How can new financial technologies help to tackle social exclusion?

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Fintech products aimed at improving financial inclusion for more disadvantaged members of society have achieved mixed results to date. To increase their effectiveness, they need to address previously neglected barriers around consumer access and trust.

Fintech refers to "technology-enabled innovation in financial services that could result in new business models, applications, processes, or products with an associated material effect on the provision of financial services" (Financial Stability Board, 2017, p. 7). The UK is home to a dynamic ecosystem of fintech organizations, from new challenger banks such as Monzo and Starling to scale-ups that make money transfers faster and cheaper (e.g., Wise) and legal compliance easier (e.g., Cube). The application of technology in finance is not new, but the current wave of innovation is notable for its scope and scale.

Artificial intelligence and machine learning, cloud computing, open application programming interfaces, and blockchain are among the technologies with the greatest impact, changing the ways in which financial service providers operate, communicate, and engage with consumers and other stakeholders. New fintech applications are mobile-first, customer-centric, and disruptive to previously unchallenged parts of the sector.

Is Fintech Benefiting Everyone?

A central claim of many financial technology firms is that they provide new ways in which to tackle financial exclusion, that is, the "inability, difficulty or reluctance to access mainstream

financial services, which, without intervention, can stimulate social exclusion, poverty and inequality" (House of Lords Liaison Committee, 2021).

Being excluded makes life difficult in today's highly financialised society. Access to a bank account and other basic banking products is a de facto requirement for most forms of accommodation, quality jobs, or receiving welfare. However, while consumers increasingly embrace digital alternatives for basic banking services, uptake of solutions that could have a greater impact – particularly among excluded and otherwise vulnerable consumers – has been slow.

Research exploring the use of fintech by financially vulnerable consumers shows that, for fintech to be more socially productive, entrepreneurs and policy-makers must improve both *access* and *trust*.

What opportunities does fintech offer to financially vulnerable and excluded individuals?
Traditionally, financial services firms have relied on brick-and-mortar branches and rigid legacy technology systems that are inefficient and costly to operate. These inefficiencies were often amplified by governance processes that require the completion of a series of time-intensive, manual tasks.

Recent fintech innovations have changed this, for example, by creating fully digital banking experiences and by implementing artificial intelligence (AI) to automate searching, matching, comparing, filling forms, reviewing, and other rules-based back-office activities (Ashta & Herrmann, 2021). This type of automation leads to cost reductions that have the potential to make financial products and services more affordable to low-income consumers (Philippon, 2019).

In addition to increasing efficiency, open finance and AI can significantly improve the quality of debt advice services by providing a holistic picture of a customers' financial situation. Machine learning algorithms can analyse large quantities of financial and non-financial data and potentially

uncover patterns or early signs of vulnerability that humans might not be able to identify (Azzopardi et al., 2019).

These insights can help advisers to improve the accuracy and timing of their recommendations to customers. Similarly, financial institutions can use insights from open data and machine learning to provide personalised products and services that can improve the financial wellbeing and resilience of customers.

Other AI applications help consumers to identify opportunities to reduce expenditure and maximise their income, for example, by providing income-smoothing options (i.e., services that turn unpredictable income streams into regular payments by identifying a customers' average earnings and balancing spikes/dips), identifying benefits eligibility or by offering automated money guidance. One of the most successful Scottish financial inclusion fintechs, InBest, has developed a platform that integrates these services to help vulnerable consumers to improve their situation and build up financial resilience.

Combining open data with AI and machine learning also enables fintech firms to use new approaches to credit scoring and risk assessment (Bazarbash, 2019). These approaches are potentially more transparent and do not rely solely on credit history. They can therefore provide easier access to credit for people with no or limited credit history (Jagtiani & Lemieux, 2017).

Besides directly addressing excluded or vulnerable consumers, fintech can have indirect effects on financial poverty by increasing productivity and fostering sustainable economic growth (Appiah-Otoo & Song, 2021; Song & Appiah-Otoo, 2022). For example, financial technology tools for payments, accounting, cash flow management, smart contracts and other business functions can help small and medium-sized enterprises (SMEs) to increase productivity and build up competitive advantages (e.g., based on reduced cost of capital, improved operational efficiency, or increased liquidity). This creates opportunities for quality employment within and outside the fintech space.

Fintech can also positively contribute to financial inclusion, resilience and wellbeing through government services. Digitising government services can make the distribution of stimulus

packages or financial aid much more efficient. In April 2020, [roughly 7.4 million consumers in the United States opened PayPal accounts to enable faster receipt and cashing in of their Economic Impact Payments (EIP)](#) that were part of the coronavirus relief efforts. This is one example of the potential of government-fintech collaboration.

Why have we not yet seen the expected results?

Financial technologies have the potential to help marginalised communities, yet progress has been slow. Our research indicates that there are two main barriers that can limit the ethical and equitable application of fintech for financial inclusion. Policy-makers and entrepreneurs should take these into account as they encourage further activity in this area.

First, there are issues around access. Some of the most vulnerable financially excluded groups in developed countries lack access to even the most basic information communication technologies.

Even where individuals own mobile phones or have access to a personal computer with broadband internet, there remain [underappreciated hurdles relating to 'data poverty'](#) that restrict access to online services. Data poverty occurs where disadvantaged groups cannot afford to purchase enough data to access online services, thus excluding them from the full range of financial services. This data poverty can be especially pronounced in rural areas, where residents can have less reliable 4G and 5G phone signals.

This research also shows that vulnerable consumers often feel excluded from existing fintech services as they do not have sufficient financial literacy to make sense of new products and services. Attempts to address this issue by 'educating' vulnerable consumers are often seen as patronising and can disengage users by putting them into boxes they don't see themselves in. The

complexity of technical jargon and the overuse of buzzwords also act as significant barriers to engaging many vulnerable groups.

Trust

A lack of trust is the second major barrier limiting the extent to which fintech is addressing financial inclusion. Research highlights that some disadvantaged groups are wary of new fintech services that are designed specifically to help them.

For example, this study found resistance to a new service that used an innovative algorithm to maximise government welfare benefits for claimants. This was viewed with suspicion by many potential users despite appearing to be a beneficial service. In particular, vulnerable groups were concerned that providing more information to government agencies and their intermediaries could result in them *losing* money or otherwise being reprimanded for the information they disclosed.

Given that many fintech solutions rely on large quantities of user data to function, the withholding of important information could undermine the viability of services for disadvantaged groups, leading to even greater marginalisation.

The study also showed that individuals can conflate the use of legitimate digital financial services with an increased risk of online fraud and exploitation. Many older communities, and other vulnerable user groups, generalised that 'most online services are a scam' and therefore *all* digital services are better avoided.

There is general inertia around moving away from physical currency, as cash is perceived as a lower risk. Conflicting expert advice (share your data to get better products and services versus don't share any data to avoid being exploited), as well as complex public debates around questionable data practices (for example, the [Facebook-Cambridge Analytica scandal](#)) make it even more challenging for non-expert consumers to judge the legitimacy of fintech solutions without any form of trusted guidance.

How can fintech overcome remaining barriers?

Financial technology holds promise for addressing social exclusion, but there are still barriers from

a user perspective. Policy-makers have an important role to play in bridging these supply and demand-side issues that are currently holding back progress.

A first step in this direction could be the development of a set of principles guiding how fintech products and services are developed for marginalised, vulnerable and excluded groups. If widely adopted these could give those groups confidence that financial products and services were 'safe' to use. They would also ensure accessibility for a wider community.

We identify the following six principles for those developing fintech solutions for financially excluded groups.

1. **Explainability**: technologically augmented decision-making affecting vulnerable groups should be fully explicable and auditable. There should be quick, easy and independent means available to challenge potentially unfair decisions.

2. **Bias mitigation**: fintech developers should evaluate potential direct, indirect and intersecting biases when building products and services for marginalised user groups. Mitigation measures should be transparent and comprehensible to consumers and supporting third-sector organisations.

3. **Dignity**: where possible, innovations should be created *with* – not *for* – users. User-centred and co-creation design tools should be adopted to improve the legitimacy and adoption of new innovations.

4. **Business model transparency**: fintech ventures working with marginalised groups should be transparent about how revenue is generated, particularly where there is monetisation of user data or customer service fees and interest charged.

5. **Lightweight and non-obsolescent technologies:** fintech entrepreneurs should build technological solutions that require minimal data usage and work on older hardware and operating systems.

6. **Accessibility and navigability**: products and services should have only necessary functionality, be accessible for physically and cognitively impaired individuals and should adopt regionally appropriate variations of the internet crystal mark, which denotes clear use of language.

A common standard based on these principles, or some variation of them would be a productive way of addressing the concerns many vulnerable groups have around adopting new financial technology innovations. Indeed, the adoption of these guiding principles could help all fintech firms – not just those that specifically address vulnerable consumers – to become more socially productive.

Where can I find out more?

- [Fintech: Financial Inclusion or Exclusion?](#) Report by Yoke Wang Tok and Dyna Heng (IMF Working Paper).
- [On fintech and financial inclusion](#): Report by Thomas Philippon (Bank of International Settlements working paper).
- [Data Poverty in Scotland and Wales](#): Report by Patricia J. Lucas, Rosa Robinson and Lizzy Treacy (Nesta Report).
- [The impact of digital credit in low-income countries](#): Report by Valentina Brailovskaya, Pascaline Dupas and Jonathan Robinson.
- [Video might kill the radio star: Digitalisation and the future of banking](#): Report by Thorsten Beck, Stephen Cecchetti, Magdalena Grothe, Malcolm Kemp, Loriana Pelizzon and Antonio Sánchez Serrano.
- [Fostering FinTech for financial transformation](#): Report by Thorsten Beck and Yung Chul Park.

Who are experts on this question?

- Professor Christine Oughton
- Sian Williams
- Dr Karen Elliot
- Professor Thomas Philippon

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References

Appiah-Otoo, I., & Song, N. (2021). The impact of fintech on poverty reduction: evidence from China *Sustainability, 13*(9), 5225.

Ashta, A., & Herrmann, H. (2021). Artificial intelligence and fintech: An overview of opportunities and risks for banking, investments, and microfinance *Strategic Change, 30*(3), 211-222. https://doi.org/https://doi.org/10.1002/jsc.2404

Azzopardi, D., Fareed, F., Lenain, P., & Sutherland, D. (2019). Assessing household financial vulnerability: Empirical evidence from the US using machine learning *OECD Economic Survey of the United States: Key Research Findings, 2019*, 121-142.

Bazarbash, M. (2019). *Fintech in financial inclusion: machine learning applications in assessing credit risk*. International Monetary Fund.

Financial Stability Board. (2017). *Financial Stability Implications from FinTech - Supervisory and Regulatory Issues that Merit Authorities' Attention*.

House of Lords Liaison Committee. (2021). *Tackling Financial Exclusion: A country that works for everyone? Follow-up report*.

Jagtiani, J., & Lemieux, C. (2017). Fintech lending: Financial inclusion, risk pricing, and alternative information *Risk Pricing, and Alternative Information (December 26, 2017)*.

Philippon, T. (2019). *On fintech and financial inclusion*

Song, N., & Appiah-Otoo, I. (2022). The Impact of Fintech on Economic Growth: Evidence from China *Sustainability, 14*(10), 6211.