Big Data Yields Big Returns for Finance Industry

Organisations across the globe are racing to adapt to a competitive, data-driven business landscape, and the Banking and Financial Services Industry is no exception.

Financial transactions leave behind a trail of data. But as author and intelligent business performance expert Bernard Marr notes, "While transactional data is great for giving a picture of what you sold last week, last month, or last year, insights about what you will sell tomorrow could come from a myriad of external sources."[1] Combining internal data with alternative data—media, legal, and patents data, for example—can transform how financial services manage customer experiences, make trading and investing decisions, detect fraud, and manage risk and regulatory compliance.

Investing in Big Data and AI Success

The foundation of machine learning and other forms of AI was laid during WWII when British computer scientist Alan Turing led a team in its successful effort to crack the 'Enigma' code used by German forces. The 1950's through the 1960s saw a flurry of advances—from algorithms that 'learned' to play checkers or solve mathematical problems to development of a programming language with future machine learning applications. Still, computing power was limited, as was the data available for analysis, so the journey toward artificial intelligence moved at a leisurely pace.

Fast forward to the digital age and it's clear why big data and AI are hot topics. Computer processing power, data storage capabilities and data volume have grown exponentially—and with the growth, big data and AI applications are transforming bank and financial services organizations.

"The availability of greater volumes and sources of data is, for the first time, enabling capabilities in AI and machine learning that remained dormant for decades due to lack of data availability, limited sample sizes, and an inability to analyse massive amounts of data in milliseconds," writes NewVantage Founder and CEO Randy Bean in the *MITSloan Management Review*.[2]

A 2018 NewVantage survey of Fortune 1000 companies reveals just how much big data and AI are influencing business.[3]

Nearly **80 percent** fear disruption or displacement from agile, data-driven competitors—an increase of almost **33 percent** year-over-year.

More than

77%

of recent AI adoption is in Banking, Financial Services & Insurance industries

97 percent are investing in AI/machine learning and **93 percent** report significant increases in spending

Perhaps the most significant finding from the survey rests with the value being realised from big data and AI investments. While fewer than half of 2017 respondents saw measurable results from their efforts, more than 73 percent saw quantifiable benefits from big data and AI activities in 2018.

Banking on Data-Driven Decision Making

Just two years ago, Jim Marous, co-publisher of *The Financial Brand* and publisher of the *Digital Banking Report* noted that "Heightened interest in AI has occurred because of both capabilities and business needs. The explosive growth of structured and unstructured data, availability of new technologies such as cloud computing and machine learning algorithms, rising pressures brought by new competition, increased regulation and heightened consumer expectations have created a 'perfect storm' for the expanded use of artificial intelligence in financial services."[4]

So, how is the Banking and Financial Services Industry leveraging big data and artificial intelligence applications?

Quant Modeling to Inform Buy-Sell Decisions

One area seeing impressive AI growth is in quantitative investing because it enables organisations to identify market signals by sifting through enormous quantities of big data. Traditional hedge funds, mutual funds and investment partnerships extract insights from a variety of data—economic, accounting, financial, industry and more. But a growing number of organisations seek to complement traditional sources of information with alternative data.

What defines alternative data? Alternative data is generated in numerous ways—sensors that capture geo-location data, satellite imagery of weather patterns, or news and social media commentary. You need only look at the rise in spending on alternative data to see how important less conventional data is becoming. According to AlternativeData.org, spending is estimated to hit $1,708 billion by 2020, an increase of nearly 750% in just four years.[5]

Quant hedge funds, in particular, increasingly look to alternative data to power machine learning algorithms, ingesting hundreds of types of data to determine which assets to buy and sell. Quant hedge funds may, for example, ingest news and company data, critical mentions of corporate leaders and entities in media transcripts and more to give financial indicators context.

Quant hedge funds may also leverage AI to get the jump on traditional investors. For example, U.S. regulators require quarterly reporting by companies, but in Taiwan, listed companies must report monthly. Quant hedge funds can analyse masses of similar data based on foreign exchanges to anticipate U.S. company performance and make timely trades while traditional investors wait for quarterly numbers.

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RANDY BEAN CEO
NEWVANTAGE FOUNDER

BlackRock: an AI trailblazer

BlackRock, the world's largest asset management company, has been leading the charge on the use of big data and artificial intelligence. In 2017, Founder and CEO Laurence D. Fink said in an interview that "The democratisation of information has made it much harder for active management. We have to change the ecosystem—that means relying more on big data, artificial intelligence, factors and models within quant and traditional investment strategies."[6]

In early 2018, *Financial Times* reported on the BlackRock Lab for Artificial Intelligence in Palo Alto, California. BlackRock's "Tech 2020" plan also includes creation of a Data Science Core Unit. David Wright, who heads up EU product strategy for BlackRock's scientific active equity division, told *Financial Times* that "Big data offers a world of possibilities for generating alpha [market beating returns] but traditional techniques are not good enough to analyze the huge volumes of information involved."[7]

How is BlackRock leveraging AI? Jody Kochansky, BlackRock's Chief Engineer, notes, "Artificial Intelligence, and the family of technologies it represents—machine learning, natural language processing and optimization—is already shaping the way we interact with the world."[8] He goes on to highlight three ways that AI is helping BlackRock meet client needs and boost performance:

Better insights, faster

A high volume of data being created is unstructured, making it time-consuming to digest. Kochansky writes, "Machine learning and artificial intelligence techniques allow us to comb through this often-messy data to glean insights never before thought possible—like the speed of construction in China, foot traffic into major department stores and sentiment picked up from thousands of online employee reviews. When combined with millions of other data points, these factors help asset managers make smarter investment decisions that impact our clients' financial well-being."[9]

Managing risk

BlackRock has built a risk management platform that ingests relevant data and uses applied mathematics and data science to capture a clear picture of risk and analyse the potential impact of those risks on the organization and its clients.

Optimizing processes

Because AI can do the heavy lifting when it comes to analyzing vast quantities of data or automating repetitive tasks, it empowers BlackRock to allocate its resources—including personnel—more strategically. "The real magic of artificial intelligence may be in its ability to accelerate human learning. Technologies like machine learning and artificial intelligence help improve efficiencies and reduce errors, freeing up precious human capital to focus more on investor needs," says Kochansky.[10]

BlackRock continues to look for ways to expand its expertise on big data and artificial intelligence, including the organization's recent move to acquire alternative investment software maker eFront. The $1.3 billion deal puts BlackRock at the forefront on data-driven wealth management. As tech blogger and executive Kyle Van Pelt tweeted, "To everyone who is afraid of Amazon entering the Wealth Management space… don't sleep on BlackRock. They are running a very similar playbook with much deeper domain expertise."[11]
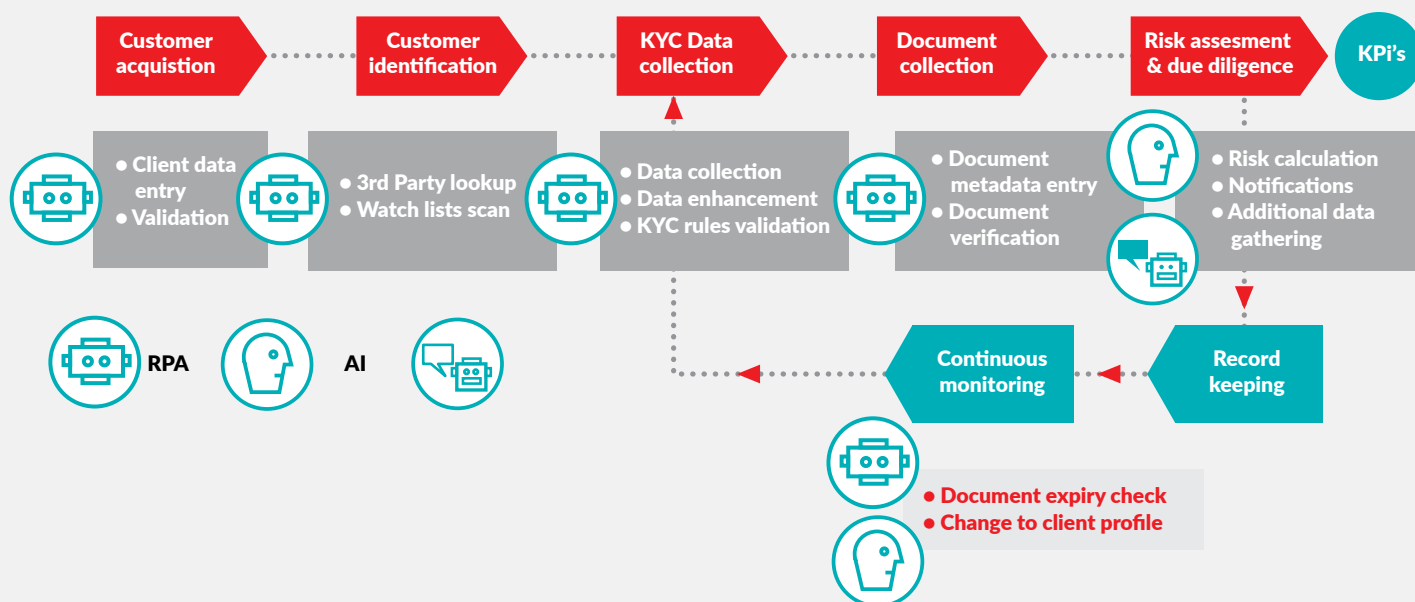
Robotic Process Automation to Manage Compliance Risk

Robotic process automation (RPA) enables banks to quickly and cost-effectively automate routine tasks. RPA is particularly attractive within the financial industry because of the complex regulatory landscape. For instance, RPA enhances customer, vendor and third-party screening by tapping into streams of sanctions and PEPs data, offering superior risk visibility, with greater confidence than manual processes.

By integrating RPA into anti-money laundering and anti-bribery and corruption compliance processes, banks can reduce human error, such as copy-and-paste mistakes that result from entering the same data into multiple systems. In addition, RPA also enables on-going risk monitoring. Since it is conducted around the clock, it allows banks to focus their human resources on other high-value tasks, while still having confidence in their risk mitigation processes.

Last April, HSBC announced plans to combat money laundering by analysing data to spot potentially suspicious activity. Artificial intelligence and advanced analytics allow the bank to rapidly process high volumes of internal, publicly-available and customer transaction data. "HSBC is continuously looking for ways to build on our existing capabilities to detect and prevent financial crime," said Ray O'Brien, HSBC's global risk COO and head of global risk analytics.[12]

Robotic Process Automation

Customer acquistion → Customer identification → KYC Data collection → Document collection → Risk assesment & due diligence → KPi's

- Client data entry
- Validation

- 3rd Party lookup
- Watch lists scan

- Data collection
- Data enhancement
- KYC rules validation

- Document metadata entry
- Document verification

- Risk calculation
- Notifications
- Additional data gathering

RPA   AI

Continuous monitoring   Record keeping

- Document expiry check
- Change to client profile

Artiicial Intelligence to Optimise Customer Experiences

Today's digitally-enabled consumers have high expectations for brands—and banks are no exception. In addition to leveraging internal customer data to deliver more personalised banking experiences, banks and other financial services organisations can use AI chatbots to deliver just-in-time assistance on routine transactions, which frees up human resources to address more

complicated customer inquiries faster, improving the customer experience.

Bank of America, for example, introduced its virtual assistant, "Erica" in 2017. Techburst.IO reports, "Due to leveraging cognitive messaging and predictive analytics, Erica acts as an on-point financial advisor to more than 45 million customers of the Bank of America."[13]

Bank of America isn't alone in embracing big data and AI to optimise customer interactions. Lloyds pledged nearly $4 billion investment in technology, data and innovation. The bank expects to use automated voice and chatbots to boost the capacity of telephone banking staff by 33 percent while meeting customer expectations for convenient service.

Talking Big Data with HSBC's **Josh Bottomley**

Earlier this year, HSBC announced plans to hire 1,000 data scientists to work on AI and big data projects which it hopes will improve its customer experience and risk management. Josh Bottomley, Global Head of Digital Data and Development at HSBC, explains to LexisNexis® how big data is transforming the banking industry. He also warns that banks must earn customers' trust over how their data is being used.

How and why is HSBC increasing its use of big data?

HSBC is increasing the use of big data right now around the customer experience. Clearly as a bank we have always used data—for example, we assess people's credit and we are protecting against fraud. But the real focus now is giving people a customer experience that feels personal and relevant to them. By using a combination of data that we have historically about how people are logging in and what they are doing, we can now give an experience that feels more personal to them and keeps their money safe and secure.

How does HSBC plan to use AI and ML?

We are already using artificial intelligence and various forms of machine learning in different ways. One of the interesting ways we are finding is with chatbots on customer service—we have a service in the US, we have a chatbot in China doing customer service, and we are actually using it around some offers in pilot in Hong Kong. It is great because it is allowing us to understand questions that people will pose in very different ways using different languages, and to give them a very specific recommendation.

We use it in other areas as well—we use it when we're worried about people who may be getting into debt in terms of communication. It is already a fairly established technology within the bank.

What sorts of datasets are useful to banks?

Banks have always used third-party data as well as internal data. We use credit bureaus for assessing credit, we rely on some third-party data to fight against financial crime, whether that is sanctions lists or PEP lists. I think we'll always be using a combination of internal and external data.

But there are so many more datasets that we can use. For example, we're about to test a service which will allow us to look at your behavior of how you type and what you do as an additional fraud protection service. We are looking at other forms of third-party data—we were the first large UK bank with "connected money", which is a way of aggregating your information across different accounts for the benefit of the customer. I think one of the advantages banks have is that they have been using and combining different data for many decades already and the technology is now allowing us to do that better and faster than we have before.

What are the risks?

Clearly the biggest risk of data is around trust. As a bank we are obsessed about our customers' security of their money and increasingly of their data as well. We now have this concept of data stewardship: we want to make sure we are really looking after customers' data, that we are incredibly transparent about that and give customers as much control as they can around the data, but also that we use it for the right purposes.

We are very aware that customers sometimes make decisions without the information they need so some of the recent changes in the banking industry actually make it much easier, if you have got different bank accounts, to take the data and aggregate it, so we can help customers make more informed decisions across their whole portfolio. But trust is the critical issue - we need to make sure we build trust in our use of big data as opposed to undermining trust.

Achieving More Insights with Relevant Big Data

Unlocking the potential of big data and AI is a must in the increasingly competitive Banking and Financial Services Industry. As FinTech continues to disrupt the industry, AI—and the big data that fuels the applications—will be game-changers for more traditional players. Have you started your AI journey yet?

> From customer communication flows to basic back office processing, AI can take rather routine, repetitive processes and make them both more efficient and effective.[14]

JIM MAROUS
CO-PUBLISHER, *THE FINANCIAL BRAND*

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