Unlocking data’s potential
How cloud and AI are transforming commodities
In the last twenty years, the amount of financial data available has exploded, while at the same time, our technological capabilities have advanced exponentially. The result of this is that the financial industry is being fundamentally transformed.

Introduction
Cloud is at the heart of digital transformation, enabling even bigger changes

It’s a sector that’s inexorably moving towards a future where machine intelligence and automation will play ever larger roles – companies need to act now, or risk being outperformed by their competitors.

While a number of factors have driven these changes, the global Covid-19 pandemic has helped companies focus on their digital transformation. Many companies accelerated the digitisation of their customer and supply chain interactions by three to four years, research from McKinsey has found. And it’s likely that many of their temporary solutions will lead to longer term changes.

For many of these businesses, changing how they think about and handle data will have been a priority. Key to this, including for many financial institutions, is the adoption of the cloud. Storing and managing information in the cloud can give businesses greater flexibility for their operations. But it also opens new avenues for growth: in the coming years, the cloud will be a pivotal tool for businesses wanting to make the most of the huge potential that artificial intelligence and machine learning offer.
Moving to the cloud

Thanks to the pandemic, an automated, intelligent and expandable future built with cloud services has arrived sooner than anticipated

To understand the future of technology innovation, you need to look at the growth of the cloud – and in particular the rapid rise of Amazon Web Services (AWS). The online retailer’s cloud hosting company, AWS, was founded in 2006 and has since grown to become one of the company’s most crucial revenue streams, as well as one of the web’s most critical pieces of infrastructure. “It took us 123 months, a little over ten years, to grow to a $10 billion business,” AWS CEO Andy Jassy told the firm’s annual developer conference in December 2020. “Then it took us only 23 months to go from $10 to $20 billion. 13 months to go from $20 to $30 billion”. At the time, Jassy said AWS was set for its annual revenue to hit $46 billion. Since then, he has been promoted to the overall CEO of Amazon, replacing founder Jeff Bezos.

The success of AWS is mirrored across the cloud computing industry as a whole – Microsoft, Google and Alibaba’s cloud services have grown at huge rates as businesses and individuals move to base their digital infrastructure in the cloud. The world is quickly moving away from storing data in physically owned locations, and this shift comes with the benefits of rapid data-access and almost limitless scalability that are unique to cloud services. According to analysts at Gartner, spending on public cloud services is forecast to hit $332.3 billion in 2021 – a 23 per cent increase on 2020, and it’s still growing.

For financial services, cloud adoption brings multiple opportunities worth considering. Even for Refinitiv, the cloud has transformed how it does business – it is one of Amazon Web Service’s Advanced Technology Partners and provides access to its financial data through the cloud. “We are looking to deploy our technology on the cloud more and more,” says Filippo Kassab, Refinitiv’s director of research. Kassab adds that the cloud’s centralised capabilities allow companies to quickly benefit and scale their operations.
The cloud offers unprecedented scale and power for companies wanting to host and build upon data they have access to. It can store the huge volumes of data being created every day – from information captured by real-time sensors to company pricing movements – and make it rapidly accessible. Companies can easily use Application Programming Interfaces (APIs), a type of software that allows applications to talk to each other, to access the large volumes of data that can be stored in the cloud. APIs also allow businesses to bring data into their own systems without needing to own the physical data centres where the data is stored.

The flexibility the cloud provides also makes it an ideal ground for the future development of artificial intelligence (AI) and machine learning (ML). These technologies can disrupt financial services by being able to analyse vast datasets, find patterns within the data and then make extrapolated predictions about the future. This process is highly data intensive and requires a huge amount of computing power to work effectively. In recent years, cloud providers have set themselves up to be one of the key places where AI and ML are put to work: they have invested in additional data centre resources and have created and installed systems that are able to handle the pattern matching that AI requires. As a result, cloud providers have made it possible for their customers to start using AI and ML without owning the infrastructure needed to do so.

The popularity and necessity of cloud adoption by financial organisations as they strive towards a more digital and automated reality is on the rise, with recent research by Refinitiv revealing that more than 90 per cent of financial firms want to use the cloud in the next four years. A large percentage of these businesses want to go further than just using the cloud – and they want to do it quickly. In total, 25 per cent of them want to use the cloud for the majority of their market data within 12 months.

To respond to this demand, Refinitiv has already moved its own data to the cloud – making it instantly accessible to companies that need it. Its cloud Data Platform provides more than 100 million financial instruments, dating back to 1996. This data comes from more than 500 financial exchanges; more than three million Reuters news headlines; and hundreds of environmental, social and governance factors. Without the cloud’s scalable infrastructure, access to this volume of data would previously only have been possible to a small
number of companies that could afford the massive data centre storage required. Now, it is accessible for anyone – from legacy companies to startups that can integrate it through APIs.

And for those companies wanting to deploy AI and ML, the services offered by cloud providers can supply a straightforward starting point: “It is technically possible to use it [artificial intelligence] because we [Refinitiv] are on the cloud and using Python,” Kassab says. “But also, it is more relevant to utilise it, compared to the past, because now we have the big data ‘lakes’. There is more and more data available.” Researchers have found that the more data they feed to AI and ML systems, the better the results it can provide.

Improper data management represents a significant business risk. And, increasingly, that danger is coming from inside a company’s own walls. Staff members, whether on purpose or by accident, can put their organisation at risk by leaking or making proprietary data available publicly. In the first quarter of 2021 alone, 57 per cent of cybersecurity incidents reported to the UK’s data protection regulator were caused by insiders.

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This future may be closer than many people realise. Adoption of cloud computing technologies has been accelerated by the widespread remote and hybrid working ushered in by the pandemic. As companies had to relocate their workforces in 2020 and 2021, their infrastructure also needed to shift to match the new realities. “I think when you look back on the history of the cloud, we will see that the pandemic accelerated adoption of this technology by several years,” Amazon’s Jassy said at the end of 2020.

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Andy Jassy
CEO, Amazon Web Services
Burak Tutar has a clear idea of what his future looks like: “In five years’ time, our vision is for our company to have fully automated data and execution systems that are maintained by data engineers, where traders are only involved in developing strategies together with quantitative analysts,” says Tutar, who is the founder of AI commodities trading firm Vitus Commodities.

At the heart of this future vision is the use of artificial intelligence and machine learning. Tutar says the company, which focuses on the energy markets, is using AI to build prediction models capable of forecasting the wind on a medium-term basis. This relies on accurate weather forecasting – something that is notoriously difficult to get right – but also the ability to manage data, utilise cloud computing and deploy machine learning systems on top.

If successful, it could result in more accurate and cheaper pricing forecasts, automated decision-making for the company and, eventually, automated energy networks. Tutar says that commodity trading houses and the banks of Wall Street are making “somewhat of an effort” to add fundamental data – real-time information about the world, such as satellite images or oil supply levels provided by sensors – into their trading setups, but adds that these are “falling short”. “The main reason for this is simply due to organisational memory and a ‘this is the way we do business’ approach,” he says.

To get to a stage where they can properly utilise the cloud, big data and AI, the organisations need to have the platforms and the requisitely skilled staff in place to do so. Taking in or ingesting data is crucial to this. Refinitiv says its Refinitiv Data Management Solution (RDMS) can provide standardised data that companies can ingest into their own businesses through the cloud, via simple API integrations. It can push all of its data into their data warehousing systems, or help create those systems from scratch.

Putting the data to work
The cloud is key for getting the most out of your data, using automation, machine learning and artificial intelligence to gain real-time insights

Once data has been brought into a company’s own environment, it can then begin to build on top of it. Data can be visualised to show where goods are being moved around the globe. Charts can be built to show the world’s busiest ports. Plus, artificial intelligence and machine learning can be deployed on this ingested data.
Data held on cloud servers can be accessed anywhere, and interrogated in many ways.

“We service the developers who want to take in feeds, including real-time feeds,” says Toby Amis, head of developer workflows at Refinitiv. “They want to build internal applications for their own staff.” Kassab adds: “Refinitiv comes with the advantage that it has a huge breadth of content for all aspects of the data that we need to source, all available in one place.”

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One Refinitiv project, called Mosaic, uses machine learning to explain extreme price movements. It uses open-source AI technology and adds news sentiment, social media data and information about current events. Hosted on the cloud, the project uses real-time analytics to detect how prices are changing, and a machine learning model then predicts whether the movements are exceptional. To work out whether a price movement is an anomaly, the system has been trained on past trading data, news and previous financial reports. It’s then able to surface these factors to analysts to help them understand what may be causing the price changes. For traders, being able to quickly determine through an automated system why an extreme price movement is happening, allows them to be able to respond and make decisions that will best benefit them and their firms.
The upskilling challenge

Companies must ensure staff can make the most of new technologies

To take advantage of the cloud and AI, companies also need the right staff to be able to utilise them. Data is just one part of AI – and increasingly this means financial firms are employing traders and analysts who have computer and data-science skills, with a particular focus on the Python coding language, which is easier to write than other code and is used in many machine learning systems.

"Many of our customers don’t hire people in the front office anymore without Python skills,” Refinitiv's Amis says. "And that’s been the case for some time. Financial services are really adopting Python as a standard.” For companies that don’t upskill their staff, or hire new employees that are fluent in the latest technology, then there’s a real chance they could be overtaken by their competitors. "In five years’ time, if the thought of working in Python or looking at Jupyter Notebook scares people, they’re probably not going to have a job,” Amis says.

Kim Benni, the global head of risk and trading technologies at Swiss-based sugar trading specialists Alvean, agrees that Python is a "necessary capability" for many staff these days. However, Benni also points out that there are some artificial intelligence and machine learning environments that are entirely codeless.

Benni adds that companies being able to innovate with data is crucial – this goes back to the ability to understand business data and have structures in place to utilise this. "The key ability is to understand the underlying business and answer the relevant business questions by distilling data into insights, producing clean data and usable prototypes algorithms, in a fail-early model that promotes creativity and tinkering.” Benni says, adding that companies that look to utilise AI as a tool for understanding trading markets and getting intelligence from data can put themselves at an advantage over their competitors. If they’re not making use of data, then their rivals may be able to forecast what will happen in their own businesses better than they can. "Ultimately," he says, "No one in trading would even want to be in a situation where competitors can predict your own upcoming sales better than oneself.”
Refinitiv, an LSEG (London Stock Exchange Group) business, is one of the world’s largest providers of financial markets data and infrastructure. With $6.25 billion in revenue, over 40,000 customers and 400,000 end users across 190 countries, Refinitiv is powering participants across the global financial marketplace. We provide information, insights, and technology that enable customers to execute critical investing, trading and risk decisions with confidence. By combining a unique open platform with best-in-class data and expertise, we connect people to choice and opportunity – driving performance, innovation and growth for our customers and partners.

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