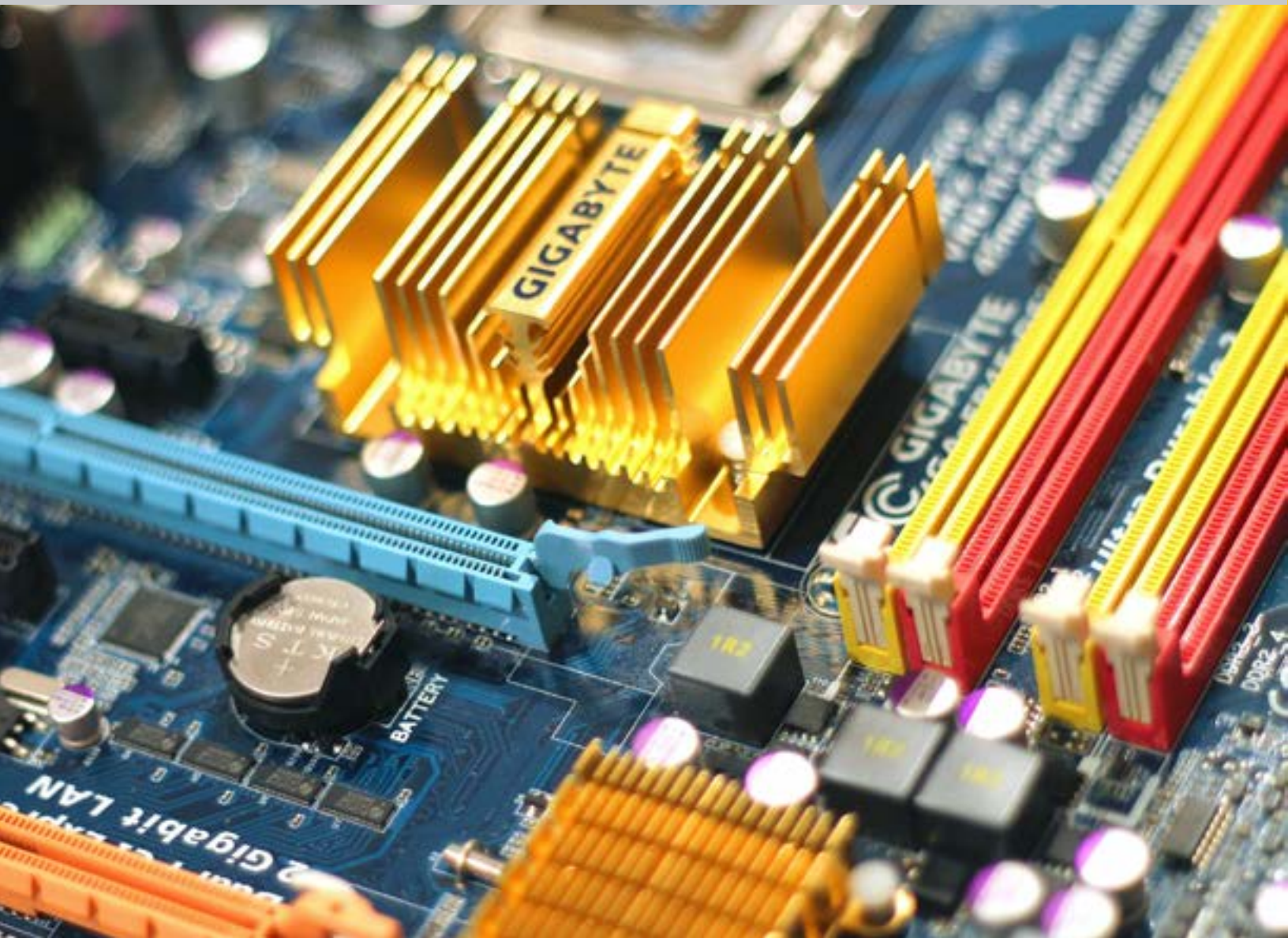complysci

ARTIFICIAL INTELLIGENCE AND DATA INNOVATION:

On the Implementation of AI and Machine Learning within Financial Services

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INTRODUCTION

Since the advent of bank notes in the UK in 1691 and the inception of the Bank of England in 1694, data has been at the very heart of the burgeoning financial services industry. Of course, until recently, data was stored on mainframe computers and manipulation of this data was a cumbersome process involving large quantities of human resource and proprietary desktop software.

In this Whitepaper, we look at the development of data capture and manipulation, the importance of ethical AI, and how the future of AI and machine learning will impact the financial services industry.

Once the millennium bug was squashed and financial services began to look at what to do with their investment into new technology hardware and software, a data industry was born. Learning more about customers through analysing their use of products was a first use of this data, rapidly developing into new revenue streams created through CRM "pen portraits" of customers.

White these personalised portraits work satisfactorily where face-to-face interaction is present, such as over a bank teller's counter or in a wealth manager's client meeting, this simple use of data becomes impossible when dealing with millions of transactions per second or where online trading is commonplace.

Over the intervening 20 years, the use of Big Data has been **big** news. Like supermarket loyalty schemes realised in the early days of their programmes, financial services firms suddenly needed to decide if all this data was worth interrogating.

Just a few years ago, several UK Retail Banks had reported "suspending the use of data for customer profiling," suggesting that "there were no demonstrable ROI benefits from interpreting and deploying recommendations from in-depth data mining."

Of course, for Retail Banking, data integrity aligns closely with customer experience and reputation, so for many Compliance teams, the use of Hadoop or other big data utilities was a definite no-go, resulting in a "do it ourselves or don't do it at all" policy being implemented in many mid-market financial services firms.

BUT WHAT IF ALL THIS DATA COULD TEACH US SOMETHING ABOUT OUR OWN ORGANISATION?

Late in the first decade of the 21st Century, tech-savvy firms began to consider data lakes. These huge reservoirs could be filled to an endless capacity with raw data and then tapped for data streams allied to business use, such as customer experience, retention, security, compliance, analysis, and more.

These smaller streams made the deluge of data more manageable, and the trickles of data that could be compliantly managed on desktop proprietary software became useful to middle management. These executives began to learn that this expanse of data could provide evidence to support business development, reduce costs, and increase corporate intelligence, something which was only previously possible through extensive and expensive third-party research.

The obvious challenge for financial services firms was to keep the data reservoir growing, while not overwhelming humans (or simple software) who were interpreting it. With so many human interventions, C-Level members were beginning to ask questions about costs, ROI, and data automation. *What happens if software could do what we ask, but at in inite speed and with 99.99% accuracy? What happens if we could pose the software a problem, and it could provide a solution? What happens if we need not even pose a problem, but the software could predict them through previously learned behaviour?*

Amidst gasps and a look of horror on the faces of those in middle management who made careers on data mining, the first foray of financial services into AI was born.

THE ADVENT OF ETHICAL AI AND ITS INTEGRATION INTO EVERYDAY LIFE

The aura of science fiction surrounding AI is immense. While 2020 has taught us almost anything is possible, the chances that AI will be making every decision in your organisation is somewhat far-fetched.

However, AI does have potential to protect businesses, their IP, their people, and their customers more than ever before. It offers the possibility of prevention of harm, while avoiding recurrence of events or risks by creating new rules in real time.

Of course, AI can be used by the poacher and gamekeeper too. Therefore, firms should be aware of automated threats posed by malicious actors as well as the wider ranging 'all seeing eye' of the regulator imbued with AI software and machine learning. In the same way that 95% of credit card companies now detect fraud through wider patterns of use, some regulators can now predict which firms may become non-compliant by mapping behaviours in their required data submissions.

IF YOUR REGULATOR CAN SEE THE PATTERNS, CAN YOU?

Over the next five years, we predict data visualisation software will become as commonplace on your desktop, phone, or tablet as Google Chrome. Whatever your role is within your firm, ability to operate your business will be defined by what your data is telling you before you even realise it.

The depth of AI integration will be pivotal. Will your employees feel comfortable with being continually monitored by a machine? This is where the ethical use of AI will be balanced with reputation and where organisations of all sizes will need to see real benefits before implementation.

AI is built around algorithms. As we've recently seen in the UK, algorithms have been blamed for bias in everything from school grades to the choices of music played in shopping centres. Overcoming the anxieties surrounding AI is possible if organisations are transparent about its use. Outlining the advantages offered by AI is straightforward if surrounded by policy, practice, and regulation.

For a financial services firm, it may be marketable to tell a customer "we spotted an error and have rectified it ahead of you noticing it," but less marketable to highlight that "we can see you have a penchant for expensive sneakers, therefore you aren't a great risk for a high loan-to-value mortgage." Just as credit reference agency services, once distrusted until the late 1980s, are now part of everyday life in developed economies, the same can happen with intelligent software.

WHAT DOES THE CDE&I CONSIDER IN ITS LATEST BAROMETER REPORT ON AI?

It is clear that the **CDE&I** believes that in the short term, product accessibility and innovation will benefit from AI, with increased automation likely to reduce risk and fraud, benefiting vulnerable customers and managing regulatory compliance. Although at varying stages of difficulty for implementation, there are many high potential opportunities for the financial services industry.

There are also significant risks identified. As we have highlighted before, AI can become biased based upon rules and narrow banding of data feeds. While these biases can be overcome, it's likely that these will need to be interrogated by humans, alternate systems, or by feeding even more data into the aforementioned data reservoir.

More data ultimately means more risk. Extra strain on the dam holding back your lake of data could mean a relatively small fissure (or attack) could lead to a big flood. But as Civil Engineers will attest, it's fine

knowing you've got a leak, but finding the source is your biggest challenge. Firms also need to consider the size of the leak. AI, when given the data to learn, can usually edit out false positives and provide a scale of potential interventions.

Smaller firms and regulators may also be concerned about the ability for the big players to dominate the market through their new-found intelligence. If your systems can now identify new markets, develop new products, and deliver them to the marketplace in double quick time, what about those who simply can't match your speed?

The CDE&I barometer report leads back to data barriers, a lack of implementation resources, and gaps in funding driven by insufficient beneficial evidence. Even if we can onboard and train human resources to assist in helping the machines learn, many of us will soon realise these roles will seldom be career-defining or enduring.

NOW IS THE TIME TO CONSIDER HOW YOUR ORGANISATION CAN PREPARE FOR THE NEXT INDUSTRIAL REVOLUTION

At first glance, few of us would consider the internet to be superfluous in our daily lives. While we may shun our screens at the end of the working day, we often replace

a desktop for a smaller in-hand version of entertainment or gaze at a larger wall-mounted version dropping endless box sets into our homes.

In the same way that Tim Berners-Lee inadvertently created something that would touch almost everyone globally within 30 years, AI and machine learning will do the same, but in far less time and with far fewer people even thinking about its existence.

Let's start by considering the daily, weekly, and monthly tasks in your firm, from the most mundane to the most complex. Think about everything from mandates to reporting, acceptance to onboarding, liquidity to fraud monitoring. Whatever the size or complexity of your firm, you'll now have a **list.**

Overlay all the human and system touch points on each of your tasks or deliverables, then think sales and marketing. How do you create, market, and sell products or undertake a myriad of transactions each second, minute, or hour? You'll now have a **network.**

Now consider how each of your functions are completely interdependent. Consider what happens if one fails, which related pieces will fall and where the domino effect is likely to start. You now understand your **operational risk.**

With your lists, network, and operational risks, you now need to think about the impacts of the interdependent networks you've highlighted. The effect on your share price, planned M&A activity, your people, your customers, your reputation, and your future. You now understand why you can't ignore AI

As firms grow and as the market (and its regulation) become more complex and in-depth, automation delivered by AI will become commonplace if ethical barriers can be overcome.

HOW DOES REGTECH ENCOMPASS AI AND MACHINE LEARNING?

Not all firms are built the same way, but first let us look at what RegTech is designed to do. Basic RegTech software simply automates some of those tasks which you included on your list above. It remembers things you should be doing, supports those people whose job it is to report them, and allows you to stay in the good books with the regulator.

Third party RegTech provides something more akin to crowdsourcing solutions – let us explain. Let's take the examples of lists, networks, and risks we highlighted above, and the spider web of services to your in-house or offshore IT team, and

ask them to stop everything and develop something bespoke to help you keep your firm afloat. At the same time, ask them to switch the business back on, keep it live 24x7x365, and stay ahead of product innovation, oversight, and regulation in every jurisdiction in which you trade.

Many IT consultants or in-house teams would welcome your approach. What you're proposing will keep them well-fed right through to retirement. However, the development of the system is a minor facet of the challenge. To stay relevant, your system will need to learn. It will need to interpret data that has yet to be curated,

from products not yet even dreamt of and be configured to report exceptions not yet considered.

It will need to include regulations that are overseen by AI software operating in real time, uncomfortably requiring interventions before your system has seen a problem. In addition, your system will also need to take a glance at what's happening outside your organisation, in other professions, and in Governments and Institutions that don't usually form part of your sphere of influence.

Now let us consider **cost.** What is the human cost of delivery, the opportunity cost of offices, technology, and testing? How much does your in-house system cost

to update, to maintain and to replace – in one, five or ten years? When will it be delivered? Will it ever be delivered fully?

A good RegTech provider will work alongside your requirements of today, then take every market variable and bake it into their development programme to offer you a consistently updated, innovative, and accessible suite of software which puts you in control.

HOW DOES COMPLYSCI HELP YOUR FIRM?

We believe that being nimbler, less distracted, and more informed will keep your firm one step ahead of the competition and the regulator.

The financial services industry is highly complex, with firms ranging from owner managed businesses to multinational firms trading in many jurisdictions. Our challenge is to understand both what firms demand and what local markets dictate, while reducing the impact of change and cost of maintaining systems to help you achieve compliance.

While this Whitepaper is all about the potential of AI, we believe in walking before running. Our solutions enable your people to understand and manage

regulatory compliance better than ever before, helping you embed a culture of compliance within your firm.

As firms implement ComplySci today, our development teams are focusing on the future. We're laser-focused on providing compliance products which learn from data, outside influences, and the requirements of the marketplace, and making them interoperable with your own systems and structures.

The future is much closer than many of us realise, and our direction of travel will be dictated by our client need and how we can help you deliver business results underpinned by a culture of compliance.

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ComplySci is a leading provider of technology solutions that help compliance organisations identify, monitor, manage and report on conflicts of interest arising from employee activities, including personal trading, gifts and entertainment, political contributions, outside business affiliations, and other code of ethics violations. Founded in 2003 by early pioneers in the development of automated compliance management solutions, ComplySci is now trusted by over 1,400 customers, including some of the world's largest financial institutions. Compliance Officers rely on ComplySci's scalable and sophisticated platform to stay ahead of risk.

Learn more with a ComplySci Demo