Financial Technology Trends for 2019

Blockchain has no real use cases in financial services and capital markets. All ICO's are frauds. All cryptocurrencies are operated by eastern European criminals. Artificial Intelligence is hype used to break up the monotony of Brexit on 24-hour news channels. Cloud is expensive and cannot be used for customer data. And so on, and so on. All wrong of course; but there is no shortage of articles of this ilk on the internet; articles that can unfortunately inform the views of the 'experts' resident around your water-cooler at work. That is how such myths can become accepted truths that impact negatively on progress in your company.

Executive boards need to know the truth. IT doesn't just belong in the IT department anymore. Technology is the business, and the business is technology. Not just in Silicon Valley but in any bank or exchange that you care to mention. Asset managers are really data and analytics managers. Insurance companies always have been. That is why a technology predictions article such as this must not fall into spurious hyperbole and polemics if it is to be of any use to readers who are responsible for safe governance, effective operations, and revenue growth in financial institutions. What readers need is a report on where real technology trends are going right now, so that they can look ahead to new ways to solve problems, realise opportunities, and make customers happy.

New technologies allow companies to solve problems; create and deliver new products and services; do processing cheaper, faster and better; and, enhance planning, reporting and control. Based on what we saw in 2018, 2019 will be marked by a strong emphasis on fully digitalising customer-facing services; rapid adoption of Open Banking and Fintech; improved productivity through increased and improved process automation, and use of consumption-based IT services and 'ubiquitous infrastructure' models; and, meeting regulatory demands - and enhancing the whole business - by employing best in class data management methodologies, tools and techniques. Technologies that will be important in achieving these objectives include:

- Artificial Intelligence (machine learning; deep learning; neural networks; pattern recognition; and, natural language processing)
- Blockchain (for cryptocurrencies, and for distributed ledgers)
- Ubiquitous Infrastructure (e.g. Cloud, and other consumption-based IT services

Big Data

Individually and combined, these technologies can revolutionise delivery of products and services; processing; data management; reporting; and, planning, decision making and control (compliance). By doing so, they will revolutionise the customer experience as well as the operation and governance of financial institutions. That may sound like the hyperbole that this article promised to avoid, but it is not a statement made lightly. Just one of the technologies (Blockchain) applied to one of the highest frequency processes in the industry (settlements) can remove 99% of effort and cost and eliminate the need for another expensive process (reconciliations). More importantly, it is being done right now so is a real trend not a fanciful prediction. Instances will only grow. These technologies applied correctly and comprehensively will mean significant increases in customer satisfaction, compliance and revenues. Whether this will happen or not for you depends on the degree to which your company engages and invests in new ways of working.

Automation

One technology trend that has been over-arching the industry since the 1970's is automation. It is hard to believe that everything that can be automated has not yet been automated in financial services. However, we cannot ignore all of the manual actions, decision points and paper documents that remain, let alone the high error rates, need for manual reconciliations, rates of fraud, and unnecessary costs that come with manual working. Even when processes have been automated previously, they are often clunky and disjointed (from other processes) and can now be made slicker by using new approaches and technologies.

Increased automation is needed to improve data quality; reporting; compliance; cost control; resilience; security; agility; and, customer satisfaction. It is not optional, as financial institutions simply won't be able to meet their obligations and satisfy expectations in coming years without it. E.g. GDPR compliance; regulatory reporting; security and data protection. Therefore, the easiest thing to predict for 2019 is increased and better automation. Technologies that will play an increasing role in process automation in future are AI, Blockchain, Big Data, Cloud, and a suite of AI powered data management tools.

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Artificial Intelligence

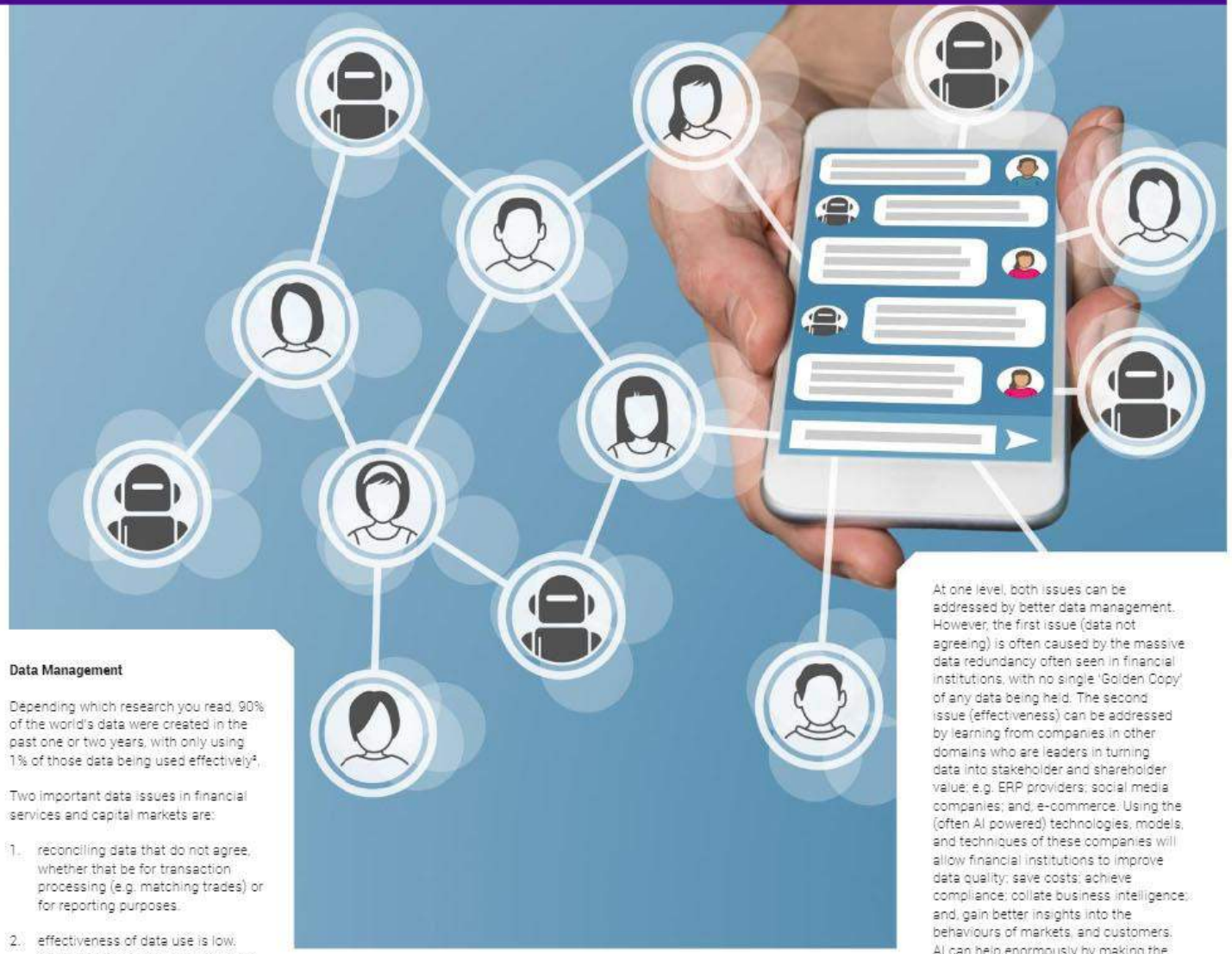
AI tools and approaches such as Expert Systems and Machine Learning (ML) have been used for many years in the industry. E.g. in fraud and intrusion detection; personal finance; portfolio management; wealth management ('robo advisory'); algorithmic trading; customer services; message and document parsing; etc. ML is often used for automating repetitive tasks and processes where decision points make automatic software adaptation ('learning') an important aid to productivity and quality. To the use-case list above will increasingly be added 'loan and insurance underwriting' as these will possibly see the fastest growth of ML use in 2019. By adopting ML, lenders and insurance companies will realise significant improvements in productivity as manual effort reduces, errors diminish, quality improves, and costs are reduced.

To ML we can add Deep Learning (DL) where a computer model learns to perform classification tasks directly from text, images, sound etc. This allows unstructured data to be included into analyses. Unstructured data can include news, social media posts; emails; web pages; video files; audio files; and, images. Big Data and ML technologies then allow enormous amounts of unstructured data to be parsed and analysed quickly. As well as increasing the scope and power of models and analytics for planning and decision making; DL also facilitates automation generally; e.g. including images in automotive claims handling and analysing them using DL overcomes one of the main barriers to fully automating the process. From an analysis, decision making, processing and planning perspective the addition of unstructured data into the world of corporate analytics means a huge increase in the power of models. It is hard to over-state the importance of this development. Expect a noticeable upward trend in implementations of Deep Learning in 2019.

Another aspect of AI, Artificial Neural Networks (ANNs or Neural Nets) are also being used increasingly in the industry. Neural networks can handle the uncertainty that cannot be accommodated by traditional expert systems (which require full information as an input). Handling uncertainty makes neural nets excellent for non-linear, data-driven modelling and prediction purposes in economic scenario analyses; stock market predictions; portfolio assessments and strategies; credit assessments and lending decisions; options pricing; forecasting FX rates; bankruptcy predictions, etc. Unlike traditional expert systems, it is the data that determines the structure of the model, without any restrictive parameter assumptions. This is a huge step-forward in efficiency terms. Unsurprisingly, the current trend is that neural network software usage is increasing at nearly 30% across all industries, with financial services accounting for almost half of all ANN usage currently[1].

As well as the rise of ANNs, the growth of AI implementations based on Natural Language Processing and Sentiment Analytics - e.g. chatbots and intelligent assistants - has been huge in 2018 and is set to continue in 2019. They are being used for voice for text dictation; team collaboration; employee calendar management; customer service; and, IT help desk management tasks. Microsoft Cortana, Apple Siri, and Google Assistant are the most popular commercial products based on NLP. Research by Spiceworks[2] found that 40% of large businesses will be using chatbots and intelligent assistants by the end of 2019. Financial services will be a huge user.

For all of the reasons given above, increasing AI usage is an easy trend to predict for 2019.



Data Management

Depending which research you read, 90% of the world's data were created in the past one or two years, with only using 1% of those data being used effectively[3].

Two important data issues in financial services and capital markets are:

1. reconciling data that do not agree, whether that be for transaction processing (e.g. matching trades) or for reporting purposes.
2. effectiveness of data use is low. Institutions should be getting more value from the data that they hold.

At one level, both issues can be addressed by better data management. However, the first issue (data not agreeing) is often caused by the massive data redundancy often seen in financial institutions, with no single 'Golden Copy' of any data being held. The second issue (effectiveness) can be addressed by learning from companies in other domains who are leaders in turning data into stakeholder and shareholder value; e.g. ERP providers; social media companies; and, e-commerce. Using the (often AI powered) technologies, models, and techniques of these companies will allow financial institutions to improve data quality; save costs; achieve compliance; collate business intelligence; and, gain better insights into the behaviours of markets, and customers. AI can help enormously by making the workload easier, e.g. by getting the data to build predictive models themselves.

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Digitalisation, Fintech and Open Banking

The demand from customers for digitalisation of financial products and services is huge. When customers can access excellent, customer-centric, omni-channel, app based digital services in many other aspects of their lives (travel, e-commerce, media) it is hard to justify current online banking, insurance and investment offerings. Plus, the majority of products and services in financial services are not yet digitalised at all. It is smart-phone app versions of banking, insurance and investment services that customers will be demanding increasingly, and it is how providers will be judged in future. Ease of use (utility) is everything now that anything can be delivered to your door with a single 'click'; and, it is utility that disruptive Fintech firms are largely about. Open Banking in the UK and EU (and growing worldwide) with its open-API access to customer accounts for authorised Fintech firms now gives incumbent financial institutions the opportunity to partner with those firms and thus adopt the level of digitalisation expected by their customers; i.e. integration of multiple financial products and services from different providers into a single, optimised and productised service. For these reasons, digitalisation will be strong trend in 2019.

Crypto-currencies

While articles continue to appear decrying Blockchain, cryptocurrencies, and crypto-exchanges, 2018 has seen NYSE creating the cryptocurrency trading platform Bakkt in collaboration with Microsoft and Starbucks with physically backed Bitcoin futures contracts; Fidelity announcing that it has been mining Bitcoin it since 2015, and is now offering it to its clients; Steve Wozniak joining an investment focused crypto start-up; Bill & Melinda Gates Foundation using Ripple's interledger protocol to help with payment services for the poor and unbanked; IBM partnering with Stellar Lumens for cross-border payment solutions; George Soros - formerly a critic - buying Bitcoin at the $6k low; David Swensen investing some of Yale's $29.4 billion endowment in two venture funds dedicated to cryptocurrency; Circle (owned by Goldman Sachs) launching a crypto finance company; Square's Cash app allowing users to buy and sell Bitcoin; Coinbase being valued at $8B; singer, American R&B singer Akon launching his own cryptocurrency to help bring security to the currency system in Africa; Steve Bannon betting on Bitcoin as 'the future' and talking about launching his own cryptocurrency; ex-Goldman President Gary Cohn joining a blockchain start-up; Venrock (owned by Rockefeller) investing in cryptocurrency; and, more initial coin offerings in the year than in all previous years added together. So, guess what the prediction is for next year? Sharply upwards for cryptocurrencies and digital currency exchanges of course! You cannot resist the tide...

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Distributed ledgers

As well as the growth of Blockchain enabled cryptocurrencies, increased use of Blockchain as an immutable, encrypted, distributed ledger in transaction processing and record keeping is an easy prediction for 2019. The industry spends huge amounts of money on a handful of processes where up to 99% of effort, money and time could be removed by using distributed ledger technology. Those perfect use cases are clearing and settlement; cross border payments (e.g. for international trade finance); smart contracts; KYC; and, loyalty and rewards schemes. Example of opportunities being realised so far include:

- the Interbank Information Network (IIN) for payments, launched by JP Morgan, Society Generale and Santander in 2017 now has 75 members. Among other things, IIN's blockchain eliminates the need for reconciliations and all the time delay, cost and effort that goes with them (e.g. in correspondent banking for international trade finance).
- Nasdaq Linq - a Blockchain enabled settlements service for private markets (a market where paper and spreadsheets dominate currently) launched in 2015 - continues to grow.

Smart contracts are lagging behind other use-cases, but will be taking off in 2019 if announcements, events and projects in 2018 are anything to go by. E.g. the largest bank in Australia and New Zealand (CBA) received permission in September 2018 from the World Bank to issue a Blockchain-based bond that will be governed by legally verified smart contracts. The smart contracts will be created, allocated, transferred and managed using distributed ledger technology. It doesn't take a genius to predict that this will be the first of many such bonds.

Ubiquitous infrastructure

Infrastructure availability and cost should no longer be regarded as a barrier to achieving ambitious objectives or providing great service in a cost-effective manner. The reason being that ubiquitous infrastructure / consumption-based IT services such as Cloud (which itself is associated with Infrastructure-as-a-Service; Platform-as-a-Service; and, Software-as-a-Service) make the latest technologies, methods, and services available to anyone at affordable prices with shorter procurement cycles, increased agility, improved scalability, higher reliability etc. Cloud has allowed companies to move to always available, infinitely scalable, current and secure infrastructures without the huge barriers (including people barriers) that came with on-premises / data-centred models. According to IDC, almost half of all IT spending in the industry will be Cloud based next year. By the following year, it will be over 60%. All aspects of ubiquitous infrastructure will continue to throw strongly in 2019, but it is the practical, flexible models of Hybrid Cloud, Multi-Cloud and Connected-Cloud that work best for large financial institutions with their varied needs across storage; Big Data; networking; service delivery; infrastructure management; security; application deployment, etc. Expect to see usage of these three models to increase sharply in the industry in 2019, but also expect to see all aspects of ubiquitous infrastructure and 'as a service' to explode next year. This stuff is not commoditised yet (it still needs clever people to make it work at it best) but we are getting there.

Conclusions

2019 will be a make or break year for many financial institutions and their use of technology. They will either demonstrate significant improvements in automation, digitalisation, analytics, quality, productivity, security and compliance or they will start going backwards compared to their peer group. There is no need for institutions to reinvent the wheel to achieve the necessary objectives, as the tools that they need to deploy Blockchain, Big Data, AI, and Cloud are all available commercially. Here is to using better technology and getting great business outcomes in 2019!

Cliff Moyce
Chairman of Advisory Board
DataArt

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