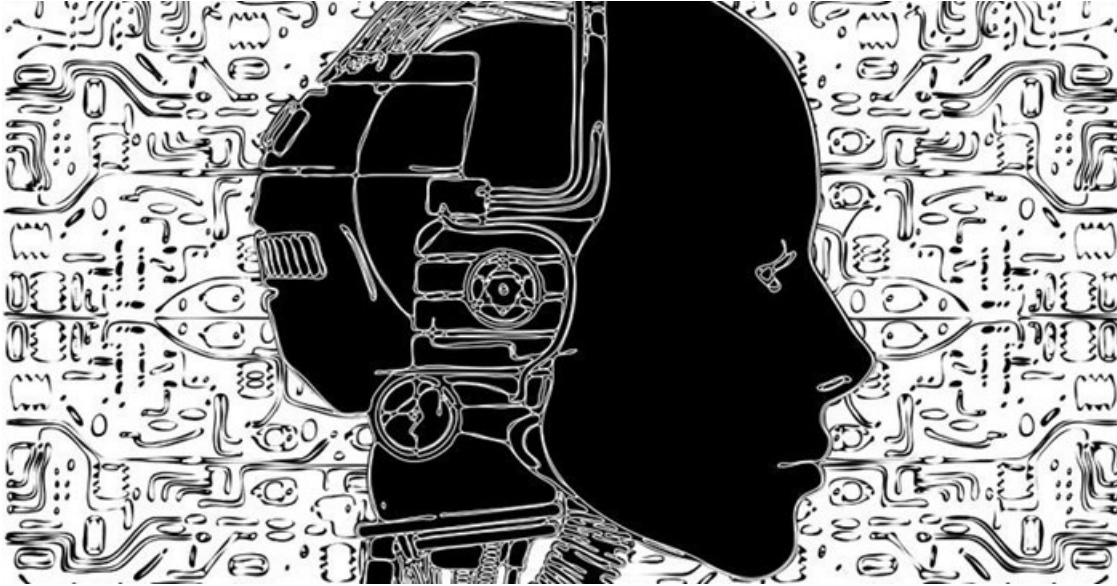


Ghosts in the machine & other scary things

What is driving the global financial services industry towards a rapid embrace of artificial intelligence (AI) and machine learning, and what are the implications both for the industry and financial markets as a whole?



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These are the issues that global law firm, Baker & McKenzie, set out to answer in a newly released survey entitled *Ghosts in the machine: artificial intelligence, risks and regulation in financial markets*.

The survey asked 424 senior executives from financial institutions and fintech companies around the world, as well as leading experts in the field, for their view on how AI will affect the financial sector. It set out to unpack such issues as the risks and benefits AI would bring to the sector as well as the associated regulatory and legal challenges.

Chris Hogan, banking and finance partner at Baker & McKenzie South Africa, says this digital research report is designed to uncover associated risks and analyse the potential for disruption, or large-scale change, within the financial services industry. “The report shows that the financial services industry is rapidly seeing the potential benefits of artificial intelligence, while being increasingly concerned about risk and the ability of regulators to keep pace.”

Key findings

The most dramatic changes brought about by AI and machine learning within three years are expected to be in the areas of credit provision, asset management, trading and hedge funds. Within trading and investment management, some companies are pioneering AI trading programmes. They employ a combination of machine learning techniques and evolutionary algorithms to crunch huge amounts of data, in order to recognise obscure patterns that others have not identified. Many of these AI software programs learn and update their models automatically and independently of human interference.

On the positive side, AI is expected to improve financial institutions' risk management, through more in-depth assessment of risk in portfolios and more incisive, comprehensive and informed credit-risk assessment. Machine learning is also predicted to make financial markets more competitive by as soon as 2018. Conversely, the use of AI in the financial sector brings about significant uncertainties and risks, such as the risk of malfunctioning algorithms, humans' misuse of technology and concerns surrounding the security, privacy and quality of data.

Hogan says banking is already one of the key areas where technology is having an impact throughout Africa. "The banks are arguably under siege, being more and more subjected to regulatory and capital requirements and finding it increasingly difficult to keep their costs down. Their technology challenge involves how to embrace new technology and how to incorporate it into what they already have in place. This is particularly important when faced with the threat of certain banking services being provided by non-banks - such as mobile money transfer services - where such entities are not subject to the banking capital requirements and can service the rural unbanked."

Darryl Bernstein, intellectual property and disputes partner at Baker & McKenzie clarifies that today's financial technology advances have brought tremendous advances in crunching through huge data. "The vastly increased algorithmic powers we are seeing can help to build economies where there are gaps, and create opportunities. However, much of the financial technology is still at experimental stages in many applications, including trading, portfolio management and credit assessment. Therefore, the possible risk of malfunctioning algorithms, together with concerns surrounding the security, privacy and quality of data, has led to calls for new regulation."

Regulatory inadequacy

Survey respondents expressed unease about the future regulatory response to AI. Over three-quarters are not confident that regulators have the adequate knowledge and skills to stay abreast of new financial technologies and understand the potential implications of AI for financial markets. Survey participants suspect that regulators are only just beginning to understand the potential implications of AI for financial markets and companies. Attention is only now beginning to turn to the integrity of algorithms, and the report notes that any rule-writing on machine learning in the next few years is expected to focus here.

Bernstein comments, "There is no doubt that AI in the financial services sector will require a different kind of regulation. However, too much regulation will tend to dissuade investors, while too little regulation will not be good either. In the UK, we are seeing the financial conduct authority looking at banking types of services offered through alternative mediums and whether there is a need for further regulation or not. It's important to get the balance right to support economic growth.

"At the same time, the delayed enactment of the Protection of Personal Information Act (POPI), which is now expected to be enforced in the second half of 2016, shows how delayed South Africa has been in bringing in the kind of data privacy legislation that the European Union has already had for some 20 years. So, based on the POPI scenario, we don't expect a particularly fast result with regards to widespread financial technology regulation in South Africa."

Changing business models

Bernstein believes that the rise of AI in the financial services sector will bring job losses in certain ways. "We are already seeing local banks cutting down on employees as they become more digitally orientated. Computing technology enhances data processing significantly.

I suspect we will see the introduction of different business models, with some jobs ceasing and others developing. In turn, I foresee the need to develop education systems to embrace this, as in the Asian markets, for example, where we see the

government in Singapore acting as a bridge between academia and business in the fintech space. It would be great to see the South African authorities playing a role as an enabler of technological development in the local market as well as a regulator. ”

Bernstein says that the ongoing rise of the digital age is arguably a continuation of the industrial revolution. “Many today believe that we are now in the fourth industrial revolution, as it has been dubbed by Professor Klaus Schwab, founder and executive chairman of the World Economic Forum. He is convinced that the period of change we are living through is more significant, and the ramifications of the latest technological revolution more profound, than for any prior period of human history,” he concludes.

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