

Innovation, emerging technologies and transformative transaction banking

Impacts on tomorrow's Accounts Receivables Teams

Jeff Pauly

Director

Product Solutions

Radiance 2018

Bank
Mer

**Bank of America
Merrill Lynch**



SYSTEMS
INITIATE

REAL COMMENCE
IGNITION

REMED

6230848506
04526803456
34685096804
56234562343
23656742364
85748748848
withdrew (spny
jchotp qan
ghidaks (D H 81Y)

Agenda

- Receivables landscape
- Emerging technologies
- Transaction banking convergence
- What today's impacts mean For A/R teams



By 2025, some 20 billion devices will be connected, nearly three times the world population. Over the past two years, such devices have churned out 90 percent of the data ever produced.

Only 8 percent of companies we surveyed recently said their current business model would remain economically viable if their industry keeps digitizing at its current course and speed.



- McKinsey & Company



1 GLOBALIZATION

Global population growth will offer new business opportunities.

2 GLOBAL COMMERCE

Increasing simplicity of doing business between buyer and seller is driving cross-border growth.

3 DEMOGRAPHIC SHIFTS

The rise of millennials is shaping the future of financial services.

Innovation is
being driven by
three global
megatrends...







...and is resulting in a changing payments landscape

	Current Payments Landscape	Next Generation Payments
Reach	Rigid payment types, using existing banking infrastructure	Interoperability across payment types (incl. e-wallets)
Speed	Operates on a two +-day basis (clearing and settlement)	Instant or near-real time payments
Cost	Multiple layers of fees (transaction fee, FX fee, etc.)	Lower costs due to higher volume, lower value payments
Information	Inconsistent levels of data passed in payment instruction	Ability to incorporate information so recipient can reconcile
Traceability	Doesn't provide payment status updates or confirmations	Transparency, predictability, and real-time traceability

Ongoing change in A/R processes

Receivables landscape

Advancements in automation, process improvement, and efficiency gains represent new opportunities in A/R, while industry trends indicate the pace of change continues to increase and render traditional approaches obsolete.

Area	Impact
 Check usage trends	B2B declining at a slower rate than C2B 51% of B2B payments made by check ¹
 ACH / EFT (Canada) transactions	<ul style="list-style-type: none">• Electronic transfers increasing in U.S. & Canada• ACH network transfers grew at an annual rate of 5.3% by number and 5.1% by value²
 Card usage	U.S. credit card payments grew 10.2% annually ²
 Remittance Data & Standards	<ul style="list-style-type: none">• U.S. expanded remittance for Fedwire, CHIPS, ACH healthcare• Payments Canada has approved adoption of ISO 20022 message standards
 Paper to electronic	<ul style="list-style-type: none">• Efforts to migrate payers to electronic increasing in both U.S. and Canada
 Payments Immediacy	<ul style="list-style-type: none">• Same day ACH• The Clearing House (TCH) Real-Time Payments, FedPayments improvement (Coming Soon)

1. 2016 AFP Electronic Payments Survey

2. The Federal Reserve Payments Study: 2017 Annual Supplement

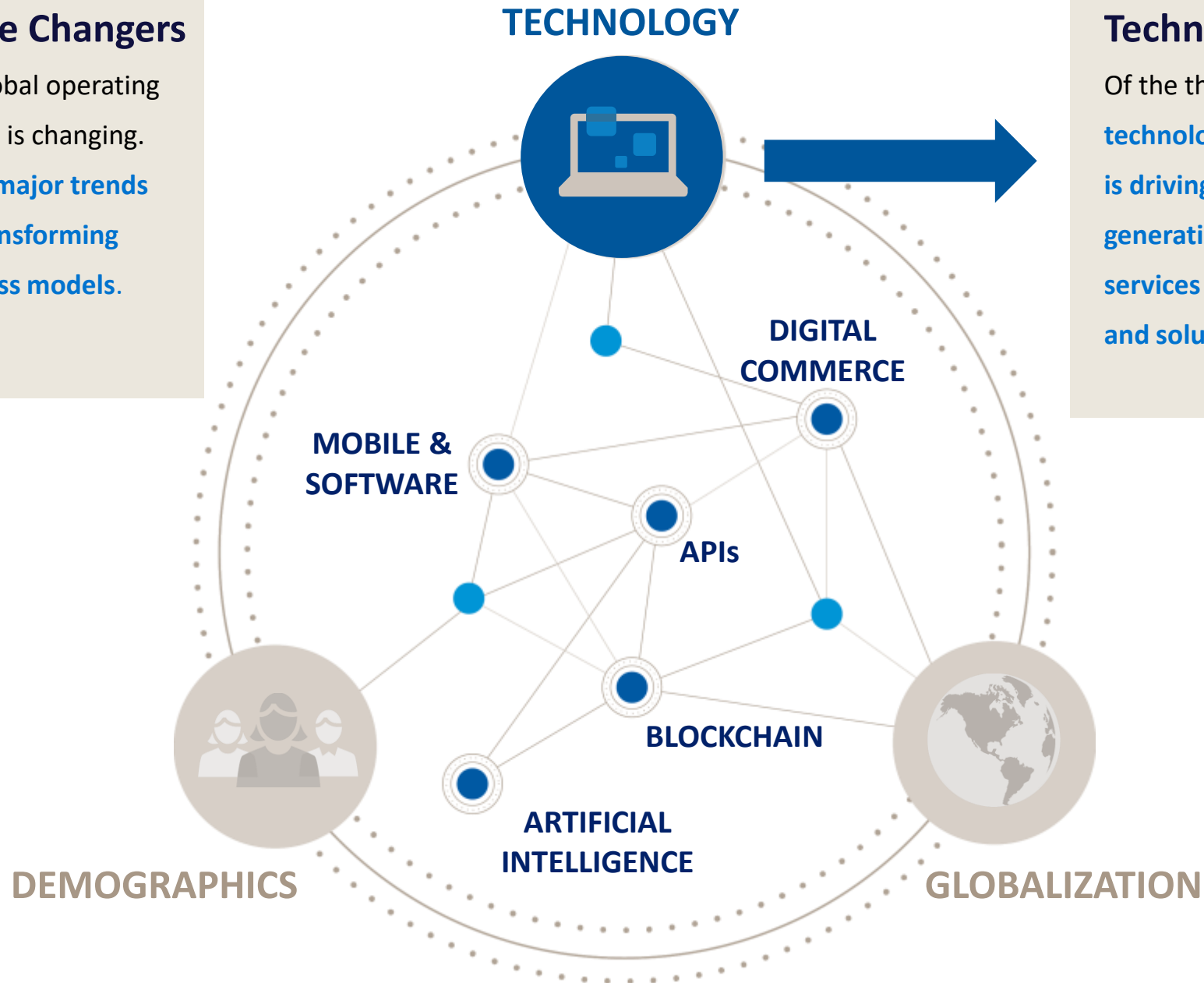
Transformative trends driving innovation

Receivables landscape

Game Changers

The global operating market is changing.

Three major trends are transforming business models.



Technology

Of the three trends, **technology innovation** is driving the next generation of financial services infrastructure and solutions.



Robotic process automation (RPA) has quietly digitized 50 to 80 percent of back-office operations in some industries.

Artificial intelligence and augmented reality are beginning to raise manufacturing yields and quality.

Meanwhile, blockchain's digitized verification of transactions promises to revolutionize complex and paper-intensive processes, with successful applications already cropping up in smart grids and financial trading.

Should the opportunities associated with shifts like these be inspirational for incumbents? Threatening? The answer is both.



- McKinsey & Company

2018 Bank of America Merrill Lynch innovation

Emerging technologies

Leverage internal and external partnerships to inform business cases and design of solutions that address key client needs and emerging client challenges.

Artificial Intelligence

- Cash Forecasting
- Predictive Analytics
- Working capital diagnostics
- Fraud/Risk Management Process Automation



Blockchain/DLT

- KYC/Account Opening Docs
- On-Boarding Docs
- Trade Finance (Smart Contracts)
- Virtual Account Mgmt



Global Digital Commerce

- Alternative & emerging payment networks
- Global Card Acquiring
- Digital invoicing/STP solutions
- FX/Cash Pooling



The technology you want – coupled with the banking expertise you need.

Digital Channels product continuum

Transaction banking convergence

CashPro® Connect

Multi-account,
multi-currency
ERP integration solution



CashPro Mobile

Integrating mobile delivery



Digital Treasury Advisor

Delivering advice and
recommendations



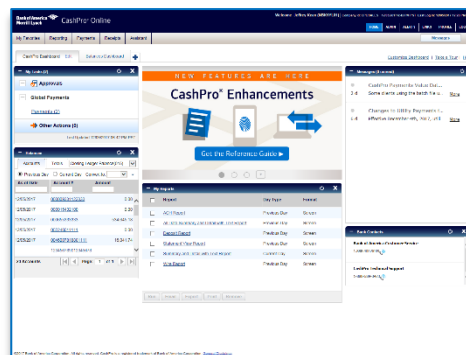
Online

Connectivity

Mobile

API

AI
and
Analytics



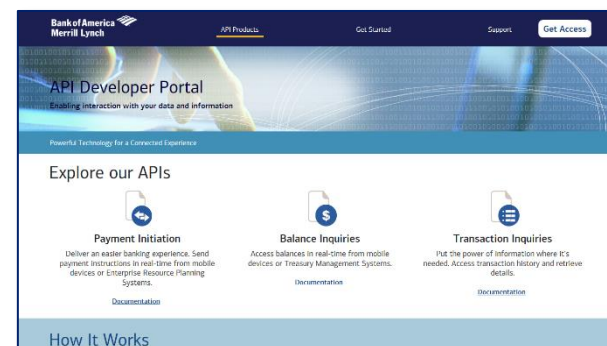
CashPro® Online

Single login secure
online solution



CashPro® Mobile

Expanding access
to solutions



CashPro API Portal

Transformational roadmap to
engage clients and partners

“ **AI largely does not replace the work that people do; it does the work that people *cannot* do.** ”

– DataArt

Leveraging robotics and artificial intelligence

Transaction banking convergence

Robotic process automation

Automation of routine business processes

Predictive analytics & insight

Understanding of behavioral data, client sentiment, relationship depth, etc.

Cognitive/machine learning

Software learning and adapting from experience

Conversational

Ability to understand natural language and “intent”

Near-term applications

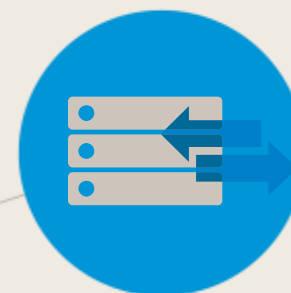
Robotic process automation



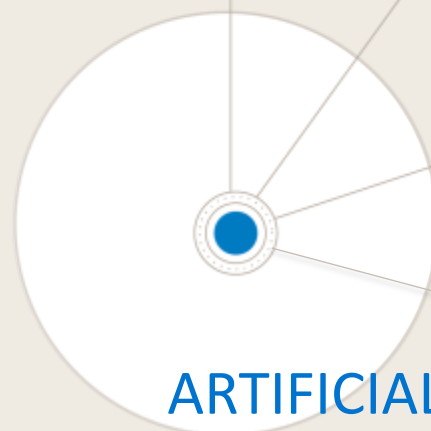
Predictive analytics & insight



Cognitive/
machine
learning



Natural
language
processing



ARTIFICIAL
INTELLIGENCE

AI: a wide range of financial services applications

Transaction banking convergence

Areas of interest

- ✓ Enhanced customer personalization
- ✓ Productivity gains
- ✓ Fraud detection
- ✓ Better client recommendations
- ✓ Improved cash forecasting



80%

The percentage of executives who believe that AI solutions boost worker performance

Source: Narrative Science, 2015

AI at Bank of America Merrill Lynch

Transaction banking convergence

Using artificial intelligence in various ways across our business.

Erica

BofAML's digital assistant for U.S. retail banking

Erica can help customers make payments, check balances, save money and pay down debt



CashPro® Assistant

Analytics and forecasting solutions to help customers manage and analyze their banking and financial data



U.S. Wholesale Lockbox

Robotic process automation is helping clients benefit from speedier processing, a 25% faster time to deposit, and a reduction in processing errors.

Intelligent Receivables

Intelligent pattern matching applies client specific rules to invoice matching and deduction identification. Machine learning improves performance over time.







Evolving digital Receivables

What it means for A/R teams





A new digital era

As trading partners seek to transact with one another in the most efficient manner possible, new approaches and advanced technology are converging to make electronic transactions more seamless, accurate, and cost effective. Historical challenges associated with moving away from paper are being overcome, opening the door for a new paradigm in Accounts Receivable.

Digital Receivable advantages

-  Can reduce cost and manual work associated with paper
-  Helps accelerate availability and posting of funds
-  Can redeploy resources to other critical projects
-  Helps maximize rate of “zero touch” transaction posting

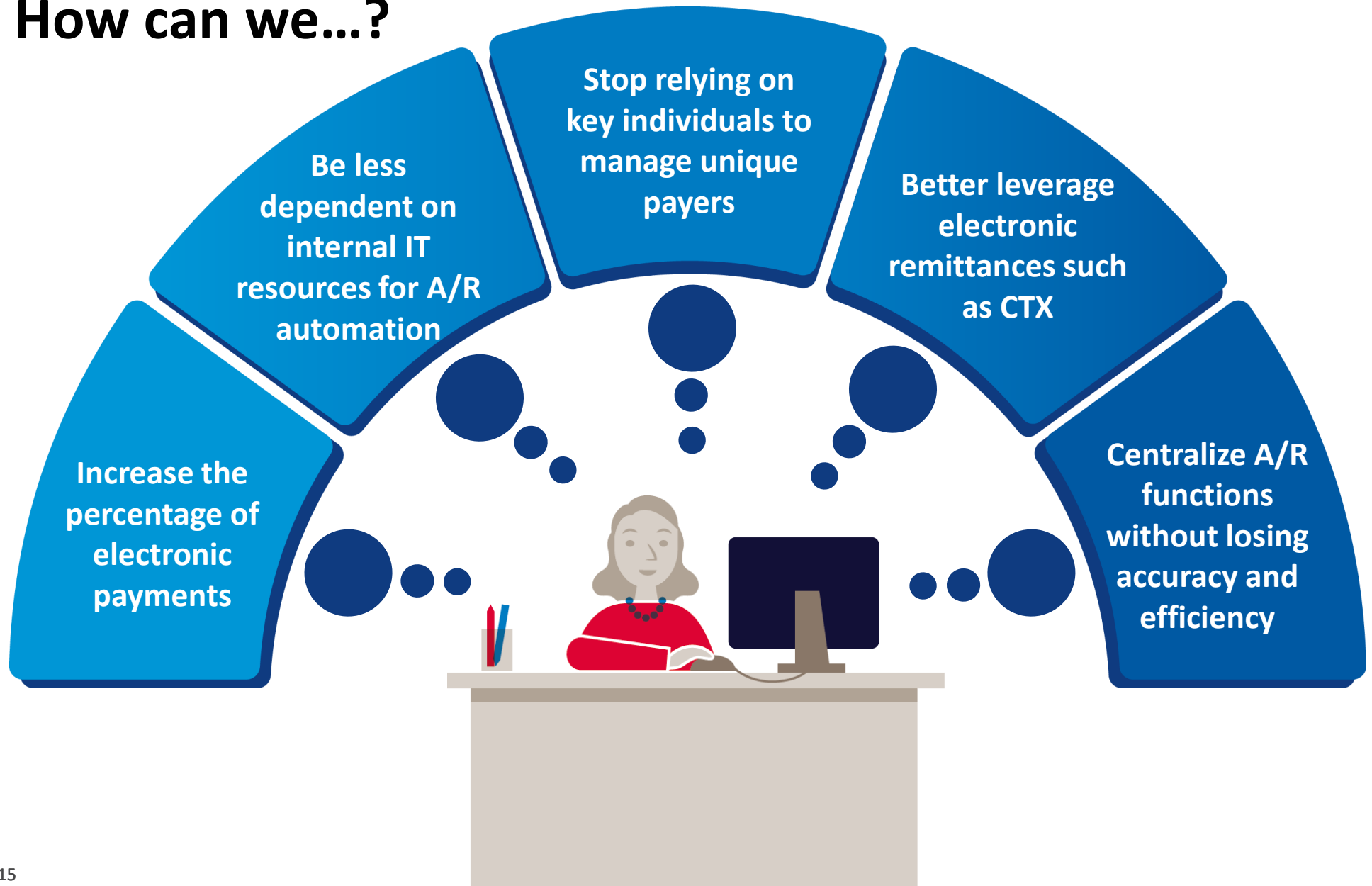
Key market trends driving change

- **Technology innovation impacting Receivables**
 - Advanced technologies including artificial intelligence, data analytics and API's are converging to enable new A/R workflows.
- **Network effect of trading partner integration**
 - A/R teams are integrating systems with trading partners and FI's to create a “network effect” that adds value to all.
- **Accelerated payment systems**
 - Real-time and same-day payment systems accelerate time-to-funds, amplifying impact of electronic receivables.
- **Economics of digital transformation**
 - New approaches to A/R org structure and tools “move the needle” on economics of digital transformation of receivables.

Opportunities in A/R transformation

What It Means For A/R Teams

How can we...?



Economics of digital transformation

What it means For A/R teams



Staffing

- Large organizations often have dozens of staff focused on sourcing and matching remit data back to incoming payments
- Moving to shared services centers provides incentives for high volume automation



Transaction Cost

- Processing electronic payments much more cost effective than paper, so long as surrounding processes are as efficient
- Same-day payment networks make delays in re-association more costly



Internal IT

- In-house A/R tools expensive to build and maintain and rapidly become out-of-date
- Availability of hosted solutions and open standards allows for more cost-effective outsourcing of receivables processing

How receivables transformation improves the bottom line



- ✓ Maximizes rate of “zero touch” transaction posting
- ✓ Helps reduce cost and manual work associated with paper
- ✓ Allows consolidation of people and processes
- ✓ Accelerates availability and posting of funds
- ✓ Work can be “outsourced” to internal and external servicing teams

Accelerated Payment Systems

What it means for A/R teams



Accelerated payment networks amplify the impact of digital receivables transformation, both highlighting the challenges and increasing the value proposition around electronic payment processing.

Same-Day ACH

- Phased-in process, credits completed in 2016 and debits in 2017
- Allows for just-in-time-payments and higher risk payments
- Opportunity for faster collection, product distribution, and returns

The Clearing House

- In 2015, TCH's Board approved the development of a Real-Time Payments solution.
- Payments received within seconds of initiating the transaction, with immediate funds availability
- Accessible by all financial institutions and will reach vast majority of U.S. accounts

Alias-based payment networks



PayPal users have more than doubled from 84.1MM in Q1 2010 to 184MM Q1 2016¹



More than half of China's internet users (688MM¹) are Alipay users (400MM²)

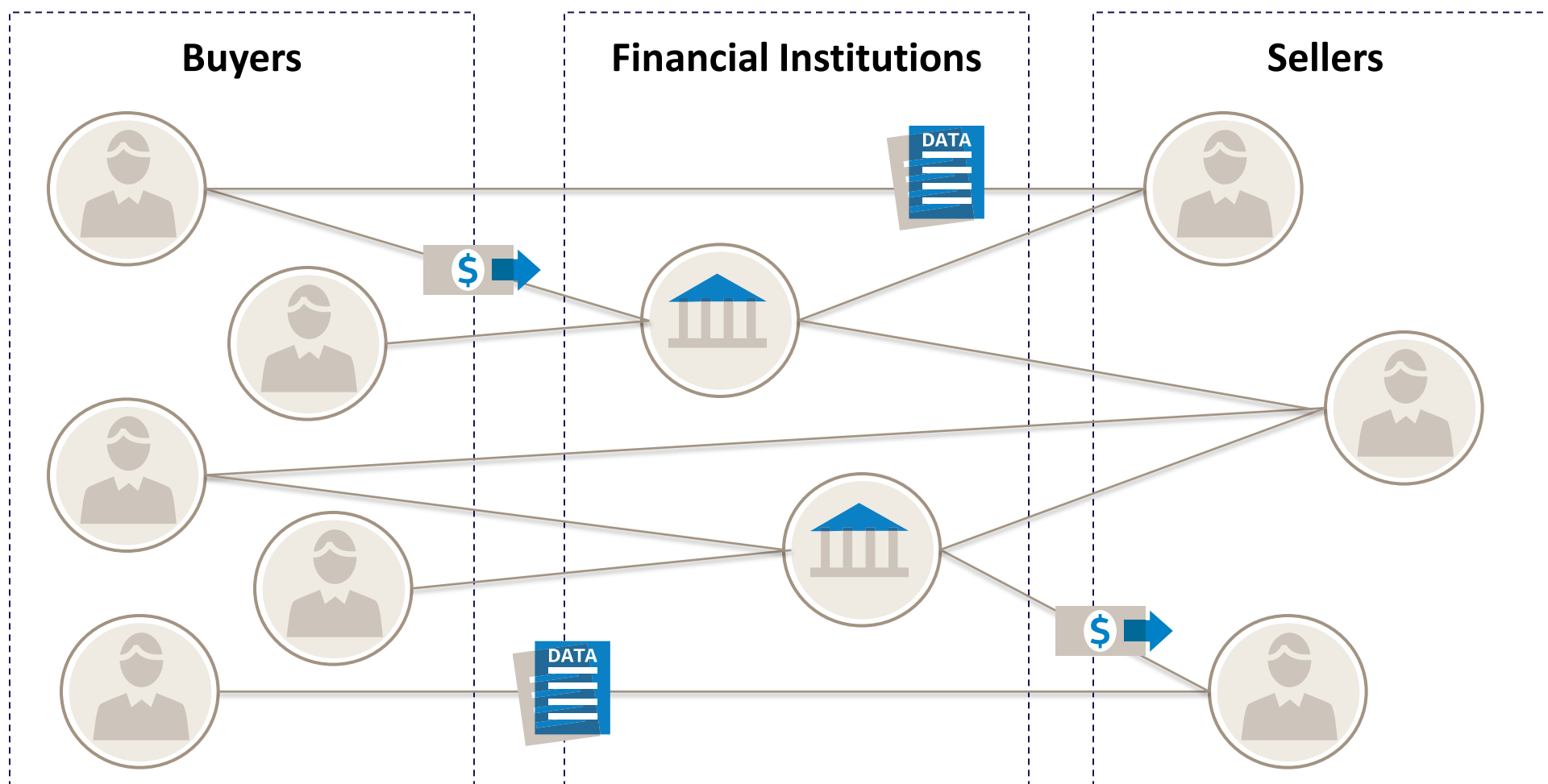


In 2013, a staggering 43% of Kenya's GDP flowed through M-Pesa, with over 237 MM person-to-person transactions³

Network effect of trading partner integration

What it means For A/R teams

Advances in technology, security, and open standards are allowing buyers and sellers to exchange data between internal and 3rd party systems while maintaining visibility and control, thereby changing partner behavior and ultimately creating new receivables “networks”.



“ We want to embrace the innovation opportunities presented by APIs and work with industry providers to give our clients an expanded, secure experience that helps them grow and prosper. As the pace of technological change accelerates, expectations accelerate in tandem. Clearing systems, regulatory mandates and banking channels are evolving to support real-time interactions with unbundled banking services. Our clients will expect to integrate these directly into their business processes and applications. The experience will be easy, more secure and seamless to end users. ”

– Faiz Ahmad, head of Global Transaction Services at BofAML

Questions?

Bank of America
Merrill Lynch

Notice to Recipient

"Bank of America Merrill Lynch" is the marketing name for the global banking and global markets businesses of Bank of America Corporation. Lending, derivatives and other commercial banking activities are performed globally by banking affiliates of Bank of America Corporation, including Bank of America, N.A., Member FDIC. Securities, strategic advisory, and other investment banking activities are performed globally by investment banking affiliates of Bank of America Corporation ("Investment Banking Affiliates"), including, in the United States, Merrill Lynch, Pierce, Fenner & Smith Incorporated and Merrill Lynch Professional Clearing Corp., both of which are registered as broker-dealers and Members of [SIPC](#), and, in other jurisdictions, by locally registered entities. Merrill Lynch, Pierce, Fenner & Smith Incorporated and Merrill Lynch Professional Clearing Corp. are registered as futures commission merchants with the CFTC and are members of the NFA. Investment products offered by Investment Banking Affiliates: Are Not FDIC Insured * May Lose Value * Are Not Bank Guaranteed.

This document is intended for information purposes only and does not constitute a binding commitment to enter into any type of transaction or business relationship as a consequence of any information contained herein.

These materials have been prepared by one or more subsidiaries of Bank of America Corporation solely for the client or potential client to whom such materials are directly addressed and delivered (the "Company") in connection with an actual or potential business relationship and may not be used or relied upon for any purpose other than as specifically contemplated by a written agreement with us. We assume no obligation to update or otherwise revise these materials, which speak as of the date of this presentation (or another date, if so noted) and are subject to change without notice. Under no circumstances may a copy of this presentation be shown, copied, transmitted or otherwise given to any person other than your authorized representatives. Products and services that may be referenced in the accompanying materials may be provided through one or more affiliates of Bank of America, N.A.

We are required to obtain, verify and record certain information that identifies our clients, which information includes the name and address of the client and other information that will allow us to identify the client in accordance with the USA Patriot Act (Title III of Pub. L. 107-56, as amended (signed into law October 26, 2001)) and such other laws, rules and regulations.

We do not provide legal, compliance, tax or accounting advice.

For more information, including terms and conditions that apply to the service(s), please contact your Bank of America Merrill Lynch representative.

Investment Banking Affiliates are not banks. The securities and financial instruments sold, offered or recommended by Investment Banking Affiliates, including without limitation money market mutual funds, are not bank deposits, are not guaranteed by, and are not otherwise obligations of, any bank, thrift or other subsidiary of Bank of America Corporation (unless explicitly stated otherwise), and are not insured by the Federal Deposit Insurance Corporation ("FDIC") or any other governmental agency (unless explicitly stated otherwise).

This document is intended for information purposes only and does not constitute investment advice or a recommendation or an offer or solicitation, and is not the basis for any contract to purchase or sell any security or other instrument, or for Investment Banking Affiliates or banking affiliates to enter into or arrange any type of transaction as a consequent of any information contained herein.

With respect to investments in money market mutual funds, you should carefully consider a fund's investment objectives, risks, charges, and expenses before investing. Although money market mutual funds seek to preserve the value of your investment at \$1.00 per share, it is possible to lose money by investing in money market mutual funds. The value of investments and the income derived from them may go down as well as up and you may not get back your original investment. The level of yield may be subject to fluctuation and is not guaranteed. Changes in rates of exchange between currencies may cause the value of investments to decrease or increase.

We have adopted policies and guidelines designed to preserve the independence of our research analysts. These policies prohibit employees from offering research coverage, a favorable research rating or a specific price target or offering to change a research rating or price target as consideration for or an inducement to obtain business or other compensation.

Copyright 2018 Bank of America Corporation. Bank of America N.A., Member FDIC, Equal Housing Lender.