

## Emerging financial technologies Five you can expect to impact your business

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The financial technology revolution that's underway promises to impact businesses in many ways, including their use of banking services.

Banks — major participants in this revolution — are investing in and collaborating with fintech firms, even as they pour resources into their own innovation laboratories. Their goal is to forge new business models to make financial services more efficient and convenient, as well as less expensive.

New, disruptive financial technologies continue to make headlines. To cut through some of the hype, here we report on how five such technologies are starting to be used in the business world, as well as ways in which banking applications of these technologies are expected to affect companies.

### **CLOUD COMPUTING**

Nearly everyone who has a smartphone today backs up data, pictures, music, and more on the cloud. At the same time, companies and government agencies increasingly are migrating their computing operations to the cloud.

With the cloud, remote servers hosted on the internet, rather than local servers, are used to store, manage, and process data. At least 70% of U.S. firms use the cloud in some variation of public, private, and hybrid services<sup>1</sup> Meanwhile, global spending for public cloud services is forecast to reach \$236 billion in 2020.<sup>2</sup>

Some of the reasons for this shift to cloud services include:

- Increased data storage and analytic capacity for machine learning and artificial intelligence applications
- Scalability and flexibility for faster decision making
- Redundant storage and resources for critical operations
- Easy access to new technology tools built in cloud environments
- Pay-per-use pricing tailored to meet business demands

Banking is among the many industries eyeing cloud computing. Traditionally, most bank systems have resided in data centers that financial institutions own. By adopting cloud computing, banks can reduce investments in dedicated hardware and software, and be more nimble in transforming their service models.

A growing number of banks are overcoming some initial trepidation about the security of data in the cloud and have begun to embrace this new model for computing and data storage.

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Probably the most significant implication for their corporate clients is that banks will be able to meet client needs by bringing new products to market much faster. With cloud computing, a product initiative that in the past may have taken a year to complete conceivably could require just a few weeks and a modest investment.

## **OPEN APIS**

An application programming interface (API) describes the electronic messenger that provides connectivity between applications, data, and devices. For instance, when you ask for flight information on an online travel site, it's an API doing the legwork to get you an answer. After you fill out when and where you want to travel, an API "visits" all the airline sites and retrieves the requested flight time and airfare information, and provides it to you back at the travel site.

An *open* API is one that allows the owner of a network-accessible service to grant "visiting rights," allowing developers to access back-end data from a third party's site that can then be used to enhance their own applications. For instance, the maker of a popular tax preparation software uses an open API to enable its users — while they are in the tax program — to conveniently download their Form 1099 information from their brokerage firm account(s).

Open APIs have led to the movement toward "open banking." Increasingly, banks are allowing third parties, such as fintech firms, to leverage open APIs and build applications that securely interact with the bank's data in ways that benefit the bank's clients. A good example is a bank that enables users of a particular small-business accounting software to access their daily transaction information from the bank directly through the software application. The arrangement benefits both the accounting software company and the bank, because the open API increases convenience for their common clients.

## **ROBOTIC PROCESS AUTOMATION**

Early adopters in several sectors are implementing robotic process automation (RPA) to perform routine business tasks and eliminate inefficiencies. RPA software programs are designed to mimic the keystrokes humans make to complete rote processes in areas such as finance, human resources, customer service, and supply management.

RPA can decrease cycle times and improve throughput for routine tasks with greater accuracy. It is flexible and scalable, so it can be adapted easily as systems are upgraded. Installation of RPA software generally requires little or no information technology assistance, so it can be implemented quickly and easily for fast results.

The number of RPA applications is growing as companies find new ways to automate routine processes and tasks. The global RPA market is still relatively small, but experts estimate it will reach \$5 billion in 2020.<sup>3</sup>

Banks see RPA as a means of creating greater efficiency in processes that involve many repetitive steps, such as onboarding clients to new services. RPA will allow banks to be more efficient while ensuring that clients are able to get started using their new services sooner.

## **ARTIFICIAL INTELLIGENCE**

The introduction into the workplace of artificial intelligence (AI) and machine learning (an application of AI), along with robotics and other cognitive tools, is ushering in a new age of industrial automation. Through AI and these other technologies, companies are seeking greater efficiencies, reduced costs, higher profit margins, and other tangible benefits.

A recent study by McKinsey Global Institute found that early AI adopters tend to have digital business models, deploy AI across their technology groups and in their core businesses, and view AI as a way to increase revenue as well as reduce costs.<sup>4</sup> McKinsey estimates that automation and AI could increase global productivity by .8% to 1.4% annually through 2065.<sup>5</sup>

The industry sectors leading AI research and adoption include financial services, technology and telecommunications, transportation and logistics, automotive assembly, and energy and utilities. These sectors see great value for AI in research and development, production optimization, improved maintenance, targeted sales and marketing, and enhanced customer experiences.

Banks are investing in AI to improve performance and provide better service to their clients.

Some of the applications banks are working on include the use of virtual assistants. Similar to how consumers today are using virtual assistants on their phones to seek directions to the nearest hardware store — or in their homes, to request the playing of a particular song — banks are looking to have virtual assistants respond to client phone and email inquiries. A virtual assistant, for example, could provide details on checks paid yesterday or initiate a wire transfer.

Additionally, banks are hoping to use machine-based learning to evaluate "big data" and identify potential fraud.<sup>6</sup>

## **BLOCKCHAIN**

Blockchain technology records transactions between two parties and securely embeds history as subsequent

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transactions occur. It's best known as the technology underpinning cryptocurrencies, as well as in other uses such as supply chain management.

A blockchain constantly grows as new "blocks" of data are added. Cryptography enables each participant to add new transactions securely, and once a transaction is recorded in the chain, it cannot be altered or deleted.

Many experts believe a blockchain can become the gold standard as a fast, secure, open framework for finance, e-commerce, and other business transactions. Proponents see great potential for blockchain to record contracts in real estate, manage physical and intellectual property assets, and track complex purchases for luxury items such as diamonds and fine art.

Blockchain has the potential to radically increase the speed, effectiveness, and scope of core banking functions. For

instance, banks are examining blockchain's potential for streamlining trade finance transaction processing. The goal is to provide trade finance services digitally to clients conducting business on blockchain business-to-business platforms. This would lead to real-time delivery of electronic documents, reducing the time required to conduct these transactions from days to minutes.

## STAY CONNECTED

The fintech revolution is changing the shape of banking. The initial banking applications of the emerging technologies we've described here represent just the tip of the iceberg, and fintech innovation is ongoing. In future reports, we'll offer more detailed information about how these technologies are resulting in new banking services and improved service capabilities.

<sup>1</sup>"13 Biggest Challenges When Moving Your Business to the Cloud," Forbes Technology Council, Forbes, June 5, 2017. Available at: <https://www.forbes.com/sites/forbestechcouncil/2017/06/05/13-biggest-challenges-when-moving-your-business-to-the-cloud/#195db3b9b0ec>

<sup>2</sup>"The Public Cloud Services Market Will Grow Rapidly to \$236 Billion in 2020," report notice issued by Forrester Research, Sept. 1, 2016. Available at: <https://www.forrester.com/report/The+Public+Cloud+Services+Market+Will+Grow+Rapidly+To+236+Billions+In+2020/-/E-RES132004>

<sup>3</sup>"Robotic process automation: A path to the cognitive enterprise," by David Schatsky, Craig Muraskin and Kaushik Iyengar, Deloitte University Press, Sept. 14, 2016. Available at: <https://dupress.deloitte.com/dup-us-en/focus/signals-for-strategists/cognitive-enterprise-robotic-process-automation.html>

<sup>4</sup>"How artificial intelligence can deliver real value to companies," by Jacques Bughin, Eric Hazan, Sree Ramaswamy, Michael Chui, Tera Allas, Peter Dahlstrom, Nicholas Henke and Monica Trench, McKinsey & Company, June 2017. Available at: <http://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/how-artificial-intelligence-can-deliver-real-value-to-companies>

<sup>5</sup>"Harnessing automation for a future that works," by James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott and Martin Dewhurst, McKinsey Global Institute blog, January 2017. Available at: <https://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works>

<sup>6</sup>"AI in Banking — An Analysis of America's 7 Top Banks," by Kumba Sennaar, TechEmergence.com, Oct. 24, 2017. Available at: <https://www.techemergence.com/ai-in-banking-analysis/>