, owned by 85 banks, the largest of which are state-owned.
 - The central bank requires payment cards to clear renminbi transactions through China UnionPay
 - However, in 2015 Alipay and Tenpay started providing barcode-based payments and competing with UnionPay at the physical pos.
- European Union – EAPS, Monnet and Eufiserv
 - EAPS failed
 - Monnet didn't get out of the gate
 - Savings banks' ATM network Eufiserv starting to increase debit business.

Payments anywhere, anytime

- 7 billion mobile cellular subscriptions –a)
- Global mobile OS platforms
- US smart-phone penetration reached 75% in 2014 –b)
- More than 200 mobile-acceptance providers including Square, PayPal Here, iZettle, Payleven, Sumup, Intuit, and WorldPay Zinc, employing proven acquirer business model(s), taking credit risk and owning merchant relationships. Monitise, Ingenico (Roam Data) et al process mobile-acceptance.
- Mobile point-of-sale acceptance devices in the United States and Canada forecast to hit 17.4 million by 2019 –c)

➔ Mobile-acceptance opportunity in emerging markets greater
Extends established networks

(a-International Telecommunications Union

(b- ComScore

(c- 451 Research



Payments anywhere, anytime

Adyen Mobile Payments Index

Payment network or country	Online payments made from a mobile device
JCB	47%
Alipay	35%
UnionPay	23%
iDeal	49%
Bancontact/Mister Cash	38%
PayPal	40%
Worldwide	30%
UK	46.90%
Spain	32%
Netherlands	32%
US	27%
Germany	25%
France	23%



-a)

(a- Adyen Mobile Payments Index, Q3, 2015. Note, the index does not track in-app mobile payments.

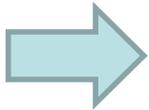
Bitcoin



- Promise/hype Bitcoin will displace/disrupt fiat currencies, retail payment networks and money-transfer systems.
- Best retail use cases are illicit commerce
- Lack of centralized management and support is not as asserted a plus
- 10 minutes for payment certainty doesn't work
- Putative cost advantage isn't compelling
- Existing networks work and enjoy huge network effects
- Nonetheless a flood (119 venture-capital backed) of companies are attempting to build Bitcoin/bitcoin-based businesses
- Firms like Coinbase, Bitnet and Bitpay provide bitcoin acceptance to merchants, charging 1 to 1.5%
- Businesses such as Xapo and Coinbase provide bitcoin wallets, making money on fees charged for converting bitcoin to and out of fiat currencies.

Bitcoin

- As of September, 2015 worldwide ~ 106,000 merchants and 475 ATMs accepted bitcoin and there were 11 million bitcoin wallets. –a)
- While Bitcoin is far and away the leader there are a range of competing cryptocurrencies including Litecoin, Dogecoin, Ripple XRP, Huntercoin, Peercoin, et al.



Retail payments are challenging

- Supporting bilateral wholesale (competing with Swift and correspondent banking) at least plausible. Swift 2.0. Messaging and value.
- IBM evaluating providing blockchain-based infrastructure to support central banks.

Banks are putting their toes in the water

- Ripple has banking partnerships with Commonwealth Bank, Westpac, ANZ, Fidor Bank, CBW Bank, RBS and Cross River Bank
- Westpac and ANZ are experimenting with peer-to-peer transfers on the Ripple protocol
- Commonwealth Bank is trialing the tech for transfers between its subsidiaries
- Citibank's Innovation Lab has 3 distribution ledger trials and a "Citicoins" platform
- RBS to pilot blockchain proof-of-concept "on the fringes of payments" early in 2016
- Barclays plans to support charities accepting bitcoin in 2016.
- Barclays also working with venture-stage Chainalysis to provide bitcoin compliance.

Bitcoin

- Bull case
 - Bitcoin becomes a major global retail payment and money-transfer system and is widely used as a store of value and unit of account
 - Uses
 - International remittances. Regulatory framework particularly in receive countries likely to be accommodative.
 - In developing countries people with smart phones but limited electronic payment tools embrace Bitcoin.
 - Micropayments
 - Internet of things
 - Emerging markets buying goods online from developed markets



Bitcoin

- Probable
 - Selective adoption of Bitcoin and privately-administered or permissioned distributed digital ledgers to manage money transmission
- Bear case
 - It's largely hype.
 - Regulators and governing legal regimes are restrictive if not downright hostile
 - Tax authorities treat bitcoins as property
 - Fails to get traction out of illicit and reputationally-challenged sectors
 - Threatened incumbents adapt. E.g. Swift and correspondent banking system adjust fees and speed

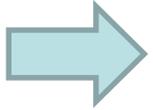
Faster ACH

- Every country has interbank account payment systems. Traditionally most of them have been batch.
- Worldwide push from regulators to make them real-time or at least faster. Idea is faster is better and harnessing faster ACH banks can enhance services to consumers and businesses
- UK – Vocalink
 - PayM – P2P mobile-phone aliases, small merchant retail
 - Most visible retail-payment test case is Zapp
- Sweden
 - BIR owned by 7 banks launched a fast-payments solution November, 2012
- Poland
 - Express Elixir live June, 2012
- Denmark
 - Realtime 24/7 operated by Nets launched December, 2014
- Mexico
 - SPEI operated by central bank
- Singapore
 - March, 2014 delivered by Vocalink implemented real-time interbank transfers up to \$10,000 between 14 banks.

Faster ACH

- ECB defining requirements for instant interbank euro-payments
- Fed wants to shepherd US to faster ACH. A committee including regulators, banks, networks, processors and retailers is developing faster ACH requirements for the US
- Potential faster-ACH players
 - Clearinghouse
 - The Fed
 - FIS
 - Fiserv
 - Dwolla
 - ClearExchange (Bank-owned Early Warning acquired ClearExchange)
 - Maybe MasterCard and Visa

Faster ACH



- Glacial pace
 - Eventually world's major ACH systems will be interconnected by open APIs – interconnected with regulators monitoring.
-
- But, spontaneous retail payment authorizations – where it matters most- are real-time. Real-time authorization systems implemented in mid-seventies.
 - ACH however has no retail acceptance network and weak exception processing and risk management systems
 - Cost-advantage not compelling
 - Questionable business case. For classic ACH transactions such as bill payment and payroll deposit, consumers and businesses may say they want faster but aren't willing to pay for it.
 - When central banks stop suppressing interest rates, faster-payments economics change

P2P

- Western Union
- MoneyGram
- Transferwise and a host of lower-cost primarily electronic money-transfer ventures
- MasterCard and Visa
- Facebook
- Square
- Google
- FIS – leveraging NYCE network
- Fiserv – using Accel
- ClearExchange (Early Warning)
- Paym
- Et al

MNO-centric systems

- M-Pesa, EcoCash, bKash, BBM, Globe Cash, Smart Money et al
 - P2P payments in emerging markets.
 - Evolving to provide retail payments
 - Hybrid/companion payment cards
- Bill to carrier systems
 - MNOs have enormous reach collectively reaching almost every adult on the planet
 - Carriers take credit risk
 - Currently niche, primarily used for digital goods and services
 - Specialists:
 - Boku
 - Danal
 - Mobilian
 - Dimoco



Digital-wallet maelstrom

- Samsung Pay
 - Samsung Pay not charging banks, value-added network providers and online payment service providers. –a)
 - Because of magnetic-secure-transmission technology initially enjoys a significant acceptance advantage over Apple Pay and Android Pay
 - 500,000 Koreans signed up for Samsung Pay since August launch –b) In first month thru September 20th more than \$30 million in transaction volume.
 - Samsung Pay launching with UnionPay in China in early 2016 –c)
 - Launched in US in September
 - In 2016 plans to enable US online shopping.–d)

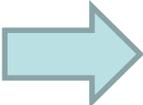
(a- ["Samsung to Waive Fees for Mobile Payment Service,"](#) *Business Korea*, March 9, 2015

(b- ["Samsung Storm: 500,000 Subscribers to Samsung Pay Creates Anticipation for US Debut"](#) September 17, 2015

(c- "Samsung Pay to launch in China with China UnionPay," *NFC World*, December 18, 2015

(d- "Samsung Pay plans to enable US online shopping in 2016," *Reuters*, December 29, 2015

Digital-wallet maelstrom

- Apple Pay
 - Issuers paying to play, because of the Cupertino giant's ability to shift spend, not security.
 - More than 500 US issuers participated –a)
 - Loyal, high-income consumers
 - Platform control, ~ 41.6% US smartphone market –b)
 - In March, 2015 15.1% of iPhone 6 and 6 Plus owners had used Apple Pay in stores. By June, 2015 that had declined to 13.1%. –c)
 - Launched in UK in July
 - In Australia Apple is fighting with the four major retail banks over fees
 - In 2016 launching Apple Pay with China UnionPay –d)
-  Use de minimis, but it's still early days

(a- "Apple Pay Is Now Supported by More Than 500 Banks in US," Tech Times, September 17, 2015

(b - ComScore

(c- "Why Apple Pay is Slumping," Business Insider, August 8, 2015

(d- "Apple and China UnionPay to Bring Apple Pay to China," Apple, December 18, 2015

Digital-wallet maelstrom

- Google
 - To date unsuccessful
 - Scooped up Softcard assets
 - Google wallet being migrated to a P2P product
 - Will pay AT&T, T-Mobile and Verizon to preload
 - Launched Android Pay.
 - Amex, Discover, MasterCard and Visa participating
 - Chase was the only major US issuer not participating in the initial launch



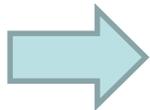
World's search Goliath and largest mobile platform has to find a path to getting it right.

Digital-wallet maelstrom

- Chase Pay
 - At Money 2020 Chase announced QR-code based Chase Pay and an MCX-acceptance deal.
 - Play is to leverage and enhance ChaseNet
- Capital One
 - In October, 2015 debuted mobile payments in its Android app. NFC based.
- RBC
 - Launched RBC wallet using HCE. NFC based.

Digital-wallet maelstrom

- Walmart Pay
 - In December, the Goliath retailer launched QR-code-based Walmart Pay in select stores. Plans national roll-out in the first half of 2016 –a)
- Target Pay
 - Target reportedly testing its own mobile wallet –b)
- MCX CurrentC
 - Still testing in Columbus.
 - Dead in the water?



Most major banks would prefer their customers use their mobile wallets, but have little choice but to support Apple Pay, Android Pay and Samsung Pay

(a- 'Wal-Mart adds to mobile wallet frenzy with 'Walmart Pay',' Reuters, December 10, 2015

(b- "Walmart and Target will win big with mobile wallet," Forbes, December 21, 2015

Digital-wallet maelstrom

- Paytm on and offline markets
 - In September, 2015 raised \$680 million from Alibaba and Ant Financial at a \$2.5 billion valuation.
 - 110 million wallet users, 35 million of whom are active monthly
 - Aims to increase Paytm marketplace from 100,000 merchant to 1 million by 2018, obtain a banking license and expand financial services.

Processors

- First Data, Worldpay, Worldline, Global Payments, Wirecard, Elavon, Total Systems, Ingenico, EVO Payments, et al in global payment-processing land grab
- Can processors build network effects – Stripe, Braintree, Square, First Data and Chase.
- Processors wrapping value around payments, generating fees and reducing attrition
 - Range of models:
 - Revel and Shopkeep
 - GoPago (Verifone)
 - Clover (First Data)
 - Mercury (Vantiv)
 - Et al

Processors skirmishing along traditional defined competitive boundaries

- First Data pushing proprietary Clover platform.
- November, 2015 Payment-software gorilla ACI Worldwide acquired multinational white-label e-commerce processor Pay.on for \$200 million
- Ingenico – the world’s largest pos-terminal supplier is trying to vertically integrate
 - Acquired:
 - Easy Cash
 - Ogone
 - Global Collect
 - Bid on the UK and Europe’s largest merchant acquirer and processor WorldPay

Worldwide payment-processing land rush

- Global Payments overseas acquisition parade:
 - Canada –CIBC and National Bank of Canada's merchant services businesses.
 - Czech Republic –Muzo
 - Russia –United
 - UK –HSBC's acquiring business
 - Spain – Majority of La Caixa's acquiring business and now with La Caixa launching an acquiring business in Brazil
 - Asia –HSBC's acquiring business.
 - Australia – Ezidebit
 - Ireland – Realex – multinational risky e-commerce specialist.
 - Global Payments to acquire Heartland Payment Systems –a)

Worldwide payment-processing land rush

- Worldline
 - Concentrated in France, Belgium and Germany. History as a consolidator.
 - Acquired dominant Belgian processor Banksys and processor Venture Infotek, establishing a beachhead in potentially gargantuan Indian payments market
 - Will merge – closing 2nd quarter, 2016 - with Equens and pick up Dutch acquirer PaySquare, creating Europe's largest payment processor. –a)
 - Expect further processor acquisitions in Europe and beyond.

Worldwide payment-processing land rush

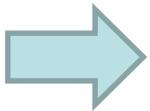
- EVO Payments – an aggressive tier-two US acquirer
 - Picked up Bank Polski's acquiring business, Banco Popular's acquiring business, Deutsche Bank's acquiring business, Citi's Mexican acquiring business, and German Post Bank's P.O.S. Transact.
 - Established relationships with Raiffeisen and Bank of Ireland, which might well ultimately lead to acquisitions.

Worldwide payment-processing land rush

- Wirecard
 - Evolving from a specialist in high-risk e-commerce into a full-suite payment processor
 - Bifocal strategy
 - Broaden core payment-processing offer. Made an unsuccessful bid for WorldPay
 - A string of acquisitions and partnerships over the horizon in emerging markets.
 - Turkey (mobile-payments provider 3Pay), South Africa (Amara Technology – issuer and merchant processing & prepay management), Indonesia (Prima Vista), Vietnam (Trans Infotech – payment processing), India and Singapore (Visa Processing Service) and New Zealand (GFG – card management software)

Regulatory challenges

- US regulators restricting processors from serving politically out-of-favor businesses
- Clearing House pressuring regulators to increase regulatory straitjacket on nonbank processors rather than loosening it on banks.
- UK payment systems regulator
- EC views networks as public utilities
- Chinese central bank
 - Still restricting foreign network and processor access
 - Fees capped by sector



In many cases regulators have suppressed economics, competition and innovation. Nonetheless, underlying payment network and processor business models remain robust.

2016

- Continued robust electronic-payments growth in developed and emerging markets
- Cohort of hyped challengers won't disrupt or upend established payment networks and processors
- Mobile extends and enhances existing systems
- Competition to add value and engage around payments on both sides of the network heats up

Q&A