

# Top 10 Trends in Banking – 2017

What You Need to Know



People matter, results count.

# Table of Contents

Introduction	3
Trend 01: FinTech Firms Are Being Considered as Partners Rather than Competitors	4
Trend 02: Banks Are Using Open APIs to Monetize their Digital Assets and Data	6
Trend 03: There Is a New Shift in the Banking Business Model where Banks will be Acting as a Platform to many FinTech Firms	8
Trend 04: Banks are Investing in Cybersecurity Systems with the Increase in Cyber Threats	10
Trend 05: Banks Are Increasingly Adapting Public Cloud Services, as It Provides Flexibility and Agility	12
Trend 06: Banks Are Testing Augmented Reality to Provide Enhanced Customer Experience	14
Trend 07: Banks Have Been Working Together to Identify and Understand the Use Cases of Distributed Ledger Technology	16
Trend 08: Banks Are Looking at Cognitive Banking to Provide an Edge over Competitors	18
Trend 09: Banks Are Looking to Increase their Efficiency and Productivity by Investing in Robotic Process Automation	20
Trend 10: Banks are using Biometric Authentication Tools to Combat Identity Theft and Fraud	22

# Introduction



With the proliferation of technology, banking customers are living in a connected world with their experience from other industries influencing their expectations from their financial services provider. This has led to an evolving customer-bank relationship necessitating banks to be more customer-centric by embedding themselves in customers' lives to meet rising customer experience expectations. However, banks have been facing challenges in meeting customer expectations, as they are troubled with legacy challenges both in terms of technology and culture.

While technology has been acting as an enabler for banks to make the right moves, it has also led to the growth of non-traditional firms, aka FinTech firms—which are leveraging technology to provide simple, easy-to-use, convenient, and cost-effective products and services to customers. However, FinTechs lack scale, access to a larger customer base, and expertise in handling regulations, all of which leading to a realization that there is significant scope for banks and FinTechs to collaborate and operate together—driving innovations and providing better products/services to customers.

As the rise of FinTechs has had a significant impact on the industry on both technology and the business front, there is a growing trend of banks focusing on innovation by leveraging new technologies such as blockchain, biometrics, and robotic process automation.

This document aims to understand and analyze the trends in the banking industry that are expected to drive the dynamics of the banking ecosystem in the near future.



# Trend 01: FinTech Firms Are Being Considered as Partners Rather than Competitors

*Banks are collaborating or partnering with FinTech firms to build an environment that nurtures innovation and meets the ever-evolving expectations of customers*

## Background



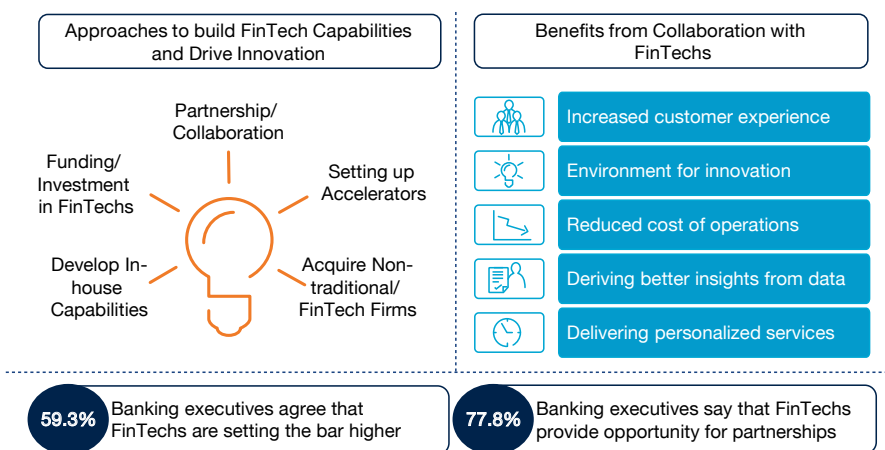
- Banks are burdened by their legacy systems and are focused on complying with regulations rather than meeting evolving needs and expectations of customers
- FinTech firms have entered the industry with innovative products and services and are targeting the most profitable business segments
- Owing to their innovative, convenient, and cheaper offerings, FinTech firms have started acquiring customers from traditional banks, as well as unbanked customers and traditional banks due to lack of favorable environment for innovation are finding it hard to compete with them

## Key Drivers



- Collaboration with FinTechs provides a more conducive environment for innovation for banks free from constraints, which results in increased customer experience and often in a reduction of cost as well
- Lack of leadership support, regulatory burdens, cultural and infrastructure limitations are hampering in-house innovation in banks
- On the other hand, FinTechs lack the regulatory know-how (except in the case of RegTechs, which specialize in solutions pertaining to regulations), capital, and customer confidence that traditional banks possess

## Exhibit 1: Banks Collaborating with FinTechs



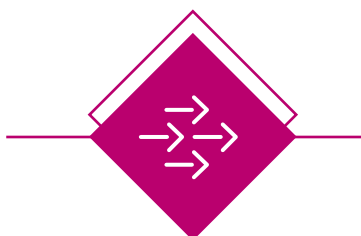
Source: Capgemini Financial Services Analysis, 2016; World FinTech Report, Capgemini 2017

## Trend Overview



- Entry of FinTech firms in the banking industry has compelled banks to look for new offerings by creating the best environment for innovation with the help of FinTechs, considering them as a partner rather than a competitor
- This partnership can provide a sandbox type of approach for experimentation, with the freedom to test new ideas, as FinTechs are positioned outside the bank environment free from infrastructural and cultural constraints
- Many leading banks are running startup programs to incubate FinTech companies or fund them through their venture capital arm, in addition to investing in accelerators and innovation labs:
  - BNP Paribas has launched their own internal accelerators/ incubators/tech hubs Lux Future Lab in Luxembourg and TEB startup House, and partnered with other ecosystem stakeholders such as Partech Shaker and NUMA<sup>1</sup>
  - Startupbootcamp FinTech New York has partnered with Deutsche Bank, Route 66 Ventures, and WilmerHale, further expanding the participation in its FinTech Accelerator program<sup>2</sup>
  - Motif Investing is partnering with J.P. Morgan where initial public offerings led by J.P. Morgan will be available directly to retail customers on Motif's next-generation online brokerage platform<sup>3</sup>
- From 2013–2016, global investments in FinTech were at \$62 billion<sup>4</sup>, with investments peaking to \$24.6 billion in 2015

## Implications



- Traditional banks can help FinTechs to scale up their business by providing financial infrastructure, capital, and access to their huge customer base
- FinTechs can offer innovation and disruptive technologies to banks, which can help them enhance the banking experience for customers
- Banks will be able to deliver new value and services with faster time to market, reduced costs, and improved return on investments
- Collaboration will help both traditional banks and FinTech firms to focus on their core competencies and contribute in the areas of their expertise to have a better joint outcome

<sup>1</sup> "BNP Paribas, leveraging Open Innovation to build the 'Bank of Tomorrow'", Rudebague, April 2015, accessed November 2016 at [www.rudebague.com/2015/04/30/bnp-paribas-leveraging-open-innovation-build-bank-tomorrow-sponsored/](http://www.rudebague.com/2015/04/30/bnp-paribas-leveraging-open-innovation-build-bank-tomorrow-sponsored/)

<sup>2</sup> "Deutsche Bank, Route 66 Ventures and WilmerHale Partner with Startupbootcamp FinTech New York", Startupbootcamp, January 21, 2016, accessed November 2016 at [www.startupbootcamp.org/blog/2016/01/deutsche-bank-route-66-ventures-wilmerhale-partner-startupbootcamp-fintech-new-york/](http://www.startupbootcamp.org/blog/2016/01/deutsche-bank-route-66-ventures-wilmerhale-partner-startupbootcamp-fintech-new-york/)

<sup>3</sup> "Motif Investing Partners With J.P. Morgan to Provide Retail Investors Exclusive Access to IPOs, Motif Investing", November 21, 2015, accessed November 2016 at [www.motifinvesting.com/about/press/press\\_release/motif-investing-partners-j-p-morgan-provide-retail-investors-exclusive-access-ipos](http://www.motifinvesting.com/about/press/press_release/motif-investing-partners-j-p-morgan-provide-retail-investors-exclusive-access-ipos)

<sup>4</sup> "Global Investments in FinTech Companies, CB Insights Database, October 3, 2016, accessed November 2016 at <https://www.cbinsights.com/>

# Trend 02: Banks Are Using Open APIs to Monetize their Digital Assets and Data

*Open APIs enable banks to integrate their products and services with third-party applications to provide customers a variety of products or services through the banking ecosystem and can also be monetized, in many cases*



## Background

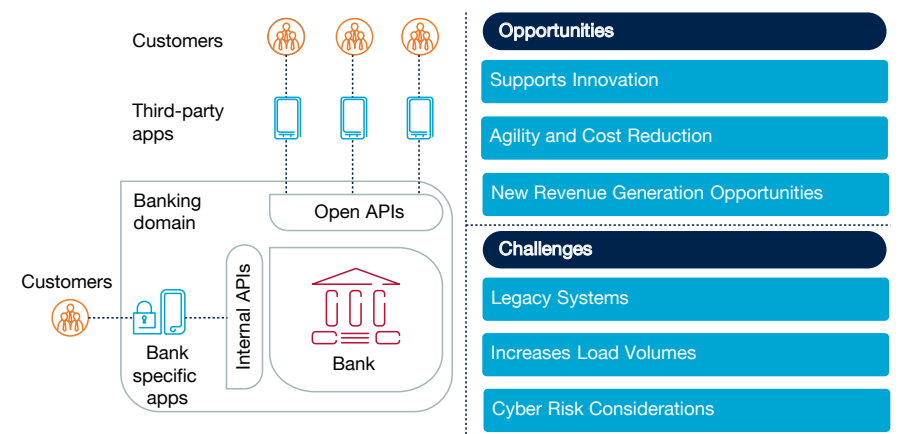
- Traditional banks need to deal with increased competition from FinTechs and rising customer expectations, which is brought about by convenience and availability of advance technologies
- With increasing digitization and inter-connectivity, it is important for banks to cultivate an ecosystem of innovation around customer data
- Banks are looking for new revenue streams and ways to unlock the value of digital assets and customer data



## Key Drivers

- The emerging ecosystem of Bank-FinTech partnerships and collaborations has paved the way for the data sharing economy
- Many open initiatives and government regulations open up access to the customer data banks' hold on other businesses:
  - Regulations such as Access-to-Accounts as part of Payments Service Directive (PSD II) and Open API (application programming interface) standards are paving the way for an open API ecosystem
  - Regulators in many other countries are also evaluating feasibility of open APIs with the aim to provide consumers with secure, less expensive, and easy-to-use financial services
- A way for banks to monetize their digital assets and data

## Exhibit 2: API Economy



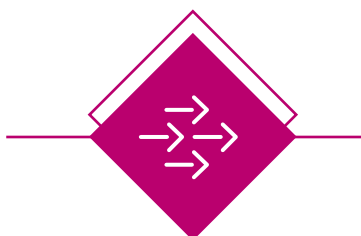
Source: Capgemini Financial Services Analysis, 2016

## Trend Overview



- API is a technology protocol that allows diverse software components to communicate—if implemented in banks it would allow them to package their business assets and data, making them accessible both inside and outside an organization
- API technology enables banks with the flexibility they need to provide the kind of product customization and experience that customers expect via third-party applications in this evolving digital age
- Banks are expected to open up their APIs, enabling developers to build innovative apps that can be hosted on a bank's app store
- Integration of third-party applications through APIs will help banks address their weaknesses in any particular area
- Initiatives such as Open Bank Project<sup>5</sup> will empower banks to enrich their digital offerings using an ecosystem of third-party applications
- White-label solutions are expected to be developed by prominent banking players, which can be used by others by paying a fee
- The possibility of white-label solutions and wide range of services are expected to give rise to the API economy

## Implications



- Expect to see a growing number of alliances and acquisitions established around APIs
- Banks gain the ability to provide differentiated product and value-added service
- Can enable engagement of customers and the community at large to engage and co-innovate, such as hackathons and crowdsourcing
- Would allow businesses and customers to have real-time access to all bank data, giving them accurate and up-to-date information on finances
- Will allow customers to compare different bank products and services, save on their accounts, and have access to more personalized resources for making the right decisions, thereby increasing competition in the industry
- Will help third-party lenders with historic customer transactional data to underwrite loans and make better informed decisions
- With open APIs, opportunities of connecting customers to other services within the banking ecosystem and vice-versa may be endless

<sup>5</sup> "Bank as a platform", Open Bank Project, accessed November 2016 at [www.openbankproject.com](http://www.openbankproject.com)



# Trend 03: There Is a New Shift in the Banking Business Model where Banks will be Acting as a Platform to many FinTech Firms

*Banks as a Platform (BaaP) is a complete shift in the banking business model, directly linking with FinTechs for their innovative solutions, enabling them to provide a one-stop shop for customers*

## Background

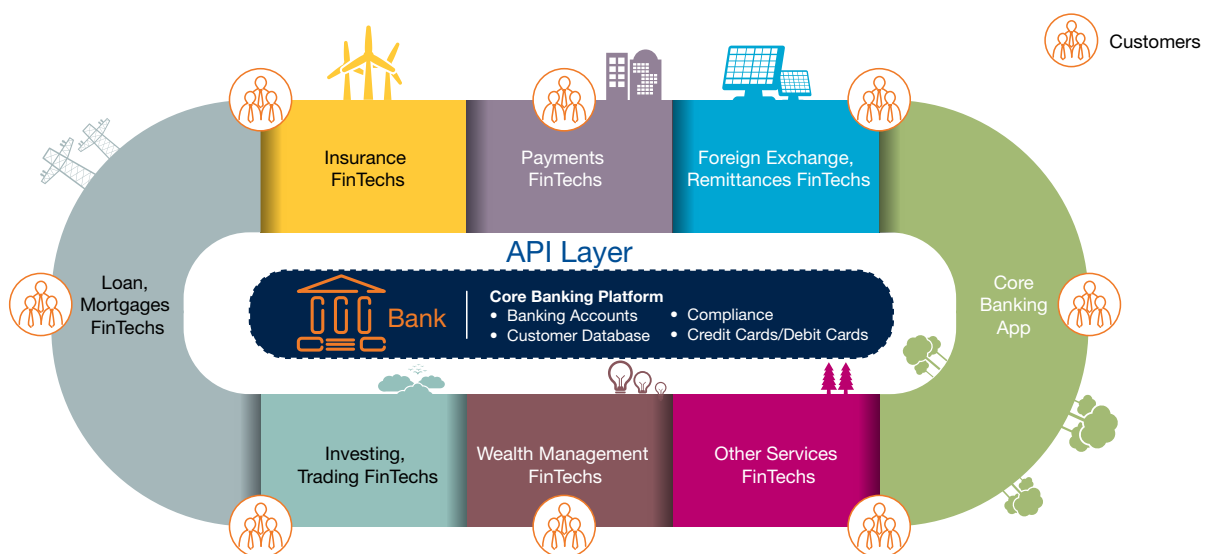
- FinTech players are raising the bar higher for the traditional banks, positioning themselves as transparent and simple alternative to the traditional banks
- Though FinTechs do not provide full range of products and services, banks stand to lose out business in specific areas

## Key Drivers

- Advent of new technologies is lowering the barriers for FinTech entry into the banking industry
- Open APIs and related regulations are encouraging banks to have third-party integrations
- Just like Amazon, banks also have an opportunity to earn revenue from their well-established banking systems



**Exhibit 3: Bank as a Platform**



Source: Capgemini Financial Services Analysis, 2016

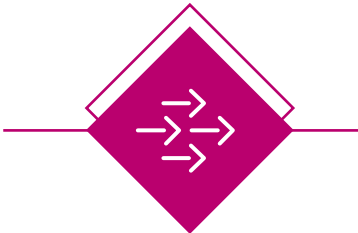




## Trend Overview

- BaaP is a term that means traditional banks will be acting as a core financial platform, and will be directly linked to many FinTech enterprises
- Banks have a substantial customer base, trust, stability, access to a large amount of capital, and proven experience in handling regulation requirements, along with a way to leverage agility and deliver the ability to innovate with technology expertise from FinTechs to provide a broader assortment of solutions and become a hub of distribution
- The platform will provide customers with a one-stop shop, from which they will be able to access traditional banks for their core offerings, along with new solutions that are offered by FinTech firms

## Implications



- With minimal infrastructure development, it will open the doors for banks to entirely new revenue streams
- FinTech enterprises will have access to a huge customer base and a large financial network of traditional banks
- Banks will be able to integrate their services and deliver new service offerings that will be superior in terms of cost, performance, speed, and convenience
- Banks will be able to focus on what they know best, while offering the best products and services to customers from across the market

# Trend 04: Banks are Investing in Cybersecurity Systems with the Increase in Cyber Threats

*Increasing digitization and connectivity has triggered an increase in incidents of data breaches, compelling banks to strengthen their security systems*



## Background

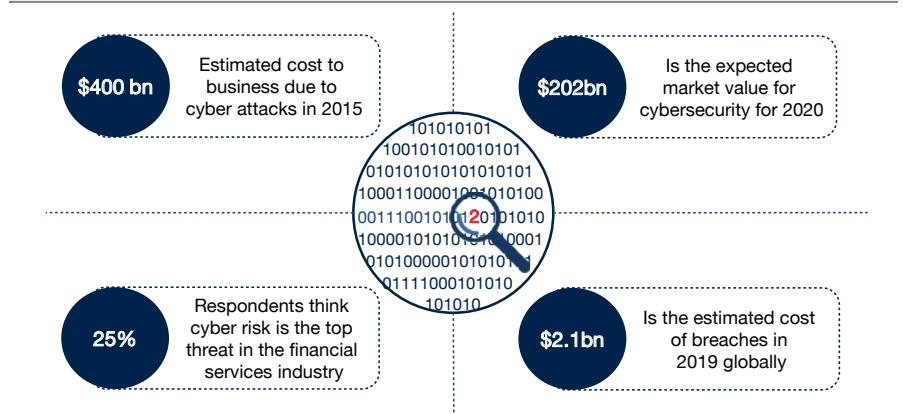
- Increased adoption of web and mobile applications in the banking industry has made the industry prone to advanced cyber attacks
- The hackers have become more professional and expert in breaking barriers established via traditional security measures



## Key Drivers

- New technologies, increased digitization, and connectivity have increased the number of touch points for customers and have also increased banks' vulnerability to attacks
- Financial incentives gained by hacking banks and the sophistication of their security makes banks a tempting target
- Cyber attacks have become more complex, data breaches are growing in size and frequency

### Exhibit 4: Cybersecurity



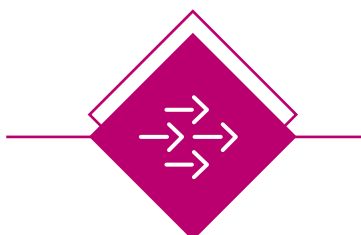
Source: Capgemini Financial Services Analysis, 2016; Systemic Risk Barometer Results Overview, DTCC, Q1 2016; "Cyber Crime Costs Projected To Reach \$2 Trillion by 2019", Steve Morgan, Forbes, January 17, 2016, accessed November 2016 at <http://www.forbes.com/sites/stevemorgan/2016/01/17/cyber-crime-costs-projected-to-reach-2-trillion-by-2019/#6d85c2f3bb0c>



## Trend Overview

- The Systemic Risk Barometer Survey of April 2016<sup>6</sup> noted cyber risk as the top threat in financial institutions by 25% of respondents, while 56% ranked cyber risk in their top five threats
- Being the guardian of national wealth, governments have a special focus on safeguarding banks against security breaches
- As banks come out of working in silos and try to integrate a diverse banking ecosystem, they will have to address security concerns to protect customers' money and data
- The global cybersecurity market is expected to grow from \$122.4 billion in 2016 to \$202.3 billion at a CAGR of 10.6% by 2021<sup>7</sup>:
  - The financial services industry is set to witness the highest growth of 11.6% CAGR during the forecast period

## Implications



- Regulators now expect multiple layers of security from banks
- Banks are forced to respond to cyber attacks with huge investments in cybersecurity and in other security technologies such as biometric authentication
- Government and regulators have paved the way for increased sharing of information regarding cyber attacks and attempts within national borders:
  - The Cybersecurity Information Sharing Act of 2015<sup>8</sup> passed by the U.S. Senate encourages sharing among private entities and between private entities and the federal government
- Banks need to treat cybersecurity as a business issue not as an IT issue, as poor security will not only lead to breach costs and litigations but it also erodes customer trust in the organization

<sup>6</sup> Systemic Risk Barometer Survey, Results Overview, DTCC, Q1 2016

<sup>7</sup> "Global Cybersecurity Report", Research and Markets, 2016, accessed November 2016 at <http://www.marketsandmarkets.com/PressReleases/cyber-security.asp>

<sup>8</sup> "Cybersecurity Information Sharing Act of 2015", congress.gov, accessed November 2016 at <https://www.congress.gov/bill/114th-congress/senate-bill/754>

# Trend 05: Banks Are Increasingly Adapting Public Cloud Services, as It Provides Flexibility and Agility

*Banks are now increasingly moving toward public cloud-based banking infrastructures, as perceived security and regulatory risks recede*



## Background

- Traditionally banks have kept close control of their IT, supporting large in-house teams and building their own data centers
- This is set to change as banks are looking closely at the opportunities to reduce the number of data centers and save costs by implementing public cloud-based infrastructures
- The banking industry has usually shied away from public cloud implementation due to shared infrastructure and its perceived security and regulatory risks
- Major global banks are increasing their cloud investments, many big banks are now focusing on public cloud deployments

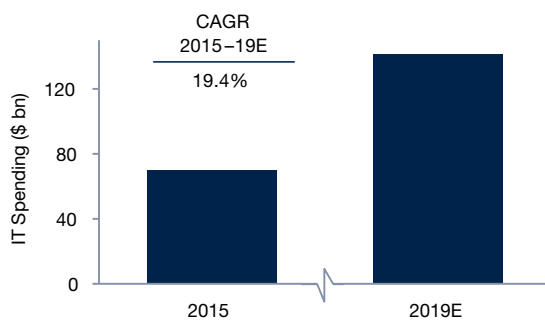


## Key Drivers

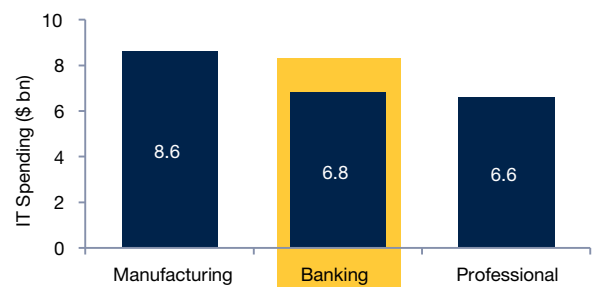
- Banks are facing the pressure to cut infrastructure costs and increase flexibility
- Public cloud providers have understood the concerns regarding security and are now providing more security and compliance services
- Shortened time to market for new products and services

**Exhibit 5: IT Spending for Public Cloud Services**

IT Spending for Public Cloud Service (\$ bn), 2015 - 2019E



Top 3 Industry In IT Spending for Public Cloud Services (\$ bn), 2015



### Public Cloud Usage

- Capital One is reducing its data center foot print from eight in 2014 to three in 2018
- Bank of America has plans to have only eight data centers by the end of 2016
- The World Bank aiming to reduce its bank's data center footprint from five to two

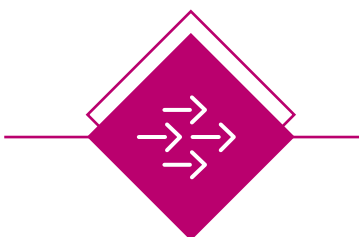
Source: Capgemini Financial Services Analysis, 2016; Worldwide Public Cloud Services Spending Forecast, IDC, January 2016



## Trend Overview

- The public cloud provides banks' agility and flexibility to deploy an IT infrastructure without investing in their own physical infrastructure, which helps in reduction of costs
- Combination of computing power of the cloud and Big Data enables banks to provide better insights and take better decisions
- Cost of computing in the cloud has been on a decline, making the cloud an attractive cost-saving option for banks
- Public cloud is offering a number of choices in engagement models such as Software as a Service, Platform as a Service, Infrastructure as a Service, and Data as a Service, which banks can opt as per their requirements
- Use of a public cloud is very small in big banks, but research says they could go from zero use to as much as 30% within three years<sup>9</sup>
- Though a public cloud is most suited for banking areas such as customer relationship management, IT development, application infrastructure, and analytics, it may increasingly find acceptance for other banking functions as well

## Implications



- Enables agility and flexibility in their mid- and back-office that would let banks digitize their business on an end-to-end basis, rather than just overhauling the front end
- Will act as a future service model for accessing banking technology, support business aspirations of innovation, and a means to rationalize IT operational requirements
- Many banks are aiming to decrease the number of data centers after implementation of a public cloud:
  - Capital One is expecting to reduce its data center footprint from eight in 2014 to three in 2018<sup>10</sup>
  - Bank of America plans to reduce its 31 data centers to only eight by the end of 2016<sup>11</sup> and a public cloud will be used for non-security sensitive workloads
  - The World Bank is implementing public cloud software and stated an ambitious aim to reduce its bank's data center footprint from five to two
- Some banks will likely proceed with caution, with adoption of a public cloud beginning with lower-risk computing workloads for testing and development or applications that aren't mission critical

<sup>9</sup> "Big Banks Starting to Embrace Public Cloud, Deutsche Bank Says", Steven Norton, The Wall Street Journal, June 2016, accessed November 2016 at <http://blogs.wsj.com/cio/2016/06/09/big-banks-starting-to-embrace-public-cloud-deutsche-bank-says/>

<sup>10</sup> "Why banks are finally cashing in on the public cloud", Clint Boulton, CIO, CIO, May 10, 2016, accessed November 2016 at <http://www.cio.com/article/3068517/cloud-computing/why-banks-are-finally-cashing-in-on-the-public-cloud.html>

<sup>11</sup> "How Goldman Sachs and Bank of America use the cloud and containers", Brandon Butler, Network World, December 9, 2015, accessed November 2016 at <http://www.networkworld.com/article/3013474/cloud-computing/how-goldman-sachs-and-bank-of-america-use-the-cloud-and-containers.html>

# Trend 06: Banks Are Testing Augmented Reality to Provide Enhanced Customer Experience

*Banks are investing in augmented reality (AR), as it will enable them to deliver seamless solutions to customers and also provide an opportunity for banks to stand out from the crowd.*



## Background

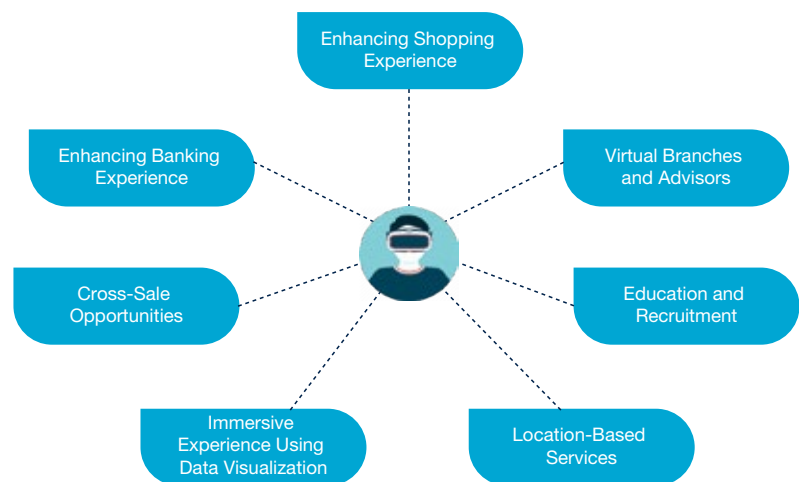
- To keep customers loyal and continue using their service, banks are trying to adapt innovative ways for providing simple, convenient banking solutions for their customers
- Customers nowadays have high expectations, demanding a certain quality of service, making it harder for banks to keep a competitive edge
- Banks are focusing on adapting new technologies and finding innovative ways of delivering solutions to provide better customer experience



## Key Drivers

- Competition from FinTech firms is forcing banks to innovate and find new growth opportunities
- Tech-savvy millennials are the core of banking consumers with evolving expectations
- Mobiles have become more advanced with high-end processors and built-in sensors with AR applications

## Exhibit 6: Augmented Reality Use Cases



Source: Capgemini Financial Services Analysis, 2016

- The rapid growth and adoption of AR applications:
  - Goldman Sachs has reported that across industries the VR/AR market will reach \$80 billion by 2025<sup>12</sup>

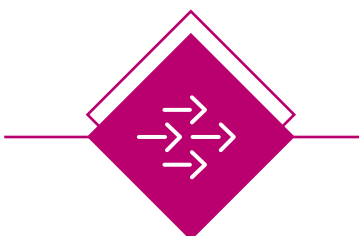
## Trend Overview

- AR is the real-time use of information and other virtual enhancements, integrated with real-world objects
- The ability to merge digital and physical realities will transform customer experiences, integrating banking seamlessly into everyday interactions
- Visually appealing applications of AR can enhance customer experience by providing location-based offers, ATM locators, talking to a relationship manager, do a property search, or make payments
- While applications of AR in banking functions are expected to increase over time, some banks have already launched various applications:
  - Commonwealth Bank of Australia has developed an app that when pointed at a property can give its listing details and other information that can be used to make property decisions<sup>13</sup>
  - An AR app was launched by Standard Chartered China that provides location-based services like discount coupons<sup>14</sup>
  - Westpac launched an AR app, which helps its customers to check card balances, make payments, and find the closest bank or ATM branches<sup>15</sup>
  - Citibank traders have been testing Microsoft HoloLens as a virtual workstation to complement the bank's existing devices and workflows<sup>16</sup>



## Implications

- Enables banks to provide enhanced customer service using immersive data visualization and location-based services
- AR applications can help the banking industry to provide ease of access to accounts and quicker payments
- In the not-so-near future, banks may replace traditional brick-and-mortar branches with virtual branches and advisors, saving time and capital



<sup>12</sup> "Virtual & Augmented Reality", Goldman Sachs Report, January 13, 2016, accessed November 2016 at <http://www.goldmansachs.com/our-thinking/pages/technology-driving-innovation-folder/virtual-and-augmented-reality/report.pdf>

<sup>13</sup> "CommBank app lets people snoop on your house price", Louisa Hearn, The Sydney Morning Herald, August 4, 2010, accessed November 2016 at <http://www.smh.com.au/technology/technology-news/commbank-app-lets-people-snoop-on-your-house-price-20100804-11cpb.html>

<sup>14</sup> "Standard Chartered China launches Breeze Living – first of its kind social, location-based mobile lifestyle mobile application", Standard Chartered, April 15, 2011, accessed November 2016 at <https://www.sc.com/global/av/cn-en-news-media-110415.pdf>

<sup>15</sup> "Augmented reality - world first for Westpac customers", REDNews, August 5, 2014, accessed November 2016 at <https://www.westpac.co.nz/rednews/business/augmented-reality-world-first-for-westpac-customers/>

<sup>16</sup> "8ninths Develops 'Holographic Workstation'™ for Citi Traders using Microsoft HoloLens, Business Wire, March 30, 2016, accessed November 2016 at <http://www.businesswire.com/news/home/20160330006285/en/8ninths-Develops-%E2%80%9CHolographic-Workstation%E2%80%99DTM-Citi-Traders-Microsoft>



# Trend 07: Banks Have Been Working Together to Identify and Understand the Use Cases of Distributed Ledger Technology

*Banks are exploring distributed ledger technology applications by either collaborating, partnering with startups, or by creating incubators and innovation labs*



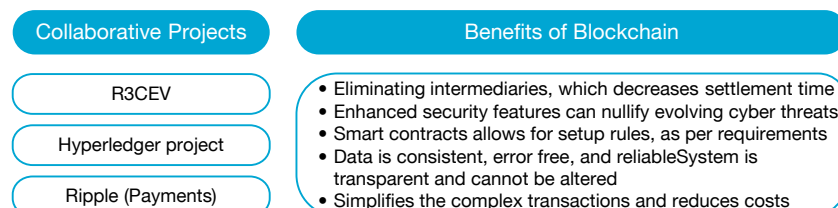
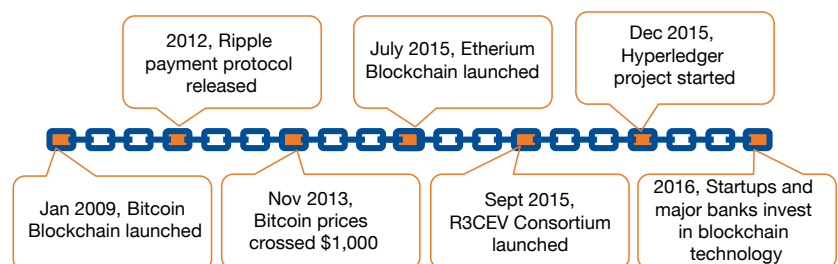
## Background

- Although significant advances have been made in technology, banks today are still maintaining traditional ledgers to record transactions within their ecosystems
- Despite efforts to reduce complexity, the mid- and back-office functions remain slow and inefficient—with electronic transactions that can take place in the blink of an eye still taking days to settle and reconcile
- The networks are expensive and vulnerable due to the processes that underpin asset ownership and asset transfer

## Key Drivers

- Banks are increasingly willing to explore the potential use cases of distributed ledgers, such as those used in blockchain
- The distributed ledger technology offers a high degree of transparency, faster settlement time, and broad process automation

## Exhibit 7: Blockchain Timeline



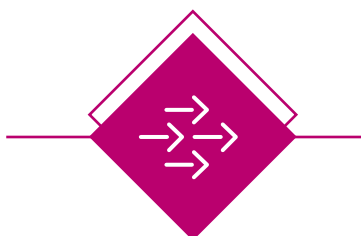
Source: Capgemini Financial Services Analysis, 2016

- Banks have been looking for a solution that might counter the increasing number of cyber attacks and fraud:
  - Distributed ledger systems provide a significant security enhancement through decentralized public transaction records, especially in areas such as payments and credit card fraud

## Trend Overview



- Distributed ledger technology operates on a peer-to-peer basis allowing distributed ledger operators to eliminate supervision, IT infrastructure, and their associated costs
- Banks are adopting blockchain technology much faster than expected:
  - 15% of top global banks are expected to roll out commercial blockchain products by 2017, and 65% of banks are expected to have blockchain projects in production over the next three years<sup>17</sup>
- Banks exploring distributed ledger technology use cases are following an approach that combines internal trials with involvement in consortia, which include their fellow banks, other financial institutions, and technology providers:
  - Ripple is a startup building a bit coin-like payment platform aimed at banks' cross-border transfers and addressing the process, which is currently expensive<sup>18</sup>
  - R3 (R3CEV LLC), in partnership with Microsoft, leads a consortium of 45 financial companies in research and development of blockchain usage in the financial system working on the transaction settling process<sup>19</sup>
  - The Hyperledger project is an open source collaborative effort consisting of 80 members created to drive blockchain innovation<sup>20</sup>



## Implications

- Banks are working together on distributed ledger systems in order to identify opportunities and test the proof of concept
- Cross-border transfers will be cheaper and faster, thereby enabling a reduction in the settlement time since intermediaries will be removed
- The technology will remove documentation bottlenecks caused by duplication, and reduce costs and complexity
- Distributed ledger technology will have an impact on domestic settlements, trading activities, and know your customer-related activities

<sup>17</sup> "Banks adopting blockchain 'dramatically faster' than expected: IBM", Jemima Kelly, Technology News, September 28, 2016, Reuters, accessed October 2016 at <http://www.reuters.com/article/us-tech-blockchain-ibm-idUSKCN11Y28D>

<sup>18</sup> "Ripple: It's Time for a Blockchain Cross-Border Payment Network", Elliot Maras, Cryptocoins News, July 16, 2016, accessed November 2016 at <https://www.cryptocoinsnews.com/ripple-blockchain-cross-border-payments/>

<sup>19</sup> "R3 Blockchain Consortium Partners With Microsoft", Michael Del Castillo, Coindesk, April 4, 2016, accessed November 2016 at <http://www.coindesk.com/consortium-of-global-banks-formalizes-partnership-with-microsoft/>

<sup>20</sup> "Blockchain and Hyperledger Project: beyond the hype", Carlo R.W. de Meijer, Blockchain Observations, September 12, 2016, Finextra, November 23, 2016, accessed November 2016 at <https://www.finextra.com/blogposting/13074/blockchain-and-hyperledger-project-beyond-the-hype>

# Trend 08: Banks Are Looking at Cognitive Banking to Provide an Edge over Competitors

*Artificial Intelligence (AI) and cognitive technology enable banks to speed up its digitization initiatives and provide targeted, customized products and services*

## Background



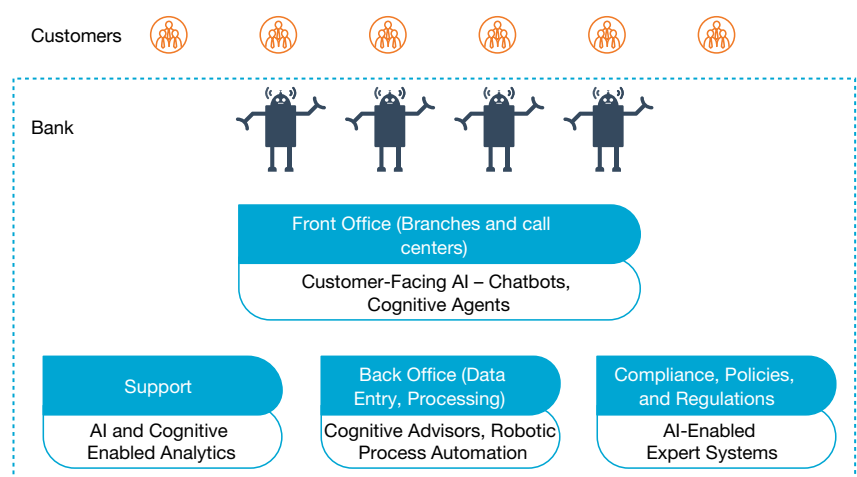
- As more and more customers move toward digital channels, the amount of data generated from their interaction with banks is increasing exponentially in volume as well as in complexity
- While analytics is already being applied by most banks on this Big Data, full potential is yet to be realized as systems are unable to understand and process varied kinds of non-pre-defined datasets
- Banks are in the need of technology that can help cope with these data challenges to keep pace with competitors and fulfill customer expectations

## Key Drivers



- Banks are looking at cutting down their operational costs, more so now due to pressure on margins and the capability of AI to make operations efficient, thus cutting down costs
- With plenty of regulation and compliance-related requirements in place, banks are always at risk of non-fulfillment of obligations resulting in penalties
- Owing to their experiences in other aspects of life, customers are expecting a pleasurable service experience and from their banks and addressing these expectations would require huge investments by banks in customer support with the absence of AI

## Exhibit 8: Cognitive Banking

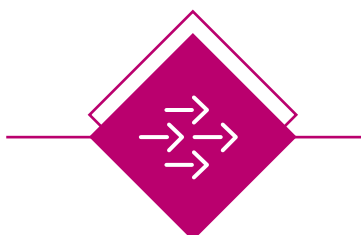


Source: Capgemini Financial Services Analysis, 2016



## Trend Overview

- AI and cognitive technologies are being applied in the banking industry mainly toward customer relationship management, identity authentication, anti-money laundering, compliance, risk control, and other operational aspects
- AI has started playing a major role in customer service activities:
  - Customer service through chatbots or voice assistants has already been adopted by several banks including Santander UK, Atom Bank, Swedbank, and Digibank<sup>21</sup>, thereby enabling them to address customer requests to a greater extent
  - Even for physical channels such as branches, banks are experimenting by adopting humanoid robots that can not only greet customers but can also have conversations with them
  - It is not only customer self-service channels where AI is finding adoption, banks such as RBS have launched advanced AI to enable its staff to answer customer queries more efficiently<sup>22</sup>
- Unlike prevalent analytics being used by banks, AI has self-learning capabilities, making it possible to process varied types of data, thereby enabling banks to offer relevant and personalized solutions and services to their customers
- Putting AI and cognitive systems in place can also help in fulfilling compliance and anti-fraud requirements, potentially saving banks from huge penalties arising due to non-compliance or security breaches
- Banks looking for better operational efficiency are also looking at AI as a potential solution because of its capability of intelligently managing automated processes, which minimizes errors
- Owing to its importance, AI is already grabbing a significant mindshare of banking executives, as 52% believe AI to be one of the emerging technologies impacting the banking industry<sup>23</sup>



## Implications

- AI will find its application in helping derive decisions of a bank by suggesting possible courses of action backed by data analysis
- With the emergence of FinTech firms, banks will explore the possibility of using AI to improve efficiency and customer experience
- AI adoption will be aided by the decline in cloud-based computing costs
- Adoption of AI by banks is expected to have a significant impact on the job profiles of their employees

21 "Artificial intelligence in banking – a pain in the bot?", Luis Rodriguez, BANKNXT, accessed November 2016 at <http://banknxt.com/57157/banking-bots/>

22 "RBS installs advanced 'human' AI to help staff answer customer queries", rbs.com, March 3, 2016, accessed November 2016 at <http://www.rbs.com/news/2016/march/rbs-installs-advanced-human-ai-to-help-staff-answer-customer-que.html>

23 Capgemini and LinkedIn World FinTech Report, 2017

# Trend 09: Banks Are Looking to Increase their Efficiency and Productivity by Investing in Robotic Process Automation

*Robotic process automation (RPA) is a highly efficient way to help banks reduce IT spending without compromising service provisioning*



## Background




- The banking industry is facing considerable threats, internally and externally, leading to pressure on both the top and bottom lines
- As banks face the threat of disruption, there has been an increasing focus on transforming their internal systems to stay at pace with external challenges, however, the complexity involved in legacy transformation is forcing banks to explore innovative ways to drive internal efficiencies



## Key Drivers

- Increasing competitive pressures and low-interest-rate environments are leading to thin margins and banks are exploring ways to improve their operational efficiencies to bring down cost/income ratios
- Increased complexity of banking systems (presence of multiple legacy systems and challenges of data management across systems), is leading to streamline the processes and reduce manual intervention (straight through processing)
- As the cost of regulatory compliance is on the rise, the use of human intervention is becoming arduous and is prone to errors

### Exhibit 9: Why Robotic Process Automation?

Onshore Labor	Offshore Labor	Digital Labor
<b>Improved Quality:</b> <ul style="list-style-type: none"> <li>• 100% accuracy</li> </ul>	<b>Improved Service Delivery:</b> <ul style="list-style-type: none"> <li>• Improved process quality, speed, and continuity</li> </ul>	<b>Cost Savings:</b> <ul style="list-style-type: none"> <li>• Cost reduction of 35–65% in onshore and 10–30% in offshore delivery</li> </ul>
<b>Scalability:</b> <ul style="list-style-type: none"> <li>• Training of robots can be done at same time</li> </ul>	<b>Operations Optimization:</b> <ul style="list-style-type: none"> <li>• Improved data gathering and optimized operations</li> </ul>	<b>Quick Breakeven:</b> <ul style="list-style-type: none"> <li>• Investment recovery period of 6–9 months</li> </ul>
<b>Higher Efficiency:</b> <ul style="list-style-type: none"> <li>• Ability of working 24X7</li> </ul>	<b>Regulatory Compliance:</b> <ul style="list-style-type: none"> <li>• 100% compliance with stated regulatory requirement</li> </ul>	<b>Costs fraction of Human Equivalent:</b> <ul style="list-style-type: none"> <li>• Cost 1/3 of an offshore FTE and 1/5 of an onshore FTE</li> </ul>
 Cumulative productivity improvement	 Decrease in cycle time and effort	 Increase in efficiencies in running the business costs

Source: Capgemini Financial Services Analysis, 2016

- Rising customer expectations and the need to improve service levels (faster turnaround and 24x7 availability) are driving banks to focus on automation for repetitive tasks and processes

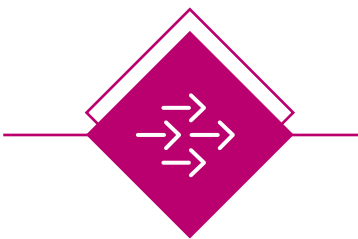


### Trend Overview

- RPA is a software-based approach to coordinating activities among existing applications by utilizing existing business rules and logic
- When implemented in banks, RPA has the ability to reduce manual processes, automate rules-based high-volume transactions and handle repetitive processes seamlessly with higher efficiency and accuracy levels
- RPA provides significant value-add to various areas of the customer lifecycle, specifically loan processing, payments, operations, and collections

### Implications

- Implementing RPA can lead to considerable improvements in the overall operational efficiency and cost savings
- RPA also provides efficient and effective data capture leading to better regulatory compliance with considerable lower IT spending (with faster implementation in a complex systems environment with the ability to work seamlessly across systems)
- Ability to increase the productivity of the workforce by re-staffing for value-added activities where decisions or judgments have to be made
- Faster turnaround times leading to increased customer experience and round-the-clock availability of virtual resources to handle operations/processes with higher volumes



# Trend 10: Banks are using Biometric Authentication Tools to Combat Identity Theft and Fraud

*Biometric authentication will help banks to combat identity theft, make transactions more secure, and enhance the customer experience*



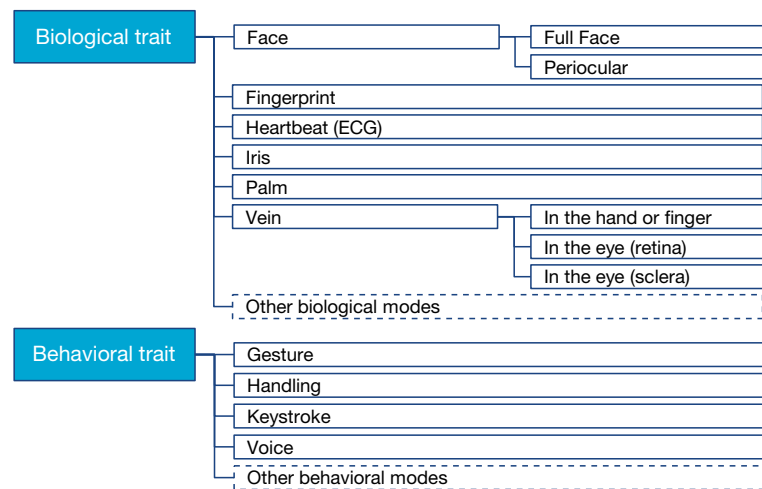
## Background

- Banks are witnessing a paradigm shift in the way their consumers interact and transact with them in this hyper-connected world with the increase in digitalization of processes and diverse digital channels
- This increased digitization and connectivity has paved the way for many entry points in the system, which have made banks more vulnerable to attacks

## Key Drivers

- Identity theft and fraud have been increasing:
  - Research found that around 13.1 million U.S. consumers in 2015 were victims of identity theft compared to 12.4 million in 2014—in the past six years \$112 billion has been stolen by identity thieves<sup>24</sup>
- Proliferation of technology with customers having access to devices that can leverage biometric authentication (such as fingerprint scanners on mobile phones)
- Increasing need to streamline the overall banking experience on par with other industries that are driving customer expectations—log in/transact/authenticate without entering login credentials

**Exhibit 10: A Fine-Grained Classification of Biometric Authentication Methods**



Source: Capgemini Financial Services Analysis, 2016

24 Identity Fraud Study, Javelin Strategy & Research, 2016

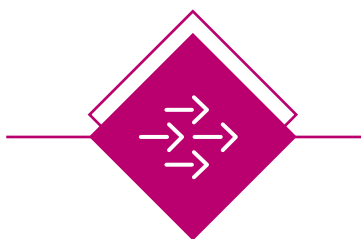




## Trend Overview

- Biometric authentication methods use unique biological or behavioral traits to verify a customer's identity
- Given the uniqueness of biometrics, it can provide added security and reduce risks better than conventional security systems:
  - Bank of America is using a fingerprint scanner on their mobile phones for their customers to sign in to the mobile banking app<sup>25</sup>
  - Barclays offers finger vein technology to its corporate customers for authorizing transactions<sup>26</sup>
- One of the main reasons for holding back banks from full implementation of biometric authentication into all devices is the overall cost of the technology and implementation; however, proliferation of mobile devices with such provisions may accelerate the process of implementation as the pressure from customers increases

## Implications



- Biometric authentication may become mainstream in a couple of years as the technology becomes commonplace at the customer end and the overall cost of implementation falls
- Provide better security to customers while still enhancing customer experience leading to improvement in trust levels
- Biometric authentication can be widely used internally to mitigate the risks of identity theft and fraud
- Exploring multifactor biometrics for authentication will help in facing future challenges and provide better safeguards for data

<sup>25</sup> Bank of America Introduces Fingerprint and Touch ID Sign-in for Its Mobile Banking App, Bank of America, September 2015

<sup>26</sup> Five Examples of Biometrics in Banking, Alacriti, Feb 2016, [www.alacriti.com/biometrics-in-banking](http://www.alacriti.com/biometrics-in-banking)

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