

BRIEFING:

ETHICAL USE OF AI

IN FINANCE

IN BRIEF

For the first time, experts from banking and fintech, policymaking, consumer groups and civil society have joined forces to explore how the use of Artificial Intelligence (AI) in finance can impact on financial health, economic inequality and citizen power. This briefing summarises the findings of a roundtable event convened by the Finance Innovation Lab for over 30 professionals on 15 February 2018.

AI holds huge potential for finance:

it could help people make sense of their finances and the best options available to them, automate actions that serve our best interests, and drive real competition in the sector. But this potential is not guaranteed.

There are reasons to fear that AI adoption could increase information asymmetry and complexity, reduce customer control, and exacerbate exclusion and discrimination.

To harness the opportunities of AI and mitigate the risks, we need to:

- Protect and enhance financial market competition in the data-driven economy
- Expand the focus of regulation of AI use from processes to outcomes
- Create a new, compulsory professional qualification for people working with AI in finance.

1. INTRODUCTION

Artificial Intelligence (AI) occupies a paradoxical place in our lives. For many people, understanding of AI has largely been informed and shaped by the entertainment industry, leading to concerns about dystopian futures ruled by machines; for commentators, it is often seen as the route to mass unemployment or mass leisure. At the same time, many of us have become used to the convenience provided by businesses' use of AI across a range of sectors, from viewing recommendations to local transport.

Financial processes that have traditionally required human decision-making are increasingly being replaced or supported by AI too – in fraud detection, risk management, trading, lending and investment advice, among others. With rapid technological developments and a 'data revolution' in finance, as well as pressures on the sector to cut costs, this is only set to rise.

The UK's new Open Banking initiative forces the nine biggest banks and building societies to enable customers to share their financial transaction data with new players – who could range from start-ups to big tech companies – in a standard and secure way. Interestingly, most of these new players (so-called Third Party Providers) are using AI in some way.

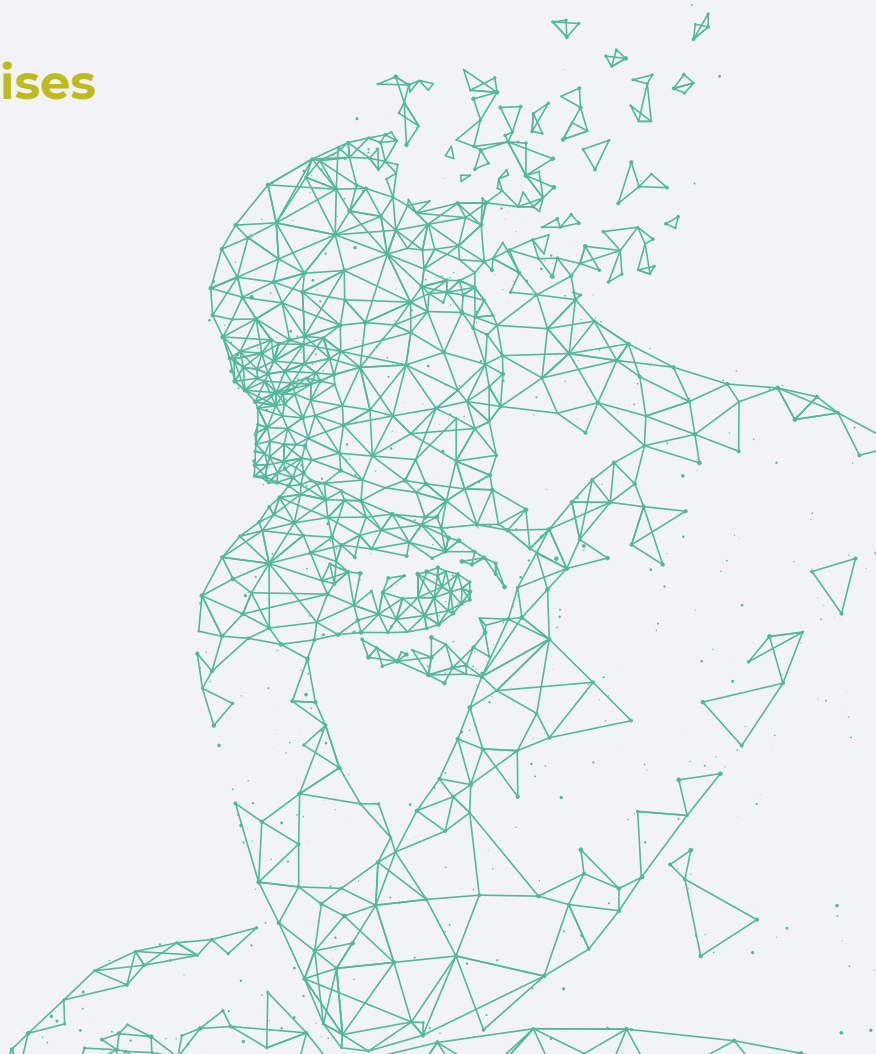
By increasing the speed and reducing the cost of financial services, AI is celebrated for its potential to extend the provision of financial services to a wider range of people. Robo-advice in particular promises to fill the significant advice gap in the UK, according to many proponents. AI could also lead to completely new types of services – for instance, by predicting customer behaviours, AI could enable businesses to tailor services to improve customer experience (and grow sales) at an unprecedented scale.

There are genuine concerns, however, that allowing machines to make important decisions about our lives using data that may only tell part of the story is a risky business. Could the use of AI in finance have damaging outcomes for customers and citizens?

On 15 February 2018, the Finance Innovation Lab convened 30 experts working across fintech and banking, regulation and policymaking, and academia and civil society, to explore the following questions:

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- How can AI support **people to manage their finances?**
 - What is the relationship between automation of financial decision making and **economic empowerment?**
 - How can AI **integrate greater social motivations** into financial decision-making?

This briefing summarises the key findings.



ARTIFICIAL INTELLIGENCE: THE STATE OF PLAY

The study of AI crosses academic disciplines and captures a range of ideas, from robotics to fully autonomous and connected objects, and the idea of ‘the Singularity’ – when machines will become ‘superintelligent’ and trigger runaway tech development, inconceivable to our human minds. Big philosophical questions remain over whether a machine could ever simulate human intelligence and what the ethics of doing that would be.

We find it helpful to think of AI as encompassing a range of technologies that enable machines to think and act with the aim of achieving a specific goal, in ways that can be thought of as similar to, or even exceeding, human capabilities.

Today, AI technologies are in a rapid phase of advancement and adoption, following developments in mathematics and computer science, computing power, and the ability to capture and store large amounts of data. In 2018 AI is being set to work on tasks such as understanding human speech, competing in high level strategic games, and interpreting complex images. A fundamental component of AI is algorithms – a set of rules for a computer to follow in calculations or other problem-solving operations.

Machine learning describes a set of AI methods that lie behind the features of smart apps many people use, from Netflix’s watching recommendation engine to Uber’s ability to estimate drivers’ pick-up times. The core idea behind machine learning is that while algorithms and data sets will shape how a machine should go about learning, what the machine ends up learning – and therefore, predicting, deciding or enacting – is not pre-programmed.

In other words, unlike a robot which would use inputs and execute pre-set decisions, a machine learning system uses data to ‘learn from past experience’ rather than merely ‘following orders’. This requires vast amounts of high-quality data on which to train the AI. Without sufficient care, machine learning can lead to poor learning (‘Garbage In, Garbage Out’) or the reproduction of historical biases and prejudices that are no longer condoned by society.

Certain machine learning techniques are thought to be able to replicate ‘natural intelligence’. Both ‘neural networks’ (algorithms that loosely imitate the complex work of the human brain) and ‘deep learning’ (techniques designed to model the processes of biological nervous systems) are tipped to transform the industry. These technologies have the potential to lead to ‘generalised AI’ – systems that can handle any task, as opposed to ‘applied AI’, which is task-specific.

The UK Government sees potential for AI to increase productivity, improve customer services and accelerate economic growth, and it has made significant commitments in an effort to make the UK a world leader in AI. Aware that many questions remain and risks exist, it is hoped that the new government-established Centre for Data Ethics and Innovation and Office for AI will encourage the safe and ethical use of data-driven technologies.

From May 2018, the EU-wide General Data Protection Regulation (GDPR), which will be overseen in the UK by the Information Commissioner’s Office (ICO), is also relevant to the use of AI. The regulation strengthens the rights people have over their personal data and contains provisions that specifically address automated decision-making.

2. AI IN FINANCE: THE OPPORTUNITIES

AI HAS THE POTENTIAL TO HELP FINANCIAL SERVICES WORK FOR CUSTOMERS AND CITIZENS IN A NUMBER OF WAYS:

- **Help people make sense of their financial habits and the best options available to them**, on the basis of their financial transaction data and market information. This could help fill the advice gap by offering people insights, recommendations and advice regarding their finances, at scale and in an affordable way. By tracking patterns of behaviour, AI could make it easier to identify people who need help with their finances before a crisis, so that they or other organisations can take pre-emptive action to support them.
 - **Automate actions that serve the customer's best interest**, such as transferring money across accounts to avoid overdraft fees and switching to better providers and products. Automation may also be helpful for people with mental health conditions who experience a lack of control over their spending habits and want to pre-commit to certain behaviours.
 - **Drive competition in a way that rebalances power between customers and the finance industry**. Some people think AI offers a unique opportunity to create demand-led change in finance, given that there is little evidence that financial literacy leads to improved financial management.
 - **Re-programme the financial system to be more responsible, democratic and fair**, by reducing inherent human biases and vested interests in business decision-making.
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Why customer and citizen outcomes matter

Banking is an activity built on public trust and banks only exist because they have a social licence to operate. With this comes a social responsibility that goes beyond profit maximisation.

Banks, and the organisations they work with, should be held to account for the outcomes they create for all the people they affect, from their employees and local communities to people across the world who are impacted by their lending activities.

We are all both customers of financial services and citizens who should have a say in how those services operate – so the Lab talks about customer and citizen outcomes.



Lab Community Views

“AI could create the opportunity for everyone to have an expert personal finance manager. It could help us understand our financial habits and find the best products and services – all the while saving us time and effort.”

- Maysam Rizvi, **Managing Director, Aelm, and Financial Health Fellowship Alum.**

3. AI IN FINANCE: THE RISKS

For the opportunities of AI use to be realised, certain conditions need to be in place – including adequate government leadership and regulatory oversight, updated professional standards and sufficient public engagement. Without these, AI in finance poses serious risks for customers and citizens:

- There is no guarantee that customers will have access to, or be able to share in the value of, the AI-driven insights from their data, leading to **greater information asymmetry and complexity** to the advantage of industry over customers.
- Unless people are able to set and change algorithm parameters and edit datasets, the transfer of decision making from people to machines could lead to even **less control**.
- Fintech start-ups and other new players developing AI-powered financial services are likely to be primarily **driven by profit** just as much as traditional providers, if not more so, given the high-pressure commercial environment they are operating in. This, combined with the power of technology, makes it more likely that customer data and insights will be used to **identify and exploit behavioural biases** to the advantage of businesses.
- Data- and AI-driven markets have tended towards platform monopolies, which **reduce competition**. Furthermore, existing digital platforms that exhibit monopolistic behaviours, such as Facebook, have a potential competitive advantage in financial services markets due to the insights gained from their large datasets and their willingness to mobilise their substantial cash reserves.
- Humans continue to struggle to find effective ways to overcome bias and prejudice, and so we should expect that this will be reflected in the algorithms that power AI. In addition, machine learning can unintentionally recreate biases and discrimination from past data. This means that the use of AI – for example to assess credit risk – could contribute to the **perpetuation of existing injustices and inequalities**.
- It is likely that **businesses will not fully understand what the technology they are developing and implementing is capable of**, due to a lack of resources, incentives and skills to investigate.
- **Regulators of financial markets do not have the skills to understand AI** either – they have economic, not technological, expertise.



Lab Community Views

“Many people believe that technology is ‘neutral’, and that the main ethical issue is whether you use it for good or evil. This belief is very problematic. It’s not just what you use tech for that’s important, but also what it does to you in the process of you using it. Our use of digital technology generates vast amounts of data, which in turn is used to train AI systems that in turn are used to predict or steer our behaviour. These systems may be narrowly useful, but in using them we begin to internalise the sense of being watched, monitored and patronised, which feeds back into our behaviour and how we think about ourselves”.

- Brett Scott, **Senior Fellow, Finance Innovation Lab**.

4. REMAINING QUESTIONS

Unsurprisingly, the roundtable produced as many questions as answers to the issues raised by the increasing use of data and automated decision-making in financial services. Questions that need further research include:



How can AI support people to manage their finances?

- How can it respect people's real emotions and needs around finance, rather than expecting them to conform to a model of 'rationality' that does not reflect human life?
- Do we need to review what financial capability means in light of the data revolution in finance and increased automated decision making?
- What role will people have in managing their finances?



What is the relationship between automation of financial decision making and economic empowerment?

- How can AI help people have greater voice and autonomy in the finance sector if decisions become automated?
- Is there a limit to the amount of responsibility that should be taken from people to manage their own finances?
- To what extent should humans (including bank employees and customers) be able to override and reverse machine-made decisions? How will they do this if it is difficult to know why a specific decision was made by an AI model, and it has been delegated power?
- How will the use of AI impact on financial professionals' sense of responsibility?
- Who is responsible for the mistakes AI make in finance and how will they be held to account?
- How will people be able to know that automated actions are being taken in their best interests?
- How can we ensure that customers share in the value of AI insights?



How can AI integrate social motivations into financial decision-making?

- How can we ensure algorithms reflect our values, which often go beyond an interest in 'best' rates to include fair treatment over time and wider social impacts?
- How can we ensure that AI-made decisions reflect changing values over time and between generations – such as the fact that most millennials do not want their money to be invested in fossil fuels companies?

5. HOW TO ENSURE THE USE OF AI IN FINANCE **WORKS FOR CUSTOMERS AND CITIZENS**

If we want to harness the opportunities of AI and avoid the risks, we need urgent action from a range of stakeholders. Our workshop attendees called for action from government and regulators, industry and civil society:

Government and regulators

- **Protect and enhance financial market competition in the data-driven economy:** proactive measures should be taken to avoid the development of platform monopolies, including forcing large players to make their data available to other organisations. Regulators should also consider whether any special measures need to be taken to protect customers from Big Tech companies who are starting to offer financial services. They have a particular advantage over customers based on the vast amounts of data they hold regarding finance and other aspects of people's lives.
- **Expand the focus of regulation of AI from processes to outcomes.** The Financial Conduct Authority (FCA) should require that businesses demonstrate that their use of AI leads to the positive outcomes they say it will. Regulatory impact assessments could be introduced to understand the effects of algorithms on customers and citizens, and they should require that businesses understand and report on distributional effects as well as outcomes for particular individuals.
- **Increase resources and training available for regulators,** including the FCA and ICO, to ensure that they are capable of providing oversight and supervision of AI as it changes finance in a rapid and ongoing way. A forum for regulators working at the intersection of finance, data and AI should be established to share emerging insights and expertise, and to identify and anticipate any gaps in regulatory oversight.
- **Work with industry and civil society to create a set of standards** for AI use in finance, which involves banks, fintechs, academics and consumer groups, as well as diverse representation from often under-represented groups in society such as women, people with disabilities and racial and ethnic groups.

Industry

- **Create a new, compulsory professional qualification for people working with AI intended for use in the finance sector**, including ethical considerations and social risks.
- **Contribute past and live, anonymised financial transaction data to a ‘sandbox’** that can be used by organisations to test and compare the performance and social impact of algorithms.
- The sandbox data could also be analysed to understand what social and historical biases exist in it and how to best correct for that. Industry should commit to taking ongoing measures to improve the quality of their data.
- **Review and update, in a transparent way, internal policies and governance mechanisms** to ensure businesses have adequate training and skills, algorithmic monitoring and risk mitigation procedures regarding the social outcomes of the use of AI.
- **Major banks and platforms working with financial data should work with emerging new start ups and civil society to create a set of standards** and good practice for using AI in finance (see above).

Civil Society

- **Bridge the AI awareness, information and education gap** between industry and the public – a priority is to create a common taxonomy, available online.
- **Support industry efforts to build AI-powered financial services** that are inclusive and support people’s financial health, for example through facilitating co-design with end-users.
- **Hold industry to account by making transparent and auditing which companies have AI teams with ethics and social impact training**, are monitoring the societal outcomes their algorithms produce, and have adequate procedures in place to mitigate any negative outcomes.
- **Participate in a standard setting process** (see above) to represent the views and interests of the public regarding use of AI in finance.



Lab Community Views

“We should not look at the ethics of AI use in isolation but in the context of ethics in the financial services industry as a whole. There is plenty of evidence to suggest that many firms prioritise profit over the best outcomes for their customers.”

- Jonquil Lowe, **Senior Lecturer in Economics and Personal Finance, The Open University.**

FINANCIAL HEALTH

Financial health is about people's money and finances working for them, to build long-term resilience and opportunity, rather than finances having a negative impact on their lives. A person in good financial health is likely to feel in control, prepared and calm in relation to their finances.

Financial health is a concept that considers a person's financial situation in a systemic and holistic way, by taking into account the multiple forces that can influence it. These factors can be grouped into four areas:

1

Demand - This includes characteristics that will affect demand for products and services, such as attitudes, motivations, skills and abilities

2

Supply - This includes the policies, institutions and incentives that affect whether and how people can access products and services, and online security

3

Complex needs - This includes individual characteristics and states that are usually beyond a person's control and sometimes unanticipated, such as mental health conditions, bereavement and unemployment

4

The wider environment - This includes factors that set the wider context of financial health, such as the cost of living, labour market trends, the welfare system, house prices and social norms.

Each of these factors and the overall picture they make up is dynamic, meaning that the state of a person's financial health can change over time. The level of wealth and opportunity a person is born into is a key determinant of financial health, but anyone's life circumstances can change, leaving them at risk of financial ill-health. This is often hard to anticipate and control, and the impact it has depends on many factors including someone's social support networks and the financial 'safety nets' they have or can access.

Innovation for financial health puts people first and asks how financial services can be designed to work around a person's life situation, wants and needs, rather than trying to fit the person into the existing financial system.

TAKE ACTION

The use of AI in finance brings significant opportunities and challenges for customers and citizens. Without concerted and pro-active effort from government and regulators, the finance industry, and consumer and civil society groups, the conditions for AI to help finance serve society will not be realised. Worse, the use of AI in finance has potential to reduce financial health and citizen power, and increase economic inequality

We are at a pivotal moment in the development of banking services in the UK – actions we take now could determine the direction of our financial system, economy and society for many years to come. To discuss how you can help, express your commitment to the recommendations of this report or join the Lab's community of purpose-led innovators in finance, please get in touch.

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About this briefing

This briefing summarises the findings of a roundtable held on 15 February 2018, when the Finance Innovation Lab brought together 30 professionals working across fintech and banking, regulation and policymaking, academia and civil society to build understanding about the opportunities and risks the use of AI in finance poses for financial health, economic inequality and citizen power.

The Finance Innovation Lab is a charity working for a financial system that serves people and planet. In 2017, the Lab incubated 13 innovators developing new financial services with potential to improve financial health, in partnership with the pioneering poverty-reduction charity, Toynbee Hall. The Financial Health Fellowship programme supported businesses including an app that uses social gamification to encourage saving, a platform that supports neighbours to organise, pool savings and bargain collectively to reduce utility bills, and the UK's first cooperative bank for underserved individuals and businesses in London.

With support from Barrow Cadbury Trust, the Lab held two roundtables in February 2018 to share and explore further the lessons and questions about financial health innovation that came to light over the course of the Fellowship programme. The participatory events brought together a wide range of experts to cross-pollinate knowledge and build a shared understanding about the opportunities and risks Open Banking and the use of AI pose for financial health, economic inequality and citizen power.

