UK FinTech: Moving mountains and moving mainstream

International perspectives to shape the UK FinTech landscape.

Minds made for transforming financial services

EY
Building a better working world

Commissioned by

CITY OF LONDON

INNOVATE FINANCE

Forewords

CITY OF LONDON

If there was ever a need for technology to focus on the good it can do in this world, it's right now. As the COVID-19 pandemic swept across the globe, changing our lives in unprecedented ways, it's technology that's been our ally, sitting astride this pandemic and keeping us connected.

Technology is already enabling us to work from home, attend virtual conferences, bank online and via apps, and receive food and entertainment.

In financial and professional services, the UK has made significant progress to establish a thriving FinTech sector encompassing not only emerging start ups, but a significant amount of innovation by our more traditional institutions. Its depth and breadth of expertise in both finance and technology, coupled with progressive policy and regulation, has established the UK's position as the global leader in FinTech.

We are now entering a crucial moment in the development of UK FinTech. For this activity to continue to translate into economic growth, we need to ensure that entrepreneurs can scale up, expand internationally and deliver on FinTech's transformative promises to bring prosperity to all parts of the country.

The City of London Corporation and Innovate Finance commissioned this research to better understand the needs of the sector, learn from the practices of comparable international hubs, and to catalyse the next steps in the evolution of UK FinTech.

As we emerge from the depths of the COVID-19 pandemic, it will be more important than ever that we implement a digital strategy that is grounded in sustainable innovation that drives inclusivity, better access, more choice, competition and national connectivity.

I am grateful for the important work undertaken by EY in producing this report. It provides essential insight and a helpful baseline for the independent Review into UK FinTech, as announced in HM Treasury's Spring 2020 Budget.

Catherine McGuinness
Chair of the Policy and Resources Committee, City of London

Forewords continued

INNOVATE FINANCE

When we commissioned this report with the City of London Corporation earlier this year, the COVID-19 pandemic was yet to emerge as a global threat. Fast forward a few months and no one could have anticipated the tremendous disruption that this pandemic would cause to our economy and the financial services system.

One of the key strengths of the UK FinTech sector is its ability to adapt and innovate to meet challenges and seize new opportunities. The urgent need for this dynamism was brought into sharp focus as businesses closed, consumers isolated and economic activity came to an abrupt halt. Within days, FinTechs were responding to the pandemic and building new products and services to meet the needs of UK citizens. Helping carers to shop for those who were shielding, allowing the self employed to verify their income for state support, and supporting businesses to access emergency finance were just some of the solutions developed within the sector.

The wider impact of the ongoing situation is as yet still unclear, and we can expect the economic uncertainty to last for some time. What we do know is that digital adoption and transformation has accelerated as a result, and this trend is set to continue, opening up opportunities for UK FinTech to support households and businesses as they emerge from the pandemic. With our vibrant ecosystem of start ups, scale ups, high growth firms and financial institutions, we should proactively use innovation to shape a more cohesive and tech enabled financial services system that can withstand future disruption.

In order to meet this challenge, we need to understand what makes the UK a global FinTech leader, and where opportunities lie to strengthen our position against international competition. This research provides a perspective into the ecosystem for policymakers, regulators, institutions, industry bodies and FinTechs. It is a solid basis on which we can build our understanding of innovation within financial services, and what changes can be made to enhance our performance as a sector – whether that be in policy and regulation, talent and skills, national connectivity, or capital and investment.

This report, and the forthcoming review of UK FinTech, will enable the sector to build a shared blueprint for growth that promotes choice, transparency, inclusion and innovation in financial services.

Charlotte Crosswell
CEO, Innovate Finance

EY

When HM Treasury engaged us to benchmark the FinTech landscape in 2016 (UK FinTech: On the Cutting Edge), the FinTech market was nascent and growing; value was already being realised with £6.6b[1] revenue generated within the UK alone. We anticipated that the FinTech sector would be an engine of growth, driving innovation and transformation across the financial services sector.

Fast forward to 2020. We were intrigued to understand whether the potential of FinTechs that we felt in 2016 had transpired in 2020. On the one hand, what we discovered in the period leading up to 2020 and before the COVID-19 pandemic was a positive growth story. We witnessed a growth in capital invested, greater support from policymakers and regulators internationally, improved quality and volume of FinTech talent, and better collaboration amongst FinTechs and financial institutions, all of which offered the opportunity to scale. The impact on the economy remains significant, with revenue generated by FinTechs in the UK nearly doubling to £11b in 2019. On the other hand, we still witnessed more start ups than scale ups and recognised opportunity to enhance innovation and fuel growth within the sector.

With this report, our aspiration is to present our research findings and provide insight into leading best practices across influential global markets, with an ambition to challenge policymakers, regulators, investors, banks and even FinTechs themselves, to stimulate greater innovation and inclusion in financial services in the UK.

When it comes to FinTech today, we no longer see clear 'leaders' within markets; FinTech globally is being adopted at scale, but the way different markets have fuelled growth highlights differences in attitudes to innovation. We realise that 'leadership' in FinTech globally has become more ambiguous, depending on whether investment, talent, and adoption are deemed as the most important criteria. An important question to ask now is how to scale, hence our focus on moving mountains and moving mainstream.

The COVID-19 situation has shone a light on the resilience, robustness and importance of many FinTechs. We have seen some thrive; their sense of purpose and relevance has been critical during the pandemic, observed by the incredible effort and commitment they have put towards supporting consumers and small and medium enterprises (SMEs) through this turbulent period. Yet, we also know it has put significant pressure on many others. We believe that there is much to learn from our analysis and it is our firm belief that our recommendations, implemented as a whole, have the potential for a far wider reaching impact on UK financial services and the economy. While the full impact of COVID-19 on the sector is yet to be seen, the FinTech industry is expected to remain resilient and with the right support, to thrive.

The analysis, views and recommendations expressed in this report were produced by EY and informed by over 100 interviews held with FinTech firms, investors, trade associations and policymakers. The EY team is grateful to all who contributed their time and made the production of this report possible.

Anita Kimber
Partner, UK Financial Services Transformation, Ernst & Young LLP

[1] "UK FinTech: On the Cutting Edge", UK Government website, accessed via https://www.gov.uk/government/publications/uk-fintech-on-the cutting edge, 16 June 2020.

Interview program

Our extensive interview program covered over 100 interviews across industry participants and market experts. We would like to acknowledge the contribution of the below participants:

United Kingdom

- Augmentum
- Bank of England
- Bankable
- Blue Fire AI
- British Business Bank
- Cicero/AMO
- Department for International Trade
- DLA Piper
- Financial Conduct Authority (FCA)
- FinTech North
- FinTech Northern Ireland
- FinTech Scotland
- FinTech Wales
- FinTech West
- Funding Circle
- Government Digital Service
- HM Treasury
- Innovate Finance
- LendInvest
- OakNorth
- Onfido
- Open Banking Implementation Entity
- Pinsent Masons
- Revolut
- Ripple
- NatWest
- Salary Fits
- Sir Ken Olisa
- Thought Machine
- TransferWise
- UK Finance
- Visa
- Worldpay from FIS
- Whitecap Consulting

United States

- Amex Ventures
- Carolina FinTech Hub
- Georgia FinTech Academy
- Motive Partners
- NorthOne
- Congressman Patrick McHenry
- Six Thirty
- Status Money
- TTV Capital

Australia

- Australian Securities and Investments Commission
- Brighte
- Data Republic
- Ferocia Software
- FinTech Australia
- Paypa Plane
- Reinventure
- UP
- Wisr

India

- Economic Times
- 8i Ventures
- FinTech Convergence Council
- IDfy
- Jupiter
- Niti Aayog

Singapore

- Apis Partners
- Bambu
- CompareAsiaGroup
- Nium Pte. Ltd
- Monetary Authority of Singapore
- Percipient, Singapore
- Singapore FinTech Association

Canada

- Borrowell
- Breathe Life
- Ferst Capital Partners
- Finance Montreal
- Autorité des marchés financiers du Québec
- Luge Capital
- National Bank of Canada - Ventures

Nordics

- ABN Amro
- Coppenhagen FinTech
- Nets Group
- Nordnet
- Norfico
- SEB
- Sweden FinTech Association

France

- Finance Innovation
- France FinTech
- Kard
- Open CNP
- Sherwood

Hong Kong SAR

- AlipayHK
- Arbor Ventures
- Hong Kong Monetary Authority
- InvestHK
- Livi Bank

Core markets

Case study markets

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Executive Summary

Introduction

The research in this report shows that the UK is a global leader in FinTech, with a world-class and well-rounded ecosystem. The combination of financial and technical talent is unparalleled, and capital is strong, with nearly £3.6b[1] invested in FinTech in 2019. In policy and infrastructure, the UK has set the global benchmark for policy-led innovation, with key initiatives including the FCA's regulatory sandbox, open banking and the AI Sector Deal frequently cited as internationally distinctive. And from a demand standpoint, consumers, SMEs, corporates and government are key users of FinTech; more than two-thirds of digitally active consumers now benefit from FinTech services.

Relative to more nascent FinTech ecosystems globally, our hypothesis is that the UK should be better positioned to weather the challenges resulting from the COVID-19 pandemic. FinTech has an important role to play as a catalyst for innovation and inclusion in financial services and should be looking to enhance its role as a growth engine of the economy, as the UK begins its recovery.

The report was commissioned in January 2020 to understand best practices from comparable international markets and develop specific considerations for the next stage of FinTech evolution. The intent of this report is to trigger sustainable innovation that helps to drive the democratisation of access to financial services for consumers and SMEs, including those unbanked or underbanked. We also aim to increase the level of choice, competition and national connectivity. Considerations in this report are inspired by our research across eight markets, and how these markets have rapidly progressed their FinTech environments, level of innovation, digital infrastructure and ambitions.

The recommendations, taken holistically, will enable the UK to stimulate greater innovation and inclusion in financial services. The pandemic has showcased the importance of FinTechs' role within the ecosystem, and as a result the recommendations in this report could be used to accelerate transformation and growth. They are positioned to be pragmatic and achievable as we embark on a period of recovery following the COVID-19 pandemic, supporting growth by ensuring the right access to capital and talent. For example, the focus on FinTech could support a national talent strategy that increases and diversifies the domestic supply of talent, addresses skills gaps and works more closely with academia to attract talent to the sector.

We also address the opportunity across the UK: not just in London, but in vibrant regional clusters, as we look to make the UK, as a whole, the destination of choice for FinTechs. This needs to be underpinned by an integrated national digital agenda, linked to world-leading infrastructure that provides comprehensive, safe and secure access to innovative financial services.

The UK must chart its path for the future at this critical time in its history, creating new jobs, forging new international relationships and defining its role as a leader in technology and data. UK FinTech now has the opportunity to enhance its position as a leading FinTech scale-up environment that develops and nurtures the next cohort of UK-supported, globally leading financial institutions (FIs). This requires us to encourage FinTechs, banks and tech firms to take the next steps to transform financial services and rebuild the UK economy.

[1] Pitchbook database; 2019 FinTech Investment Landscape, Innovate Finance, 2019 (accessed via https://www.innovatefinance.com/uncategorised/2019-investment-landscape/, 29 January 2020).

International markets – basis for selection

In this report, we investigate the strengths and challenges of other leading global ecosystems (identified as ‘core’ markets), namely Australia, India, Singapore and the USA. These markets were jointly selected by EY, the City of London Corporation and Innovate Finance as those that are relatively mature FinTech environments and, importantly, provide potential learnings from a policy standpoint for the UK. For example, India’s recent development of innovative national infrastructure, Australia’s early applications of open data, Singapore’s progressive regulatory regime, and the emergence of several regional FinTech clusters in the US.

This analysis is complemented by a more thematic review of selected FinTech sectors (identified in this report as ‘case study’ markets) Canada, France, Hong Kong and the Nordics. These case studies highlight key themes such as the importance of digital infrastructure (Nordics), bank/FinTech collaboration (France) and leveraging academia as a catalyst to enrich a FinTech ecosystem (Canada and Hong Kong).

We recognise that, beyond these eight markets, other FinTech hubs such as mainland China have rapidly scaled. We have not analysed such ecosystems as part of our research, based on divergence of regulatory landscapes relative to the UK and, therefore, the potentially limited opportunity to derive policy learnings.

‘Core’ markets

Market	Rationale
Australia	Maturing FinTech environment with active government policy; exploring early applications of open data policy based on learnings from other markets.
India	Rapidly emerging hub with several innovative national infrastructure platforms, including Aadhaar and the Unified Payments Interface (UPI).
Singapore	Proactive regulatory regime with the Monetary Authority of Singapore (MAS) spearheading an array of infrastructure and policy initiatives.
USA	Mature and scaled FinTech market, with substantial access to talent and capital; recent development of several regional clusters.

‘Case study’ markets

Market	Rationale
Canada	Differentiated talent policy implemented to facilitate rapid access to global talent pools; emerging presence of centres of excellence in AI.
France	Recent strength in government support and ambition to be a leader in financial services within the EU.
Hong Kong SAR	High-potential market with emerging presence from non-bank participants; active involvement of the Hong Kong Monetary Authority (HKMA) to support the ecosystem.
Nordics	Strong industry-led innovation across a highly digitised financial services landscape.

The components of a well-functioning FinTech ecosystem

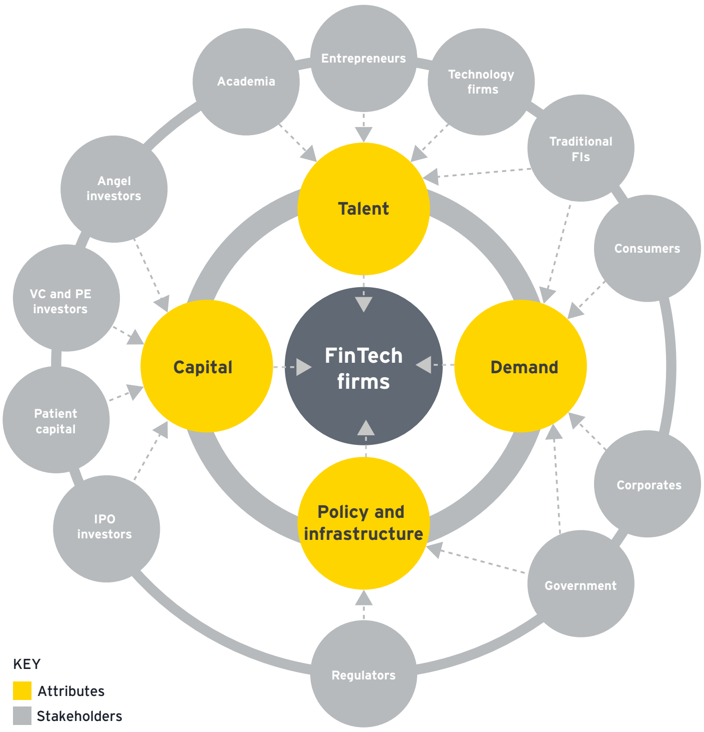
The strength of a nation's FinTech ecosystem is dependent on a wide range of attributes and factors. Before profiling an ecosystem, we believe it is important to consider these attributes, and draw conclusions of where the ecosystem excels and/or is challenged.

We believe a well-functioning FinTech ecosystem is built on four core ecosystem attributes (Attributes):

1. **Talent:** the availability of technical, financial services and entrepreneurial talent
2. **Capital:** the availability of financial resources for start-ups and scale-ups
3. **Policy:** government policy across regulation, tax and sector growth initiatives, including the presence of digital public infrastructure to facilitate financial services innovation
4. **Demand:** end-client demand across consumers, corporates, FIs and government

The figure below highlights how these four Attributes interconnect and identifies the network of broader stakeholders.

FIGURE 1.0 | **The FinTech Ecosystem**



We leverage this framework throughout this report to provide an overview of the UK FinTech ecosystem, understand the strengths and best practices across key global hubs, and extrapolate findings to progress the broader financial services innovation environment. On pages 18-21 and in section 5, we offer considerations for UK policy. We use this framework to highlight the primary Attributes addressed within each of the considerations.

A proactive policy agenda has helped the UK to maintain a market-leading ecosystem for innovation in financial services

Key ecosystem strengths

The UK remains a global FinTech capital. We estimate that the UK FinTech sector represented c.£11.0b[1] in revenue in 2019, up from c.£6.6b in 2015, and now accounts for c.8% of total financial services output. In the last five years, the UK FinTech sector has moved mainstream, having inspired and stimulated innovation in broader financial services and technology sectors.

The range of ecosystem participants has also expanded well beyond FinTech start-ups, with innovation driven through collaboration between FIs, innovation labs, policymakers and trade bodies. Emergence of technology players in the UK and on a global basis is particularly notable. For larger tech companies (including firms such as Alibaba, Samsung and Tencent), financial services related products account for more than 10% of global revenue.[2]

The broad-based strength of the UK FinTech ecosystem is underpinned by individual and interconnected strengths across each of the key Attributes investigated throughout this report:

- **Policy and infrastructure:** the UK policy environment is more mature and progressive than other in-scope markets, with the FCA's explicit competition mandate appearing to be a source of differentiation. It remains highly supportive of innovation, with many markets looking to the UK for world-class regulatory and infrastructure initiatives (e.g., the FCA's regulatory sandbox and the Bank of England's New Bank Start-up Unit (NBSU) and open banking).
- **Capital:** access to capital (both domestic and international) has improved markedly since 2015, supported by healthy venture capital (VC), private equity (PE) and corporate venture capital (CVC) markets, government entities such as the British Business Bank (BBB), and favourable policy initiatives.
- **Talent:** the quality and volume of financial services and technology talent in the UK is currently unparalleled in Europe, and the higher levels of investment and vibrancy of the FinTech ecosystem has helped to retain talent in the UK.
- **Demand:** consumers, enterprise clients (including FIs and government) and SMEs are all key adopters of FinTech. Enterprise demand for FinTech also powers investment though corporate venture vehicles (CVV), innovation labs and accelerators, and supports the nurturing and recycling of talent to drive innovation.

Outside London, there is a range of flourishing regional clusters, including, but not limited to, Manchester, Edinburgh, Newcastle, Leeds, Bristol, Belfast and Cardiff, all of which offer deep pools of talent, well-established industry specialisations and supportive local policy initiatives.

Key barriers and challenges

While the UK has been a front-runner with respect to financial services policy and infrastructure development, the pace of change globally has accelerated. UK FinTechs and FIs note that the UK will need to go further to extend and drive key existing infrastructure initiatives (particularly those related to payments, open banking and API standardisation), as well as to helping foster key new infrastructure platforms.

Attracting qualified talent was one of the biggest challenge faced by UK FinTechs in 2019. The financial services sector generally is facing a growing skills gap. While the skills gap declined across the whole economy between 2015 and 2017, it has risen by 30% for financial services.[3] In particular, access to domestic technical talent (e.g., software engineering, system architecture and data scientists) and skills aligning to emerging areas of disruption (e.g., AI, machine learning and cryptocurrency) is challenging. Therefore, the need to develop a national talent strategy and seamlessly access foreign talent is key. Fast-growth UK FinTechs cite considerable difficulties in navigating visa requirements for foreign candidates, including the time, administrative burden and restrictions/salary thresholds associated with these visas. While foundational work has been carried out in this area (e.g., via the Migration Advisory Council), UK FinTechs highlight the need for greater, sector-specific focus.

[1] See Appendix A for scope and definition of the UK FinTech sector used for market sizing.
[2] Big tech in finance: opportunities and risks, BIS Annual Economic Report, 2019 (accessed via https://www.bis.org/publ/arpdf/ar2019e3.pdf, 10 January 2020).
[3] The Financial Services Skills Taskforce, TheCityUK, 2020 (accessed via https://www.thecityuk.com/research/financial-services-skills-taskforce-final-report/, 29 January 2020).

More mature FinTechs face significant scale-up challenges. These include:

- Navigating the regulatory landscape and building operational resilience, particularly as regulatory requirements increase.
- Accessing growth and patient capital in the UK, not only for financial support but also to access new customers and partnerships, and enable international expansion.
- Navigating exit options and developing successful exit strategies either through private or public markets noting that more than a third of UK FinTechs in the EY UK FinTech Census 2019[1] expect to undertake an IPO within the next five years.
- Having access to the required talent in a cost-effective manner and at the pace at which scaling businesses are moving.
- For FinTechs based in high-potential clusters outside of London, accessing the cluster benefits of the city, including its access to capital, talent, regulators and policymakers. Current challenges cited include limitations to national infrastructure (e.g., transportation and broadband) and barriers to flexible working.

The opportunity

With large and transformative policy initiatives underway, the UK is at a critical juncture to shape the future of financial services innovation with world-leading digital public infrastructure. When shaping new infrastructure platforms, the UK should consider financial inclusion and consumer rights carefully, and ensure both public and private sector collaboration.

Beyond FinTech or financial services policy in isolation, there is an opportunity for the UK to shape a broader national digital agenda, centred around enhanced consumer outcomes, financial inclusion, security and resilience. This strategy provides an anchor for subsequent talent and infrastructure strategies to stimulate FinTech and financial services innovation.

Commitment to innovation is clear across UK financial services

Financial services innovation

Total FS sector output

c.£132b

Big four banks' digital transformation spend

c.£10b

9/9

CMA-9 banks have a FinTech incubator, accelerator or CVC vehicle

Total technology spend by FS firms

c.£95b

(of which, large corporate: c.£40b)

Innovation labs in UK

>186

accelerators

205

incubators

FinTech

UK FinTech revenue (2019)

c.£11.0b

(c.£6.6b in 2015)

Total FinTech investment (2019)

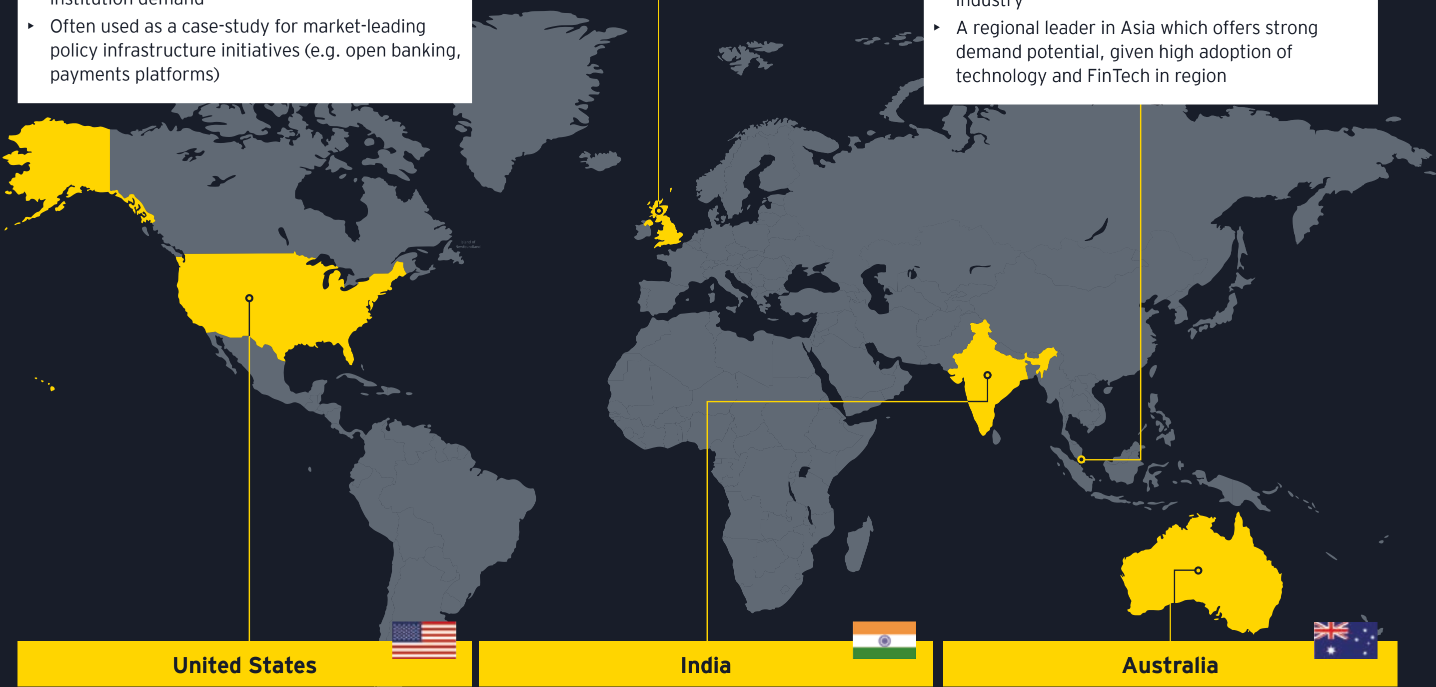
c.£3.6b

Number of UK FinTechs (2019)

c.1,600

A comparative snapshot of in-scope regions

FIGURE 1.1 | **International ecosystem snapshot – core markets**



United Kingdom

'Market leading FinTech ecosystem with front-running policy agenda'

Investment	# of FinTechs	FinTech adoption
c.£3.6b	c.1,600	71%

Differentiators/success factors

- Interconnected ecosystem with broad-based strength across policy, talent and financial institution demand
- Often used as a case-study for market-leading policy infrastructure initiatives (e.g. open banking, payments platforms)

Singapore

'Highly proactive regulatory regime'

Investment	# of FinTechs	FinTech adoption
c.£375m	c.600	67%

Differentiators/success factors

- Monetary Authority of Singapore (MAS) plays a central, market-making role, spearheading an array of infrastructure initiatives alongside industry
- A regional leader in Asia which offers strong demand potential, given high adoption of technology and FinTech in region

United States

'Large pool of talent and capital; emergence of flourishing hubs outside of California and New York'

Investment	# of FinTechs	FinTech adoption
c.£13.6b	c.3,000 – 4,000	46%

Differentiators/success factors

- Generational experience from a relatively mature FinTech community
- Abundant capital across growth lifecycle, with experienced VC and PE communities
- New regional hubs anchored on industry specialisation and university connections

India

'Rapidly emerging hub accelerated through leapfrog infrastructure initiatives'

Investment	# of FinTechs	FinTech adoption
c.£3b	c.2,000	87%

Differentiators/success factors

- A national digital agenda comprising key infrastructure platforms, including Aadhaar (Digital ID) and UPI (real-time payments), have boosted digitisation
- Strong pool of technical talent has been key to attracting global FinTechs to India

Australia

'Maturing ecosystem with a watch-learn-act approach to policy'

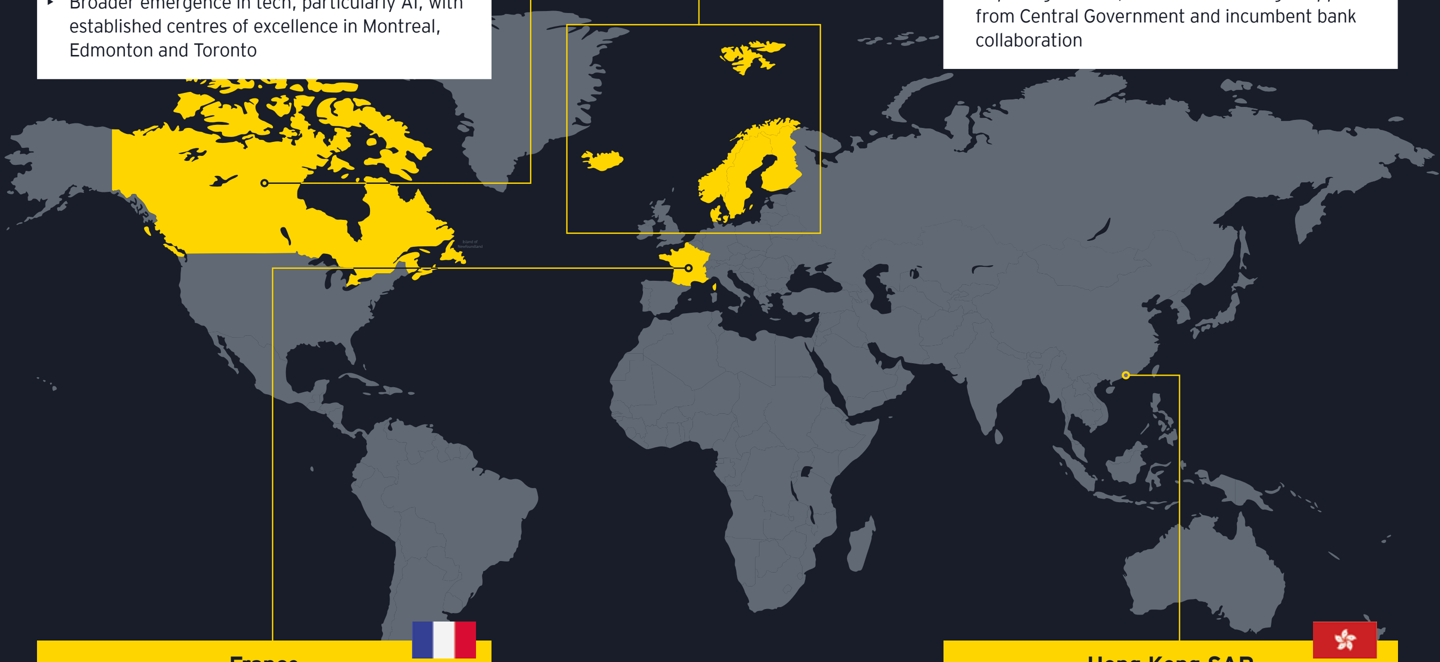
Investment	# of FinTechs	FinTech adoption
c.£400m	c.600	58%

Differentiators/success factors

- Government-led, broad open data policy based on learnings from other markets
- Recent Royal Commission into financial services has renewed interest in non-bank solutions
- Emergence of Melbourne as a strong FinTech hub, attracting global FinTechs

Source: CB Insights; Innovate Finance; EY Global FinTech Adoption Index 2019; EY analysis.
Note: FinTech adoption is based on digitally active consumers.

FIGURE 1.2 | **International ecosystem snapshot – case study markets**



Canada

'A developing ecosystem with a strong talent strategy'

Investment	# of FinTechs	FinTech adoption
c.£550m	c.600-700	50%

Differentiators/success factors
- Strong talent pool, complemented by access to global talent via favourable government initiatives
- Broader emergence in tech, particularly AI, with established centres of excellence in Montreal, Edmonton and Toronto

Nordics

'Strong industry led infrastructure and a highly digitised financial services landscape'

Investment	# of FinTechs	FinTech adoption
c.£725m	c.800-900	64%

Differentiators/success factors
- Strong financial services infrastructure including e-ID and mobile payments
- Rapid digitisation, accelerated through support from Central Government and incumbent bank collaboration

France

'Emerging FinTech hub with supportive government policy'

Investment	# of FinTechs	FinTech adoption
c.£525m	c.600	35%

Differentiators/success factors
- Proactive FinTech policy across talent, capital and regulatory initiatives to raise profile of sector

Hong Kong SAR

'High potential market with emerging presence from non-bank participants'

Investment	# of FinTechs	FinTech adoption
c.£275m	c.600	67%

Differentiators/success factors
- Growing presence of non-financial services players entering the financial services market
- A well-established financial services hub where 70 of top 100 global banks have a presence, providing strong access to 'Fin' talent

Source: CB Insights; Innovate Finance; EY Global FinTech Adoption Index 2019; EY analysis.
Note: FinTech adoption is based on digitally active consumers. FinTech adoption in Nordics represents Sweden only.

Considerations for future UK policy

Through our analysis of global ecosystems, and their strengths and challenges, a number of considerations emerged. These tangible and pragmatic themes form the basis of recommendations, addressing each of the four core ecosystem Attributes, to support the next stage of development in the UK FinTech ecosystem. These recommendations are included below in summary form; for a full description, please refer to section 5 'Considerations for future policy'.

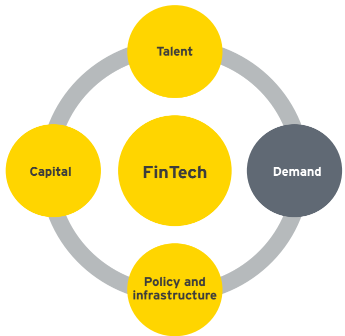
"

We have to make sure our FinTech firms can grow healthily and exit healthily, without being snapped up before they have reached their full growth potential.

UK policymaker on the importance of creating a leading scale-up ecosystem

1. A leading scale-up ecosystem

Support FinTechs in scaling, promoting greater competition and wider-reaching innovation in financial services.

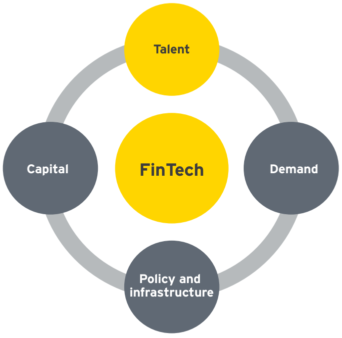


While the UK has a strong environment for start-ups, we see a range of supportive measures starting to emerge across other geographies that have helped to foster a scale-up environment. Considerations for the UK include:

- Developing greater access to late stage VC, growth equity capital and other sources of patient capital.
- Encouraging a 'serial investor' culture where investment is recycled back into FinTech.
- Supporting a globally competitive local stock exchange to be the exchange of choice for global FinTech listings.
- Exploring the UK's visa and migration framework, particularly as it applies to fast-growth tech and FinTech businesses (see consideration on 'Globally leading FinTech talent').
- Providing 'scale-box' support to financial services and tech firms alike, with access to regulatory/operational support beyond the sandbox phase.

2. Globally leading FinTech talent

Provide FinTechs with improved access to the world-class talent they need to grow.

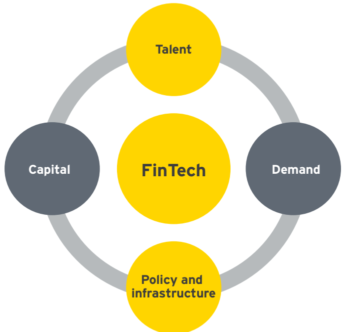


UK FinTechs benefit from access to a strong talent pool. However, access to talent remains a challenge, and global competition is intensifying. Focus is needed on:

- Developing a national talent strategy to increase and diversify the domestic supply of talent within financial services by better understanding skills gaps (e.g., those related to Science, Technology, Engineering and Mathematics - STEM), and working more closely with policymakers and academia to attract diverse talent to the sector (in line The Financial Services Skills Taskforce, TheCityUK, 2020.[1]
- Exploring the potential for greater access to employee share ownership schemes, especially in the scale-up phase, to attract talent to FinTech by supporting fast-growing businesses to flexibly reward and retain their employees.
- Pursuing a globally competitive visa framework for high-growth sectors, suitable for addressing the talent challenges faced by FinTechs.

3. A network of vibrant regional clusters

Support development of broad, diverse and unique regional clusters across the country.



There are strong FinTech clusters in a number of UK cities. However, to maintain the UK's international competitiveness, it is important to unleash the rich pool of FinTech talent, specialist capabilities and academic expertise across the country. Support for regional development could include:

- Anchoring development around pre-existing industry specialisms within regional clusters.
- Tapping into FIs, local government and, in particular academia, to nurture talent, specialism and innovation.
- Encouraging FIs to embrace the potential of regionalisation.
- Promoting initiatives to support virtual working and sustainable travel in order to enable one regional cluster to easily access and leverage the strengths of other clusters (including London).

[1] Accessed via https://www.thecityuk.com/research/financial-services-skills-taskforce-final-report/, 29 January 2020)

“

There’s probably just as much potential for FinTech within the UK as there is internationally. Why don’t we do more to promote FinTech connectivity between UK regions?

UK policymaker on the importance of regional clusters

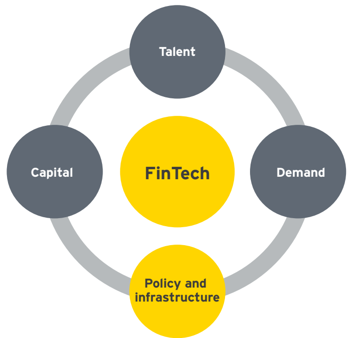
“

Britain is great, but Britain could be brilliant. We need a joined-up strategy covering the whole digital agenda, and strong infrastructure at the core of our digital landscape.

UK policymaker on the importance of an integrated digital agenda

4. Targeted approach to inbound and outbound FinTech

Make the UK the destination of choice for overseas FinTechs and support UK FinTechs in scaling.

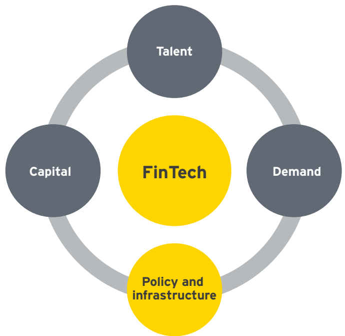


The UK pioneered formal arrangements to enhance international connectedness. Even greater international connectivity could be a real accelerator and pursued through:

- Building on, and promoting, recent examples of collaboration agreements, including the UK-US Financial Innovation Partnership and international FinTech bridges.
- Enhancing operational support or a ‘concierge service’ provided to FinTechs entering new markets, providing them with access to critical initial support, including access to talent, workspace, tech infrastructure, regulatory support and research and development (R&D).
- Developing a structured approach to trade missions and international engagement through creation of multi-party ‘taskforces’ to collaboratively facilitate the above-support.
- Greater promotion of successful UK FinTechs which have expanded internationally, and international FinTechs which have successfully launched and scaled in the UK.

5. Integrated national digital agenda

Build an integrated, cross-sector approach to digital, underpinned by world-class public digital infrastructure to accelerate financial services innovation.

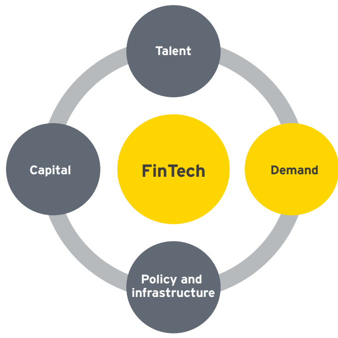


The FinTech sector develops most rapidly and effectively when supported by world-class public digital infrastructure. Equally, it is not enough for the UK to have a FinTech digital strategy alone – any FinTech strategy needs to integrate with a broader digital strategy that supports and enables sustainability and inclusion. Specific initiatives to enhance UK financial services infrastructure while supporting broader digital integration include:

- Developing financial passports and the use of digital identity, where considerations around data privacy, cybersecurity and resilience will be paramount.
- Developing world-leading Open Finance infrastructure to stimulate the API economy across a broad range of use cases.
- Ensuring payments infrastructure is future-proofed for new use cases and cross-border applicability.
- Evaluating the role of emerging advanced data technologies and business models, including the use of AI, APIs and quantum computing to augment new platform development.
- Enhancing of coordination between public and private sectors, working in concert to develop infrastructure, and a broader digital agenda that has widespread applicability and supports financial inclusion.
- Considering a more structured approach to how various public sector stakeholders pursue competition objectives, noting that the FCA's explicit competition mandate is considered a key strength for the UK.

6. Deep and diverse sources of demand

Raise consumer, SMEs, corporate and government awareness and education to support safe access to innovative services.



While consumer adoption is strong, the UK could focus on developing and sustaining a diverse and deep pool of demand for FinTech. This could span:

- Consumer demand: campaigns that support privacy and demonstrate safe access to innovative services.
- SMEs demand: raising awareness, supporting switching between providers and financial passports for SMEs to support greater SMEs adoption.
- FI and government demand: standardisation of vendor assessments could help improve the ease with which FinTechs engage with FIs and the public sector.

Overview of COVID-19 impact on FinTech

COVID-19: Opportunities for FinTechs

As a preface to our analysis on the UK and other key global FinTech ecosystems, we believe it's important to consider the impact the COVID-19 pandemic has had on FinTech thus far,[1] and its potential future impact. As such, in this section, we provide a thematic view of the initial impacts of the pandemic on the UK FinTech sector, and explore how it has impacted the four key Attributes of the FinTech ecosystem; Talent, Capital, Policy and Demand. This is complemented by a high-level view of our identified "core markets", namely Australia, India, Singapore and USA, and how these markets have responded to mitigate COVID-19 related challenges.

Across various markets, the COVID-19 pandemic has caused some near-term pressures on FinTechs related to access to capital and financial performance, as well as slightly longer-term considerations related to talent. However, despite continued economic and societal uncertainty from the pandemic, opportunities exist for FinTechs to accelerate innovation and transformation across financial services and beyond. These opportunities are highlighted below:

Increased digital adoption is likely to accelerate collaborative partnerships between FinTechs and financial institutions to deliver enhanced digital solutions:

- The COVID-19 situation has highlighted the need for speedier go-to-market solutions, and this coupled with the increase in adoption of digital solutions is likely to heighten the need for FinTech collaboration. In this regard, there's opportunity for FinTechs to enhance partnerships with financial institutions to spearhead the level of innovation in financial services, whilst improving consumer experiences and offering digital-focused solutions.

Changes in consumer habits is likely to drive digital transformation initiatives within financial services:

- Despite UK consumers having a relatively high adoption of financial technology compared to other markets, the demand for digital solutions is likely to grow as a result of the pandemic. The resulting effect may be more permanent changes in consumer habits to digital and a rise in online and mobile usage. For businesses, it is imperative that customers are engaged and supported through their journeys, remotely and digitally. Financial institutions, in particular, may see this as an opportunity to foster engagement with clients, which presents an opportunity for FinTechs to support in development of increasingly agile, innovative solutions.

Continued support for SMEs through the pandemic and beyond:

- Most individuals and SMEs have been impacted, in some manner, by the economic disruption caused by the pandemic. As customer dynamics and expectations evolve, small businesses will have to continue to evolve their business models to adapt to these changes. Whilst FinTechs have played an important role in supporting individuals and businesses through the uncertainty, there will be an important role for FinTechs to continue to support small businesses in their banking and financing needs, as we head into recovery.

Opportunity for digital payments providers and business-to-business (B2B) players:

- There's opportunity for digital payment providers to expand their reach and scale as cash usage declines and the demand for alternative payment channels increases. Furthermore, the pandemic has deepened the need for businesses to focus on efficiency and cost savings. As such, FinTechs delivering cost effective solutions to aid process/work-flow automation through software and new tech capabilities are likely to be in greater demand.

Potential changes to working habits could present opportunities to hire from a national and international talent pool:

- The COVID-19 lockdown has prompted all businesses to consider their operational models, where remote working could become a long-term norm. As the physical location of talent becomes potentially less important, this could present an opportunity for FinTechs (and broader businesses) to recruit talent on a national basis potentially in a more cost-effective manner.

[1] Written in June 2020

COVID-19: Impact on the economy and financial services sector

The COVID-19 pandemic is causing unprecedented levels of disruption with a profound impact on the global economy and society more broadly. In the first three months of 2020, the UK experienced the sharpest economic contraction since the peak of the financial crisis.[1] From an employment standpoint, as of May 2020, of the c.33m people in the UK workforce, approximately c.8m have been placed on furlough and c.1.4m are unemployed.[2]

This disruption has been felt across all sectors of the economy, with financial services being no exception. Across key financial services sub-sectors, we note the following emerging trends:[3]

- Reduction in discretionary spending and large one-off purchases has reduced demand for consumer credit, albeit use of overdraft facilities and credit cards are increasing. Banks have seen their near-term margins compressed due to payment holidays and increased forbearance.
- The current business environment has also affected the demand and quality of lending. Despite large banks being well capitalised, balance sheet health and insolvency positions could erode if the pandemic persists, resulting in distressed portfolios and rising non-performing loans (NPLs). As a result, new loan origination is expected to decline, with bank and non-banks focussing on preserving their balance sheet health.
- Payment volumes are likely to shift to online with greater use of e-commerce. Cash usage is expected to decline with an uptick in contactless and mobile wallet payments. Greater share of payments is expected to move online potentially benefiting payment gateway providers.

While the priority in the near-term for FinTechs (as with all businesses) will be to respond to challenges and disruptions caused by the pandemic, as we recover, areas of opportunity are likely to arise for FinTechs. We expect that these will be driven by changes in consumer preferences, increased familiarity with digital solutions, shifts in business practices and future policy decisions. Potential areas of opportunity are outlined below.

Firstly, FinTechs are in a unique position to address challenges that have emerged from the current pandemic as they have the skills and digital capabilities to be agile, flexible and innovative. In this regard, FinTechs are likely to play an important role within the financial services (and broader) ecosystem, by creating innovative tools and digital financial services that support individuals and businesses during the pandemic, and beyond.

Secondly, the pandemic has accelerated the need for financial institutions to augment their suite of digital solutions in light of changing consumer preferences and heightened demand for digital services. In this regard, FinTechs are likely to play a critical role in enabling and collaborating with other financial institutions to deliver their digital agenda and help drive digital transformation.

Finally, the shift to remote and flexible working could potentially provide FinTechs access to a wider national, and international talent pool. As the physical location of talent becomes potentially less important, FinTechs will have the opportunity to redefine hiring strategies and discover new ways to attract the right talent and skill sets. With the potential for greater national reach in terms of hiring skilled talent, this could also support the further scaling of regional FinTech ecosystems outside of traditional financial hubs.

[1] "Employment in the UK: May 2020", Office for National Statistics website, https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/employmentintheuk/may2020, accessed 10 June 2020.
[2] "The economic effects of coronavirus in the UK", Resolution Foundation, May 2020 (accessed via https://www.resolutionfoundation.org/publications/the-economic-effects-of-coronavirus-in-the-uk/, 16 June 2020).
[3] EY-Parthenon analysis

COVID-19: Impact on UK FinTech ecosystem

In the UK, as well as international FinTech ecosystems, we have seen a number of key themes emerge as a result of the pandemic. It has impacted FinTech in a range of ways, and not always consistently. For instance, alternative lenders have faced a unique set of challenges in managing loan origination, risk and collections during these times. B2B FinTechs (e.g., RegTech, core banking software, data analytics providers) on the other hand, have in some instances seen the pandemic spur demand for their services, given their applications towards cost cutting, automation and reducing manual complexity. However, several common themes have also emerged: these include the role FinTechs have played in addressing important societal challenges (particularly supporting SMEs), the significance of accelerated digital agendas within financial services, and the continued importance of partnership and collaboration between established financial institutions and FinTechs.

FinTech support to address societal challenges amidst the COVID-19 pandemic

During the pandemic, FinTechs have played a vital role in providing liquidity to SMEs facing short-term challenges. To date, c.16 FinTechs have been accredited by the British Business Bank (BBB) to offer Coronavirus Business Interruptions Loans (CBILS) and a further c.2 FinTechs have been accredited to offer Bounce Back Loans (BBLS).[1] Furthermore, FinTechs have also supported by developing new platforms, making their platforms available, and educating and guiding the SME community during the pandemic. Examples of this include iwoca launching "OpenLending", a lending platform to help banks and FinTechs to make funding more accessible to SME customers. Similarly, Tully launched the "COVID-19 Relief and Wellbeing Network" which provides a digital outsourcing service to help companies register and validate customers applying for financial relief. Truelayer offered its platform for free to any individual or business looking to use open banking technology to help fight the virus.[2] In addition, FinTechs have created tools and COVID-19 information hubs to offer guidance to customers, such as Tide's business eligibility checker for limited companies and sole traders, to help SMEs understand financial support available during the crisis.[2]

[1] As of 12 June 2020; "UPDATE 3: Which FinTechs are offering government-backed CBILS, CLBILS or Bounce Back Loans", altfi website, https://www.altfi.com/article/6540_which-fintechs-are-offering-government-backed-cbils-clbils-or-bounce-back-loans#:~:text=Manchester%2Dbased%20lender%20Assetz%20Capital,%C2%A3250%2C000%20for%20new%20customers, accessed 12 June 2020.
[2] "Top 10 coronavirus initiatives by FinTechs, FinTech futures website, https://www.fintechfutures.com/2020/04/top-10-coronavirus-initiatives-by-fintechs/, accessed 12 June 2020.

Accelerated digital agenda within financial services

As the COVID-19 pandemic continues to reshape aspects of society, we note an acceleration of digitisation in financial services. Customers who previously lacked digital confidence and usage have been pushed to use new digital channels, such as digital payments and online banking. For businesses, digital channels have become a primary, and in some cases only customer engagement option. A recent EY study suggests that the pandemic is prompting a shift in UK households' digital activity with many trying online services for the first time and c.59% of individuals in the UK using more digital services than they did before the pandemic.[1,2] The resulting effect has been an increased usage in online and mobile channels and increased adoption of alternative payment methods.

In recent months, many traditional banks have been required to rapidly activate and scale-up new products and services to market within weeks, such as distributing bounce back loans. They have been challenged by customer access issues, volume queries and increase demand for remote channels. This experience highlights the importance of digital transformation programmes and accelerated development of solutions that address new customer behaviours e.g., faster onboarding and underwriting, faster distribution of loan services using Open Banking and digital lending solutions. The financial services sector will likely be required to adapt to these changes by focusing on its digital agenda.

Continued importance of collaboration and partnerships

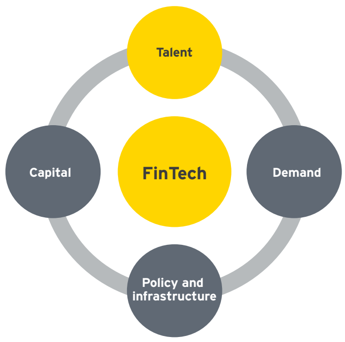
Since the onset of the pandemic, we note a considerable increase in the volume of conversations between FinTechs and other market participants. A shift to more digitally enabled financial services triggers a greater opportunity for further collaboration between FinTechs and incumbent financial institutions. Prior to the COVID-19 outbreak, we were seeing incumbents investing in potential FinTechs and start-ups through their venture capital arms. As we emerge from the pandemic, established financial institutions are likely to acknowledge the need for a greater degree of scaled collaboration with FinTech players to bring digital products and services to their customers.

[1] "Over 55s Flock Online during Coronavirus Pandemic but Miss Out on Digital Banking Opportunity, Santander website, https://www.santander.co.uk/about-santander/media-centre/press-releases/over-55s-flock-online-during-coronavirus-pandemic-but, accessed 12 June 2020.
[2] "Coronavirus prompts marked shift in UK households' digital habits, EY study finds", EY website, https://www.ey.com/en_uk/news/2020/04/coronavirus-prompts-marked-shift-in-uk-households-digital-habits-ey-study-finds, accessed 16 June 2020.

COVID-19: Impact on UK FinTech Attributes

Talent

For many businesses, the pandemic has resulted in tightened budgets and a pause on hiring as they manage immediate challenges. Despite this, a number of FinTechs have shown relative resilience to the short-term challenges faced by the pandemic. We note two main challenges related to talent that FinTechs will likely need to manage going forward. Firstly, FinTechs may be challenged with access to skilled foreign talent in light of global travel restrictions. Secondly, the potential need to onshore previously offshore functions to address the extended remote-working dynamics.



UK FinTech thrives on recruiting and retaining talent from across the globe. Prior to the COVID-19 pandemic, UK FinTechs experienced challenges in recruitment of specialist tech skills, especially within the domestic market. They frequently relied on recruiting individuals with skills such as computer and software development from outside of the UK.[1] Of the c.76,500 people who work in FinTech UK-wide, foreign talent represented c.42% of these employees.[1] The pandemic has resulted in global travel restrictions, which is likely to impact FinTechs' ability to access talent from outside of the UK. With travel disruptions potentially likely to remain in place for the next 12-18 months, access to talent will be an important consideration for FinTechs in the UK and globally.

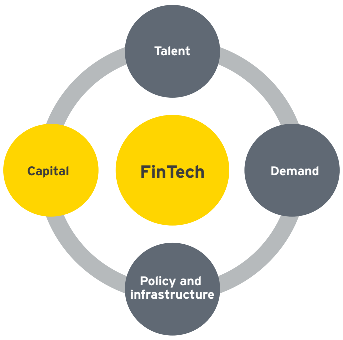
Furthermore, firms who have offshored operations have been impacted as many employees are forced to work from home. FinTechs are now looking at ways to mitigate this and are focusing on opportunities to onshore these services. As a result, FinTechs may look to domestic talent to develop regional onshore teams and drive regional growth based on where talent is located.

Despite these challenges, there's potential for FinTechs (and all firms) to re-evaluate their hiring and HR strategies more broadly. As the transition to remote working is likely to become more prevalent, this provides opportunities to hire talent on a national and international basis, allowing businesses access to a wider pool of skilled talent outside of geographies in which they operate. It's also an opportunity to reduce costs and develop best practices for maintaining an organisational culture in a remote environment.

[1] Supporting UK FinTech: Accessing a Global Talent Pool, WPI Economics, April 2018, accessed via http://wpieconomics.com/case-study/supporting-uk-fintech-accessing-global-talent-pool/, 16 June 2020.

Capital

We observe two key themes in relation to capital; firstly, a likely near-term slowdown in capital for early-stage investments in the UK driven by economic uncertainty and increased investor cautiousness. Secondly, with the considerable dry powder that remains, there's appetite for investors to invest in or acquire high-quality assets.



According to a report by Tech Nation, FinTech is leading the London tech fundraising scene, accounting for c.39% of VC investment in the UK capital's technology companies so far (11 June 2020).[1] The total VC investment into the UK FinTech sector declined from US$1.74b in Q1 2019 to US$1.1b in Q1 2020, with investment in c.77 start-ups.[2] Until mid-March deal activity was positive with several large deals occurring early in the year, notably Revolut's US$500m fundraise in February 2020. Other sizeable FinTech deals include Currency Cloud (US$80m) and Starling (US$78m).[2] Between April and June (12 June 2020), deal activity continued but at a slower rate, with c.39 completed VC deals completed totalling c.US$550m of investment. It is observed that the majority of deals within this period have been investment into B2B FinTechs, notably Onfido (US$100m), Modulr (US$24m), and more recently Codat (US$10m), showcasing the growth in demand for this particular sub-sector.[3]

> "Early stage FinTechs may have difficulty attracting new capital as investors shift from a "grow at all costs" mindset to focusing more on profitability and resiliency.
>
> **Industry expert, UK**

[1] UK Tech Ecosystem Update, London Tech Week, Tech Nation, June 2020 (accessed via https://technation.io/report2020/, 16 June 2020)
[2] "Coronavirus and capital: UK FinTech Investment in Q1 2020", Innovate Finance website, https://www.innovatefinance.com/blogs/coronavirus-and-capital-uk-fintech-investment-in-q1-2020/, accessed 16 June 2020.
[3] CB Insights database

Despite the general pause in active investment, there is still considerable dry powder in the market and appetite from investors to pick up or stabilise high-quality assets in due course. For some of the larger FinTechs, if market downturn continues, we may see a drop in valuations as funding sources become limited.[1] We may also see large banks and technology firms acquiring smaller FinTech players in the market as they look to save costs or acquire new capabilities at a desirable price. Consequently, there may some consolidation in the market.

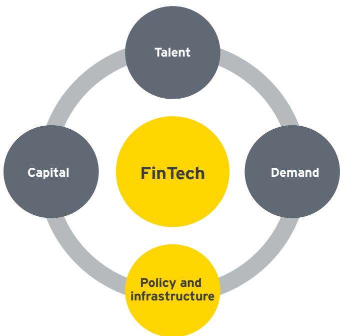
Overall, if economic uncertainty continues, investors are likely to focus their attention to stabilising existing portfolios and there may be initial difficulty attracting new capital, especially for early-stage FinTechs. There is likely to be a greater focus by investors and strategic buyers on quality assets with demonstrated path to profitability and operating resilience. Therefore, FinTechs are likely to focus on building validated business models that are flexible enough to control costs and generate growth. Firms that have recently closed funding may also be at an advantage and government stimulus such as the Future Fund that could offer the relevant support required.

> "
>
> In the longer term, well-funded investors may continue to pursue M&A strategy at lower valuation levels. Stock for stock deals may become more prevalent and valuation multiples may decline. The IPO market expected to slow down until public markets stabilize, and incumbent financial institutions will look to pick up FinTech assets to fill gaps in their capabilities.
>
> **Industry expert, UK**

[1] "Presentation deck: COVID-19's implications for the private FinTech market", Rosenblatt Securities website, https://www.rblt.com/fintech-insights/webinar-slides-covid-19s-implications-for-the-private-fintech-market, accessed 16 June 2020.

Policy

The UK Government has introduced a series of support schemes for businesses and start-ups in response to the COVID-19 pandemic. These include a range of grants, furlough schemes and loans such as Coronavirus Business Interruption Loan Scheme (CBILS) and Bounce Back Loan Scheme (BBLS). As of 31 May 2020, total lending for CBILs and BBLS amounted to c.£30b, with c.£9b facilitated with CBILs (c.45k approved applications) and c.£21b with BBLS (c.699k approved applications).[1] The government has also introduced a more targeted and tailored £1.25b relief package for start-ups and FinTechs.



The package includes:

- A £500m investment fund for high-growth companies impacted by the pandemic, made up of funding from government and the private sector, called the "Future Fund".
- A £750m package of grants and loans for SMEs focused on research and development available through Innovate UK's grants and loans scheme.

The Future Fund, launched in May, is aimed at providing between £125,000 and £5 million of loans from the government, with private investors matching the government commitment. The loans will automatically convert into equity on the company's next funding round, or at the end of the loan if they are not repaid.

As of 31 May 2020, there has been 464 applications for the Future Fund[1]. Launch of government initiatives, in particular the Future Fund, may provide a boost of capital to FinTechs who require funding to weather the pandemic. However, a key unknown at this time is the impact that furloughing and government funding will have on the sector.

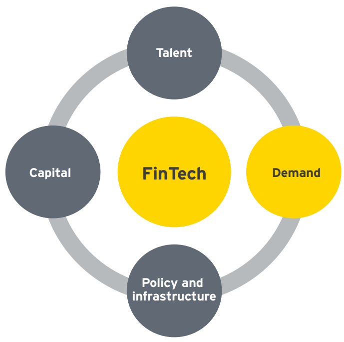
The initial reaction from the FinTech sector to the Government's emergency funding packages has been mixed. While a number of FinTechs have used BBLS and the Coronavirus Job Retention Scheme, a recent Innovate Finance survey of 126 firms found that only 14% of respondents intended to apply for the Future Fund and only 6% intended to apply for CBILS.[2] This is because at the time of writing many FinTechs are loss-making and therefore ineligible for CBILS, and the structure of the Future Fund is not compatible with the investment schemes on which many early stage start-ups rely to attract funding.

The lack of access to funding is a concern, especially for companies in the early stages of growth. The survey also showed that 70% of smaller FinTech companies in the UK - those with 25 employees or less - have a cash runway of less than six months and are therefore most at risk from the impact of COVID-19.[2]

[1] "HM Treasury coronavirus (COVID-19) business loan scheme statistics, UK Government website, https://www.gov.uk/government/collections/hm-treasury-coronavirus-covid-19-business-loan-scheme-statistics#Coronavirus-Business-Interruption-Loan-Scheme, accessed 16 June 2020.
[2] Innovate Finance Survey

Demand

The UK's country-wide lockdown restrictions and its economic consequences have impacted demand in several ways. Firstly, the imposed restrictions have increased the demand for technology enabled financial products and services and, as a result, we have seen an increase in adoption of alternative payment methods and use of digital channels. Secondly, economic uncertainty has resulted in a decline in consumer spending and has accelerated change in adoption in certain segments of FinTech.



The UK population is digitally savvy and open to technology-enabled products and services. According to the EY Global FinTech Adoption Index 2019, the adoption rate for FinTech products and services in the UK is 71%.[1] Restrictions imposed on society have pushed consumers to reduce the usage of cash and adopt alternative payment methods. A recent EY Future Consumer Index survey suggests that in the UK, c.69% of individuals are now using less cash since the outbreak and c.50% expect to use more contactless payments and smart apps (c.32%) as a payment choice.[2] The use of contactless and digital payments is expected to grow as consumers become more comfortable using such payment methods.

Similarly, online sales in the UK as a proportion of all retail sales reached a record high of c.30% in April 2020.[3] According to research, 54% of consumers have used a new form of payments since the outbreak began and nearly half (c.43%) say they have increased their online shopping habits due to restricted access to high street stores. Over one-fifth (c.21%) have tried online shopping for the first time.[4] Customers who previously lacked confidence are now using digital channels. As a result, there is likely to be an increased importance of online and mobile channels.

Furthermore, lockdown restrictions and economic uncertainty has resulted in a contraction in consumer spending, and thus a reduction payment transaction volumes globally, which has impacted certain FinTech sub-sectors. In the short-term, FinTech firms dependent on revenue from payment transactions may struggle, but those who have significant online exposure are likely to see an increase in online payments which could mitigate the impact. Furthermore, FinTechs that rely on Forex (FX) transactions, money transfer or remittances may also be impacted due to global restrictions which is likely to reduce transaction volumes.

In the long-term, we are likely to see a shift in consumer preferences, especially amongst those who are less digitally active. Retailers will be incentivised to grow their online presence and alongside consumers' preference for digital payments, we are likely to see growth in demand for digital ecosystems. This presents opportunities for FinTechs (and broader financial institutions) to create personalised solutions and generate new revenue streams. At the same time, it may also encourage collaboration between FinTechs and banks as they look to develop their own digital ecosystems.

[1] Global FinTech Adoption Index 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf, 10 January 2020).

[2] EY Future Consumer Index, 2020.

[3] "Retail Sales, Great Britain: April 2020", Office for National Statistics website, https://www.ons.gov.uk/businessindustryandtrade/retailindustry/bulletins/retailsales/april2020, accessed 16 June 2020.

[4] "Over half of UK consumers have tried a new payment method since the outbreak of COVID-19", Paysafe website, https://www.paysafe.com/en/paysafegroup/news/detail/over-half-of-uk-consumers-have-tried-a-new-payment-method-since-the-outbreak-of-covid-19/, accessed 16 June 2020.

COVID-19: Impact on core markets

In this section we provide a view on the impact of the COVID-19 pandemic on the "core" markets in this report, highlighting key insights across relevant ecosystem attributes.

India

India has experienced significant economic shock as a result of the COVID-19 pandemic. This has been evidenced by the reduction in unemployment (c.20% decline in March 2020) and consumption (c.43% decline in value over March 2020).[1] For FinTechs in particular, we observe two key themes: namely, the importance of digital payment methods and a decline in investment (particularly for early-stage FinTechs).

India has seen an overall decline in payment transactions (both online and offline), with digital payments such as Unified Payments Interface (UPI) (which accounts for c.50% of total transactions in India), experiencing a c.20% decline in payments volume in April 2020 over the previous month.[2] Despite this, consumers are choosing to transact with digital payments more than before as fear of viral transmission has reduced the usage of cash. According to a survey conducted in April 2020, c.33% of respondents have stated that they are using digital payments more than before and less cash.[3] Similarly, some digital payment providers have noticed an increase in use e.g., Paytm has seen a 20% increase in the number of digital transactions since February.[4] In addition, government entities such as Reserve Bank of India (RBI) have encouraged individuals to use digital payments e.g., UPI, Immediate Payment Service (IMPS), Real Time Gross Settlement (RTGS), mobile wallets etc., to minimise in-person transactions.[5] As a nation that is heavily reliant on cash, recent lockdown measures as well as the decline in cash usage is likely to encourage more people to utilise digital payments, resulting in a potential long-lasting shift in payment habits for consumers.

[1] COMPASS, Data-driven insights to help you navigate the COVID-19 crisis, Credit Vidya, May 2020

[2] "UPI transactions declined 20% in April, Medianama website, https://www.medianama.com/2020/05/223-upi-transactions-declined-april/, accessed 16 June 2020

[3] "Impact of the coronavirus (COVID-19) on digital payment usage in India as of April 2020", Statista website, https://www.statista.com/statistics/1111082/india-coronavirus-impact-on-digital-payment-usage/, accessed 16 June 2020.

[4] "Paytm leads digital payments growth as India avoids touching cash", Outlook India website, https://www.outlookindia.com/newsscroll/paytm-leads-digital-payments-growth-as-india-avoids-touching-cash/1769747, accessed 16 June 2020.

[5] "RBI urges customers to use digital banking facilities amid coronavirus outbreak", Economic Times website, https://economictimes.indiatimes.com/wealth/personal-finance-news/rbi-urges-customers-to-use-digital-banking-facilities-amid-coronavirus-outbreak/articleshow/74653847.cms?from=mdr, accessed 16 June 2020.

In terms of capital, similar to the UK, there is an overall decline in new FinTech investments. VC-backed FinTech investment declined by 78% in Q1 2020 compared to previous quarter (mainly due to a large deal completed in Q4 2019 with One97 Communications for US$1.7b).[1] The number have deals have also declined by 12% from prior quarter.[1] The decline in investment is largely due to investors becoming more cautious. Despite the initial slowdown in funding in India, it is observed that payments and lending were the top sub-sectors for VC investment.

“

Within the payments market we see payment transactions have declined however ratio wise the impact on digital payments has increased.

Industry expert, India

“

In the medium term, we will see a push to digital payments and demand in areas such as digital onboarding. More people will become accustomed to use of digital channels and this change will stay. As a result, cash payments will decline and QR payments or tap-and-go payments will increase.

Industry expert, India

“

Most VCs are being more cautious. Impact will be seen at the lower end of the spectrum with new investments declining in seed, pre-seed and early-stage … overall, the number of transactions will reduce but value will remain the same or decline slightly.

Industry expert, India

[1] CB Insights database

US

In the US, similar to the UK, there is sentiment amongst industry practitioners that there is increased appetite for bank and FinTech collaboration given the focus on digital innovation in financial services. We also note a decline in early stage FinTech investment not dissimilar to other international markets. Where the US is perhaps more unique is in early stances taken by tech firms to adopt permanent remote-working policies, and the effect this could have on ways of working and hiring policies.

From a capital standpoint, the number of US FinTech deals dropped 23% quarter-on-quarter, as funding hit its lowest point since Q3 2018.[1] US VC-backed investment declined 30% in Q1 2020 from the prior quarter.[1] Despite, the decline in fundraising for early stage FinTechs, there may be increased investor interest in purchasing high-quality assets at a lower price.

In terms of talent, many FinTechs, as in other geographies, have paused on hiring as they focus managing short-term pressures. However, FinTechs (and tech firms) are realising the benefits of increased remote working as an opportunity to re-consider their hiring and HR strategies more broadly. For instance, several tech firms have announced permanent work-from-home policies since the COVID-19 outbreak, which raises interesting questions about a firm's hiring strategies, the reach and depth of talent pools an organisation can recruit in, and the cost of talent. In an environment where remote working could likely become a new norm, this could create potential for FinTechs to access a wider talent pool across the country and reduce costs. This may also have an impact on where FinTechs choose to be located, as the necessity to be based in a core FinTech hub potentially diminishes.

> On the M&A side, there's opportunities for strategic buyers to pick up quality assets.

Industry expert, US

> There's money flowing but the way you get that money is different and the conversations with investors is different – FinTech's need to think about the economics of their funding much more than before.

Industry expert, US

> FinTech's are looking at talent differently and as working from home is becoming more acceptable; they have realised in the future they can hire across the country.

Industry expert, US

[1] CB Insights database

Australia

We note three key trends that have emerged within the FinTech sector in Australia: firstly, the increased demand for debt recovery, eCommerce payments and buy-now-pay-later sub-sectors; secondly the lack of access to foreign capital; and lastly, similar to other markets, the ability to recruit foreign skilled talent.

FinTech subsectors currently in a position of strength have been debt recovery, eCommerce payments and Buy Now Pay Later companies – where new propositions have been launched in the market over the past year.

Similar to other markets, access to capital has tightened, with VC-backed FinTech investment declining by c.66% quarter-on-quarter between Q4 2019 and Q1 2020, and the number of deals down by 25%, during the same period.[1] This reflects the risk-averse investor sentiment to funding early-stage start-ups which was also a trend that was noticed prior to the COVID-19 pandemic.

Australia, similar to the UK, is challenged with lack of access to skilled talent as closed borders and travel restrictions prohibit skilled tech workers from arriving in the country. However, the Australian government continues efforts to build policy to attract skilled talent once the peak of the pandemic has ended.

“

Access to capital in Australia looks to be tightening overall, this reflects Australia’s conservative, risk averse culture to capital funding for start-ups / FinTechs.

Industry expert, Australia

“

Skilled tech talent can’t get onshore due to closed borders … the Australian government is looking at how to kick-start immigration once the pandemic peak has passed and is looking to focus on skilled migrations.

Industry expert, Australia

[1] CB Insights database

Singapore

Despite the disruption caused by the COVID-19 pandemic, FinTechs in Singapore are in a relative position of health. Relative to other markets, it is worth noting that there has been significant support from the government to support the FinTech and financial services sector through the pandemic. The two key areas worth highlighting are firstly, government involvement and financial support to FinTechs and secondly, the government's approach to ensuring jobs are safe and hiring continues within the financial services sector.

The Singapore government has shown its commitment to FinTechs and the wider start-up economy through a multitude of funding initiatives. These include:

A SGD125 million package for financial institutions and FinTech firms. The support package has three main components;[1]

- A SGD90 million grant training allowance grant to encourage FinTechs to FIs to train and deepen the capabilities of their employees.
- A SGD35 million support package to help firms adopt digital solutions e.g., encourage FinTechs and FIs to adopt digital tools and upgrade systems that facilitate business continuity such as document collaboration solutions, virtual conferencing.
- Access to digital platforms and tools where MAS (Monetary Authority of Singapore) will provide all Singapore-based FinTech firms 6-months free access to API Exchange as well as new digital self-assessment frameworks.

"

The Singapore government has made huge cash injections into the FinTech market with cash grants to support businesses ... right now we are looking at over SGD200m entering into the ecosystem of which most is cash.

Industry expert, Singapore

Digital Acceleration Grant:[2]

The MAS Financial Sector Technology and Innovation (FSTI) and Digital Acceleration Grant (DAG) schemes support Singapore-based smaller financial institutions and FinTech firms adopt digital solutions. The grant provides 80% co-funding of qualifying expenses (such as hardware and software, professional services), capped at SGD12,000 per entity for Singapore-based financial institutions and FinTech firms with no more than 200 employees.

[1] "MAS Launches SGD125 Million Package for Financial Institutions and FinTech Firms to Strengthen Long-Term Capabilities", Monetary Authority of Singapore website, https://www.mas.gov.sg/news/media-releases/2020/mas-launches-package-for-fis-and-fintech-firms-to-strengthen-long-term-capabilities#:~:text=The%20Monetary%20Authority%20of%20Singapore,amid%20the%20current%20economic%20slump., accessed 16 June 2020.
[2] "Digital Acceleration Grant", Monetary Authority of Singapore website, https://www.mas.gov.sg/development/fintech/digital-acceleration-grant, accessed 16 June 2020.

Conclusions and considerations

MAS-SFA-AMTD FinTech Solidarity Grant (comprises of two components):[1]

- A SGD1.5 million Business Sustenance Grant (BSG): Eligible Singapore-based FinTech firms can receive a one-time grant for up to SGD20,000 to cover day-to-day working capital expenditures. The short-term assistance will help FinTech firms sustain their operations and retain their employees.
- A SGD4.5 million Business Growth Grant (BGG): Eligible Singapore-based FinTech firms can receive up to SGD40,000 for their first Proof of Concept (POC) with financial institutions on the API Exchange (APIX) platform, and SGD10,000 for each subsequent POC, subject to a total cap of SGD80,000 per firm. This enables companies to continue to innovate in partnership with financial institutions and create opportunities for growth.
- In addition, the BGG will provide funding for salaries of undergraduate interns, capped at SGD1000 per month per intern.

AMTD ASEAN-Solidarity Fund:[2]

AMTD And AFIN established SGD50 million AMTD ASEAN-Solidarity Fund which provides up to SGD20k grant per FinTech to support PoCs conducted with ASEAN FIs on APIX, and equity, convertible notes and / or venture debt matching where AMTD will provide matching opportunities to FinTechs by co-investing alongside identified investment partners.

The government has also committed to ensuring talent remains strong with funding for interns and graduates. The Singapore government has encouraged firms to continue hiring within the financial services sector through government funded schemes, which include a SGD100 million fund for firms to create training programmes to help interns and new graduates amidst a weak job market.[3] Under the programme, trainees will get a monthly training allowance, based on the scope and skills required for the traineeship lasting up to 12 months. The government will fund 80% of the allowance and the trainee’s host company will fund the remainder.

In conclusion, the last decade has shaped the UK FinTech sector through innovation and challenges that emerged out of the financial crisis, and similarly the impact of the COVID-19 pandemic will change the way FinTechs and the broader financial services sector operates. As a result, FinTechs are in a position to leverage their assets, skills and digital capabilities to seize new opportunities that emerge from the pandemic.

Across various markets, while there are near-term pressures related to access to capital, and short/medium-term considerations around access to talent, FinTechs that have robust business models and financial strength should be in a position to weather immediate challenges. In particular, in the UK, we have seen a growth in demand within the B2B segment with sustained VC investment, as financial institutions look to reduce costs and streamline processes. Furthermore, across most markets, positive tailwinds are expected to emerge in digital payments, as long-lasting changes in consumer behaviour will result in businesses focusing on driving their digital agenda.

We also note that government involvement to support FinTechs and start-ups more broadly has and will continue to be an important factor in managing the challenges related to the COVID-19 pandemic and helping to build a leading scale-up ecosystem over the long-term.

To date, we have seen FinTechs play an important role during the pandemic in helping consumers and SMEs by facilitating access to credit, raising awareness for the range of programs available, and engaging with their communities to provide support. Looking forward, there will likely be greater prevalence of FinTech collaboration with established financial institutions, and where FinTechs are likely to play an even greater role in shaping the future of digital financial services and as a key player in driving forward our national digital agenda.

[1] “New SGD6 Million Grant Scheme to Support Singapore FinTech firms”, Monetary Authority of Singapore website https://www.mas.gov.sg/news/media-releases/2020/new-grant-scheme-to-support-singapore-fintech-firms#:~:text=3%20AMTD%20has%20provided%20an,available%20until%2031%20December%202021, accessed 16 June 2020.
[2] “AMTD And AFIN Establish SGD50 Million AMTD ASEAN-Solidarity Fund”, AMDT International website, https://www.amtdinc.com/2020/04/16/amtd-and-afin-establish-s50-million-amtd-asean-solidarity-fund/, accessed 16 June 2020.
[3] “Government to set aside SGD100 million for traineeship programme amid COVID-19”, Channel News Asia website, https://www.channelnewsasia.com/news/singapore/government-traineeship-programme-covid-19-coronavirus-12672152, accessed 16 June 2020/

Overview of the UK FinTech sector

Introducing the UK FinTech sector

FinTech market sizing

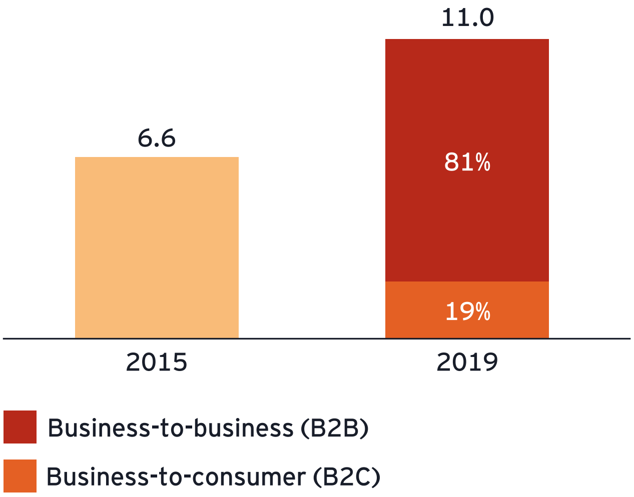
Before analysing the UK FinTech sector across the core Attributes of Talent, Capital, Policy and infrastructure and Demand, we provide a brief overview to the sector.

The definition of FinTech has evolved over time. While the term is often associated with start-ups, its coverage is broader, encompassing more established financial services institutions. Today, FinTechs seek to use technology as a means to enable, enhance or disrupt financial services across key areas such as banking, payments, lending and investing.

Of the total £11.0b revenue in the UK FinTech market, approximately 81% is estimated to have been derived from business-to-business (B2B) markets. Our overall market sizing definition excludes 'incumbent' financial services institutions. However, this group (as well as technology firms) has played an important role in driving growth in FinTech revenue. They've contributed to the sector by acting as a partner and customer for FinTechs, or through their own FinTech investment vehicles (e.g., via innovation labs / venture vehicles).

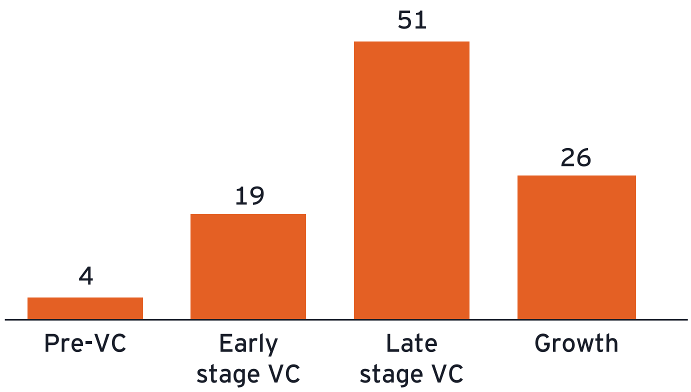
From an investment standpoint, UK FinTechs raised c.£3.6b in 2019, up from c.£524m in 2015[1], primarily driven by strong growth in both VC and PE investing. In terms of deal stage, late stage VC deals made up the majority, accounting for c.51% of all fundraising.

FIGURE 2.0 | **Share of FinTech revenue by B2B vs. B2C (%)**



Source: Company annual statements; EY analysis.

FIGURE 2.1 | **UK FinTech investment by deal stage (%)**



Source: Innovate Finance 2019; EY analysis.

[1] Pitchbook database; 2019 FinTech Investment Landscape, Innovate Finance, 2019 (accessed via https://www.innovatefinance.com/uncategorised/2019-investment-landscape/, 29 January 2020).

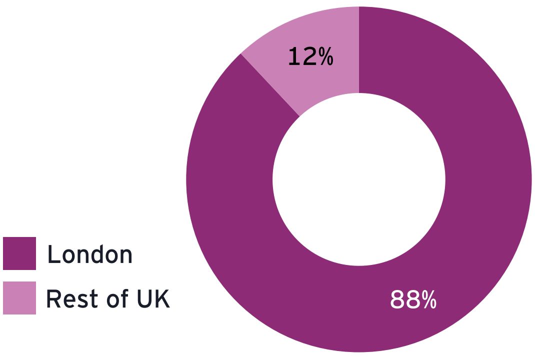
FinTech investment and consumer adoption

From a regional stand-point, London-based FinTechs received c.88% of all funding in 2019. However, there were significant fundraises outside of London, most notably in Northern England. These include Chesterfield-based Evolution Funding's equity raise of c.£110m and Newcastle-based DivideBuy's equity raise of c.£11.5m. Over the near-term, with continued focus on regional and national connectivity, we would expect non-London FinTech centres to grow their share of investment. Similarly, more established FinTechs are looking to base more of their operations outside London, with Starling Bank's focus on Cardiff and Southampton a notable example.

In terms of FinTech adoption amongst the digitally active population, the UK had an adoption level of c.71% in 2019, significantly higher than the c.14% reported in 2015. When compared to the other core markets covered in this study, the UK ranks as the second-highest.[1]

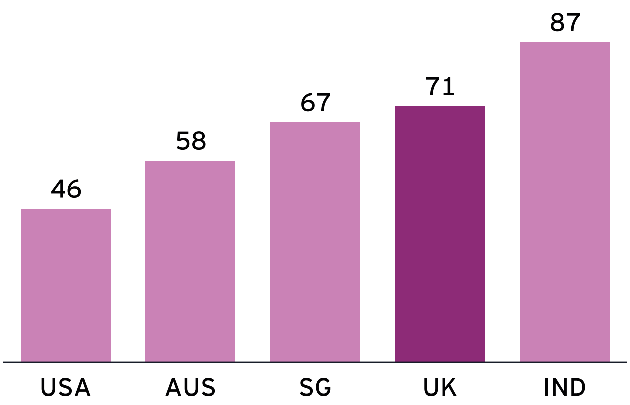
Across age groups, FinTech adoption peaks in the 25-34 and 35-44 ranges, with both groups considered early adopters of FinTech. What is perhaps more interesting is the much higher adoption of FinTech for older age groups in the UK compared to the global average (c.58% vs. c.44% for ages 65 plus).

FIGURE 2.2 | **Share of UK FinTech investment in London vs. rest of UK (%)**



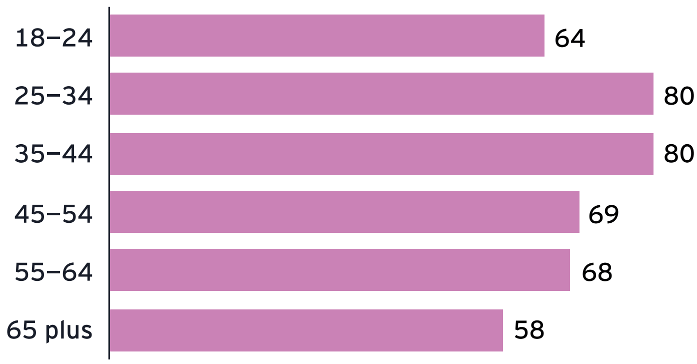
Source: EY UK FinTech Census 2019; EY analysis.

FIGURE 2.3 | **Consumer FinTech adoption index (%)**



Source: EY Global FinTech Adoption Index 2019.

FIGURE 2.4 | **FinTech adoption across age-groups (%)**



Source: EY Global FinTech Adoption Index 2019.

[1] We define FinTech users as survey respondents who claimed to have used at least two FinTech products in the last six months.

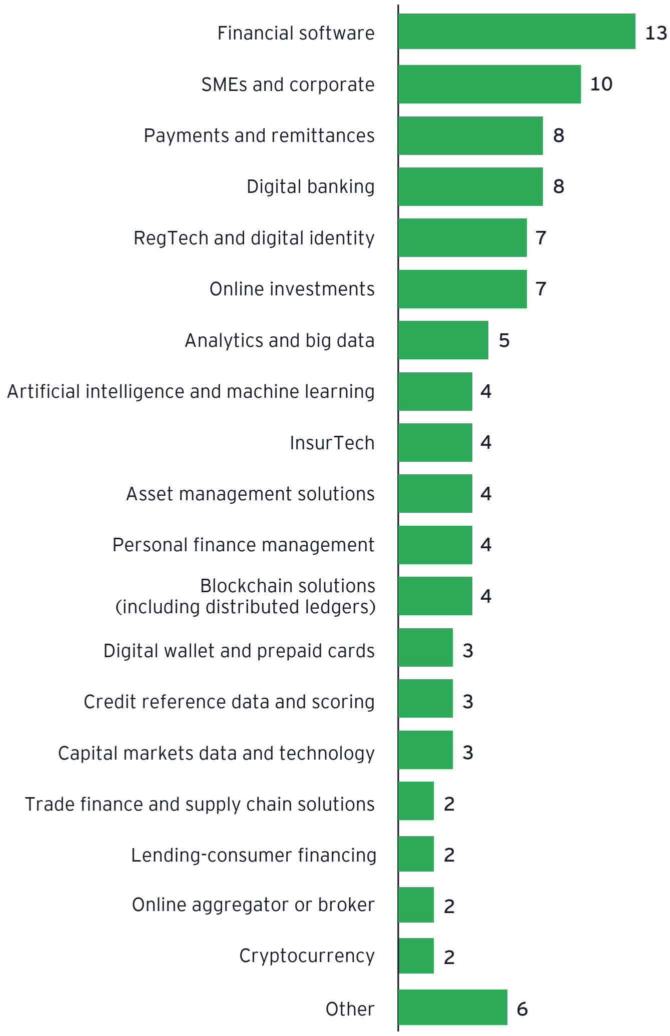
Areas of innovation by subsector

Data from the EY UK FinTech Census 2019 provides a strong representation of the UK FinTech sector today. From the 224 respondents surveyed in the census, we note considerable subsector coverage across both established and maturing FinTech sectors. For instance, relatively mature subsectors, including SME lending and payments, represent c.10% and c.8% of businesses surveyed, while emerging subsectors (e.g., personal financial management and cryptocurrency) account for c.4% and c.2% respectively.

Census data also shows strong prevalence and emergence of B2B-related activity, with subsectors such as SMEs and corporate, RegTech and digital identity, analytics and big data, InsurTech, capital markets data and technology and trade finance and supply chain solutions accounting for c.31% of total FinTech activity in the UK.

Looking forward, with continued emergence of core enablers such as open banking infrastructure, it will be of interest to note how certain subsectors, such as personal financial management, credit data scoring and online aggregators, evolve in the near term. For each of these areas, the use of open banking APIs to access and aggregate transaction and product reference data could be powerful catalysts.

FIGURE 2.5 | **EY UK FinTech Census 2019 – subsector representation (%)**



Source: Innovate Finance; EY analysis.

Analysis of Attributes: Talent

Key themes

There is a deep pool of FinTech talent in the UK, supported by vibrant financial services and technology sectors, and a world-class university system. It is estimated that 76.5k people work for FinTech start-up businesses,[1] with a significantly larger number of people driving financial innovation from within established FIs and technology firms (there are 1.1m and 2.1m people employed across the financial services and technology sectors respectively in the UK).[2]

Nonetheless, access to qualified or suitable talent remains the biggest challenge for UK FinTechs (cited by more than 50% of respondents in EY's 2019 UK FinTech Census). This challenge spans both domestic skills shortages for key specialist capabilities and the subsequent need to access foreign talent seamlessly in the high-growth FinTech sector.

> "
>
> The biggest strength we have is our people — the ability to bring people to London from inside and outside the UK to the doorstep of our ecosystem … we need that to continue.
>
> **UK adviser**

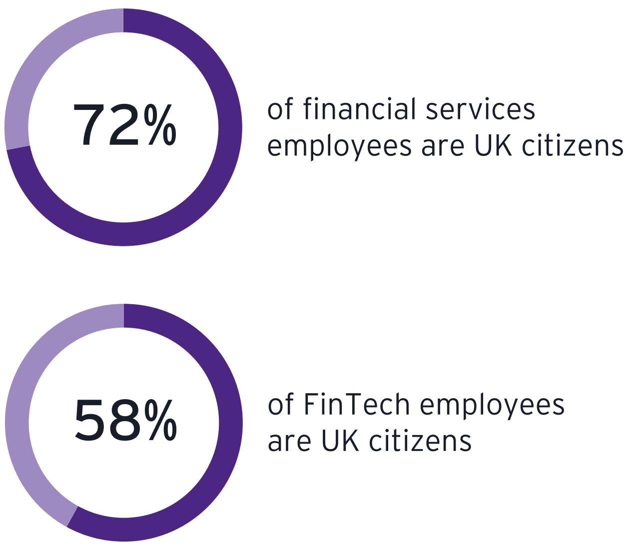
1 Supporting UK Fintech: Accessing a Global Talent Pool, WPI Economics, 2018 (accessed via https://www.innovatefinance.com/supportingukfintech/, 10 January 2020).
2 EMP13: Employment by industry", Office for National Statistics website, https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employmentbyindustryemp13, accessed 10 January 2020).
3 Employer skills survey 2017, UK Government website, https://www.gov.uk/government/publications/employer-skills-survey-2017-uk-report, accessed 10 January 2020
4 Key facts about UK-based financial and related professional services 2019, TheCityUK, 2019 (accessed via https://www.thecityuk.com/assets/2019/Report-PDFs/b258573748/Key-facts-about-UK-based-financial-and-related-professional-services-2019.pdf, 10 January 2020).

Domestic skills pipeline

The financial services sector is facing a growing skills gap. Whilst it declined across the whole economy between 2015 and 2017, it has risen by 30% for financial services,[3] driven by a fundamental shift in the roles that the industry is trying to recruit for and the type of skills required in those jobs. This shift is compounded by increasing competition with other, high value-add sectors that also demand similarly skilled talent.

These challenges are particularly pronounced for the FinTech sector. The requirement for specialist tech skills (e.g., software engineering, system architecture and data scientists) is a key domestic shortage, as is expertise in areas of specialism such as AI, blockchain, machine learning, cryptocurrency and cybersecurity. The role of FinTech as a major growth driver of innovation in financial services means that it relies particularly on these advanced technical skills, in combination with complementary management approaches (e.g., agile or lean management). As a result, FinTech faces a particular challenge in sourcing the skills it needs domestically. In 2018, only 58% of start-up FinTech employees were UK citizens, compared with 72% of workers in the broader financial services sector.[1,4]

FIGURE 2.6 | **UK citizens as proportion of the UK financial services and FinTech workforce**



Source: WPI Economics; TheCityUK.

"

Due to a lack of engineering talent in the UK, approximately 40% of our engineering team are non-UK EU nationals, which increases to 60% when all foreign nationals are included.

UK FinTech

While the UK benefits from a very strong education system (ranked as having the world's second-best university system by QS World University Rankings in 2019), interviewees raised concerns about the domestic pipeline of STEM skills. These findings are reflective of a 2018 House of Commons report on the subject,[1] which suggests that the STEM pipeline is weakened at both school and university level by – amongst other things – unsuitable careers advice, reputational challenges, teaching shortages and gender imbalance. The current cost of STEM skills shortage to the economy is estimated to be £1.5b,[2] which is expected to increase significantly over the next 10 years. Investments made now to address the future STEM talent challenge must be of an appropriate scale to support the future growth in demand from FinTech, our broader ambitions related to AI and the data economy, and adjacent sectors.

"

There just isn't a deep enough pool of technology talent for us in the UK; we have to look across the world.

UK FinTech

The gender imbalance observed in the STEM pipeline is connected more broadly to diversity challenges within FinTech and in wider financial services. Female representation in financial services continues to be out of kilter with the wider population, particularly at senior levels; 47% of UK financial services employees are female compared with only 38% in management roles. The industry also falls far short across other measures of diversity: those from underprivileged socioeconomic and ethnic backgrounds are significantly under-represented, and the industry remains predominantly white and middle class. UK FinTech can use its position as a disruptive force in financial services to advance the talent agenda and reap the benefits of an increasingly diverse workforce.

The FinTech sector also faces challenges in its ability (or lack thereof) to reward talent in a way that aligns to the growth-oriented nature of the industry. FinTechs cited problems with the restrictions on their ability to utilise enterprise management incentives (EMI) share option schemes to reward employees – with most scale-up phase FinTechs falling outside the qualifying criteria.

"

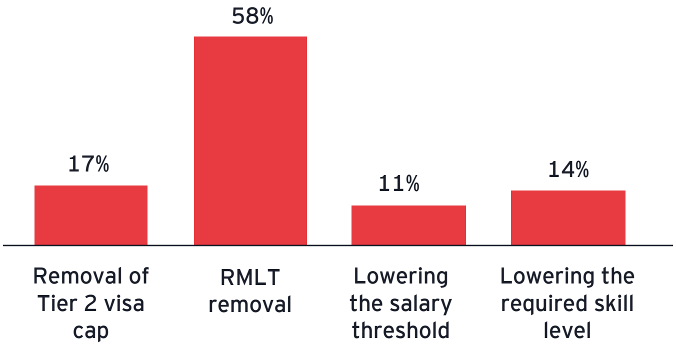
In terms of share options, the UK compares favourably with Europe, but the US really do this best. If we were to have a similar approach, in practical terms it would mean that we could invest in more companies at a growth stage and support them in scaling up. It would make it that much more attractive for people to work in FinTech at an earlier stage.

UK investor

[1] Delivering STEM skills for the economy, House of Commons Committee of Public Accounts, 2018 (accessed via https://publications.parliament.uk/pa/cm201719/cmselect/cmpubacc/691/691.pdf, 10 January 2020).

[2] "Skills shortage costing STEM sector £1.5b", STEM Learning website, https://www.stem.org.uk/news-and-views/news/skills-shortage-costing-stem-sector-15b, accessed 10 January 2020.

FIGURE 2.7 | **Respondents to EY's Future Immigration System Poll question: if one of these changes could be implemented in April 2020, which would you pick?**



Access to foreign talent

With current and future expected domestic skills shortages, particularly for specialist technical roles, it is critical for FinTechs to face minimal friction in accessing foreign talent. Foreign talent represented c.40% of total UK FinTech employees in 2018 (with the vast majority of foreign talent currently sourced within the European Economic Area).[1] In several international markets, this is viewed as a key challenge for FinTechs.

London's position as a global leading financial services hub, as well as the strength of UK universities, means that it is well placed to attract foreign talent. However, UK FinTechs cited a number of challenges to effectively sponsoring and retaining foreign talent, including:

- The Resident Labour Market Test (RLMT) is viewed by FinTechs as a considerable barrier that introduces substantial friction into the immigration process. In a recent EY survey,[2] abolishing the RLMT was the most frequently cited change that employers would want to bring forward. We note that the Government has announced plans to abolish the RLMT requirement from January 2021 as part of its new points-based immigration system; this is welcomed by interviewed UK FinTechs.
- In addition, the time and level of red-tape associated with the visa process was commonly described as not being fit for purpose for a high-growth sector such as FinTech. As a result, larger FinTech businesses struggle to access the talent they need quickly enough to support their growth ambitions.
- The visa system also places a significant cost burden on FinTechs. One UK FinTech suggested that it spends around 2% of its revenue on visa-related costs, of which more than 50% is on related advisory costs such as legal advice and relocation support services, driven by the underlying complexity and challenges associated with navigating the visa system.

> “
>
> We face a significant burden in the time that it takes to process visa application requirements from the Government — it has impinged on our ability to recruit the brightest and best talent from across the world, and ultimately limited us from embarking upon the next phase of our growth.
>
> **UK FinTech**

[1] Supporting UK Fintech: Accessing a Global Talent Pool, WPI Economics, 2018 (accessed via https://www.innovatefinance.com/supportingukfintech/, 10 January 2020).
[2] EY 2021 Future Immigration System Webcast Polling Results, EY, 2020.

> At the moment, it's taking weeks to hear back from the Government on visa decisions. What we'd like to see is some kind of fast-track system that can turn around decisions in 48 hours.
>
> **UK FinTech**

The employer sponsorship requirement of the Tier 2 visa also ties individuals to an employer, limiting the flexibility of employees to move jobs, start their own business and fulfil their entrepreneurship potential. We note changes announced by the UK Government in February 2020 which may help to address these concerns:

- The Global Talent visa (which will replace the Tier 1 Exceptional Talent visa route) is no longer capped at 2,000 visas annually and offers more flexibility around the length of the visa. The Global Talent visa is not tied to an employer, nor does it require finding a job prior to application, so long as the applicant is endorsed by a designated organisation (with Tech Nation as the designated body for the digital technology sector).
- As part of its proposal for a new points-based immigration system, the UK Government has expressed an intention to create a broader unsponsored route for highly skilled workers to run alongside the employer-led system. Proposals for this route are expected to explored over the next year.

The salary threshold for Tier 2 visas is also misaligned with the traditional compensation approach of high-growth businesses, such as FinTechs, which typically include equity options as a substantial component of reward. An EY survey found that some FinTechs have to inflate workers' salaries beyond market rate to make the threshold, then face associated challenges with disparities that result in relation to existing UK resident wages.[1]

> There are a lot of FinTechs that can't stomach the cost [of the visas and associated administrative costs] — it's prohibitive to very small firms.
>
> **UK FinTech**

[1] EY 2021 Future Immigration System Webcast Polling Results, EY, 2020.

Capital

Opportunities for the UK

There is an opportunity to assess the skills pipeline to ensure that the supply of domestic talent has the right technical skills and diversity needed to support innovation in financial services:

- The UK could work with providers of education, including academia and policymakers setting school curriculums, to ensure the right skills are being taught for a future workforce which is technically proficient.

There is also an opportunity to consider the foreign migration framework as it applies to the specific needs of the FinTech sector as a high-growth and strategically important sector:

- It is a unique time to consider the future visa framework and how this is meeting the requirements of the technology and financial services sectors.
- Based on stakeholder interviews, areas of particular interest include the time, cost and administration involved in hiring highly skilled talent from overseas.

“

What we end up doing is overpaying for international talent to meet a requirement from the Government. This doesn’t really feel like a market-focused solution to filling a gap — it feels like we have to fudge things to get the talent we need to grow.

UK investor

Key themes

Access to capital (both domestic and international) has improved significantly since 2015, supported by healthy VC, PE and CVC market segments, government entities such as the BBB and the increasing maturity of the UK FinTech sector. Despite the considerable increase in investment, our research indicates that access to late stage and growth capital remains a challenge for UK FinTechs.

Strength in early-stage investment

In 2019, the UK FinTech sector attracted c.£3.6b in investment, representing an annual increase of c.60% in FinTech investment activity each year since 2015. Such is the scale of UK FinTech investment that it accounted for more than 50% of Europe’s total FinTech investment in 2019.[1]

UK investment in FinTech has been underpinned by both public and private sector support. The Government’s VC schemes, notably the Seed Enterprise Investment Scheme (SEIS) and the Enterprise Investment Scheme (EIS), have been utilised for investments in financial services businesses (with more than £150m raised in 2018 under the EIS alone). As a result, particularly at early stages, UK FinTech entrepreneurs feel confident in securing funding.

The proximity of financial services and technology sectors in the UK (particularly in London) is also a key driver of FinTech investment, particularly at early stages. As FinTech has established itself as a mainstream theme across financial services, investment in financial innovation and incubation of FinTech start-ups by established FIs has become increasingly common. For example, all nine of the UK’s largest banks CMA-9 have established a FinTech-focused incubator, accelerator or CVC vehicle.

[1] 2019 FinTech Investment Landscape, Innovate Finance, 2019 (accessed via https://www.innovatefinance.com/uncategorised/2019-investment-landscape/, 10 January 2020).

[2] Enterprise Investment Scheme Seed Enterprise Investment Scheme and Social Investment Tax Relief, Statistics on Companies raising funds, HM Revenue & Customs, 2019 (accessed via https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/804455/May_2019_Commentary_EIS_SEIS_SITR_National_Statistics.pdf, 10 January 2020).

“

Even if you’re a start-up with limited traction, as long as you have a good idea and a good management team, you won’t have a problem attracting capital.

UK FinTech

The scale-up capital challenge

Despite the depth of the UK’s capital marketplace, more mature FinTechs, outside of early stage start-ups, face challenges in accessing scale-up growth and patient capital. Key aspects and drivers of this challenge cited in our research include:

- **Barriers to broadening the investor base**
  While UK VC funding from overseas sources such as sovereign wealth and pension funds is common, funding from domestic pension funds is less prevalent. For example, a 2019 report by the BBB highlights the case for reform of the pension fee cap, which applies to UK institutional pension fund investors. This cap limits pension fund managers’ ability to invest in funds with fees greater than 0.75%. Since VC and PE fees are typically 1% - 3% (due to the costs and risks associated with managing illiquid assets), this cap has historically been a limiting factor on pension fund managers’ ability to invest indirectly in FinTech via VC and PE funds. The BBB indicates that both pension savers and businesses could benefit substantially from a rethink of the investment restrictions placed on institutional fund managers.

Additionally, in some cases, investors felt that the level of limited partner (LP) investor education about the growth opportunities in FinTech is lacking. Awareness and education initiatives could be led by third parties, such as industry associations and trade bodies, by profiling successful and rising FinTechs across the association’s channels. These initiatives should not be limited to targeting UK LPs; there is further opportunity to increase the level of foreign investment into UK FinTech, via both international institutional investors and sovereign wealth funds (SWFs), by informing international investors about the future growth opportunities in UK FinTech. In addition, providing greater assurances for institutional investors could have significant benefit; investors can be encouraged by the presence of a cornerstone investor – particularly those with patient capital – taking a significant stake in a VC or PE fund.

“

Removing the barriers to institutional investment is a key issue [in boosting the access to scale-up capital]. In the UK, wehave a fee cap which imposes acost minimisation focus on pension fund managers.

UK investor

[1] The Future of DC Pensions: Enabling Access to Venture Capital and Growth Equity, British Business Bank, 2019 (accessed via https://www.british-business-bank.co.uk/research/the-future-of-dc-pensions-enabling-access-to-venture-capital-and-growth-equity/, 10 January 2020).

“

We need to ensure that funding is distributed with cornerstone investors to get some [institutional investors] to deploy their capital.

UK FI

“

There is international interest in late stage investment; there are sovereign wealth funds interested in making those investments in the UK — we need to encourage that.

UK investor

Maturity of the capital environment

Compared with £3.6b in the UK, FinTech investment in the US totalled £13.6b in 2019[1], reflecting not only the considerably larger scale of the US but also significant investor experience of investing in FinTech and adjacent start-up sectors. Due to this experience (and perhaps a higher risk tolerance), US investors are more likely to be serial investors (frequently recycling proceeds from exits) than their UK counterparts. As above, building a stronger ‘repeat’ investor mindset in the UK could be fostered through greater reporting and awareness of the FinTech sector and highlighting success stories to domestic and international investor bases.

Exit decision-making

A contributing factor to constrained capital availability at the scale-up stage is reduced investor appetite against a backdrop of some unsuccessful technology businesses exits, and some of the associated high valuations seen in the industry. To address this reputational challenge, the FinTech sector needs to be able to showcase good examples of successful scale-up and exits of mature FinTech businesses. This issue reflects broader concerns around poor exit strategy – some UK policymakers feel that there is an education gap for some UK FinTech businesses about how and when to exit, which leaves firms vulnerable to mistakes in decision-making around taking investment, particularly in relation to M&A or public flotation.

“

We find that UK FinTechs don’t know how to ‘play’ the US capital system as well as US FinTechs.

UK policymaker

“

We’re currently giving a short burst to start-ups, but then no further support, forcing them to put a price on the asset … which ultimately constrains growth.

UK FI

[1] CB Insights database

Public market access

As a final point with regard to supporting greater scale-up capital, access to a strong local exchange is critical to giving mature FinTechs access to longer-term and more cost-effective funding, as well as providing an exit for growth investors. More than a third of UK FinTechs surveyed in the EY UK FinTech Census 2019[1] expect to undertake an IPO within the next five years. The UK is an attractive place for fast-growing companies to seek public funding, underpinned by strong corporate governance standards and a robust legal and regulatory environment. According to the London Stock Exchange Group (LSEG), from 2017 to mid 2019, more than a cumulative total of £4.8b had been raised by FinTechs on London's public markets.[2] LSEG runs a designated submarket, AIM, which is uniquely positioned to provide small- and mid-cap companies with access to public capital. However, our interviews suggest that more can be done to enable public equity markets to play a role in supporting the UK as the leading global hub for scale-up capital. Policymakers could benchmark against other jurisdictions, look at ways to enhance access to liquidity and showcase the success of UK-listed high-growth businesses.

> "We have to make sure our FinTech firms can grow healthily and exit healthily, without being snapped up at a discount before they have reached their full growth potential.
>
> **UK policymaker**

Opportunities for the UK

There is an opportunity to unlock new and varied sources of growth capital both from the UK and internationally, in particular:

- Institutional investors (e.g., UK PE funds)
- SWFs
- Overseas sources of patient capital

There is a need to promote greater awareness of the UK as a scale-up destination. In turn, this may help to engender a 'mindset shift', making the sector more accessible to growth investors and encouraging a serial investor culture where investment is 'recycled' back into FinTech.

The LSEG should continue to play a proactive role in cultivating the UK as the global scale-up capital. This could involve comparing and reviewing the role that various trading venues play in supporting high-growth businesses globally, looking at ways to continue to enhance the functioning of junior markets and access to liquidity, and showcasing the success of UK-listed high-growth businesses.

[1] EY UK FinTech Census 2019, EY, 2019 (accessed via https://www.ey.com/en_uk/banking-capital-markets/uk-fintech-census-2019, 10 January 2020).

[2] FinTech Comes of Age, London Stock Exchange Group,2019 (accessed via https://augmentum.vc/wp-content/uploads/2019/05/LSEG_Fintech_Comes_of_Age_Report_2019.pdf, 10 January 2020).

Policy and infrastructure

Key themes

Policy and infrastructure are key differentiators across regions and remain a key strength of the UK relative to other FinTech markets. Nonetheless, our UK interviews and the rapid pace of acceleration in other markets indicate that the UK faces a unique opportunity to further bolster its FinTech policy landscape and reinforce its international competitiveness.

Strength across regulatory and infrastructure initiatives

The UK remains a global leader in creating a highly supportive policy, regulatory and infrastructure environment for the growth of the FinTech sector. Interviews across a number of markets evidence the view that the UK sets the benchmark for policy-led innovation, with key initiatives frequently, cited such as the FCA's regulatory sandbox, open banking and payments infrastructure. From a regulatory standpoint, the FCA, with its mandated focus on competition and programmes such as Project Innovate, is viewed as a key strength of the UK FinTech ecosystem.

As the UK FinTech environment advances and the complexity of disruptive technology intensifies, the strength and maturity of the UK's policy and regulatory environment will continue to be a key differentiator, particularly relative to the more nascent approaches in other markets.

“

The UK is amazing in creating a supportive environment for FinTechs. I'd say the UK is still a couple of years ahead of other markets.

FinTech

“

In terms of the best policy and regulatory environment, you don't have to look further than the UK.

FinTech

“

Everyone is looking to the UK in terms of open banking. It's not always easy to make banks share data, but the UK has found a way.

FinTech

“

Some other markets have announced policies and initiatives but I would still call this at a relatively superficial stage. No other market has the level of complexity or depth in market infrastructure the UK has.

Global professional services firm

Advancements to public digital infrastructure

Building strong and resilient digital public infrastructure is an increasing area of international interest and innovation activity. Interviewees across all markets recognise that digital infrastructure can rapidly accelerate FinTech sector development and financial innovation. Looking forward, it will be important for the UK to not only maintain the resilience of current infrastructure but also consider its approach to new infrastructure initiatives, such as digital identity, where international momentum is rising in markets such as India.

As part of all digital infrastructure, it will also be important to consider the role of AI and other advanced technical capabilities to support these platforms.

Digital identity

Our research suggests that a considered and nuanced framework for digital identity will support the UK's position as a market-leading digital economy and help to create a more inclusive financial system.

However, the UK currently has lower adoption of digital identity compared with many other peers, with fewer than 10% of the UK population signed up to GOV.UK Verify[1] compared with c.18% in Germany and more than 75% in the Nordic countries.[2]

As such, we note the importance of the UK establishing a framework of digital identity that is consumer-centric, with a primary focus on privacy, data security and financial inclusion.

“

I don't think any one country has it got it 100% right. There are a lot of learnings to be had from other markets though.

Global professional services firm

“

Digital identity can be a real positive for the UK economy. It is an essential element in building, and accelerating, a digital economy.

UK regulator

[1] "GOV.UK Verify", UK Government website, https://www.gov.uk/performance/govuk-verify, accessed 10 January 2020.
[2] Federated e-IDs as a value driver in the banking sector based on experience from Nordic markets, Arkwright Consulting, 2019 (accessed via https://resources.signicat.com/federated-eids-arkwright, 10 January 2020).

“

Open banking could evolve into a wider use of open APIs. This may allow, for example, a portable credit file for SMEs, which would be an effective use of data to close the credit gap.

UK regulator

Open banking

In 2018, the UK was the first country to take a government-led approach to the mandating of open banking, creating common API standards for data sharing across the largest nine banks, with the aim of stimulating competition and innovation in financial services.

To build on its leading position, the UK should consider ways to evolve its open banking framework beyond current applications (derived from current and savings accounts data from consumers and SMEs) and explore an open data initiative across financial services (and adjacent sectors). The FCA has called for input from interested stakeholders on extending open banking principles to give consumers and businesses more control over a wider range of their financial data, such as savings, insurance, mortgages, investments, pensions and consumer credit.

Payments infrastructure

The UK has been a leader in payments infrastructure, spearheaded by the Faster Payments Scheme which was established in 2008. Current initiatives include the Bank of England’s Real-Time Gross Settlement (RTGS) rebuild which will make the UK the first G7 nation to open up its payments infrastructure to non-bank payment service providers.

However, other markets are rapidly accelerating the strength of payments infrastructure, including India’s UPI initiative, Australia’s New Payments Platform and SEPA Instant Credit Transfer in Europe (with pan-European transfers undertaken in less than 10 seconds). With payments a key source, and foundation, of financial services innovation globally, the UK should consider ways to enhance its payment infrastructure to drive a wider set of use cases (e.g., cross-border) to facilitate greater consumer and commercial trade.

“

Faster payments is fit for purpose, but I don’t know how long that will last. Can we create systems that interoperate with Europe, our key future trading partners?

UK FinTech

“

To a large extent, the EU has been dictating policy on payments for the last 20 years. We now have the ability to set our own policy and we need to be very forward looking, thinking about PSD3, what PSD4 would look like.

UK FinTech

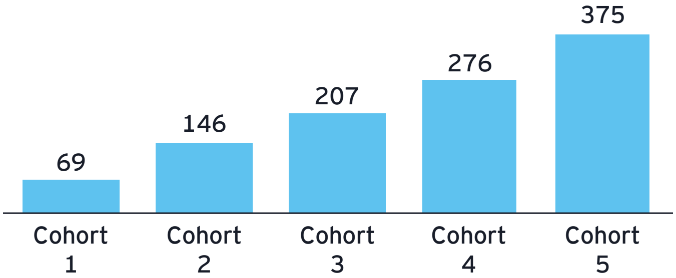
Policy support for FinTechs in scaling

According to the UK FinTech stakeholders interviewed, the UK has done an exceptional job of providing support for start-ups through initiatives such as the FCA regulatory sandbox and innovation hub, and the Bank of England's New Bank Start-Up Unit. As of April 2019, the FCA's Project Innovate has supported 686 firms, given 149 informal steers and granted 101 authorisations or variations of permissions. Interest in the sandbox has also steadily increased, with 99 applications received for cohort 5 and applications for cohort 6 concluding in December 2019.[1] Similarly, the NBSU has authorised 41 new banks since 2013, four of which have been digital-only banks (i.e., no bank branches) and many of which have leaned heavily on digital innovations.[2]

40%

reduction in time for those using Innovate to determine authorisation application.

FIGURE 2.8 | **Impact of FCA Innovate**



Source: FCA.

Despite this success, UK FinTechs seem to be struggling to scale up and move into full regulation in significant numbers. Only 39% of firms in cohort 1 to 3 of the FCA sandbox have received further investment or been acquired. Interviews with FinTechs currently scaling noted the regulation 'leap', and that the level of support between start-up and full regime supervision was material. Additionally, given the proximity of financial services and tech sectors in the UK (particularly in London), bringing more tech participation into the sandbox should be considered in the interest of fostering greater financial services related innovation from tech players and supporting the potential for greater collaboration between financial services and tech sectors.

> "There is a massive incline you face once you leave the sandbox. You really still need support to handle the increased amount of regulatory scrutiny.
>
> **UK FinTech**

[1] "Regulatory sandbox - cohort 5.", FCA website, https://www.fca.org.uk/firms/regulatory-sandbox/cohort-5, accessed 10 January 2020.
[2] Embracing the promise of fintech, Bank of England, 2019 (accessed https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2019/embracing-the-promise-of-fintech.pdf?la=en&hash=2445D5B3AF10096FDAA91564BB48F8E5F28486B9, 10 January 2020).

“

When you leave the sandbox, you get treated like a large player who has a huge regulatory team and experience of dealing with full regulatory oversight.

UK FinTech

International connectivity

The UK is a relatively small domestic market, by global standards. The UK has recognised this and been proactive in creating formal arrangements to enhance international connections. Examples include the FinTech bridges (such as with Australia) and the UK-US Financial Innovation Partnership.

Despite the progress to date, feedback from interviews noted challenges remain for UK FinTechs expanding overseas, and for overseas FinTechs looking to access the UK market. These include operational support on initial ‘landing’, such as office space being less generous than in other FinTech ecosystems, the need for informal regulatory support and assistance in accessing talent.

“

I have been offered office space for free when opening in Hong Kong, Singapore and Toronto. This was different when entering the UK, and is something that should be considered.

UK FinTech

“

What we need to have a world-leading ecosystem in 10 years’ time is a market-leading approach to cross-geography regulation. Developing and leading global forums between markets will be a key part of solving this challenge.

UK FinTech

Opportunities for the UK

Advance the digital identity framework

- The UK has an opportunity to learn from other markets when building on its framework for digital identity, which is an enabler to further FinTech adoption and innovation in the economy and represents a significant opportunity for the UK.

Broaden open banking to facilitate wider adoption

- While the UK leads the way in open banking, expanding to a wider data set as outlined by the FCA's investigation into open financing could catalyse increased adoption of FinTech solutions. This could also stimulate further innovation from FIs, driving competition and ideally improving customer outcome. Across open banking, Digital identity and other public infrastructure, the role of AI and advanced data analytics should be considered to augment any developments.

Preserve and enhance payments infrastructure

- The Faster Payments Scheme represents a strong base on which to advance the payments infrastructure in the UK. As other markets also advance their payments infrastructure, the UK has an opportunity to take a leadership position in structuring its future payments infrastructure (as the rebuild of RTGS suggests) to ensure it supports the next generation of payment systems and innovation.

Support FinTechs in scaling

- There is an opportunity for the UK to become the leader in scale-up, as it has established a reputation as a leader for start-ups. Additional regulatory 'scale-box' support, formal and informal, could be provided to bridge the gap between start-up to full regulatory oversight, and provide a further safe space to develop new innovative propositions.
- The UK should consider the role technology firms, and big tech players, could have in financial services, and the different support (e.g., regulatory sandbox) they could benefit from when developing or considering a new financial services proposition.

Support high-growth UK FinTechs access to international markets, and make the UK the destination of choice for overseas FinTechs

- The UK FinTech sector has a strong base of international connections and relationships. Enhancing and promoting existing relationships with international ecosystems should be considered.
- A connected approach across government to providing a seamless international expansion experience could help propel UK FinTechs' international expansion and enhance the UK's reputation as a destination of choice for international FinTechs.

Demand

Key themes

Demand for innovative financial services in the UK is driven by key factors such as a digitally savvy population that displays high adoption of FinTech, SMEs that are already users of technology and FinTech solutions, and a world-leading financial centre that acts as a catalyst for growth in the financial services and FinTech industries.

Consumer demand for FinTech

The UK population is digitally savvy and open to adopting technology-enabled products and services, for example:

- The UK is advanced in terms of internet use rates, particularly among its younger population. According to the Office for National Statistics (ONS), virtually all adults aged 16 to 44 in the UK were recent internet users in 2019.[1] This means that a large part of the UK population is easily able to consume digital products and services.
- Moreover, UK consumers denote a preference towards online, digital transactions, with the use of digital payments increasing materially in the last few years, reflecting a wider inclination to adopt technology in financial services.
- Despite these levels of digital activity and FinTech adoption, a considerable portion of the population remains digitally inactive. In the UK, a ONS survey in early 2019 noted almost five million people had not accessed the internet over the prior three months, with three-quarters of those over 65, and a large portion of the remainder disabled.[2]
- As part of a more integrated nationwide digital agenda, it will be important to consider financial and digital inclusion, and the role FinTech can play in reaching portions of the population that are not digitally active.

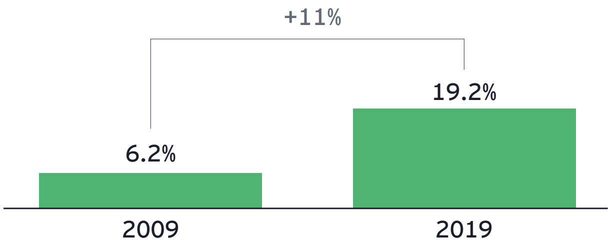
UK consumers are significant users of FinTech. According to the EY Global FinTech Adoption Index 2019,[3] the adoption rate of FinTech products and services in the UK is 71%, well above the global average of 64%:

- For digitally active customers, the adoption of FinTech is driven by high demand across money transfer and payments services (79%) and insurance services (77%). The latter, in particular, is significantly above the global average in the UK, denoting a specific affinity for technology solutions in insurance among UK consumers.
- FinTech use in the UK is higher among well-educated consumers (e.g., those that have bachelor's and postgraduate degrees), more affluent consumers (the use of FinTech increases in the higher income quartiles) and younger consumers (particularly the 25–34 and 35–44 age brackets), although the use of FinTech in the UK among older consumers is above the global average as well.
- Despite this, adoption could be further improved (noting adoption of c.87% in China and India), with awareness of how FinTechs work and concerns surrounding security being consistently cited as barriers to FinTech adoption.

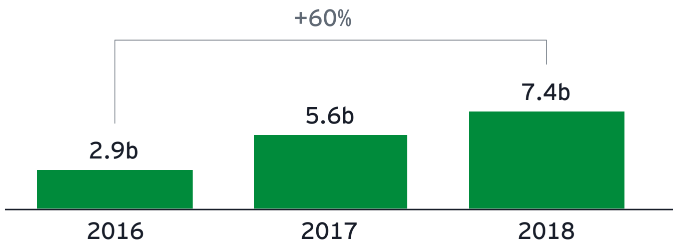
[1] Internet users, UK: 2019, ONS website, https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/internetusers/2019, accessed 10 January 2020.
[2] Internet users, UK: 2019, ONS website, https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/internetusers/2019, accessed 10 January 2020.
[3] Global FinTech Adoption Index 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf, 10 January 2020).

FIGURE 2.9 | **Consumer digital behaviour**

Internet sales as a percentage of total retail sales (ratio) (%)



Number of contactless payments



Source: ONS; UK Finance.

“

More work should be done on the adoption and awareness of tech-enabled initiatives such as open banking; the Government could do more on the awareness aspect.

UK policymaker

SME demand for FinTech

UK SMEs are a large market segment, representing c.99% of private companies and accounting for 60% of total employment.[1] However, it remains a segment that has been traditionally underserved relative to retail consumers and large corporates. In this regard, FinTech has added, and can continue to add, significant value to the sector, using technology to provide solutions that solve specific SME pain points across areas such as lending, payments and operations, helping SMEs to lower costs, reduce the admin burden and achieve growth.

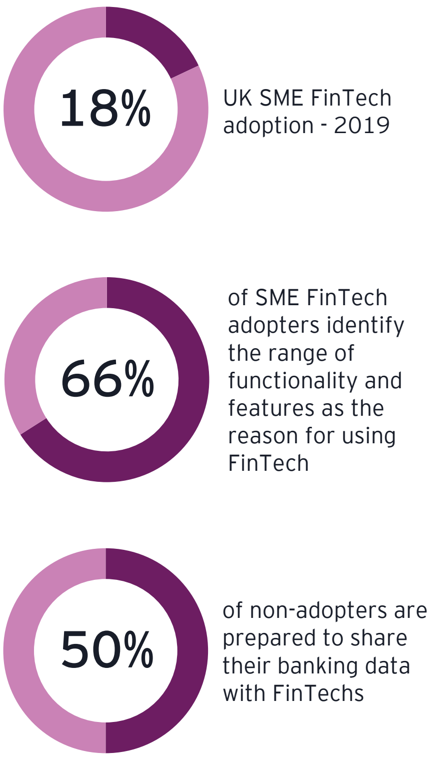
According to the EY Global FinTech Adoption Index 2019,[2] the adoption rate of FinTech by UK SMEs is 18%, which is below the global average of 25%. We expect FinTech adoption by UK SMEs to increase in the future, with considerable scope for both FinTech challengers and FIs to develop innovative solutions that serve this market.

One reason to expect continued rapid growth in SME demand and adoption of FinTech is their readiness to share data. According to the report, UK SMEs are willing to make use of advantages posed by innovative technologies, such as open APIs, in order to access better products and services. UK SMEs that are adopters of FinTech, in particular, are more willing to share data with other financial services companies as well as non-financial services companies compared to SME FinTech adopters globally.

[1] "Business population estimates for the UK and regions 2019: Statistical Release.", UK Government website, https://www.gov.uk/government/statistics/business-population-estimates-2019, accessed 10 January 2020.

[2] Global FinTech Adoption Index 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf, 10 January 2020).

FIGURE 2.10 | **SME FinTech adoption**



Source: EY Global FinTech Adoption Index 2019.

As a further catalyst to SME FinTech innovation, the allocation of the Banking Competition Remedies (BCR) Capability and Innovation Fund is designed to promote competition and spur new product development in financial services for UK SMEs:

- The BCR Capability and Innovation Fund (c.£425m) was allocated through a competitive grants programme held in 2019, of which there were 15 winners.[1] The funding will contribute to diversifying financial services offerings for SMEs, as well as raising awareness of alternative and innovative solutions. The impact of the grant is already evident with Tide (in partnership with ClearBank) growing its customer base by nearly 100%, to 150,000.[2]

FIs as drivers of FinTech

FIs in the UK have become drivers of innovation in financial services:

- Embracing new technologies such as open APIs, cloud and machine learning, many FIs in the UK have developed their own 'FinTech-like' propositions that are competing directly with existing FinTech challengers.
- In this regard, all CMA-9 banks have launched their own FinTech incubators, accelerators or VC arms, thus becoming active players in the FinTech space and acting as a catalyst of innovation in financial services.

FIs have also become key buyers of FinTech solutions

- The past few years have seen the rise of B2B FinTech providers in the UK, providing a new, rich vendor ecosystem for FIs. These B2B FinTechs provide credible, enterprise-grade solutions, with more breadth and capability than traditional vendors, leveraging new technologies such as cloud and open source software.

[1] "Capability and Innovation Fund - Public Commitments", BCR, https://bcr-ltd.com/public-commitments/, https://bcr-ltd.com/public-commitments/, accessed 10 January 2020.
[2] "Tide nears 150,000 customers in battle for SME customers", AltFi website, https://www.altfi.com/article/6242_tide-nears-150000-customers-in-battle-for-sme-customers, accessed 10 January 2020.

FIs are supporting demand through FinTech partnerships

- FinTechs have been partnering with FIs as a ways of activating new distribution channels for their products and services. FIs, on the other hand, have been tapping into FinTech partnerships as a way of enhancing their own capabilities – "82% of FIs expect to increase FinTech partnerships in the next three to five years."[1] (UK FinTech – *State of the nation* report).
- Successful partnerships tend to display a few common characteristics, such as highly complementary product offerings from the FI and the FinTech, alignment of incentives (a relevant joint venture (JV) with mutual benefit) and partnership readiness of both players.

Government demand for FinTech.

Government can facilitate FinTech demand by consuming FinTech products and services, as well as promoting FinTech among its corporate suppliers:

- Government can use FinTech solutions to streamline processes and cut costs within its own operations, including products associated with digital payments, digital identity and authentication, distributed ledger technologies (DLTs) and API integrations. Examples can include facilities for automatic tax calculation and submission through API integrations or document management via distributed ledger platforms.

Opportunities for the UK

Despite strong FinTech adoption in the UK, more can be done to increase consumer and SME awareness with regard to FinTech services:

- While the UK scores high in terms of FinTech adoption among consumers (71%), it nonetheless remains behind other rapidly developing markets such as India and China. There is scope for various ecosystem participants (trade associations, government and industry) to engage in educating consumers on the value that FinTech brings across a number of use cases.
- Given the maturity of the digital economy and consumer FinTech adoption, the UK faces a critical opportunity to consider financial inclusion and the impacts of increasing digitisation on large groups in society (e.g., the elderly and the low-income segment).
- There is an opportunity to increase SME awareness of alternative financial products, particularly in the financing space, through policies that make pricing more transparent and make it easier to compare products across FIs and FinTechs.

FIs and government should be encouraged to partner with and buy from FinTechs:

- Currently, FinTechs have to go through cumbersome vendor assessment processes, which presents them with challenges in selling to FIs and government and in scaling their customer base quickly. There is a potential opportunity to create a standards framework that FIs and the public sector can comply with to make it easier for FinTechs to partner with such clients. As part of any framework, considerations around governance, data security and privacy will be critical.

[1] UK FinTech State of the Nation, HM Treasury & Department for International Trade, 2019 (accessed via https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/801277/UK-fintech-state-of-the-nation.pdf, 10 Januarry 2020).

Regional FinTech clusters in the UK

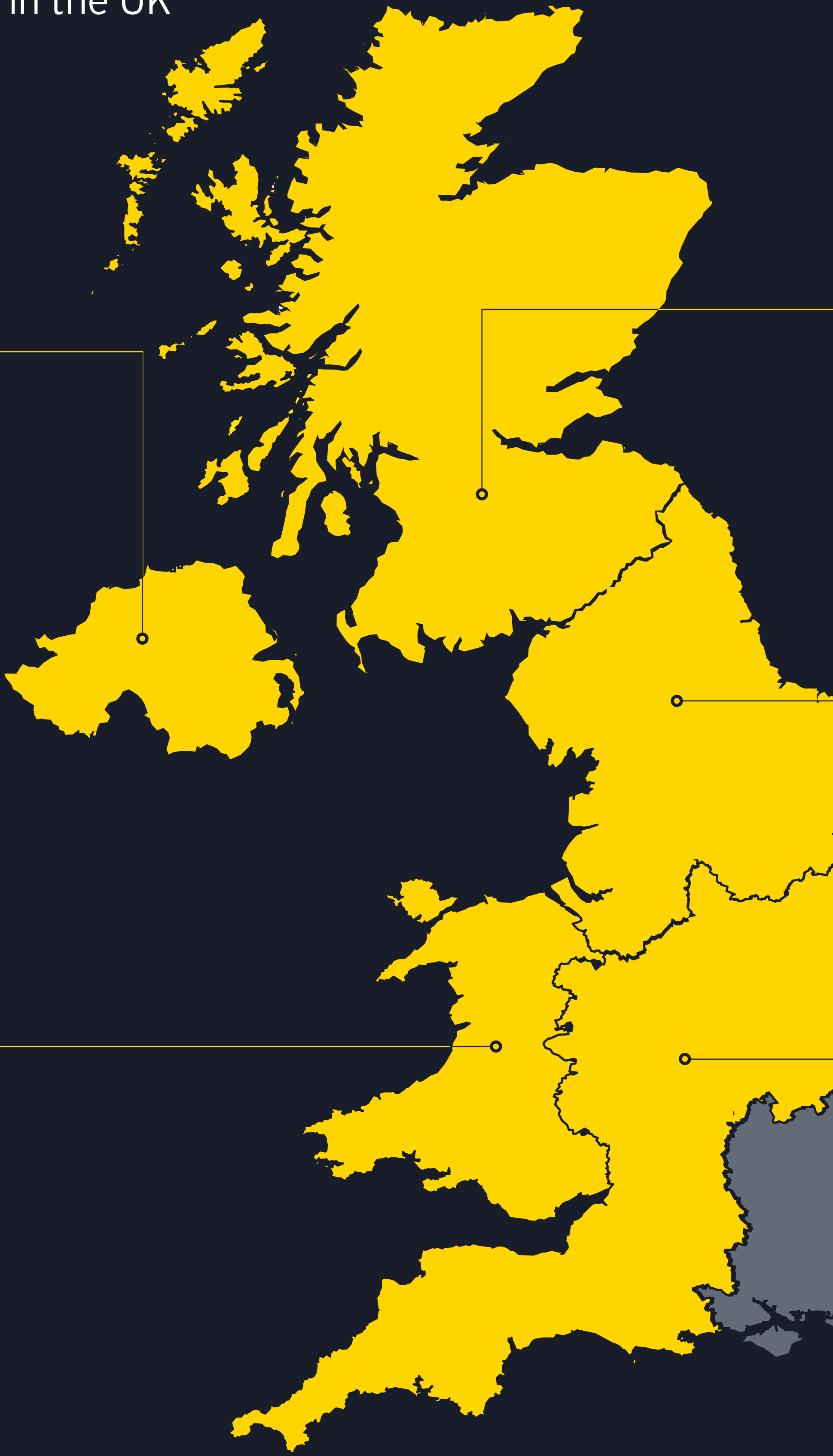
FIGURE 2.11 | **UK regional ecosystem**[1]

Northern Ireland (including Belfast):

Number of FinTechs	Number FS Employees
c.50	c.35,000

Key Characteristics

- Strength in RegTech, risk and cybersecurity – based around the presence of large players such as CitiBank
- Strong talent pool based around university centres of excellence, such as Queen's University's Centre for Secure Information Technologies



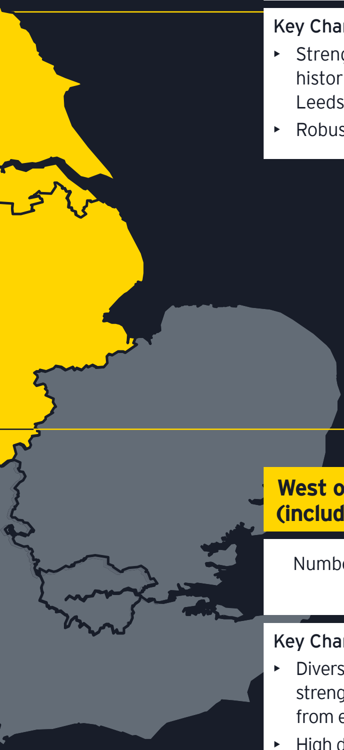
Wales (including Cardiff, Newport and Swansea)

Number of FinTechs	Number FS Employees
c.135	c.61,000

Key Characteristics

- Strength in online and digital insurance and cybersecurity, driven by established players such as Admiral and MoneySuperMarket
- Key location for several London-based FinTechs, e.g., Metro Bank and Monzo

[1] TheCityUK; Expert Interviews; EY analysis



Scotland (including Edinburgh and Glasgow)

Number of FinTechs	Number FS Employees
c.120	c.152,000

Key Characteristics

- Cross-sectoral strength: across asset management, open banking, personal financial management etc., driven by established and diverse financial services centres
- Scotland formally accredited as a FinTech cluster of excellence by European Secretariat for Cluster Analysis; strong engagement across academia, politics and business

North of England (including Manchester, Leeds, Newcastle)

Number of FinTechs	Number FS Employees
c.80	c.445,000

Key Characteristics

- Strength in banking and lending derived from historical specialisms, e.g., Yorkshire, Skipton, Leeds building societies
- Robust 'within UK' FinTech bridge to London

West of England and Midlands (including Bristol, Birmingham, Bath)

Number of FinTechs	Number FS Employees
c.50	c.313,000

Key Characteristics

- Diverse technology and academia cluster, with strength in social purpose businesses – building from established players such as Triodos Bank
- High density of growth stage FinTech, supported by a vibrant cross-sector start-up and scale-up community

Our research on UK and international FinTech clusters suggests the following key principles to develop a nationally connected FinTech sector:

- The development of regional clusters should look to anchor on pre-existing specialisms.
- Connections to universities and academia help build the pipeline of talent and accelerate niche capabilities.
- FIs can embrace the potential of regionalisation by driving talent initiatives and locating significant leadership roles in national centres.
- Rather than operating in silos, regional clusters that are connected and collaborative with others can access and leverage complementary strengths.

These practices can already be evidenced across several key FinTech clusters in the UK.

Northern Ireland:

Pre-existing specialisms – strong focus in RegTech and compliance. There is also considerable depth in cybersecurity, developed around Queen's University's Centre for Secure Information Technologies.

Connected cluster – seeks to exploit its status as an attractive 'near-shore' location (for Dublin, London and Scotland in particular). In 2019, Invest NI launched its London-based hub in the City to foster better financial services collaboration between London and Belfast.

Scotland:

Pre-existing specialisms – SMEs are able to learn from established players from across Scotland's broad-based financial services industry and drive innovation in environments specifically dedicated to technology. Scotland has over 50 technology incubators and accelerators.[1]

Engagement with academia – businesses are often located within universities, treating them as a 'laboratory'. The universities of Edinburgh and Strathclyde host FinTech accelerators.

> Northern Ireland has clear centres of excellence and expertise in RegTech and compliance, and some world-class clusters.

UK investor

> Financial services in Scotland hasn't known how to do R&D before, but it's been able to learn from clusters in other industries since the establishment of a FinTech community.

UK policymaker

[1] "Business incubators and accelerators in Scotland", mygov Scotland website, https://www.mygov.scot/incubators-accelerators/west-of-scotland/, accessed 10 Januay 2020.

Midlands, North and West of England:

Pre-existing specialisms – strengths are based in established niche specialisms. For example, lending in Leeds (Yorkshire, Skipton and Leeds building societies) and social purpose in Bristol (Triodos Bank).

Connectivity to universities and academia – universities have looked at ways they can engage with FinTech, via co-location with start-ups and specialist degrees. In 2019, there were six English universities outside London offering Master's degrees in FinTech.

Wales:

Pre-existing specialisms – strength in online digital insurance and cybersecurity. Growth has been driven by the presence of large, established players such as Admiral and MoneySuperMarket.

Engaged institutions – clusters develop around large FIs that offer alternative funding sources and partnership opportunities to start-ups that otherwise might look towards London for growth opportunities.

"

English universities are really interested in FinTech — they're all looking at ways they can engage; by launching degrees, creating hubs.

UK policymaker

"

Everything going on in Wales related to insurance and cyber is connected to the work that Admiral and other established players do — the Welsh Government is proud of what has been created.

UK policymaker

Global assessment: core markets

Core market: Australia

Ecosystem snapshot: Maturing ecosystem with regulation guided by international learnings

- Broad open data initiative: while still nascent, the Consumer Data Right (CDR) is gaining momentum and expected to catalyse innovation; the open data policy approach has been closely informed by the UK.
- Demand momentum: consumer adoption is broadly in line with the global rate and is likely to be supported by the Government's Royal Commission; incumbents are highly engaged with FinTech.
- Regional hubs: outside Sydney, Melbourne is emerging as an attractive base for global FinTechs.

FIGURE 3.0 | Number of FinTechs

c.600

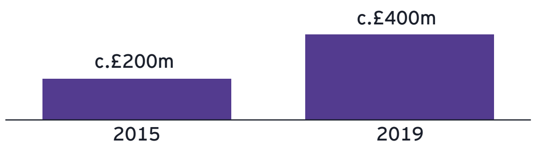
Wealth and investment management is the largest FinTech subsector (c.30% of firms).

Australia is considered a leader in buy now pay later payments services.

Activity is concentrated in two hubs: Sydney (c.50% of firms) and Melbourne (c.27%).

Source: Directory of Australian FinTech Companies; EY FinTech Australia Census 2019.

FIGURE 3.1 | **FinTech investment**

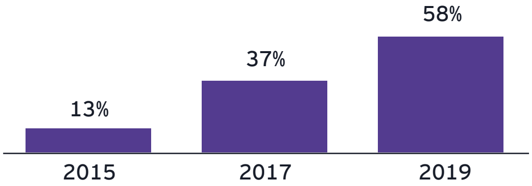


Investment levels have doubled (compared with an approximate seven-fold growth in the UK and nine-fold growth in Singapore).

Institutional funds are active investors in VC, with more than one in four VCs managing funds on behalf of superannuation funds.

Source: CB Insights; Innovation Bay; EY analysis.

FIGURE 3.2 | **FinTech adoption**



Australia has seen an acceleration in adoption, but still lags slightly behind global adoption levels (64%).

Increased awareness of FinTech offerings and the Royal Commission are contributors to the growth in adoption levels.

Source: EY Global FinTech Adoption Index 2019; EY Australia FinTech Census.

FIGURE 3.3 | **Financial services landscape**

c.800,000 Employment in FS	**c.9%** FS contribution to national GDP
c.£9b Banking and securities sector spend on technology	**c.10-15** Key accelerators and incubators

Financial services accounts for c.6% of total employment in Australia.

The broader financial services industry in Australia is dominated by the Big Four banks (which account for more than 80% market share based on mortgage lending).

Amongst major banks, Westpac reports spending c.AU$2b on technology, while the Commonwealth Bank of Australia (CBA) is targeting c.AU$5b in technology spend over the next five years.

Source: World Bank; Reserve Bank of Australia; Australian Industry and Skills Committee; Gartner; EY analysis.

Strengths and success factors

1. Policy and infrastructure

Although key policy and infrastructure initiatives in Australia are still nascent in terms of impact, policy traction in the last two to three years is perceived to have positively supported sector growth.

Key policy and infrastructure initiatives viewed positively include the anticipated 2020 launch of open banking, 2018 launch of the New Payments Platform and recent appointments of dedicated ministerial positions in relation to FinTech:

- Across major initiatives, a proactive ‘watch-learn-act’ regulatory approach to key infrastructure is viewed to have been effective at incorporating global learnings at pace – this approach to policy has been cited as a key strength of Australia.
- While policy traction around key infrastructure initiatives is believed to be a critical building block for growth, stakeholders nonetheless cite that more work is needed with respect to taxation policy as well as access to foreign talent and international markets.

“

Support from government for FinTech has leapfrogged in recent years.

FinTech

FIGURE 3.4 | **FinTech views on infrastructure initiatives**

85% of FinTechs believe that open banking is an effective initiative

40% of FinTechs anticipate becoming an accredited CDR provider

76% of FinTechs believe that better access to the New Payments Platform would help the ecosystem

Source: EY FinTech Australia Census 2019.

1.1 Open banking and CDR legislation

Australia’s CDR legislation (which encapsulates open banking) was passed in July 2019, with the first phase due to go live in July 2020 (initially expected in February 2020).

While broadly taking its lead from the UK‘s policy approach to open banking, Australia has expanded its scope at an early stage. The CDR is a broader data right initially applicable to banking transaction account data, with subsequent phases to cover other types of financial services (e.g., superannuation) as well as energy and telecommunications services.

It is too early to determine the impacts of open banking and the CDR on broader innovation and consumer take-up, although interviewees and surveyed FinTechs nonetheless view this as an effective and important growth initiative which will catalyse future FinTech activity.

“

CDR is a great example of Australia’s approach to policy. We’ve taken the best parts of what we’ve seen overseas and learnt from some of the issues. Australia’s approach to regulation could be described as ‘mirror and upgrade’.

FinTech

1.2 Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry (released in 2019)

While consumer FinTech adoption has increased significantly (from c.37% in 2017 to c.58% by 2019), consumer adoption nonetheless stands currently lower than the global average[1].

Many interviews suggest that the recent Royal Commission has had a net positive impact on FinTech and its role in enhancing customer outcomes, which should support consumer demand going forward. This aligns with the EY Australia FinTech Census, which shows that 49% of surveyed FinTechs expect greater usage of FinTech solutions by consumers following the Royal Commission.[2]

1.3 Other key policy initiatives and milestones

Political appointments: in May 2019, Australia announced the appointment of an Assistant Minister for Superannuation, Financial Services and Financial Technology, which was followed by the establishment of a Senate Select Committee on Financial Technology and Regulatory Technology in September 2019. Both initiatives have been well received by the FinTech community. Dedicated ministerial and senate-level representation demonstrates proactivity from the Federal Government and a commitment to sector growth, and increases the visibility of FinTech in Australia.

“

While a number of initiatives are still in the formation process, open banking is likely to have the biggest impact on the Australian FinTech market.

Investor

“

Australia’s approach to consumer data rights has the potential to be a global best practice. That and the introduction of faster payments (NPP) are huge shifts in infrastructure policy.

Trade association

[1] Global FinTech Adoption Index 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf, 10 January 2020).
[2] EY FinTech Australia Census 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/EY%20FinTech%20Australia%20Census%202019.pdf, 10 January 2020).

> [The Royal Commission] was a wake-up call for the Australian consumer. It really made them realise they weren't being treated fairly.

Investor

> We saw consumers moving away from the big four banks to other alternatives post the Royal Commission.

FinTech

> The publicity surrounding the Royal Commission really galvanised more of the public to explore other products and solutions outside of the large players, benefitting FinTechs.

FinTech

> It's all quite new, so it's not entirely clear how this will work in practice or what impact this role will have, but having someone at the table is definitely positive for the industry.

FinTech

Regulator engagement: the implementation of a regulatory sandbox and innovation hub (broadly in line with the UK model) by the Australian Securities and Investments Commission's (ASIC) has had mixed reactions amongst interviewees. While the sandbox appears to have had limited traction to date, ASIC's innovation hub is viewed as having been more effective in engaging with FinTechs and providing informal guidance.

> The innovation hub is the most effective way to help the FinTech industry. It improves engagement, which is critical to helping increase the level of innovation.

FinTech

> The ASIC innovation hub does a really good job, especially given the level of resourcing.

FinTech

FIGURE 3.5 | **ASIC regulatory engagement outcomes**

95%

of 514 FinTechs that interacted with ASIC's innovation hub received informal assistance.

22%

How much faster FinTechs that engage with ASIC's innovation hub, prior to submitting an application for a licence, receive approval.

Source: ASIC submission to Senate Committee on Financial and Regulatory Technology.

2. Demand

Interviewees noted the key role played by incumbents in Australia in driving key infrastructure initiatives and policy, and pushing the innovation frontier (noting the high market share of the four largest banks in Australia):

- Examples cited as evidence of incumbents' innovation agenda include the CBA's innovation lab and incubator, X15, which has pledged to launch 25 new start-ups in the next five years[1], and Westpac's VC fund.

While banks have been relatively forthright in accelerating innovation and collaboration with FinTechs, there is still a desire by Australian FinTechs to focus on the 'real issue' of the lack of competition in the banking system and the significant role played by large banks in shaping the FinTech and innovation ecosystem.

> Incumbents' digital solutions are world class, and they [the big four banks] are actually quite collaborative. In my experience, what lets them down is the lack of execution and follow-through, with changing resources and priorities meaning projects can be shelved overnight.

FinTech

[1] "CBA Launches Venture Building Entitiy X15.", Commonwealth Bank website, https://www.commbank.com.au/guidance/newsroom/cba-launches-x15-202002.html, accessed 10 January 2020.

> Successful partnerships between FinTechs and incumbents take time. When Ferocia started building up, we knew we could trust our banking partner to support our technology-led approach, because we'd spent many years building that trust working together on other projects. This allows us to move much more quickly now.

FinTech, 'EY FinTech Australia Census 2019'

> The big four take different approaches, but all are aggressively pursuing innovation.

Investor

3. National connectivity

While Sydney remains the largest hub for FinTech, financial services innovation is increasingly geographically diverse. Compared with 2016, when only Sydney had a dedicated FinTech hub (as opposed to broad technology start-ups), now all east coast capital cities have well-established FinTech ecosystems.

In particular, Melbourne is now a flourishing hub for financial services innovation, leveraging its established incumbent presence (two of Australia's largest four banks are headquartered in Melbourne and more than half of Australia's top 20 technology companies[1]) as well as the proactive approach of the Government of Victoria in supporting FinTechs to set up in Victoria (noted by interviewees in the UK and in Australia):

- Survey data from EY FinTech Australia Census 2019[1] suggests that Melbourne now accounts for c.27% of Australian FinTech activity and a larger share of broader innovation in financial services. The share of activity from Melbourne has increased from c.19% in 2017.
- Global FinTechs such as Revolut and TransferWise have all recently opened offices in Melbourne, helping to create a payments specialisation in the city.

> Melbourne is quite aggressively pursuing FinTechs. They have an incumbent presence and a good talent pool, so I can see why the large FinTechs have chosen Melbourne.

FinTech

[1] EY FinTech Australia Census 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/EY%20FinTech%20Australia%20Census%202019.pdf, 10 January 2020).

“

Sydney is still dominant for FinTech, but Melbourne is becoming a compelling proposition.

FinTech

“

The R&D tax incentive essentially acts as a source of funding for a lot of FinTechs.

Investor

Challenges and barriers

1. Policy and infrastructure

While Australia is noted for its proactive and maturing approach to policy (particularly the willingness of Australian regulators to learn from other markets), Australia faces increasing pressure to keep up with the policy momentum of other markets:

- The EY FinTech Australia Census 2019[1] shows that c.63% of surveyed FinTechs believe that federal government policy is less supportive than overseas jurisdictions, compared with 45% in 2018.

Specific areas where interviewees expressed a desire for policy to be more effective include taxation (particularly related to R&D tax incentives), the regulatory sandbox and access to international markets.

1.1 R&D tax initiatives

Interviewees consistently cited the R&D tax incentive as having the most potential to be an effective policy to encourage growth in the FinTech sector and an area where government needs to ‘do more’:

- This is consistent with the EY FinTech Australia Census 2019 data, which, for the last four years, has identified making the R&D tax incentive more accessible as the most effective way to grow the FinTech sector – c.76% of surveyed FinTechs stated that the R&D tax incentive helps keep jobs in Australia.[1]
- Despite its importance to FinTech growth, there was a consensus amongst interviewees that Australia has struggled to provide clarity, stability and easy access to R&D tax incentives, with ongoing uncertainty in terms of both the level of the R&D tax incentive and qualifying criteria.

[1] EY FinTech Australia Census 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/EY%20FinTech%20Australia%20Census%202019.pdf, 10 January 2020).

“

The application of the R&D tax incentive to software development is unclear. Really, this needs to be broadened to encourage more innovation, as software development is where a lot of investment is made by FinTechs.

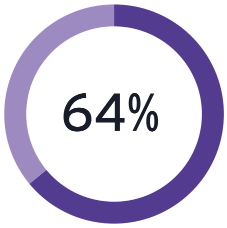
FinTech

“

The R&D tax incentive doesn’t recognise where existing technology is expanded or applied in a different setting or use, which can have significant benefits for innovation or customer outcomes.

FinTech

FIGURE 3.6 | **FinTech views tax policy**



of FinTechs have successfully applied for, or are in the process of applying for, the R&D tax incentive

3 out of 4

of the top policies FinTechs believe would encourage growth in the sector relate to taxation.

Source: EY FinTech Australia Census 2019.

1.2 Regulatory sandbox

While interviewees agreed that innovation hubs work well, the regulatory sandbox in Australia has had limited uptake and effectiveness to date, with only seven entities having used the ASIC sandbox. The main theme emerging from interviews was its scope is too narrow and the time permitted in it (12 months) is not long enough to enable FinTechs to reach sufficient scale to transition to full licensing regimes.

Challenges and deficiencies with the regulatory sandbox have been recognised by policymakers, and legislation has recently been passed which expands the services which the sandbox can be used for and provides a longer testing period of two years.

> The sandbox hasn't really lived up to its potential yet.

FinTech

> The sandbox has worked more as a signal that Australia, and the regulator, is open to innovative solutions, rather than actually helping deliver many of these solutions.

FinTech

> The limits on the type of transactions and the length of time in the sandbox have limited its uptake.

FinTech

> Sandboxes are a great idea in theory, but they haven't been used much at all in Australia.

FinTech

1.3 Access to international markets

Australian FinTechs note that they could benefit from more support to expand overseas, given the size of the Australian market. Interviewees noted that more could be done to enhance the effectiveness of initiatives focused on overseas market entry:

- While interviewees acknowledged that the UK-Australia FinTech bridge (launched in 2019) aims to reduce barriers to trade for both countries, and has been quite effective for UK FinTechs, they also noted that Australia could do more to ensure it maximises the tangible benefit of international bridges for Australian FinTechs.
- In line with this, EY FinTech Australia Census 2019[1] data shows that c.40% of FinTechs surveyed find the creation of government launchpads in other markets, or government assistance to access existing launchpads, to be 'not very' or 'not at all' effective.[1]

> We [Australia] haven't committed enough resources to maximising the opportunities the bridge offers.

FinTech

[1] EY FinTech Australia Census 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/EY%20FinTech%20Australia%20Census%202019.pdf, 10 January 2020).

> FinTechs seem to be less convinced on the effectiveness of launchpads, which is likely due to a lack of alignment with emerging markets of interest.

EY FinTech Australia Census 2019

> More could be done to improve Australian FinTechs' opportunities in international markets. Sometimes, you don't need a bridge: for example, regulator referrals can be quite effective.

FinTech

2. Demand

In overall terms, the Royal Commission was cited as a tailwind to the FinTech sector, particularly supporting demand for FinTech (and, more broadly, alternative solutions). Partly offsetting this, however, some interviewees (and survey respondents in the EY FinTech Australia Census 2019) recognise that the regulatory burden associated with the Royal Commission may have had a short-term negative impact on incumbent willingness to collaborate with FinTech, given time and budget constraints and a higher level of risk aversion.

> The big four banks are so caught up in the repercussions of the Royal Commission they just don't have the resources, either time or money, to think about innovation right now.

FinTech

> The incumbents are definitely a lot more risk averse after this. Anyone that doesn't have the highest levels of compliance or risk management, they won't go anywhere near.

FinTech

3. Talent

Local FinTech skills shortages in Australia appear to be alleviating somewhat – the EY FinTech Australia Census[1] showed that c.43% of surveyed FinTechs believe there was a lack of experienced start-up and FinTech talent within Australia, compared with 50% in 2018 and 58% in 2016.

However, local skills shortages persist and, in light of this, difficulties accessing overseas talent have a much more pronounced impact on FinTech growth. Roughly 40% of FinTechs in the EY FinTech Census identified attracting suitable or qualified talent as a challenge, while c.64% believe easier access to skilled migration visas would help grow the FinTech sector.

We note that the Australian Government has recently announced a Global Talent programme offering high-skilled workers in future-focused areas, including FinTech, visas to work and live permanently in Australia. The effectiveness of the policy is unknown given its nascency, but the intent is positive and reflects the feedback cited widely in our interviews.

“

Historically, the best talent was returning Australians from overseas. More and more we're seeing talent being locally sourced.

FinTech

“

A more supportive visa system would be very helpful in developing a more robust FinTech ecosystem.

FinTech

Lessons for other markets

- A broad approach to CDR policy and its application to sectors outside financial services (e.g., energy and telecommunications) is viewed positively as a catalyst for greater innovation across a number of consumer services.
- A Government-led enquiry into misconduct in financial services has helped to 'shake up' the sector, increasing consumer awareness of non-bank Alternatives. There is a desire for government to play a greater role in promoting consumer awareness to enhance competition.
- Representation at the ministerial level of government has increased visibility of the FinTech sector and opened a direct channel between the FinTech sector and key federal policymakers.
- Hubs outside Sydney (such as Melbourne) have been supported by state government initiatives to promote the region's benefits, particularly to overseas FinTechs, helping to create specialisation in key verticals (e.g., in payments).

[1] EY FinTech Australia Census 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/EY%20FinTech%20Australia%20Census%202019.pdf, 10 January 2020).

Core market: India

Ecosystem snapshot: Fast-growing innovation ecosystem, supported by transformative infrastructure initiatives

- Key infrastructure planks: a digital identity programme (Aadhaar) and payments infrastructure have accelerated FinTech activity and boosted digital payments and banking.
- National digital agenda: India's digital strategy is broad (not FinTech-centric), however, many of its benefits have trickled down to the FinTech ecosystem and FS innovation.
- Access to talent: a strong pool of technical talent has been key to attracting global FinTechs.

FIGURE 3.7 | Number of FinTechs

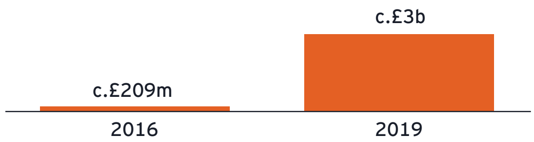
c.2,000

FinTech activity is concentrated in payments (c.18%), lending (c.17%), WealthTech (c.15%) and personal finance management (c.8%).

c.42% of start-ups are headquartered in Mumbai and Bangalore.

Source: MEDICI India FinTech 2019; EY analysis.

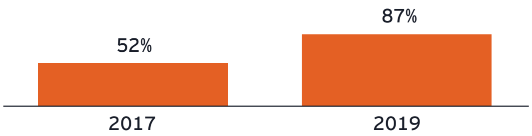
FIGURE 3.8 | **FinTech investment**



FinTech investment in India has grown significantly, with Paytm's £1.3b fundraise accounting for the largest deal of 2019; increased foreign investment in Indian start-ups has been a driving factor.

Source: Innovate Finance; CB Insights; EY analysis.

FIGURE 3.9 | **FinTech adoption**



FinTech adoption in India is significantly higher than the global average (c.64%), with adoption particularly high for money transfers and payments.

99.5% of consumers are aware of FinTech services to transfer money and make payments.

Source: EY Global FinTech Adoption Index.

FIGURE 3.10 | **Financial services landscape**

c.95,000

Banks in India (mostly urban and rural cooperative)

c.6%

FS contribution to national GDP

c.$8b

Banking and securities sector spend on technology

c.13

Key accelerators and labs of established FIs

India's FinTech ecosystem is underpinned by broader financial services innovation: notably, India's strong payments infrastructure.

India's banking sector is large, consisting of public sector (27), private sector (21), foreign (49), regional rural (56) and urban/rural cooperative banks (c.>95k).

Amongst India's largest banks, the State Bank of India (SBI) is currently running three major technology programmes with c.500 projects underway and ICICI Bank reports having a dedicated INR1b[1] (c.£11m) fund for FinTech partnerships.

Source: Gartner; Invest India; Swiss Business Hub India; EY analysis.

Strengths and success factors

1. Policy and infrastructure

Financial services innovation and FinTech activity in India have been spurred by the Indian Government's focus on driving a few key 'leapfrog' digital infrastructure initiatives. The two most commonly cited by interviewees as having accelerated innovation and digitisation are Aadhaar and UPI.

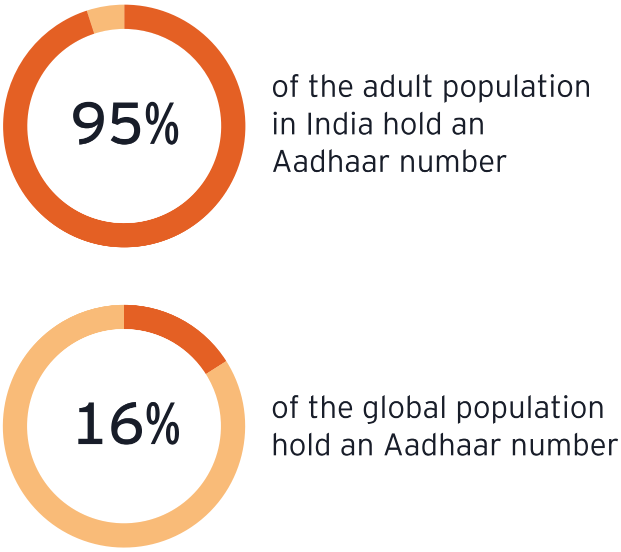
While neither Aadhaar nor UPI are FinTech-specific, both initiatives are considered to have been transformative in the context of innovation in a market as large and diverse as India. FinTechs are reported to be beneficiaries of the overarching broader digital strategy that these initiatives belong to, which aims to develop national infrastructure and support consumer demand.

Aadhaar has provided FIs (including FinTechs) with a more seamless and widely accessible means of onboarding large segments of the population that are otherwise unbanked. Compared with traditional Know Your Client (KYC) processes (typically paper and branch-based), Aadhaar facilitates cheaper, quicker and more standardised e-KYC.

As recently confirmed by the Supreme Court of India, it is not mandatory for Aadhaar to be linked to bank accounts nor used as a compulsory form of ID for KYC processes. Nonetheless, a large share of bank accounts are now linked with Aadhaar (c.80%[2] according to some estimates). The SBI reports that it now opens c.27,000[3] digital accounts per day using its YONO platform (the SBI's digital banking platform offered as a smartphone app).

[1] "ICICI Bank unveils innovation labs.", FinTech Futures website, https://www.fintechfutures.com/2018/05/icici-bank-unveils-innovation-labs/, accessed 10 January 2020.
[2] "Nearly 87 crore bank accounts seeded with Aadhaar.", The Economics Times website, https://economictimes.indiatimes.com/industry/banking/finance/banking/nearly-87-crore-bank-accounts-seeded-with-aadhaar/articleshow/63156791.cms?from=mdr, accessed 10 January 2020.
[3] "Aadhaar very convenient for opening bank accounts: SBI chief Rajnish Kumar.", The Economic Times website, https://economictimes.indiatimes.com/industry/banking/finance/banking/aadhaar-very-convenient-for-opening-bank-accounts-sbi-chief-rajnish-kumar/articleshow/65967635.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst, accessed 10 January 2020.

FIGURE 3.11 | **Aadhaar adoption**



Source: Independent Commission for the Reform of International Corporate Taxation; Pathways for Prosperity Commission, Lesson from Aadhaar: Analog aspects of digital governance shouldn't be overlooked.

1.1 Aadhaar

Introduced in 2016, Aadhaar is a 12-digit identification number issued free of charge by the Unique Identification Authority of India (UIDAI) to residents of India, based on an individual's biometric and demographic data. It is the world's largest biometric ID programme.

While Aadhaar is not a mandatory form of ID, links to a vast array of consumer services (e.g., social security benefits) have significantly accelerated take-up: the total number of registrations on the platform grew to c.1.19b[1] in 2019.

In confirming that the use of Aadhaar to open bank accounts remains voluntary, the Supreme Court has also recently clarified procedures for e-KYC in cases of verification performed through other ID documents. This recent clarification is expected to further support large-scale adoption of e-KYC and continued digitisation of financial services.

While participants stated that Aadhaar had noticeably accelerated FinTech and digitisation, many also cited concerns from the perspective of centralised government data ownership and consumer privacy.

"

> Direct impacts include the take-up of money remittance and e-commerce solutions, including rural areas which are otherwise more difficult and costly segments to onboard. There has also been rapid growth in e-KYC and ID-V FinTechs in India directly as a result.

FinTech

1.2 UPI

UPI is also cited as an important accelerator of digital payments in India. Developed by the National Payments Corporation of India (NPCI) in 2016, UPI is a real-time payments infrastructure, facilitating inter-bank transactions using a mobile application.

UPI has had significant traction in a short period of time, with more than 143[2] banks live on the platform. Since its inception, the total number of transactions has increased from 428m in 2017 to 10.8b[3] in 2019. In January 2019, the aggregate value of transactions through UPI surpassed that of credit and debit card transactions combined (INR1.09trn vs. INR1.05trn[4]).

[1] "Data protection is social protection.", Independent Commission for the Reform of International Corporate Taxation website, https://www.icrict.com/icrict-in-thenews/2019/4/28/data-protection-is-social-protection, accessed 10 January 2020

[2] "UPI-Product statistics.", National Payments Corporation of India website, https://www.npci.org.in/product-statistics/upi-product-statistics, accessed 10 January 2020.

[3] "UPI crossed 10 billion transactions at the end of 2019.", Medianama website, https://www.medianama.com/2020/01/223-upi-crossed-10-billion-transactions-at-the-end-of-2019/, accessed 10 January 2020..

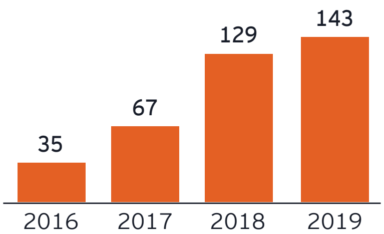
[4] "UPI transactions value surpoassed cards.", The Paypers website, https://thepaypers.com/online-payments/upi-transactions-value-surpasses-cards/778823-3#, accessed 10 January 2020.

> UPI has driven significant changes; the US and UK are looking at India to learn how to implement real-time payment systems … High-profile firms have publicly canvassed the Federal Reserve, commending the design and plan of UPI.

FinTech

FIGURE 3.12 | **UPI key performance indicators**

Number of banks on UPI platform



of digital transactions in India are conducted using UPI[1]

of UPI transactions in India are initiated by FinTechs and challengers (vs. traditional banks)[1]

Source: NPCI; Razorpay; EY analysis.

1.3 Digital India

Introduced by the Government of India in 2015, Digital India is a nationwide campaign to promote financial and social inclusion through the development of secure and stable digital infrastructure (initiatives such as Aadhaar and UPI were formed under the umbrella Digital India programme).

Beyond Aadhaar and UPI, initiatives within Digital India that are cited as having supported FinTech include:

- The BharatNet programme, which has increased internet and mobile connectivity for citizens nationwide; as a result, the number of people with internet coverage grew from 251m in 2014 to 512m[2] in 2018 and, in addition, the number of mobile internet subscriptions in the country increased from 233m in 2014 to 491m[1] in 2018.
- BHIM cashback scheme which is designed to encourage the use of the BHIM app (the payment app for UPI mobile payments developed by the NPCI) by providing new users and merchants with cashback incentives.
- Schemes that provide relaxed licensing rules for start-up firms, including bank financing, tax exemptions and simplifying the process of registering a start-up business.

[1] Based on transactions held on the Razor platform in October 2019.
[2] "Year End Review 2018: Ministry of Telecommunications.", Government of India Press Information Bureau website, https://pib.gov.in/PressReleasePage.aspx?PRID=1559221, accessed 10 January 2020.

“

The Government launched 2-3 schemes under ‘Digital India’ that allowed foreign companies to come to India and set-up shop; they relaxed rules for start-ups with regards to regulatory licenses, allowing them to build businesses very easily. So, if you were a start-up in the digital space, you don’t need all the full-suite of licenses to start.

FinTech

2. Talent

FinTechs interviewed cited the strength of India’s talent as a key success factor for the region, both in terms of nurturing a local ecosystem and attracting foreign FinTechs to set up their global operations in India.

In particular, India is recognised for its strong technical talent (including IT, coding, engineering and finance), generated from well-regarded Indian universities and business schools. Areas such as Bangalore, Hyderabad and Mumbai were noted as having strong talent pools:

- Uber recently announced it was setting up a 100-member FinTech team in Hyderabad[1] to take advantage of the local talent who have expertise in front-end, full-stack, mobile development, machine learning and data engineering.

While retaining talent (particularly tech talent) in markets such as the US, the UK and Australia can be a challenge, the increasing amount of capital flowing into FinTech in India and the growing start-up culture have helped incentivise local talent to remain in the region.

Talent is increasingly anchoring on disruption ‘hot-spots’ or emerging specialisations including AI, Machine Learning and Blockchain:

- In 2018, NITI Aayog, a policy think tank of the Government of India, proposed a strategy for AI in India, termed ‘#AIforAll’. As part of this strategy, it was recommended that education in India increases its focus on AI, proposing increased collaboration between higher education institutes and industry players. Since then, in 2019, Microsoft announced the launch of AI digital labs with 10 higher education institutes in India which would include training programmes on cloud computing, data science, AI and the internet of things (IoT).[2]

In addition to educational reform, India has outlined its intention to collaborate with international partners and its own private sector to pursue AI research, highlighting the US, the UK and Japan (amongst others) as potential partners.

[1] "Uber Money to set up a 100 member team in Hyderabad", The Economic Times website, https://tech.economictimes.indiatimes.com/news/internet/uber-money-to-set-up-a-100-member-team-in-hyderabad/74080029?redirect=, accessed 10 January 2020.

[2] "Microsoft Launches AI digital labs in India, to train 1.5 lakh students.", Livemint website, https://www.livemint.com/companies/news/microsoft-launches-ai-digital-labs-in-india-to-train-1-5-lakh-students-1560438578483.html, accessed 10 January 2020.

> A lot of people return to India to start their own companies or work for a start-up. We have good engineering schools and business schools producing the second-largest number of STEM graduates in the world … there's a large pipeline of talent.

Trade association

> In the last 5 years, all our best talent used to go to the US and work for big IT/technology companies. Now, it feels like about most want to stay here … they see the opportunity to make money in India, which is the result of capital and demand coming together.

FinTech

> I have been incredibly impressed with the quality of talent for a fraction of the price in India. Well educated, particularly in areas such as IT and engineering, as well as English speaking. This will be a key strength over other Asian markets when global FinTechs look to expand.

FinTech

3. Capital

Despite India's nascent FinTech landscape relative to well-established markets such as the US and the UK, interviewed FinTechs stated that access to capital is healthy, driven largely by a surge in foreign investment into Indian start-ups:

- FinTechs in India received c.£3b[1] in capital over the course of 2019, of which Paytm accounted for c.£1.3b[2] (c.43%), with investors including Ant Financial Services and SoftBank.
- Early stage financing, an area where FinTech start-ups in India have traditionally struggled, accounted for c.57%[2] of the top 30 funding deals in 2019 (vs. c.7% for the US and c.37% for the UK).
- There are now four Indian FinTechs on the unicorn list (valued at >US$1b), including One97 Communications (parent company of Paytm), BillDesk, Pine Labs and PolicyBazaar.

[1] 2019 FinTech Investment Landscape, Innovate Finance, 2019 (accessed via https://www.innovatefinance.com/uncategorised/2019-investment-landscape/, 29 January 2020).
[2] CB Insights database; EY analysis.

“

There’s been an emergence of start-up funding and development of an angel network; this is a big development, considering there was limited angel investing a few years ago.

Trade association

“

In the last 3-4 years, raising US$2m was very difficult. Today, raising US$2m is very easy. Access to capital has become easier with recent influx of foreign investment.

FinTech

“

India is seeing an influx of capital from the likes of China … it is easier for start-ups to access capital for good ideas.

Investor

Challenges and barriers

1. Policy and infrastructure

While Aadhaar’s introduction sought to promote financial inclusion for India’s significantly large unbanked population, several aspects of the programme have proved controversial. Recent court judgements and policy amendments have been required to retrospectively deliver a more measured and consumer-centric approach to a biometric programme.

Key criticisms of Aadhaar cited in interviews include its centralised approach, which places government front and centre with respect to data control and security; infringement of consumer privacy; mandatory use of Aadhaar for social services to the exclusion of non-participants; and the creation of a ‘personal data’ economy which can be monetised and the operational challenges associated with implementation.

As a result, Indian courts have heard a number of challenges to Aadhaar. In July 2019, the Indian Parliament clarified that the use of Aadhaar for KYC purposes should be voluntary (keeping open the need for face-to-face verification). It was only in January 2020 that the Reserve Bank of India declared the permitted use of video-based KYC, utilising geo-tagging to ensure the customer is physically present in India. While restrictions on Aadhaar have caused confusion and potentially hindered FinTech activity, it also demonstrates some of the legal and constitutional challenges that biometric schemes can pose with respect to privacy and consumer rights.

“

Regulation was not as consultative or considered from the beginning as it needed to be; this is improving, but there’s still a way to go.

FinTech

2. Talent

While the availability and depth of technical talent in India is quoted as a key strength by interviewees, several noted a lack of entrepreneurial talent as a barrier to FinTech innovation. This is expected to change in the near term; however, it is noted that building a strong entrepreneurial culture and mindset would take time:

- In line with this, India ranks 78th on the Global Entrepreneurship Index 2019 (a drop of 10 places from its 2018 ranking)[1] and behind all other markets covered in this report.

"

In India, we have strong technical talent such as engineers; however, many firms struggle to explain their vision, which has made raising capital more difficult.

Investor

Lessons for other markets

- Aadhaar illustrates how a national government-led approach to digital identity can accelerate digitisation and financial inclusion, with direct benefits for the FinTech sector. Nonetheless, the Indian experience also shows the need for a holistic approach which considers key questions around the role of government, the level of data centralisation, and the impacts on consumer privacy and financial inclusion.
- India has made significant headway with respect to payments infrastructure through UPI, which indicates the potential for widespread adoption of real-time account-to-account Customer to Business (C2B) payments (currently account-to-account payments in the UK considerably lags card-based payments).
- India demonstrates the transformative impact of a broad and national digital and innovation agenda (vs. a FinTech-specific approach to policy initiatives); any national digital agenda should be consumer-centric, based on driving consumer awareness and financial inclusion.
- Access to a strong pool of technical talent (e.g., IT and engineering skills) can be a key differentiator, particularly for attracting global FinTechs to a region. However, this technical expertise should be complemented by entrepreneurial talent to create a world-leading innovation hub.

[1] Global Entrepeneurship Index, The Global Entrepeneurship and Development Institute, 2019 (accessed via https://thegedi.org/wp-content/uploads/2020/01/GEI_2019_Final-1.pdf, 10 January 2020).

Core market: Singapore

Ecosystem snapshot: Proactive and multifaceted approach by policymakers to position hub as a regional leader

- Central market-making role played by MAS: a proactive regulator working with industry and other markets in the region to spearhead an array of infrastructure and policy initiatives.
- Access to regional demand: a leading hub in the ASEAN region able to tap into neighbouring market demand, although these markets vary in terms of infrastructure and regulation.
- Increasing investment: increased VC presence and overseas investment from China and the US.

FIGURE 3.13 | Number of FinTechs

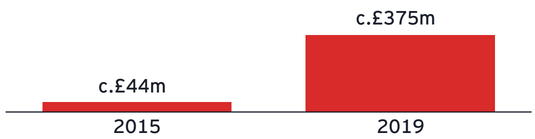
c.600

Main sector concentrations are payments, wealth management and alternative lending.

More than three-quarters of FinTechs have plans to expand beyond Singapore.

Source: Monetary Authority of Singapore; EY ASEAN FinTech Census.

FIGURE 3.14 | **FinTech investment**

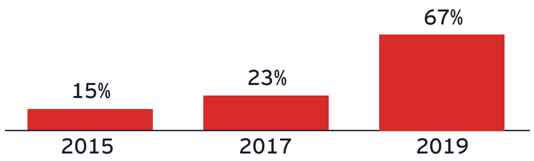


Investment levels increased almost nine-fold, as supportive government settings attracted a greater number of VC investors.

More than 70% of investment volume relates to early stage investment (pre-Series B); the largest transaction in 2019 was an investment of c.US$90m.

Source: CB Insights; EY analysis.

FIGURE 3.15 | **FinTech adoption**



Strong finTech adoption growth reflects increased availability of FinTech products and services of incumbents.

Adoption, while ahead of the global average of 64%, lags market leaders in Asia such as China and India (both at 87% adoption).

Source: EY Global FinTech Adoption Index 2019.

FIGURE 3.16 | **Financial services landscape**

c.200,000

Employment in FS

c.13%

FS contribution to national GDP

c.£1.3b

Banking and securities sector spend on technology

c.10-20

Key FinTech accelerators and incubators

Singapore is an international financial centre with more than 1,200 FIs, including global (e.g., HSBC) and local banks (e.g., DBS, OCBC and UOB).

Singapore banks are outspending their regional peers, with the three largest lenders spending three times more than the four largest Thai banks.

Incumbents appear open to working with the regulator on key infrastructure initiatives.

There are c.40 innovation labs in Singapore.

Source: Department of Statistics Singapore; Ministry of Manpower 'Singapore'; Bloomberg; MAS; EY analysis.

Strengths and success factors

1. Policy and infrastructure

The Singapore Government and regulator (MAS) stand out in our discussions across markets for their assertive approach and long-term view taken to position Singapore as the leading FinTech ecosystem in Asia-Pacific.

As part of its long-term Smart Nation vision for Singapore, MAS and various government entities have spearheaded an array of policies and initiatives to build momentum in Singapore's FinTech ecosystem. This has spanned development of key infrastructure platforms (e.g., around Payments, DLT and APIs), innovation grants, a regulatory sandbox programme, industry events and regional collaborations.

“

There is not one particular initiative that has driven the FinTech market forward in Singapore, it's more the holistic willingness to put out multiple initiatives to achieve their aims.

FinTech

“

Given the range of things in place, there is no doubt where Singapore wants to be in five years' time. It wants to be the leader in FinTech.

FinTech

“

There are multiple policies and initiatives which have driven the ecosystem forward. It's their ability to back that vision with comprehensive actions that has made the difference.

FinTech

“

From a policy perspective, Singapore takes a very long-term view of the sectors it want to build. It has moved with heft to make itself a regional leader in FinTech.

Investor

“

Singapore has a clear mandated focus that is backed up so holistically - it comes across consistent and clear - and it has a tunnel-vision when it comes to this goal.

FinTech

Across initiatives, interviewees praised MAS's open and collaborative approach to innovation, working closely with industry to develop new business models and infrastructure platforms.

While consistently noted as a strength, it was also suggested that the active approach MAS takes in developing infrastructure could crowd out private sector players and potentially discourage FinTech participation in certain sectors.

The initiatives that were most commonly cited as having the greatest impact for FinTechs include MAS's National Digital Identity framework, API Exchange (APIX) and the Singapore FinTech Festival.

“

[on MAS's approach to innovation] For example, when new business models emerge, MAS will engage with industry before deciding on the regulatory approach it will take. This very much speaks to MAS' open approach to regulation and innovation.

FinTech

“

Singapore is a pretty small country, with not a lot of depth and complexity in market infrastructure, which has allowed it to be very innovative in its approach to regulation.

Global professional services firm

“

Singapore has avoided mandating ‘one-sided’ laws on incumbents; rather working collaboratively with industry to together build infrastructure and foster innovation.

FinTech

“

The environment is very much you can try anything, and work with the regulator, as long as it’s with good intentions.

FinTech

1.1 National digital identity framework

National digital identity has been identified as a Strategic National Project in Singapore within the Smart Nation vision. Progress to date has centred on MyInfo: with consumer consent, this allows third parties to access personal information held across government agencies, enabling businesses to make faster onboarding decisions utilising government-verified data:

- More than 20 FIs are using Myinfo to provide access to a range of nearly 500 digital services.
- MyInfo has been utilised to support financial services innovation in that major banks and over 15 FinTech startups are able to use Singapore Government KYC and onboarding infrastructure in enabling financial inclusion and cost efficiencies across the provider ecosystem.

“

MyInfo has to be one of the most impactful policies. It allows bank accounts to be opened instantly.

FinTech

“

MyInfo is a great example of a government-led policy which has resulted in better service for customers in financial services.

FinTech

1.2 Open API Platform

MAS, in conjunction with the International Finance Corporation (IFC) and the ASEAN Bankers Association, established the ASEAN Financial Innovation Network (AFIN) which in 2018 launched an Open API platform called API Exchange (APIX).

APIx promotes collaboration and the pace of innovation by connecting FinTechs and FIs, allowing FinTechs to develop and test prototypes, and FIs to seek and test new innovative products and solutions:

- While MAS played a central role in launching and funding APIX, industry participants are playing an increasing role in driving the initiative forward. AFIN has formed a Strategic Advisory Council (SAC) of industry leaders to support the overall development of AFIN and APIx, with Mastercard recently coming on board as a founding corporate member.
- APIx has quickly gained traction with innovators, with FIs currently on the platform. FinTechs cited that APIX has significantly reduced the time taken to test APIs (from more than 12 months previously to a matter of days).

FIGURE 3.17 | **UPI key performance indicators**

>20 Number of financial institutions using MyInfo

>110 Number of digital financial services being provided using MyInfo

Source: Regulating FinTech: The Case of Singapore.

“

A big problem in increasing innovation in financial services is the process of working with incumbents to be able to test solutions in a safe environment. This can take up to 12 months of working with internal legal and IT teams. APIX has reduced the time it takes to get to proof of concept with a financial institution to a matter of days. It is a very tangible benefit.

FinTech

"

APIX is solving a global problem. This is not unique to Singapore, but was identified by MAS in 2017 as a potential block to innovation, and they went about trying to address it.

FinTech

"

What MAS has created is essentially an innovation lab for financial services in the cloud. Literally within hours of finding each other, you can be experimenting on the platform.

FinTech

1.3 Singapore FinTech Festival

Interviewees (across a number of markets) consistently identified the Singapore FinTech Festival (SFF) as playing a role in accelerating Singapore's FinTech ecosystem and promoting Singapore to overseas investors, FinTechs and talent. The three-day festival attracted around 60,000 participants from 130 countries.[1]

Benefits of the SFF cited by interviewees ranged from the intangible (it being effective in globally signposting Singapore's intention to be a leading global FinTech hub) to the tangible - namely, the ability of FinTechs to network, meet investors at pace, forge partnerships and recruit talent.

An example of its impact on attracting capital is the festival's dealmaking platform, MATCH. In 2018, the MATCH platform resulted in a cumulative US$6b of investment commitments across FinTech, Healthcare and MedTech, and ICT.[1]

Associated with the SFF, interviewees mentioned that, in 2019, MAS worked with Enterprise Singapore to create Deal Fridays - an opportunity for investors and start-ups to connect and explore collaborations in the lead up to SFF. While interviewees were unable to comment on any direct impacts of this initiative, they perceived it to be illustrative of the level of commitment that MAS had to the success of the SFF.

[1] "Singapore FinTech Festival attracts US$12 billion of capital for ASEAN enterprises.", Monetary Authority Singapore website, https://www.mas.gov.sg/news/media-releases/2018/singapore-fintech-festival-attracts-us12-billion-of-capital-for-asean-enterprises, accessed 10 January 2020.

"

The SFF is a core part of the Singapore FinTech ecosystem. It brings together participants from not only across the financial services industry, but tech too. A number of tech giants attend.

FinTech

"

The SFF has a really positive impact on the FinTech brand in Singapore. I think it makes a meaningful difference to the FinTech market with flow on effects for capital and, importantly, talent.

FinTech

"

There is no doubt the Singapore FinTech Festival is the best FinTech festival in the world. Also, it only costs US$2,500, which compared with almost US$20,000 for Money 2020, means the return on investment is much higher.

FinTech

"

When I go [to the SFF] I don't stop talking and meeting people. I have great access to investors and MAS actively does introductions to VCs and other investors.

FinTech

1.4 Other infrastructure initiatives

Interviewees also cited the following MAS initiatives as indicative of the regulator's proactive and collaborative approach to building key infrastructure platforms:

- **e-KYC:** MAS has recently relaunched efforts to build a centralised e-KYC project, following an unsuccessful attempt in 2017 (which prompted MAS to release a public report on learnings from the previous effort). This project coincides with the Bank for International Settlements (BIS) launching its first global innovation hub (outside Switzerland) in Singapore, with a strategic priority to work on a framework for a 'foundational public good' on identity, consent and data sharing.
- **Project Ubin:** MAS has worked collaboratively with industry to explore DLT and blockchain use cases for the clearing and settlement of payments and securities. This multi-year and multi-phase project is now in its fifth phase, aimed at creating a blockchain ecosystem.
- **Real time ASEAN payments network:** Singapore is working with its neighbours to trial instant cross-border payments. Singapore is at the forefront of the initiative, and a Thailand-Singapore payment system is expected to go live in 2020[1].

[1] "Cross border payment systems in ASEAN gather steam.", ASEAN Today website, https://www.aseantoday.com/2019/08/cross-border-payment-systems-in-asean-gather-steam/, accessed 10 January 2020.

> Singapore, and MAS, are always prepared to lead in building the infrastructure needed to build the ecosystem.

FinTech

> MAS is very innovative and forward-thinking. For example, Singapore was first in the region to issue P2P licences, which was followed by Malaysia and Indonesia. Another example is Project Ubin, where Cambodia is now trialling a similar initiative.

FinTech

2. Capital

While interviewees cited access to growth capital as a challenge for Singapore FinTechs, it was noted that the level of investment in Singapore overall has materially improved over the last three years. This was attributed to a combination of supportive policy settings, an increased VC presence in the region (and from overseas markets) and key infrastructure developments which have stimulated innovation and market maturity:

- Investment in Singapore FinTech is estimated to have reached more than £375m in 2019 (from <£50m in 2016)[1].

Another strength of the Singapore capital markets is the large SWFs. Singapore has 2 of the 10 largest in the world,[2] and both have mobilised funds, investing in early stage and mature FinTechs directly. Examples include:

- GIC leading the US$200m series[3] E investment in a US consumer finance company; co-invested with a PE firm to buy an asset management FinTech provider for US$2.7b[4].
- Temasek leading a Series B round of investment in CashShield; participated (alongside GIC) in Ant Financial Services' US$14b Series C[5].

> What you've really seen over the last few years is the arrival of some of the big money from areas like China and Silicon Valley.

Investor

[1] CB Insights database; EY analysis.
[2] "Top 91 Largest Sovereign Wealth Fund Rankings by Total Assets.", Sovereign Wealth Fund Institute website, https://www.swfinstitute.org/fund-rankings/sovereign-wealth-fund, accessed 10 January 2020.
[3] "GIC led US$200m new funding round for Affirm.", The Strait Times website, https://www.straitstimes.com/business/invest/gic-led-us200m-new-funding-round-for-affirm, accessed 10 January 2020.
[4] "GIC in tie-up to acquire fintech firm for $2.7b", The Strait Times website, https://www.straitstimes.com/business/gic-in-tie-up-to-acquire-fintech-firm-for-27b, accessed 10 January 2020.
[5] "GIC, Temasek participate in Ant Financial's US$14b Series C funding round.", The Strait Times website, https://www.straitstimes.com/business/invest/gic-temasek-participate-in-ant-financials-us14b-series-c-funding-round, accessed 10 January 2020.

> Five years ago, there wasn't a great deal of VC investment to stimulate FinTech activity. That has been the biggest change in the last three to four years.

Investor

> Singapore has benefitted from being considered a safe environment for investing capital in the region. Investors looking to invest in ASEAN are going to invest through Singapore.

Investor

> One indicator of the traction of the Government's involvement in the sector has been the increased levels of investment which has really given the incumbents a wake-up call.

Investor

Challenges and barriers

1. Talent

Access to talent (particularly technical skills and foreign talent) is consistently cited as a challenge in Singapore, despite initiatives to support local talent development.

Interviewees noted that Singapore has a number of relatively generous initiatives to support local skills development. Examples include:

- Subsidisation of salaries for 12 to 18 months for certain new employees.
- Reimbursement of hardware costs for new employees.
- Subsidisation of costs (up to 90%) for people over 40 to retrain in FinTech-related specialisations.
- PolyFinTech – a collaboration between MAS, FinTech Singapore, local polytechnics and industry partners to nurture domestic skills via internships and mentoring opportunities, for polytechnic students looking to pursue careers in FinTech (the programme reportedly guarantees every FinTech graduate an internship).

While these initiatives are viewed as 'helpful' for local talent development, there are mixed views on their effectiveness – most interviewees note that talent remains a key challenge. In line with this, in EY ASEAN FinTech Census 2018, c.70% of surveyed FinTechs report that they have trouble hiring the type of talent that meets their needs.[1] Similarly, one in three FinTechs state that they have issues hiring foreign talent.

> While the current foreign worker settings remain at their current levels, we will continue to have to build our team offshore.

FinTech

[1] ASEAN FinTech Census 2018, EY, 2018 (accessed via https://fintechauscensus.ey.com/2018/Documents/EY-asean-fintech-census-report-2018.pdf, accessed 10 January 2020).

“

It’s great I can get a subsidy for the first 12 months of an employee’s salary, but really, I don’t know with a FinTech business whether in a year I’ll be in a cash-flow positive position to cover that salary ... so it’s good, but I’m not sure it makes a huge difference.

FinTech

“

There are two problems with talent in Singapore - firstly, there is a shortage, and any talent that is available is really expensive. Secondly, hiring foreign talent can be really difficult.

FinTech

FIGURE 3.18 | **FinTech views on Talent**

of FinTechs have trouble hiring the talent to meet their needs and growth

1 in 3 FinTechs have issues hiring foreign talent

Source: EY ASEAN FinTech Census 2018.

Specific challenges cited include access to domestic technical talent (particularly given competition from incumbents for technically qualified people) and access to foreign talent (particularly given national restrictions on the ratio of foreign workers). As a result, Singaporean FinTechs are increasingly offshoring teams to other markets such as India and Vietnam.

“

Talent policies are still a work in progress in Singapore. Access to highly skilled talent is an issue for us and we would like to see more done in this area. Lifting the ratio of foreign workers would really help given we can’t get this talent locally.

FinTech

> The Government is quite supportive of hiring foreign workers when you are starting out, but once you reach about 10 employees, we found the approach to the foreign worker ratio was much more strict. This made it difficult for us to get the skills we needed as we scaled.

FinTech

2. Demand

While consumer FinTech adoption is reasonably high in Singapore (slightly above the global average, at c.67%),[1] Singapore FinTechs note that the size of the local population (c.6m) is smaller than other FinTech hubs.

As a result, FinTechs recognise that they must cater to a wider geographical footprint in order to scale. Likewise, from a policy perspective, MAS has worked to position Singapore as a leader in the ASEAN region and provide Singapore FinTechs with a launchpad to expand across the region. Examples include:

- MAS playing a leading role in setting up regional networks such as AFIN.
- Enterprise Singapore supporting Singaporean FinTechs to access neighbouring markets (practical benefits cited by interviewees include trade missions, warm introductions to enterprise customers and investors, and purchasing booths or pavilions at other FinTech festivals on behalf of Singapore FinTechs).

[1] Global FinTech Adoption Index 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf, 10 January 2020).

Singapore FinTechs report that expanding to other Asian regions can still be a challenge, particularly in less mature FinTech markets where the regulatory landscape and infrastructure platforms are less developed.

> One example of the issues with expanding beyond Singapore to neighbouring countries is access to data - the level of access that you might have in Singapore may not be the same as what you have in a more emerging market. So if your business model is based around access to data, you're going to struggle. The lack of uniformity in ID-V can also make KYC a challenge.

FinTech

> Enterprise Singapore have been helping us grow beyond Singapore because they realise this is vital. We have been on a number of trade missions with them, both within ASEAN and even the US, which have made a difference to our approach.

FinTech

“

Given the size of the local market, FinTechs starting out in Singapore need to have a clear plan to venture out to proximity markets in order to pass series A.

Investor

3. Capital

While the availability of capital and investment has increased notably in Singapore, late stage capital raises remain difficult. For these large rounds, FinTechs are often tapping into other large markets, such as the US and China.

Interviewees also cited the lack of viable exit options for scaled FinTechs, particularly via public markets, with the Singapore Exchange (SGX) lagging exchanges in other markets such as Hong Kong and Australia. The first FinTech to undertake an IPO in Singapore occurred relatively recently in 2018.

“

Exit options are still limited in Singapore. The SGX is not big and not very liquid. This will restrict the number of big FinTechs and means we are still relying on the US market for a large trade sale or IPO.

FinTech

“

The lack of large exits is a concern. It hasn't quite reached a critical point yet, as most FinTechs will take around 7 years to mature, and in Singapore, most FinTechs are about 3-5 years old.

FinTech

Lessons for other markets

- Singapore has benefited from a clear and long-term vision for the importance of FinTech in driving economic growth, embedded in a broader technology and innovation strategy.
- The regulatory and government policymakers have played a market-making role with respect to key infrastructure initiatives, although the level of industry input and collaboration to drive these initiatives is viewed positively.
- Particularly for smaller markets, policy should look to anchor the hub as a leader in the broader region, driving pan-country initiatives and outbound activity.
- Access to highly skilled technical talent is a global issue, and restrictive foreign talent policies (e.g., foreign workforce restrictions, inflexible visas, etc.) can act as 'handbrake' to sector growth.
- Flexible access to exit options, including to large, liquid public markets, will be a key differentiator as FinTechs reach scale and beyond.

Core market: USA

Ecosystem snapshot: Ecosystem with abundant talent, capital, regional hubs and experience in fostering entrepreneurship

- Strong access to capital: expansive VC and PE networks, with growing CVC investment.
- Abundance of talent: strong pipeline of talent provided by top universities and industry players.
- Flourishing FinTech hubs: regional hubs, outside New York and California, anchored by established industry specialisation, connections to universities and access to talent.

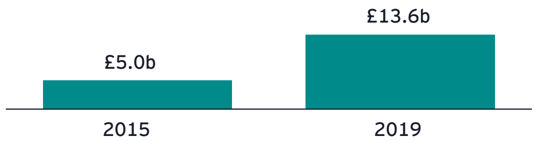
FIGURE 3.19 | Number of FinTechs

c.3,000-4,000

In the past five years, the number of FinTechs has grown, reflecting a shift in focus from payments solutions to areas such as alternative lending, wealth management, digital banks, business financial management, InsurTech and B2B solutions.

Source: EY analysis.

FIGURE 3.20 | **FinTech investment**

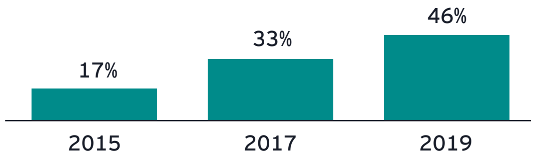


Investment in FinTech nearly tripled in the US in 2016–'19, denoting strong capital flows into the sector.

2019 has seen more than 70 >US$100m FinTech mega-rounds, including SoFi and Lemonade.

Source: CB Insights; EY analysis.

FIGURE 3.21 | **FinTech adoption**



Consumers in the US have been rapidly adopting FinTech solutions, as consumer awareness has been rising.

Adoption has been driven by greater use of money transfers or payments, particularly peer to peer (P2P) payments and non-bank money transfers.

Source: EY Global FinTech Adoption Index 2019.

FIGURE 3.22 | **Financial services landscape**

c.6.3m

Employment in FS

c.7.5%

FS contribution to national GDP

c.£39.5b

Four largest banks' spend on technology

c.15

Key accelerators and labs backed or run by established FIs

US FinTech ecosystem is underpinned by a broader financial services sector that accounts for c.5% of national employment.

Amongst major banks, J.P. Morgan report the largest spending of US$11.4b, while Bank of America (BoA), Wells Fargo and Citigroup report US$10b, US$9b and US$8b respectively, surpassing UK banks' investment in tech.

Incumbents are embracing innovation by actively backing or running FinTech accelerators, incubators and labs, such as the Wells Fargo Startup Accelerator in San Francisco.

Source: SelectUSA: U.S. Bureau of Labor Statistics; EY analysis.

Strengths and success factors

1. National connectivity

The US appears to be one of the few national markets that has successfully created multiple hubs of scale. While New York and San Francisco remain the largest FinTech hubs in the US, regional hubs in other geographies are now flourishing, diversifying the US FinTech landscape and strengthening the US market as a whole:

- Regional hubs cited by interviewees include Atlanta, Georgia; Charlotte, North Carolina; St. Louis, Missouri; Chicago, Illinois; Austin, Texas; and Phoenix, Arizona. For example, the state of Georgia employs more than 30,000 FinTech professionals; successful FinTechs, such as BitPay, are headquartered in Atlanta, Georgia; and between 2011 and 2016, Charlotte's tech occupations grew by an 77.1%, according to Coldwell Banker Richard Ellis' (CBRE) 2017 Scoring Tech Talent report.[1]

Key enablers that have supported the growth of these regional hubs include:

- Established specialisation: regional hubs typically anchor on an established or pre-existing specialisation or industry centre (i.e., a region where there is a concentration of technology or financial services firms).

Abundance of talent: these hubs draw on deep pools of talent nurtured through established industry presence and strong connections to nearby universities, some of which also offer FinTech-specific initiatives and innovation hubs. For example, the Technology Association of Georgia has created a FinTech Academy with the Georgia FinTech Academy; the curriculum was shaped in partnership with the industry, by surveying big FinTech companies on skills they will be looking to hire for in the next 10 years (e.g., in AI, DLT and cybersecurity). Moreover, given industry specialisation in these areas, there is strong expertise in regulation and compliance, which are key attributes when innovating around a rigorous financial services regulatory system.

[1] 2017 Scoring Tech Talent, Influencing Innovation, Economic and Real Estate Growth in 50 U.S. and Canadian Markets, CBRE, 2017 (accessed via https://www.cbre.us/research-and-reports/Scoring-Tech-Talent-2017, 10 January 2020).

> The Georgia FinTech Academy is building the skills for the people that global payments companies will need in order to be the next generation of tech leaders.

Investor; Trade association

FIGURE 3.23 | **Examples of regional hubs**

Charlotte

- Number 2 US banking hub
- BoA and Wells Fargo

Georgia

- Processing 70% of global payments
- First Data and TSYS

St. Louis

- Cybersecurity hub
- U.S. Department of Defense

> FinTechs go toward individuals and communities that have deep expertise on the heavily regulated aspects of finance.

Policymaker

Local policy interviewees cited various ‘FinTech-friendly’ policies that state governments have introduced to make their region more attractive to FinTechs. However, while these are credited with supporting growth once a hub is ‘up and running’, they were perceived to be less effective than the enablers above. Local policy support includes:

- Initiatives to set up state-level regulatory sandboxes (e.g., in Arizona and North Carolina).
- The creation of economic development zones with various tax incentives for companies and investors (e.g., in Georgia, North Carolina and Texas).

Local-level collaboration between FinTechs, established industry players and trade associations, this is a key differentiator:

- Key 'ecosystem-bolstering' initiatives were launched as a result of collaboration between various players, for example:
  - The Carolina FinTech Hub started with the Government convening key industry stakeholders and challenging them to harness innovation. Government involvement ensured buy-in from various industry groups; after that, the initiative was taken private.
  - The Carolina FinTech Hub is now a JV non-profit organisation formed by the major banks and tech companies in the region, with the mission to make the Carolinas region (both North and South Carolina) into a global FinTech destination.

"

We create programmes and invest in areas that enable the Carolinas region to become known as the place where FinTechs can come and find a lot of willing partners [i.e., incumbent players], helping them to have a very successful career as a company.

Trade association; Local Government

Interviewees cited examples of trade associations or local ecosystem participants in Georgia, North Carolina and St. Louis launching matchmaking initiatives to connect FIs with specific challenges to local start-ups with relevant solutions.

- The Run it by the buyers programme organised by the Technology Association of Georgia FinTech Society, identifies challenges faced by companies in the state and sources FinTechs that can solve those problems.
- The Carolina FinTech Hub has a targeted list of FinTechs globally that it is looking to attract to the Carolinas region; as part of that, it offers partners (incumbent banks) that are interested in doing deals with FinTech companies. The Carolina FinTech Hub organises annual university hackathons in the Carolinas region, where top tech talent comes together to solve challenges provided by banks and FinTech companies.
- Companies in St. Louis and neighbouring states (Minnesota, Ohio and Kansas) are 'natural collaborators'; while there is no formalised matchmaking service, there is a strong sense of community, where large buyers are open to consuming tech solutions provided by FinTech companies.

"

If you're hungry for capital, go to San Fran; if you're hungry for revenue, go to St. Louis.

Investor

“

Georgia was one of the first [regions] to organise and coalesce around the industry; the city of Atlanta and state of Georgia have a high concentration of payments processing companies - so once we recognised that, we really took it upon ourselves as an ecosystem to come up with tools like the FinTech Academy, ... the FinTech innovation award and ... the Run it by the buyers programme.

Investor; Trade association

2. Demand

Partly owing to the lack of cohesive national policy frameworks, incumbent FIs and technology firms have taken a more proactive approach to shaping key infrastructure initiatives and driving innovation. Leapfrog initiatives, such as open data infrastructures and digital identity, are likely to be driven by industry players, granted the right economic incentives are present. As a result, the level of collaboration between FinTechs and FIs continues to rise:

- Innovation, collaboration and competition are rapidly shaping the open banking ecosystem in the US. Given the hands-off regulatory approach and intense competition among banks, incumbents are opting to partner with FinTechs to experiment with commercial API models (e.g., Plaid and Wells Fargo) and develop open banking products and services that are highly tailored to consumer needs.
- Despite high risk management standards, FIs have been increasingly willing to partner with FinTechs as a way of bringing in new technologies and capabilities to enhance current processes (e.g., onboarding, underwriting and compliance), reduce costs and launch new propositions (e.g., financial management, mortgages and wealth management) - all in the interest of trying to better meet end-user needs (e.g., BoA and HighRadius; Cardlytics and Wells Fargo; J.P. Morgan Chase and Roostify; Amex and Better Mortgage).

“

The economic incentives are there to use technology – if FIs can lower the cost structure, they can offer more affordable services to more people and expand their market.

Policymaker

“

There needs to be both a disruptor and collaborator in the founding team for the company to succeed – build the product 60-80% and the teams at BNY or Allianz will engineer with you the rest of the product.

Investor

“

The US has 11,000 FIs – there are opportunities in the US to partner with FIs and try out your product or business model; there is plenty of fertile ground to build out your FinTech.

Investor; Trade association

“

FIs are more open to collaborate with FinTechs around the core, not just the edges of the business.

Investor

“

The largest trend is the shift away from disruption to partnership.

FinTech

The size of the US market is viewed as a strength of the US FinTech ecosystem; the large consumer base and the level of financial maturity in the US market are key differentiators, driving corporate and consumer demand of FinTech.

US SMEs use FinTech services to address specific business problems, with banking and payments FinTech solutions being the most used. Adoption of overall FinTech services is 23% among US SMEs, higher than in the UK (18%)[1].

The US has been historically led in technology innovation, e.g., in cloud and software-as-a-service technologies. Banking and payments companies in the US have been some of the heaviest users of technology in the past 40 years; adoptions of these technologies have facilitated the demand and adoption of FinTech services as well.

"

There is a large well-educated, affluent population and a lot of tech-savvy consumers, who are willing to try out different products.

Investor; Trade association

"

The percentage of people that are banked is not 100%, but the penetration of financial services and products into the broader population is quite advanced.

Investor; Trade association

"

Due to the size of the US market, FinTech firms can scale their revenues from US$1m to US$50m a year in a matter of months, and they can build a massively profitable business just by staying within the borders of the US.

Investor; Trade association

"

There is no shortage of demand from SMEs; they are looking for solutions which are cost-effective.

Investor; Trade association

[1] Global FinTech Adoption Index 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/ey-global-fintech-adoption-index-2019.pdf, 10 January 2020).

3. Capital

The availability of capital and the maturity of the investment landscape, at both early and growth stages, remains a key strength of the US ecosystem relative to other markets; the shift towards industry collaboration has also led to an increase in institutional investment in FinTech.

While New York and San Francisco remain top destinations for FinTech investment in the US, in the past three to four years, there has been a concerted effort by various states to attract capital into other cities:

- States such as Georgia and North Carolina have launched various FinTech initiatives, such as industry events (the Carolina FinTech Hub organises three flagship conferences on capital, FinTech and InsurTech; Orlando hosts the FiNext Conference; and Georgia hosts the FinTech South conference) and accelerators (Queen City FinTech and the Georgia Tech incubator).

> "
>
> The US continues to be a large and dominant provider of capital, funding big bold ideas.
>
> **Investor**

> "
>
> CVC has changed the mix of capital and has changed the competition for good ideas, and changed the mindset of the founders - of getting revenue vs. capital from corporates.
>
> **Investor**

> "
>
> There is saturation in the consumer space ... in terms of investment dollars, the mindset has shifted to try and find greenspace and opportunity in the B2B infrastructure space.
>
> **FinTech**

> "
>
> There is no shortage of capital; investors across the spectrum are interested in FinTech.
>
> **FinTech**

4. Talent

The US benefits from a strong pipeline of local and international talent, supported by a culture and mindset that is open to innovation and nurtures entrepreneurialism; as a result, the US is viewed by some interviewees as a vital training ground for global FinTech talent.

Universities play a key role in the US in developing tech and entrepreneurial talent, as well as co-creating innovation:

- For example, top universities such as Massachusetts Institute of Technology (MIT), Stanford, New York University (NYU) and Berkeley offer FinTech-specific courses and programmes, engaging experts from within the sector and facilitating employment opportunities at top FinTechs in the US (e.g., programmes for apprenticeships and work placements at both Bachelor and Master's levels).
- Universities in regional hubs outside New York and San Francisco also feature FinTech and innovation-focused programmes to develop talent.

The US start-up ecosystem also benefits from experienced talent trained in established FIs and technology companies.

"

What innovation needs in order to grow is to encourage people that have subject matter expertise (have worked 10-20 years in a particular industry) to innovate and leave the comfort of their corporate jobs in order to embark into something that is more challenging and demanding.

FinTech

FIGURE 3.24 | **Incumbent investment activity**

>115 Number of FinTech start-ups that the top five US banks have invested in since 2012

The top three areas of FinTech investments by US banks are **payments and settlements, capital markets** and **data analytics.**

Source: CB Insights.

Challenges and barriers

1. Policy and infrastructure

With 50 states, the US has a fragmented regulatory landscape with a number of regulatory and policymaking bodies at federal, state and city levels. The lack of a strong, proactive and clear policy environment is the primary challenge in the US ecosystem:

- This may have positive implications, as state regulators have it within their remit to spin out innovative initiatives without the cumbersome pre-requisite national-level coordination; moreover, this supports competition, as states have a lever to pull among themselves in terms of forward-looking regulation and incentives.

While there have been favourable developments in attempting to increase policy cohesion, traction has been relatively nascent. For example:

- The FinTech Charter was proposed by the Office of the Controller of the Currency (OCC) to enable FinTechs to be regulated across all 50 states.
- LabCFTC was set up to enable the Commodity Futures Trading Commission (CFTC) to promote responsible FinTech innovation and to accelerate the CFTC's engagement with FinTech and RegTech solutions.
- The Consumer Financial Protection Bureau (CFPB) has launched sandbox initiatives enabling start-ups to test their products in a regulatory-free environment. The CFPB has also engaged in research collaborations with companies that are testing financial products or services (e.g., the CFPB's Project Catalyst research collaboration with Credit Karma on financial wellbeing).

FinHub was established by the Securities and Exchange Commission (SEC), offering a portal for industry and the public to engage directly with SEC staff on innovative ideas and technological developments, a clearinghouse of information regarding the SEC's activities and initiatives involving FinTech, as well as events through which the public can participate in FinHub's work. The US lags with respect to infrastructure initiatives such as standardised open APIs and faster payments. However, in relation to payments, a working group, the Faster Payments Council, has been set up to shape the road map for real-time payments.

Lessons for other markets

- The US provides an insightful example of a large market which has successfully created a number of regional hubs. Factors which have enabled the development of regional hubs include the ability to leverage an existing industry infrastructure or existing attributes of the region, working with local ecosystem players to create the blueprint for regional development in FinTech, and leveraging universities and academic centres.
- The US is a leading market with respect to talent, which has benefitted from tailored talent development programmes created collaboratively between universities and industry players (for example, the regional skills development programmes developed by the Georgia FinTech Academy).
- Where the policy landscape remains difficult, incumbents have had to take a more proactive and market-making role in driving infrastructure initiatives. There is a greater imperative for industry players (including FinTechs and incumbents) to collaborate to foster innovation in these markets.

Global assessment: case study markets

Case study market: Canada

An emerging and scaling FinTech ecosystem with a notable talent strategy

- **Strong talent pool:** local talent complemented by access to highly skilled global talent through government initiatives.
- **Established technology centres of excellence:** Canada establishing itself as a global leader in AI.
- **Prominent financial services environment:** third largest services sector in Canada, accounting for c.7% of GDP.
- **Emerging policy environment:** in the process of adopting key policy initiatives such as open banking.

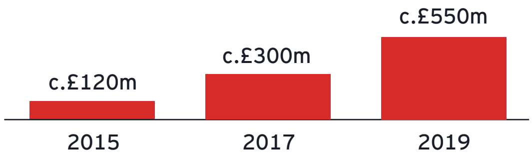
FIGURE 4.0 | **Number of FinTechs**

c.600-700

- FinTech activity is concentrated in payments (c. 13% of firms), lending (c.13%), InsurTech and WealthTech (c.10% each).
- c.57% of FinTechs are based in Ontario, followed by Quebec with c.18%.

Source: Luge Capital; Canadian Fintech Ecosystem Map; EY analysis.

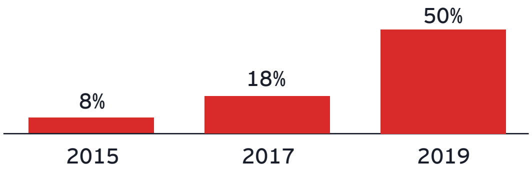
FIGURE 4.1 | **FinTech investment**



- There has been strong growth in FinTech investment, from c.20 investments in 2014 to c.80 in 2018.
- The majority of funding is concentrated in early stage investments (c.45% seed/series A between 2014 and 2018).
- There has been increasing participation of pension funds (e.g., PSP and CDPQ) through local FinTech VC funds.

Source: CB Insights; Luge Capital.

FIGURE 4.2 | **FinTech adoption**



- There has been a significant increase in adoption since 2017, though behind that of peers, such as the UK and Australia (71% and 58% respectively).
- With Canada emerging relatively unscathed from financial crisis, trust in incumbents remains high: c.90% of Canadians trust their bank to offer secure services and modern tech.

Source: EY Global FinTech Adoption Index 2019; Canadian Bankers Association.

FIGURE 4.3 | **Financial services landscape**

c.830,000

Employment in FS

c.7%

FS contribution to national GDP

c.£8b

Six largest banks' spend on technology

c.10

Key accelerators and labs of established FIs

- The Canadian FinTech ecosystem is underpinned by a robust broader financial services sector that accounts for c.5% of national employment (c.50% based in Toronto) and c.7% of GDP (CA$130b).
- Significant technology spend has been reported across major banks, including Royal Bank of Canada (CA$3b in 2018).
- There are notable accelerator and venture programmes across incumbent FIs, including RBC, National Bank of Canada, BMO and Scotiabank.

Source: Conference Board of Canada; Canadian Bankers Association; Luge Capital; EY analysis.

Talent: progressive immigration strategy to attract global talent

In 2017, the Canadian Government launched the Global Skills Strategy to promote global investment in Canada and facilitate faster entry into the country for top international talent. The Global Skills Strategy consists of four key pillars:

- Two new work permit exemptions for short-term work in Canada
- Two-week work permit processing times for eligible high-skilled workers under the existing International Mobility program
- A dedicated service channel for employers bringing significant investment to Canada
- The creation of a Global Talent Stream

The Global Talent Stream in particular has been instrumental in helping innovative companies to grow by ensuring they can access the highly skilled talent they need quickly.

This initiative established a two-week standard for processing work permit applications for highly skilled foreign tech talent, and complemented faster turnaround times with work permit exemptions (where applicable) and enhanced customer service. Occupations covered by the Global Talent Stream currently include computer engineers, computer programmers, software engineers and designers, and web designers and developers.

Since the programme began in June 2017, more than 24,000 highly skilled workers have used the Global Talent Stream.[1] Firms that have used this service have created more than 40,000 new jobs for Canadians and permanent residents, and invested more than CA$90m in skills development and training for their workers.[2]

[1] "Second Anniversary of the Global Skills Strategy", Government of Canada website, https://www.canada.ca/en/immigration-refugees-citizenship/news/2019/06/second-anniversary-of-the-global-skills-strategy.html, accessed 10 January 2020.
[2] Investing in the Middle Class Budget 2019, Department of Finance Canada, 2019 (accessed via https://www.budget.gc.ca/2019/docs/plan/budget-2019-en.pdf, 10 January 2020).

“

As Canada’s technology sector has historically struggled to attract the talent it needs to scale up, this is precisely the type of talent our Government had in mind when it first launched this strategy.

Minister of Immigration, Ahmed Hussen

Following the successful pilot from 2017 to 2019, the Global Talent Stream was made a permanent programme within the Canadian immigration system. It has been consistently cited as a key differentiator of Canada’s FinTech ecosystem by FinTechs, trade associations and investors.

“

We have seen a noticeable increase in the attraction of Canada as a destination for highly skilled tech staff as a result of the Global Talent Stream. Where tech talent used to head to San Francisco, they are now coming to Canada.

Canadian FinTech

“

The fact I can have someone approved within a couple of weeks [with the Global Talent Stream programme] is a real competitive advantage.

Canadian FinTech

National connectivity: strong academic community underpinning Montreal’s growth as an AI hub

Montreal has established itself as a leading global AI hub through a collaborative ecosystem of AI researchers, academia, government, start-ups and established players.

The role of academia in particular has been integral to enhancing the regional focus and international reputation of AI:

- Montreal has four universities with a strong focus on AI (McGill, Université de Montréal, Polytechnique Montréal and HEC Montréal) with more than 300 researchers and doctoral students in this field.[1]
- Further supporting the ecosystem and future pipeline of talent are more than 11,000 students enrolled in AI and data-related university programmes.[1]
- Collaboration between academics and industry is being fostered through initiatives such as the IVADO institute. With more than 1,000 affiliated scientists,[2] IVADO aims to bring together industry professionals and academic researchers to develop cutting-edge expertise in data science, operational research and AI.
- More recent developments include the opening of the Mila research institute in Montreal (as well as Edmonton and Toronto), which employs more than 35 professors from McGill University and Université de Montréal and more than 300 researchers.[3]

[1] Montreal: why to invest in artificial intelligence, Montreal International, 2019 (accessed via https://www.montrealinternational.com/en/publications/greater-montreal-an-artificial-intelligence-hub/, 10 January 2020).
[2] "About us", Ivado website, https://ivado.ca/en/about-us/, accessed 10 January 2020.
[3] Mila Annual Report From April 1, 2018 to March 31, 2019, Quebec artificial intelligence institute, 2019 (accessed via https://mila.quebec/wp-content/uploads/2019/12/Mila-Rapport-Annuel-2019-v15-EN-single.pdf, 10 January 2020).

“

My whole development team, 15 engineers, are all graduates of Montreal universities.

AI FinTech

This pronounced focus on AI has had a notable impact on the prevalence of highly skilled tech talent:

- More broadly, government grants have significantly supported Montreal’s focus on AI, with more than CA$1b in funding dedicated to university research, and the decision to choose Montreal as headquarters for scale AI, dedicated to building enhanced supply chains by leveraging AI.[1]
- There are additional R&D tax credits over and above the federal R&D tax incentives in Montreal, and a recently announced CA$329m investment over six years to accelerate the development and adoption of AI by business.[1]

“

The Government is very supportive. We can end up re-claiming up to 80% of an engineer’s salary through R&D and other tax incentives. We get a dedicated case manager who helps us navigate the support available to us. They also offered us 30-40 hours of free AI researcher time from the IVADO institute.

AI FinTech

This combination of a leading academic community and a supportive government has attracted many prominent technology companies to set up AI-specific labs.

FIGURE 4.4 | **Timeline of AI labs launching in Montreal**

Lessons for other markets

- Targeted visa programmes which allow skills gaps to be filled rapidly have provided Canada with an advantage in attracting scarce, highly skilled talent. The inclusion of provincial or regional bodies (e.g., BC Tech Association and the City of Brampton) as referral partners for the programme has assisted in providing local market awareness and access to the programme.
- Putting academia at the core of an AI centre of excellence has provided an integral foundation on which broader market participation can be built, and which acts as an anchor or magnet for broader market activity.

[1] Montreal: why to invest in artificial intelligence, Montreal International, 2019 (accessed via https://www.montrealinternational.com/en/publications/greater-montreal-an-artificial-intelligence-hub/, 10 January 2020).

Case study market: France

Emerging FinTech hub aiming to connect global players to the European FinTech ecosystem

- **Strong talent pipeline:** qualified engineering talent is provided by top French universities.
- **Deliberate government support:** initiatives such as Loi Pacte, R&D tax reliefs and the French Tech Visa have catalysed the growth of FinTech in France.
- **Embedded industry collaboration:** a collaborative ecosystem between incumbents and FinTechs is driving innovation and disruption in financial services.

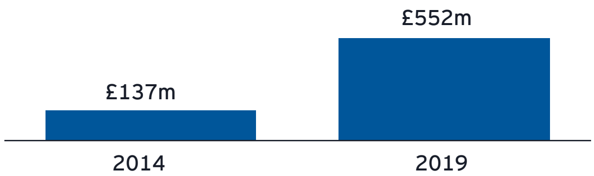
FIGURE 4.5 | **Number of FinTechs**

c.600

- FinTechs are primarily developing solutions in lending (43% FinTechs), followed by RegTech (18%) and payments (16%).
- Focus has shifted from B2C to business-to-business-to-consumer (B2B2C), reflecting wider industry collaboration (e.g., Gambit and BNP Paribas).

Source: France Fintech and Black FinTech.

FIGURE 4.6 | **FinTech investment**

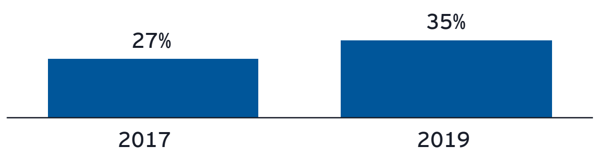


- Capital remains a development point, as France is looking to attract more foreign capital at seed and growth stages; Bpifrance (Banque publique d'investissement) launched a c.£350m seed fund in 2018.

Source: CB Insights; France Fintech.

- The average ticket size grew to £9.4m in 2019 compared with £4.3m in 2018.

FIGURE 4.7 | **FinTech adoption**



- In comparison with other markets, France has a relatively low FinTech adoption rate (c.35%), with the top barriers being trust in FinTechs and lack of awareness and understanding.

Source: EY Global FinTech Adoption Index 2019.

FIGURE 4.8 | **Financial services landscape**

c.1m

Employment in FS

c.4%

FS contribution to yearly value add

c.£430m

Planned to spend on digital transformation in 2020 by Groupe BPCE

c.5-7

Key accelerators and labs of established FIs

- The French FinTech ecosystem is underpinned by a broader financial services sector that accounts for c.3.5% of national employment.
- Significant technology spend has been reported across major banks, including BNP Paribas (c.€6b in 2019).
- French banks and insurers are active within major incubators and accelerators such as Le Swave and STATION F; other notable initiatives are the BNP Paribas Plug and Play FinTech accelerator, StartUp Camp by Groupe BPCE and the AXA Kamet incubator.

Source: Paris EUROPLACE; INSEE, OECD; Groupe BPCE; EY analysis.

Policy and infrastructure: proactive government policy has catalysed the development of the emerging FinTech ecosystem in France

1. The French Government has identified FinTech as a key industry to support, as part of a wider push to turn France into a leading global digital hub.

In 2016, the Autorité des Marchés Financiers (AMF) and the French Prudential Supervision and Resolution Authority (ACPR) launched the FinTech Forum, a consultative body gathering representatives from FinTech start-ups, FIs, lawyers and consultancy firms.

The Government is actively looking to raise France's profile on an international level and create a strong community around tech and FinTech, bringing together start-ups, incumbents and VCs. Recent initiatives include:

- Openly supporting the Paris FinTech Forum through high-profile speakers at the event, such as the Governor of the Bank of France, the State Secretary for Digital Affairs, and the Minister of Economy and Finance.
- Launching the Next40 index to shed light on successful French companies and bring more investors to France; FinTech is the leading sector by number of companies represented in the Next 40 Index (France FinTech). While this initiative is still in its early days (launched in September 2019), the French Government's aim is to nearly double the number of French unicorns, from 11 in 2019 to 20 by 2022.
- Supporting and being involved in developing training centres and incubators for FinTechs, e.g., Le Swave, France's first innovation platform dedicated to FinTech businesses, initiated jointly by the French Government and the private sector in 2017.
- Launching 'Le French Tech' brand, with the aim of facilitating collaboration and building a community around start-ups, as well as attracting foreign investors. Since 2014, French start-ups have attracted c.£10b in investment and, in 2019, France was ahead of Germany in terms of start-up investments, albeit behind the UK.[1]

[1] "French Tech has made big strides but wants to go faster and further.", La French Tech website, https://lafrenchtech.com/en/2019/09/06/french-tech-has-made-big-strides-but-wants-to-go-faster-and-further/, accessed 10 January 2020.

“

As soon as we started our FinTech incubator/accelerator initiative, we had support from the Central Government. Both regulators (AMF and APCR) come here every other week to coach the start-ups and help them understand how to comply with regulation. Moreover, when the regulator is looking for expertise when it comes to a specific FinTech area, they come to our accelerator to speak with the start-ups, find expertise and fine tune the regulation based on that.

French FinTech

The Government has also taken a proactive approach to regulation, introducing legislation on innovative areas such as initial coin offerings (ICOs), as well as laws to support entrepreneurship and help SMEs grow. An example of such legislation is Loi Pacte (2019), which created a friendly environment for crypto start-ups in France and facilitated a new fundraising vehicle for start-ups (via ICOs):

- Introduced an optional AMF approval for ICOs, through which the AMF will grant a 'visa' for public offerings of tokens. This approval will be optional and not mandatory; however, getting AMF approval would help issuers gain credibility with investors and market their ICO globally.
- Created a new category of regulated entities: digital assets service providers, covering ICO tokens as well as other types of crypto-assets.

Demand: collaboration between established players and FinTechs supports ecosystem

Loi Pacte also introduced entrepreneur- and SME-friendly measures, such as a process for entrepreneurs to set up a company 100% online at lower cost, relief of corporate contributions for companies with fewer than 250 employee and a simpler process for researchers wishing to work with private companies.

In terms of talent, the French Tech Visa was introduced to make it much easier for tech start-ups to hire talent from abroad; the new French Tech Visa is available to more than 10,000 start-ups. FinTech interviewees cite the French Tech Visa as a key differentiator for France — an efficient process that removes barriers to talent acquisition from abroad.

France also has an abundance of highly competent engineering talent and French engineering schools are very competitive. There is specialist talent focused on AI and data science, with global tech giants having opened AI research centres in France.

Access to capital has been supported by Bpifrance, which has played a key role within the French entrepreneurial system, offering loans, equity investment and grants for companies at all growth stages (early stage, growth stage and late stage):

- It has launched 25 SME accelerator programmes and organised more than 30 international trade missions so entrepreneurs can meet local market SMEs, buyers and investors.
- Since 2012, c.80,000 companies have banked[1] and c. £16b has been provided in financing[1], of which c. £1.7b was in equity financing.[2]

1 "Bank for Entrepeneurs", Bpifrance website, https://www.bpifrance.com/Bank-for-entrepreneurs, accessed 10 January 2020.
2 "Private Equity", Bpifrance website, https://www.bpifrance.com/Private-Equity, accessed 10 January 2020.

2. Beyond government policy, the French FinTech ecosystem is also supported through collaboration between incumbents and FinTechs

In the past five years, FinTechs have shifted from B2C solutions to B2B2C, focusing on developing technology for financial services and collaborating with banks to co-create solutions. For example, there are several FinTechs specialising in AI solutions that can be used by banks to provide tailored services to their customers in areas such as lending, investment and insights into spending (such as Budget Insight and Gambit).

Banks, in turn, are using FinTechs to improve operations (in risk, KYC and onboarding) to make their processes more efficient for the end client (Nephelai and BNP Paribas, Groupe BPCE and Finalgo).

There are c.203 bank-FinTech collaborations in France, with BNP Paribas leading (41 partnerships), followed by Groupe BPCE (39). Among insurers, Allianz France is the most active, with 19 partnerships.[1]

There are government programmes to encourage corporates to support start-ups, such as tax reliefs for companies that invest in R&D; as a result, several incumbents have worked on R&D projects with FinTechs, including Nickel with BNP Paribas.

Nonetheless, the dominant position of the large banks is illustrated by a less established challenger bank ecosystem in France, which indicates challenges that the French FinTech market is still experiencing.

> “
>
> If you want to hire talent from outside, you can be pretty confident you will be able to recruit and bring someone in quickly and easily.
>
> **FinTech**

Demand: consumer demand for FinTech products in France lags other ecosystems

French consumers are slower to adopt FinTech technologies due to entrenched incumbent offerings; however, this has been improving in the past few years:

- Due to the universal banking model, French consumers have been slower in switching away from traditional banks, as trust in their FI and physical presence are particularly important to French consumers. For example, according to the EY Global FinTech Adoption Index 2019, c.25% French consumers state trust in incumbents as the number one reason for using a traditional financial services provider instead of a FinTech company. Moreover, despite the fact that digital banking is on the rise, physical banking in France remains popular, and there are still around 35 bank branches per 100,000 of the population.[2]
- As a result, FinTechs in France have shifted to a B2B2C model, seeking partnerships with incumbents in order to tap into their large customer bases and build scale.

Nonetheless, an increase in consumer adoption of FinTech services from 27% in 2017 to 35% in 2019 suggests an increasing willingness by French consumers to engage with innovative banking models; FinTechs are increasingly gaining traction among the younger, urban population of France, as denoted in stakeholder interviews.

> “
>
> France is still early days, a lot of FinTech businesses are only starting out, so there is high potential.
>
> **Accelerator**

[1] "Exclusif : parcourez la galaxie fintech en France", Journal Dunet website, https://www.journaldunet.com/economie/finance/1487516-galaxie-fintech/, accessed 10 January 2020.
[2] "Commercial bank branches (per 100,000 adults)", The World Bank website, https://data.worldbank.org/indicator/FB.CBK.BRCH.P5, accessed 10 January 2020.

> The easiest way to address demand is to collaborate with a bank or big insurer that already has trust and customer base, and that is why we see a lot of collaborations and B2B2C models in FinTech.

Accelerator

> There is a big difference between urban and rural populations — in Paris, Lille, Lyon and Marseille, there is an appetite for FinTech services; FinTechs are now trying to attract clients in cities in France and then move on to other cities in Europe, before they will try to tackle the rural market.

Accelerator

Lessons for other markets

- France created the Next40 index and Le Swave accelerator to support scaling of its FinTechs and raise international awareness of its success stories. Putting a more pronounced 'spotlight' on emerging FinTechs could be a powerful tool to assist the transition from start-up to scale-up.

Case study market: Hong Kong SAR

Ecosystem with emerging participation from non-bank players, and potential as a hub to access neighbouring markets

- **Recent emergence of non-bank players:** virtual banking licences attracting pan-sector interest.
- **Active policy environment:** Government providing supportive policy and infrastructure initiatives.
- **Strong financial talent:** sourced from Hong Kong's position as a leading financial services hub.
- **Leading capital market:** ranked number one in the world in 2019 for IPO proceeds.

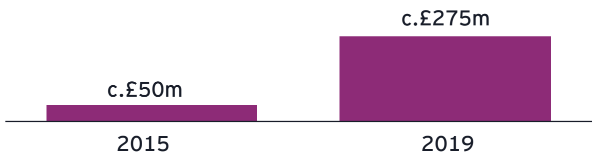
FIGURE 4.9 | **Number of FinTechs**

c.600

- The largest sector is WealthTech (c.20% of firms), followed by payments and blockchain.
- FinTechs use Hong Kong (a special administrative region of China) as a regional hub, with c.58% identifying South East Asia, and c.52% mainland China, as target markets.

Source: Hong Kong FinTech; Whub; Invest HK.

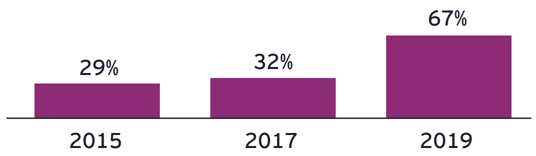
FIGURE 4.10 | **FinTech investment**



- Strong investment growth is underpinned by a number of large investments.
- There was a notable c.£120m series C investment in WeLab by Alibaba in 2019.

Source: CB Insights.

FIGURE 4.11 | **FinTech adoption**



- Adoption levels are strong, above the global average of 64% but lower than mainland China adoption of 87%.
- A tailwind is expected from the entrance of competitors with strong distribution channels.

Source: EY Global FinTech Adoption Index.

FIGURE 4.12 | **Financial services landscape**

c.260,000

Employment in FS

c.20%

FS contribution to national GDP

c.15%

Average tech spend as % of cost base for Hong Kong FIs

c.15

Key FinTech accelerators and innovation labs

- The Hong Kong FinTech ecosystem is underpinned by a leading financial services hub, with more than 70 of the top 100 banks having a presence in Hong Kong.
- Hong Kong FI technology spend is in line with other leading markets such as US and Singapore.
- Incumbents' technology spend is expected to increase to keep pace with new virtual banks.

Source: Census and Statistics Department; HKMA; EY analysis.

Policy and infrastructure: new virtual banking licences area catalyst for cross-sector collaboration

The HKMA granted eight virtual bank licences in 2019. The introduction of virtual banks is a key pillar supporting Hong Kong's desire to promote FinTech and innovation, and offer an increasingly digitised bank service. In this regard, virtual banks are also expected to promote financial inclusion by offering more accessible financial products than traditional banks, and by targeting often underpenetrated segments such as SMEs. After receiving a reported c.30 applications, the first cohort of virtual banks are running trials, readying for full launch.

With relatively few licences available, this initiative brought together established brands across banking, capital markets, digital banking, insurance, technology or telco, and retail to propose propositions that would be differentiated and stood a potentially higher likelihood of being granted an application.

Of the eight applications granted, half represent examples of considerable collaboration (see figure 4.13) with Livi VB, SC Digital Solutions and Fusion Bank representing JVs across more than three sectors.

Despite the potential of the new banking licences to stimulate innovation, their stipulated requirements have been met with some criticism — in particular, that the virtual banks would be subject to the same requirements as conventional banks, including the minimum capital requirement of HK$300m (c.£30m).[1]

However, early signs suggest that, through this initiative, as much as 30% of Hong Kong's total banking revenue is estimated to be up for grabs.[2] The policy has also encouraged cross-sector innovation in retail and SME banking, which is relatively unique across markets profiled in this report. It seems to have been particularly effective in attracting increased participation from China's established tech players to bring their established ecosystems to the Hong Kong market.

[1] "Guideline on Authorization of Virtual Banks", Hong Kong Monetary Authority website, https://www.hkma.gov.hk/eng/news-and-media/press-releases/2018/05/20180530-3/, accessed 10 January 2020.
[2] "HSBC and StanChart under attack from China tech", Financial Times website, https://www.ft.com/content/b5f48a50-7240-11e9-bf5c-6eeb837566c5, accessed 10 January 2020.

FIGURE 4.13 | **Primary industry and sector of virtual banking licence holders**[1]

Virtual licence holders	Banking	Financial services	Digital finance	Insurance	Tech/Telco	Retail
Livi VB	Bank of China				JD Digits	Jardines
SC Digital Solutions	Standard Chartered				PCCW/HKT	Ctrip Financial
ZhongAn Virtual Finance				ZA Financial		
Welab Digital			Welab			
Ant SME Services			ANT Financial Services			
Fusion Bank	ICBC	HKEX, Hillhouse Capital			Tencent	Perfect Ridge Limited
Airstar Bank Limited		AMTD			Xiaomi	
Ping An OneConnect				Pingan		

“

Entering the Hong Kong market provides big Chinese tech companies with a perfect test-bed. Hong Kong represents a compelling market to ‘re-learn’ and adapt, before launching in other markets.

FinTech

[1] "Virtual Bank landscape in Hong Kong: May 2019.", Medium website, https://medium.com/@mr5iff/virtual-bank-landscape-in-hong-kong-may-2019-49d794ab6028, accessed 10 January 2020.

Policy and infrastructure: the Hong Kong Government continues to run a balanced programme of investment, regulatory and talent initiatives to develop its FinTech ecosystem

In our 2016 report *On the cutting edge*[1] Hong Kong was positioned as a market with 'potential,' noting in particular its relatively nascent, emerging market and growing community of FinTechs. The ecosystem was also supported by several policy initiatives, including the creation of:

- The FinTech Steering Group (2015): a government-sponsored steering group to identify how Hong Kong can enhance presence of its FinTech hub.
- Set up of the Innovation and Technology Venture Fund (2016): a c.£175m fund to co-invest in local innovation and tech start-ups with private VC funds on a matching basis.
- Injection into the Innovation and Technology Fund (ITF): c.£450m was injected into the existing fund in February 2015 to support projects which contribute to innovation and upgrading technology in industry.

More recently, the Government has continued to support a broad range of initiatives (often mirroring policies in the UK and Singapore) to further establish its FinTech presence. It is worth noting that these initiatives are not uniquely FinTech-related but address innovation in financial services more broadly, often in conjunction with academia. Key policies in 2019 include:[2]

Government funding:

- c.£2b for the Research Endowment Fund of the Research Grants Council under the University Grants Committee (UGC) to provide funding for higher education.
- c.£1b for the ITF to support the continued operation of existing ITF schemes, introduce various new initiatives and promote local R&D activities.
- c.£300m to fund R&D and labs at the Hong Kong Science Park, in addition to earmarking c.£550m for the extension of Cyberport to offer an additional 66,000 square metres of floor area for offices, conference venues and data service platforms.
- c.£49m for the development of financial services over the next five years, including FinTech, in the 2018/19 budget.

[1] UK FinTech On the cutting edge, EY, 2016 (accessed via https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/502995/UK_FinTech_-_On_the_cutting_edge_-_Full_Report.pdf, 10 January 2020).
[2] "Factsheet: Hong Kong Fintech Landscape", Invest HK website, http://www.hongkong-fintech.hk/en/web_assets/files/FintechHK%20Factsheet_ENG_20200228.pdf, accessed 10 January 2020.

Regulation:

- HKMA granted eight virtual banking licences to spur innovation (see previous page).
- The Banking Made Easy initiative is a task force set up with HKMA to reduce regulatory friction in customers' digital experience.

Talent:

- Six universities have started bachelor's or master's degree programmes related to FinTech.
- FinTech-related roles, e.g., data scientists and technology experts, were added to the Talent List to enable access to overseas talent under the Quality Migrant Admission Scheme.
- TechTAS is a programme which provides fast-track admission of overseas and mainland R&D tech talent to undertake R&D work in Hong Kong for FinTech or other technology firms.

"

The Hong Kong Government has seen what other hubs are doing and has realised it needs a strong FinTech ecosystem to maintain Hong Kong's position as a leading global financial services hub.

Investor

Lessons for other markets

- As seen in this market (as well as Nordics), attracting and incentivising participation from FIs and tech players can be a potential catalyst to support innovation in a market. While in other markets, such collaboration has occurred more naturally through market dynamics, in Hong Kong, it has been prompted in recent times by policy (e.g., virtual banking licences).
- Between 2016 and 2019, Hong Kong has taken a consistently proactive policy approach to FinTech through a range of investment, talent and regulatory initiatives. This reflects the importance of not merely 'maintaining' a supportive approach, but actively investing to further the development of the FinTech environment.

Case study market: Nordics

A market with industry-led infrastructure and a rapidly digitising financial services landscape

- **Industry-led innovation:** key infrastructure initiatives in Nordics, such as digital identity (electronic identity or e-ID) and mobile payments, have been industry-led and have gained significant traction.
- **Rapid digitisation of economy:** Sweden rapidly reduced the use of cash in its economy through infrastructure developments; while this has certain benefits, concerns regarding financial inclusion endure.

FIGURE 4.14 | **Number of FinTechs**

c.800-900

- The largest subsector in the Nordics is payments.
- c.50% of all Nordic FinTechs are located in Sweden, with Stockholm the main Nordic FinTech hub. Other hubs include Oslo, Copenhagen and Helsinki.

Source: Tracxn; Findec; EY analysis.

FIGURE 4.15 | **FinTech investment**

c.£725m

- Highly concentrated fundraising in 2019, with the five largest FinTech deals accounting for more than 80% of total fundraising.
- Sweden is the largest contributor to FinTech investment in the Nordics, accounting for c.85% in 2019.

Source: CB Insights.

FIGURE 4.16 | **FinTech adoption (Sweden)**

64%

- FinTech adoption in Sweden is in line with the global average (c.64%).
- One of the top three reasons FinTechs partner with incumbents in the Nordics is to access their high levels of customer trust.

Source: EY Global FinTech Adoption Index 2019.

FIGURE 4.17 | **Financial services landscape**

c.260,000

Employment in FS

c.4%

FS contribution to national GDP

c.10-15%

Average tech spend as % of cost base of largest Nordic banks

c.10-15

Key accelerators and labs of established FIs

- Sweden accounts for c.90,000 of the c.260,000 people employed in financial services in the Nordics.
- The financial services sector is dominated by local firms, with several having a pan-Nordic presence (e.g., Nordea Bank, Danske Bank).
- The Nordic financial services sector represents a relatively modest c.1% of total employment (in comparison with other markets such as the UK (c.3%) and France (c.2%).

Source: IMF; Finans Norge; Swedish Bankers' Association; Finance Finland; Finansforbundet; FinTech Disruptors Report; EY analysis.

“

Being a cashless society makes it easier to introduce new innovative solutions in financial services ... but this does need to be balanced with the broader implications.

Incumbent FI

Demand: a history of strong collaboration between incumbent FIs is a key driver of the ecosystem

The development of infrastructure platforms across the Nordics is often led by industry, frequently involving close collaboration with incumbent FIs. Notable examples of this include digital identity (electronic identity or e-ID) schemes, e-KYC and mobile payments infrastructure.

1. Federated e-ID schemes

As early as 2003, banks in the Nordics began collaborating to establish digital identity schemes. Banks collaborated for several reasons, including the following:

- They realised they had an existing unique capability, in that they had already authenticated a significant portion of the country's population (the c.98% of the Nordic population who had bank accounts[1]).
- There were benefits they could capture, such as spreading the cost of infrastructure, cost savings from an increase in process efficiency and the opportunity to increase sales (e.g. from improved product availability and ease of customer journey).

Since their launch (beginning in 2003 with Sweden and Finland), e-IDs have gained significant traction in the Nordics, with high penetration across Sweden (78% of the population), Norway (74%), Denmark (85%) and Finland (87%).[2]

e-IDs have also formed the foundation for improved outcomes for customers and innovative financial services products and services, including, faster loan applications such as DNB's two-minute home loan, 24/7 access to banks products and services, and new payment solutions such as Swish payments in Sweden.

> Digital identities have enabled the digitisation of banking.
>
> **Incumbent FI**

> We've had a collaborative culture in the Nordics for decades and this is now being applied to FinTech; the Government doesn't need to nurture this as it's already happening.
>
> **FinTech**

[1] Elaine Kempson, Adele Atkinsona and Odile Piley, Policy level response to financial exclusion in developed economies: lessons for developing countries, The Personal Finance Research Centre University of Bristol, September 2004 (accessed via https://www.bristol.ac.uk/media-library/sites/geography/migrated/documents/pfrc0409.pdf, 10 January 2020).

[2] Federated e-IDs as a value driver in the banking sector based on experience from Nordic markets, Arkwright Consulting, 2019 (accessed via https://resources.signicat.com/federated-eids-arkwright, 10 January 2020).

2. Other industry collaborations

The experience and trust built by establishing e-IDs collaboratively has enabled the development of further key financial services infrastructures amongst FIs in the Nordics. For example, Swish is a Swedish mobile payments platform which was launched by six of Sweden's largest banks in 2012, allowing instant payments between individuals and companies. Today, it is used by almost seven million people, or more than two thirds of Sweden's population.[1]

An example of a more nascent infrastructure platform is a collaboration between six Nordic banks that are collaborating to build a shared KYC utility for large and mid-sized Nordic companies. One of the motivating factors for this initiative is that an estimated 80% of processes and information required for KYC overlap between the banks, thus creating a strong case.[2]

Key milestones in the collaboration have already been reached, including securing ECB approval for the platform and agreeing a shared KYC standard for compliant KYC information.

> "
>
> Sweden outlines the dangers of sleepwalking into a cashless society. Millions of people could potentially be left out of the economy, and face increased risk of isolation, exploitation, debt and rising costs.
>
> **Access to Cash Review, 2019**

Policy and infrastructure: relatively rapid creation of cashless economy, though financial inclusion concerns persist

More broadly, Sweden has advanced rapidly in its transition to a digital economy, where advances in financial services infrastructure, as well as general consumer preferences, mean the need for cash has diminished rapidly in Sweden:

- A total of 99.7% of Sweden's population is 'banked'.[3]
- In 2018, only c.13% of respondents in Sweden noted their most recent purchase featured cash compared with c.40% in 2010.[4]
- c.20% of Swedes say they never withdraw cash at all.[4]
- Approximately 900 of the 1600 bank branches in Sweden no longer distribute or accept cash.[5]

Though the rapid move to a digital banking society has had its benefits (such as the increased convenience of mobile payments, or the enhanced security of e-IDs), the reduction in cash has highlighted a number of potential concerns, which were widely mentioned in our stakeholder interviews. A core issue is that those who are unable to access digital services may find it increasingly difficult to make payments, and are therefore excluded from financial services. Particularly vulnerable groups include the elderly, people with disabilities, refugees and rural populations.

[1] "For a simpler everyday life", Swish website, https://www.swish.nu/, accessed 10 May 2020.
[2] "KYC Utilities: The Promised Silver Bullet for Nordic Banks?", Finextra website, https://www.finextra.com/blogposting/17839/kyc-utilities-the-promised-silver-bullet-for-nordic-banks, accessed 10 January 2020.
[3] "Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+)", The World Bank website, "Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+)", The World Bank website, https://data.worldbank.org/indicator/FX.OWN.TOTL.ZS, accessed 10 January 2020.
[4] Payment patterns in Sweden 2018, Sverignes Riksbank, 2018 (accessed via https://www.riksbank.se/globalassets/media/statistik/betalningsstatistik/2018/payments-patterns-in-sweden-2018.pdf, 10 January 2020).
[5] The Access to Cash Review – Final Report, Access to Cash Review, 2019 (accessed via https://www.accesstocash.org.uk/media/1087/final-report-final-web.pdf, 10 January 2020).

“

> Sweden didn’t really think about inclusion as the various initiatives slowly reduced the use of cash in the system. It was an afterthought.

Policymaker

In response, the Swedish Parliament passed a law which will require banks holding more than c.£5.6b in deposits to continue to offer cash services. The testing phase began on 1 January 2020 and is expected to roll out in practice from 1 January 2021.[1]

Sveriges Riksbank (Sweden’s central bank) has also raised concerns about the reduction in cash usage, and is exploring the possibility of issuing a central bank digital currency, 'e-krona,’ with the aim of including all groups in society in the shift to a digital economy.

Lessons for other markets

- Though Sweden’s rapid migration to digital payments has produced benefits (e.g., convenience, security and efficiency), it has raised an important consideration regarding financial inclusion. As other countries consider their its national digital agenda, consumer interest – be it related to data privacy or security, inclusion or sustainability – must be taken into account.
- As evidenced through Sweden’s e-ID and mobile payments infrastructure schemes, collaboration between established institutions can be a powerful catalyst for innovation. In the case of e-IDs and the more nascent e-KYC, both provided participants with benefits in terms of cost sharing and process efficiency. For markets with limited collaboration, starting with cases that result in clear synergies could be a potential catalyst.

[1] "Do we have the right to demand cash services at banks?", Sveriges Riksbank website, https://www.riksbank.se/en-gb/payments--cash/payments-in-sweden/payments-in-sweden-2019/the-payment-market-is-being-digitalised/cash-use-in-constant-decline/do-we-have-the-right-to-demand-cash-services-at-banks/, accessed 10 January 2020.

Considerations for future policy

A leading scale-up ecosystem

Based on our analysis of UK challenges and accelerators, as well as learnings from international ecosystems, we propose the following set of themes and considerations to propel the next stage of UK FinTech development. These considerations have not undergone an impact or business case assessment and should be taken as a basis for further work.

Support FinTechs in scaling, promoting greater competition and wider-reaching innovation in financial services.

The UK has a strong environment for start-ups and has established itself as a globally leading ecosystem for setting up a FinTech business. There is now a critical opportunity to ensure that the UK is the market-leading ecosystem for fast-growing FinTech businesses to scale up.

Scale-up challenges that UK FinTechs cited include access to growth capital, the ability to seamlessly recruit, reward and retain talent, build operational resilience and navigate increasingly complex regulatory requirements as businesses grow.

We see the need for a range of comprehensive support to foster a stronger scale-up environment.

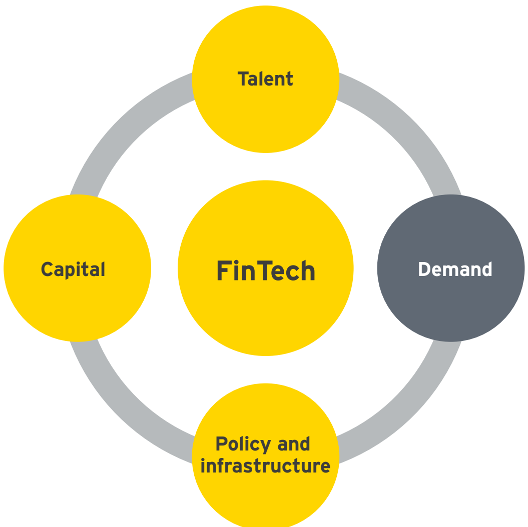
Capital

While access to capital remains relatively robust in the UK (particularly for early stage funding), a gap in growth capital persists and is a key scale-up challenge cited by interviewees.

Sources of late stage VC and private growth equity

Our research evidences a view that more can be done to unlock new and varied sources of growth capital both from the UK and internationally. This includes (but is not limited to):

- Institutional investors (e.g., UK PE funds), noting that a regulatory fee cap on fees paid by defined contribution schemes is a key impediment to UK pension fund investment into VC and growth equity funds[1]
- SWFs
- Overseas sources of patient capital



[1] We note that the BBB has undertaken detailed work on ways to unlock UK pension fund investment (including modifications to fee and cost structures) which has been welcomed by the Association of Investment Companies and referenced by interviewees in this report.

Leading examples of scaling FinTechs and a serial investor mindset

Our research shows that there is a need to promote greater awareness of the UK as a scale-up destination. In turn, this may help to engender a 'mindset shift', making the sector more accessible to growth investors and encouraging a serial investor culture where investment is 'recycled' back into FinTech.

This could be achieved by showcasing leading examples of UK-headquartered FinTechs that have successfully articulated a clear customer growth strategy, scaled and expanded overseas. This type of awareness and education initiative could be led by third parties such as industry associations, trade bodies or sources of investor education.

A leading scale-up ecosystem: capital — international best practices

Unlock new and varied sources of growth capital	Canada	Large pension funds such as the Canada Pension Plan Investment Board (CPPIB) are increasingly investing in VC funds, with CPPIB aiming to deploy an initial CA$1b to VC funds in North America and Europe.[1]
		Two of Canada's largest pension investment managers (CDPQ and PSP Investments) are both investors in the CA$229m FinTech-focused VC fund, Portag3 Ventures.[2]
	Australia	The large superannuation market is increasingly opening up to VC as an asset class.
		Investment into VC funds by superannuation funds was AU$1.3b in 2018 compared with AU$200m in 2014.[3]
		More than a quarter of Australian VC firms manage money on behalf of superannuation funds.
	Singapore	There are notable examples of large SWFs such as GIC and Temasek investing directly into tech and FinTech businesses (Temasek has holdings in Scottish FinTech FNZ[4] as well as Policybazaar[5], Ant Financial Services[6] and Gojek[7] in Asia).
Showcase successful examples	France	A FinTech index, Next40, has been established to group the 40 most promising French start-ups that have the highest prospects of becoming global tech leaders, to increase their international profile.
Support a serial investor mindset	US	A 'serial entrepreneur' culture has prompted a 'serial investor' culture — where capital from successful FinTech investments and exits is recycled back into the sector.

[1] "CPPIB intends to invest up to $1 billion in venture capital funds.", The Logic website, https://thelogic.co/news/exclusive/cppib-intends-to-invest-up-to-1-billion-in-venture-capital-funds/, accessed 10 January 2020.
[2] "Major pension plans join investor group pumping $229M into Portag3's second fintech fund.", Financial Post website, https://business.financialpost.com/news/fp-street/major-pension-plans-join-investor-group-pumping-229m-into-portag3s-second-fintech-fund, accessed 10 January 2020.
[3] Australian Private Equity & Venture Capital Activity Report May 2019, Australian Investment Council, 2019 (https://www.aic.co/common/Uploaded%20files/Yearbooks/AIC%20Yearbook%202019_Web.pdf, 10 January 2020).
[4] FNZ Group welcomes new investment from Temasek, FNZ website, https://www.fnz.com/news-and-insights/2020/02/10/fnz-group-welcomes-new-investment-from-temasek/, accessed 10 January 2020. .
[5] PolicyBazaar raises over $238 million in SoftBank-led round, Economic Times website, https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/indias-policybazaar-raises-over-200-mln-in-softbank-led-round/articleshow/64734167.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst, accessed 10 January 2020.
[6] "GIC, Temasek participate in Ant Financial's US$14b Series C funding round", The Strait Times website, https://www.straitstimes.com/business/invest/gic-temasek-participate-in-ant-financials-us14b-series-c-funding-round, accessed 10 January 2020.
[7] "Google, Temasek investing in Go-Jek in $1.6b funding round.", The Strait Times website, https://www.straitstimes.com/business/google-temasek-investing-in-go-jek-in-16b-funding-round, accessed 10 January 2020.

A strong and proactive local stock exchange

The LSEG is the largest exchange in Europe and in the top 10 globally.[1] It comprises a designated submarket, AIM, which is well positioned to provide small and mid-cap companies with access to public market capital, and a designated business programme to help fast-growing companies scale and access capital. Therefore, the strength of local exchanges sets the UK in good stead to be the exchange of choice for global FinTech listings.

Our interviews suggest that consideration should be given as to how public equity markets can be enabled to continue to play an important role in cultivating the UK as the global scale-up capital. This includes initiatives to:

- Benchmark the role of various trading venues (e.g., in the US), particularly as they apply to high-growth tech and FinTech businesses.
- Consider the functioning of junior markets (which is a differentiator for the UK relative to markets such as Singapore and Australia), including access to liquidity.
- Given the level of competition across exchanges globally, showcase the UK's success in high-growth listings to attract new listings and foster a more open culture and mindset.

Employee share ownership schemes

Our research suggests that scaling FinTechs in the UK face impediments in leveraging EMI schemes, with most scale-ups falling outside the current size restrictions on the EMI relief. This may affect the ability of fast-growing businesses to attract investors and reward and retain talent flexibly.

The UK may therefore want to consider how employee share ownership schemes could be enhanced to support scaling FinTechs.

Talent

Seamless access to talent to scale

One of the mostly commonly cited challenges for fast-growth UK FinTechs relates to the speed, cost and seamlessness of accessing foreign talent which is critical to support UK FinTechs in scaling.

Our findings strongly support the need to explore the UK's visa and migration framework, particularly as it applies to fast-growth tech and FinTech businesses (see page 26 for further considerations on access to foreign talent).

Policy and infrastructure

Scale-box support to navigate regulatory landscape

The FCA's Project Innovate and the regulatory sandbox is a global leader in terms of formal and informal regulatory support for FinTechs in the set-up phase. However, following graduation from the sandbox, as UK FinTechs scale, they state that they could benefit from support to navigate increasingly complex regulatory questions and requirements, and additional 'safe spaces' to test and develop consumer-centric propositions.

We suggest that the FCA should consider how regulatory support can be extended beyond the regulatory sandbox. A regulatory 'scale-box' concept, including formal and informal support (with the latter praised as particularly effective), could help scaling FinTechs navigate regulatory changes, build operational resilience and embed best-in-class practices to support sustainable growth.

International connectivity

Targeted approach to inbound and outbound FinTech activity

To become the global scale-up capital, the UK needs to help UK-headquartered FinTechs tap into global markets (expanding their base of customers and investors) as well as attract high-growth global FinTechs to expand into the UK.

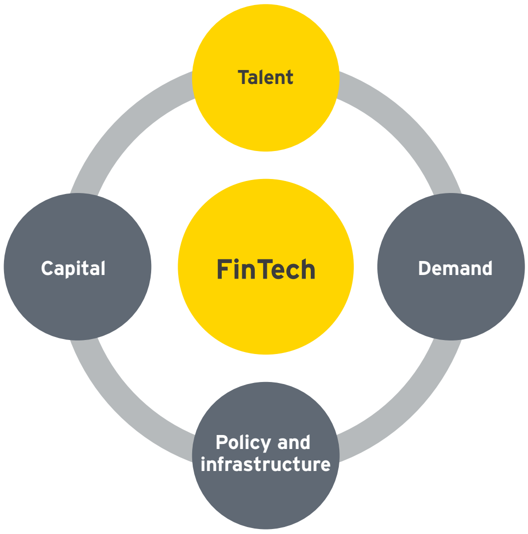
This requires a targeted approach to inbound and outbound FinTech activity (see page 114 for further considerations on international connectivity).

[1] Based on market capitalisation; "10 Largest Stock Exchanges in the World.", Trade Brains website, https://tradebrains.in/10-largest-stock-exchanges-in-the-world/, accessed 10 January 2020.

Globally leading FinTech talent

Ensure FinTechs have improved access to the world-class talent that they need to set up and scale.

The market for international FinTech talent is extremely competitive. More than half of UK FinTechs cite attracting talent as the number one challenge facing the sector.[1] The UK must act quickly and with certainty to strengthen its access to domestic and international talent, and shape talent policy to the specific needs of the high-growth FinTech sector.



Domestic talent pipeline

Skills pipeline

Our research suggests that the skills shortage experienced more broadly in financial services in the UK (recently documented by TheCityUK[2]) applies acutely to the FinTech sector, and innovation and specialist technical roles within financial services.

We suggest that the UK develops a national talent strategy to increase and diversify the supply of talent within financial services. This may include the need to:

- Better understand the current and future skills gaps, including the skills supply pipeline and the demand for digital and technology skills.
- Work with education policymakers and providers to consider how school curriculums can best support young people to develop sought-after STEM capabilities and create a 'digitally minded' pipeline of talent.
- Collaborate with universities and schools to increase awareness of FinTech and financial services innovation, and consider the use of channels such as apprenticeships and work placements to attract talent to the sector.
- Consider the diversity of the talent pipeline, noting that diversity gaps originate during schooling and that employers play a key role in attracting and retaining a diverse workforce.
- Explore the potential for employee share ownership schemes to attract talent to FinTech by supporting fast-growing businesses to flexibly reward and retain their employees.

We note the recent work of the Financial Services Skills Taskforce in this area and encourage the delivery of Taskforce's recommendations by the sector.

[1] EY UK FinTech Census 2019, EY, 2019 (accessed via https://www.ey.com/en_uk/banking-capital-markets/uk-fintech-census-2019, 10 January 2020).

[2] The Financial Services Skills Taskforce, TheCityUK, 2020 (accessed via https://www.thecityuk.com/research/financial-services-skills-taskforce-final-report/, 29 January 2020).

Globally leading FinTech talent: domestic talent pipeline - international best practices		
Attract domestic talent to FinTech	Singapore	A range of local talent initiatives (albeit perceived by interviewees as having mixed impact), including the subsidisation of salaries, training and hardware costs for new employees.
		Collaborations between polytechnics and industry to create internships for FinTech students.
		Subsidisation for re-training in FinTech-related courses.
	US	High levels of collaboration between universities and industry which have helped to create a strong pipeline of FinTech talent (e.g., the Technology Association of Georgia created a FinTech academy with the University System Georgia, in partnership with industry, to identify skills they will be looking to hire for in 10 years' time).
Attract foreign FinTechs through strong local tech talent	India	Access to a strong pool of local tech talent, considered a key strength for India and one of the main reasons why foreign FinTechs have established a presence there (e.g., Uber's establishment of a 100-member FinTech team that will provide software development and machine learning capabilities).

Access to foreign talent

Visa framework for high-growth sectors

Fast-paced access to foreign talent is a particularly important issue for UK FinTechs, as the sector is highly dependent on global workers; c.42% of UK FinTech employment is from outside the UK (vs. c.28% for financial services as a whole) of which roughly two-thirds is drawn from the European Economic Area (EEA). The vast majority of UK FinTechs (c.82%) state they face difficulties recruiting non-EEA talent.[1]

Interviewed UK FinTechs noted that the UK's immigration system is going through substantial change, presenting a unique opportunity to shape how that system will enable access to foreign talent for the FinTech sector and consolidate the UK's status as a global leader for FinTech, without compromising on broader immigration policy.

Our research shows support for the following considerations:

- A future migration framework could consider the specific needs of high-growth FinTech businesses, potentially including a fit-for-purpose tech visa pathway with reduced frictions. We note that other markets are positioning themselves to better compete for international talent through specific tech visa solutions (see below).
- Foreign innovators and tech talent who meet certain criteria could potentially be able to enter the UK on a self-sponsored basis, allowing for flexibility, mobility and experimentation, and enhancing the UK's standing as a destination for top innovative talent.
- Any salary thresholds or requirements for foreign worker visas might recognise the typical structure of compensation used by high-growth businesses, particularly the use of equity (which is currently not recognised in salary thresholds) as a preferred means of compensation in FinTech.
- The RLMT (which requires employers to complete mandatory advertising for a 28-day period) could be removed. While the Government has expressed its intention to do so, this has not yet been implemented.
- To continue to attract foreign talent, the UK could look for ways to promote and market the region as the top destination for tech talent, attending key global FinTech industry events and showcasing examples of foreigners who have come to the UK to lead successful FinTechs and fulfil their career ambitions.

[1] 2021 Future Immigration System Webcast Polling Results, EY, 2020.

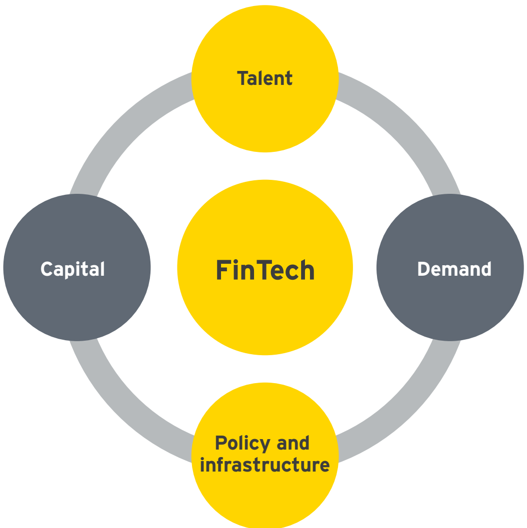
Globally leading FinTech talent: access to foreign talent – international best practices		
Support fast-paced access to foreign talent	France	Having stated an ambition to unseat the UK in FinTech, France introduced a 'tech visa' to make it easier for more tech start-ups to hire foreign talent with an improved process and lower cost.
	Australia	The Global Talent Independent programme was launched in November 2019 to provide a streamlined priority visa pathway for skilled workers in top future-focused fields (including FinTech).
		Collaboration between government, Australian universities and trade bodies is intended to attract global talent.
		Designated 'global talent offices' in several countries attend key industry events or expos and promote the programme.
		The programme is still relatively new, but the Government has committed to faster processing times than current skilled visas.
	Canada	The Global Skills Strategy facilitates faster entry for highly skilled foreign talent.
		It includes: two-week permit processing times for eligible skilled workers and work permit exemptions (where applicable) for certain short-term work.
		Occupations covered include computer engineers, computer programmers, software engineers and designers, and web designers and developers.
Avoid explicit foreign talent restrictions	Singapore	The foreign worker quota (i.e., restrictions on the ratio of foreign to local workers) can make it difficult for Singapore FinTechs to employ foreign workers, and is considered a challenge for the sector.

A network of diverse and vibrant regional centres

Accelerate the work that has been done to date to create regional clusters for financial services innovation.

There are flourishing FinTech and technology clusters in many UK cities including, but not limited to, Belfast, Birmingham, Bristol, Edinburgh, Leeds, Manchester, Newcastle and Cardiff. These centres have benefitted from a range of industry and government initiatives.

To maintain the UK's international competitiveness, it is essential to unleash the rich pool of FinTech talent, niche capabilities and academic expertise in UK cities. This will help the UK to keep pace with a global trend of specialisation and ensure that UK FinTech remains diverse and inclusive.



National connectivity

Our research suggests the following key principles to develop a nationally connected FinTech sector:

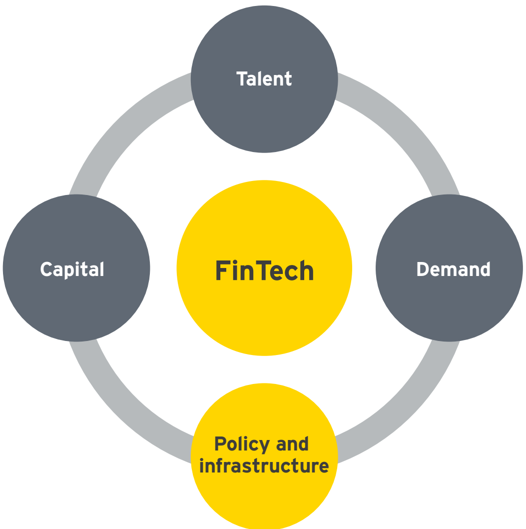
- The development of regional clusters should look to anchor on pre-existing specialisms: typically, hotspots of activity in a defined area – e.g., cybersecurity and compliance in Belfast, insurance (notably aggregation and price comparison) in Wales and lending in Leeds.
- Connections to universities and academia both to build the pipeline of talent (e.g., through FinTech courses and assessing skills gaps) and to develop and accelerate niche capabilities (e.g., research centres focused on deep tech specialisms).
- FIs could be further encouraged to embrace the potential of regionalisation, drive talent initiatives (e.g., graduate training academies) and locate significant leadership roles (including those with responsibility for innovation) in regional centres. Notable examples that can be showcased include Citi in Belfast and HSBC in Birmingham.
- Rather than operating in silos, UK FinTech benefits from regional clusters that are connected and collaborative. To ensure connectivity, the UK could consider solutions to support sustainable travel and virtual working that will enable one regional cluster to easily access and leverage the strengths of other clusters (including London).

A network of diverse and vibrant national centres – international best practices		
Develop several strong regional clusters	US	This is a large market with a number of regional clusters, including Silicon Valley, New York, Charlotte, Georgia and St. Louis.
		Regional clusters are supported by an ability to leverage an existing industry infrastructure, strong local universities and collaboration between local ecosystem players.
		Nonetheless, connectivity and collaboration between regional clusters is low.
	Australia	A second hub (outside Sydney) has developed in Melbourne, supported by state government initiatives to promote the region's benefits, particularly to overseas FinTechs, helping to create specialisation in key verticals (e.g., in payments and cyber).

A targeted approach to inbound and outbound FinTech

Make the UK the destination of choice for overseas FinTechs and support high-growth UK FinTechs in accessing international demand, talent and capital.

Interviewees credit the UK as one of the first regions to pioneer formal arrangements to enhance international connections; for example, through bilateral partnerships and FinTech bridges. Our research indicates that more needs to be done to broaden these initiatives or arrangements and deliver tangible outcomes, particularly for UK FinTechs in the scale-up phase.



International connectivity

Interviewees recognise that greater international connectivity could be a real accelerator for the UK FinTech sector and its central position on a global stage.

Considerations from our research for future policy include the following:

- There is an opportunity to build on and promote recent examples of collaboration agreements, including the UK-US Financial Innovation Partnership (aimed to encourage collaboration on regulation, sharing of technical expertise and enhanced commercial opportunities), as well as the UK-Australia FinTech bridge.
- FinTechs benefit from a range of initial operational support when entering new markets; this ‘concierge service’ could include:
    - A route to access talent, potentially via partnerships with universities and research centres, and introductions to local market recruiters.
    - Support with office space, potentially via local trade associations and accelerators.
    - Informal regulatory support to navigate a different regulatory landscape.
- As above, showcasing successful examples of FinTech inbound and outbound activity can help to attract foreign capital and talent to the UK. This could include promotion of successful high-growth, UK-headquartered FinTechs which have expanded to other markets and FinTechs from other markets that have chosen the UK as a global launchpad.

A targeted approach to inbound and outbound FinTech — international best practices		
Drive international connectivity	Singapore	A leading hub in the ASEAN region, highly connected to neighbouring countries and a driver of regional policy.
		Playing a leading role in setting up regional networks such as AFIN.
		Numerous bilateral arrangements and Memorandums of Understanding, including with Indonesia, Vietnam, Canada and France, to facilitate information sharing and joint innovation projects, and support FinTech market expansion.

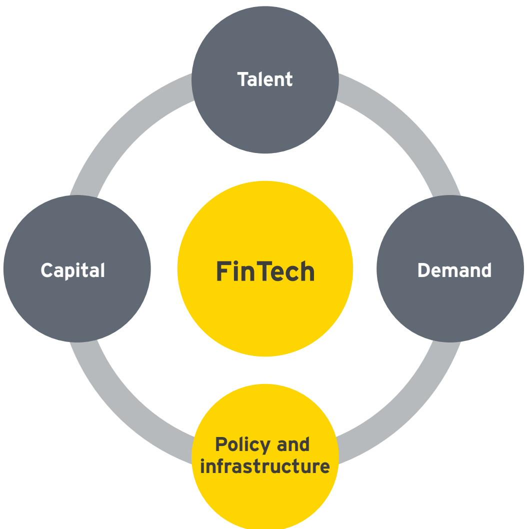
An integrated national digital agenda

Building an integrated, cross-sector approach to digital, which is underpinned by world-class public digital infrastructure to accelerate financial services innovation.

The FinTech sector develops most rapidly and effectively when supported by world-class public digital infrastructure. Equally, it is no longer sufficient for markets to have a FinTech digital strategy alone – it needs to integrate with a broader digital strategy that supports and enables sustainability and inclusion.

Interviewees across all markets recognise that digital infrastructure can rapidly accelerate FinTech sector development and financial innovation.

The UK is considered market-leading with respect to certain key digital infrastructure planks, including payments, API development and open banking. It has also stated clear ambitions to accelerate its position as a leader in AI and data. In this regard, it will be important for the UK to not only maintain the resilience of current infrastructure but also consider its approach to new infrastructure initiatives, such as digital identity, where international momentum is rising.



Financial passports and digital identity

Our research suggests that a considered and nuanced framework for digital identity will support the UK's position as a market-leading digital economy and help to create a more inclusive financial system.

Informed by our global learnings and the key strengths and challenges in the UK, we highlight the following possible set of foundational principals to establish a world-leading, resilient framework for digital identity in the UK:

- A consumer-centric opt-in approach with a primary focus on privacy protection, data security and financial inclusion.
- A market-making role for government, working collaboratively with the private sector, particularly in relation to the setting of common standards that can be used across public and private sector use cases.
- A framework that is interoperable with other markets as opposed to designed in isolation.
- An opportunity that applies to both consumer and SME markets (while international activity has concentrated on the former, we see a powerful opportunity for SME financial passports to help address the current SME funding gap and the critical challenges that SMEs face in accessing external finance).
- A need for a coordinating agency or unit to drive cross-public sector collaboration (e.g., Government Digital Services which is part of the Cabinet Office).

An integrated national digital agenda: financial passports and digital identity – international best practices		
Consider a framework for digital identity	Singapore	MyInfo, a government-led digital identity solution, eliminates the need for citizens to provide and verify their personal ID when transacting online.
		Singapore's digital identity scheme, including MyInfo, has the advantage of being able to leverage the physical national identity card scheme.
	India	Aadhaar, a government-led national digital identity solution, initially acted as a leapfrog initiative for the level of digitisation and FinTech activity.
		Concerns raised around its centralised nature and government ownership, in addition to the tying of financial passports to essential services, has led to legislative changes, limiting FinTech applications and benefits.
	Nordics	Bank IDs in the Nordics have seen rapid adoption since their launch in the early 2000s.
		They are differentiated by being an entirely private solution (i.e., created by the large banks), and cited as narrowing the number of public and private sector use cases they could be applied to.
	US	The lack of a formal national identity system means the private sector has responded and created disparate solutions.
		The lack of interoperability with frameworks in other markets is considered to be a barrier.

Open finance

The UK is a global pioneer for open banking, an initiative that is fundamental to the UK's leading position in the development and application of FinTech. To build on this position, the UK needs to continue to evolve its current open banking framework (which applies to current and savings accounts for consumers and SMEs) into a broader open data initiative across consumer and SME segments.

This involves building relevant APIs, unlocking new use cases and developing propositions that apply not only across financial services but also to utilities and telecommunications. It also involves supporting public awareness-raising and education of the benefits and risks of open banking.

The FCA has called for input from interested stakeholders on extending open banking principles to give consumers and businesses more control over a wider range of their financial data, such as savings, insurance, mortgages, investments, pensions and consumer credit.

An integrated national digital agenda: open finance — international best practices		
Take open banking to the next frontier	Australia	While open banking is still highly nascent (with the launch expected in 2020), the Government has designed a broad approach from the outset, with use cases outside financial services, in utilities and telecommunications.

Payments infrastructure

The UK has an opportunity to maintain its current infrastructure, which is considered market leading, in many aspects, while also considering ways to continue to enhance strong payments capability — i.e., expanding beyond domestic real-time capabilities to a cross-border infrastructure to support a broader set of use cases across consumer and commercial trade.

In this regard, the Bank of England's RTGS rebuild is a notable example of enhancing existing infrastructure to support innovation, and opening it to non-bank providers. In this vein, the UK should consider additional initiatives to foster innovation and support the next generation of payments.

An integrated national digital agenda: Payments, Infrastructure —International best practices		
Preserve and enhance payments infrastructure	Nordics	Payments infrastructure is industry led, (e.g., Swish), and has high penetration (two out of every three transactions are made through Swish).
		This approach to infrastructure, while highly successful, has created challenges for inclusion (i.e., it has quickly created a cashless economy without first considering financial inclusion) and has led to reactive government intervention.
	India	Developed by the National Payments Corporation of India (NPCI), in 2016, UPI is a real-time payments infrastructure, facilitating inter-bank transactions using a mobile application.
		UPI has been successful in moving Indian consumers away from cash. This is evidenced in the significant growth in number of transactions since 2017, from 428m to 10.8b.[1]

[1] "UPI crossed 10 billion transactions at the end of 2019.", Medianama website, https://www.medianama.com/2020/01/223-upi-crossed-10-billion-transactions-at-the-end-of-2019/, accessed 10 January 2020.

Emerging technologies

The Government has recognised the potential impact of emerging technologies, such as AI, will have on the way we live and work, identifying AI and data as one of four UK grand challenges (as part of its AI Sector Deal).

As part of this commitment, the Government has outlined a package of up to £0.95b of support for the sector, which complements the c.£1.7b of funding already committed under the cross-sectoral Industrial Strategy Challenge Fund.

A year since the AI Sector Deal was announced, significant progress is evident including creation of the AI Council and 16 new centres for doctoral training at universities across the country, delivering 1,000 new PhDs over the next five years. To ensure benefits of AI are realised across the country, a £50m investment was also announced to launch five new centres of excellence in Coventry, Glasgow, Leeds, London and Oxford.

The focus on the potential of AI is clear. As such, there is now an opportunity to build on this platform and explore the applications of AI and other emerging data and computational techniques for new financial services infrastructure initiatives as a means to unlock new innovative functionality and use cases.

Public-private sector collaboration

The building of public digital infrastructure is an area where collaboration and partnership across the public sector, as well as between the public and private sectors, is particularly beneficial (as the UK's pioneering experience of open banking, has shown). This will enable the UK to develop infrastructure that has widespread applicability and is sufficiently anchored in broader social and economic priorities.

Pursuit of competition mandate

The FCA's explicit competition mandate is considered a key strength for the UK in pursuing a national digital agenda. Interviewees from across markets noted how they believe this mandate has been a key contributor to the level of innovation in financial services in the UK.

This presents an opportunity to consider how other public sector stakeholders who pursue competition objectives could further elevate innovation.

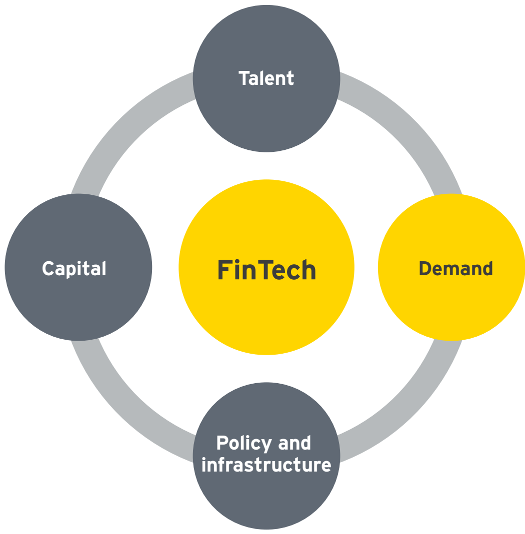
Deep and diverse sources of FinTech demand

Consumer FinTech demand

While the pace of consumer FinTech adoption has increased markedly in the UK (and globally), it nonetheless remains behind other markets such as India and China.

Our research indicates that there is an opportunity to:

- Increase education and awareness (potentially led by trade associations, the not-for-profit (NFP) sector, government and industry) on key use cases where FinTech is significantly improving customer experience and outcomes. This could include open banking use-cases in personal financial management and credit analytics, as well as account switching and price comparison.
- Enhance the level of financial inclusion – given the maturity of the UK's digital economy and consumer FinTech adoption, the UK faces a critical window to consider financial inclusion and the impacts of increasing digitisation on large groups in society (e.g., the elderly).



Deep and diverse sources of FinTech demand: Consumer, – international best practices		
Support consumer demand for FinTech	India	Aadhaar's initial roll-out prompted a surge in citizens from rural areas being eligible for bank accounts. This in turn led to significant growth in the number of consumers registered on FinTech platforms, with many utilising Aadhaar for KYC.

SME FinTech demand

While UK SMEs are an engine of growth in the economy, they are critically underfunded, with an estimated funding gap of c.£22b.[1] FinTechs and the innovation that they stimulate are key to unlocking credit markets and removing the current frictions that SMEs face in accessing external finance:

- Raising awareness of alternative lending providers: alternative finance can play a significant role in helping to address the large SME financing gap, yet alternative financing providers only account for c.10% - 15% of unsecured lending to SMEs. As such, initiatives to raise the profile of these lenders could be powerful to generate broader awareness amongst SMEs.

[1] Improving access to finance for small and medium-sized enterprises, National Audit Office, 2013.

- Support for switching: despite the presence of switching services, business current account (BCA) switching rates are still low (i.e., c.5% of all accounts switched in December 2019). Interviewees highlighted that the process is still cumbersome and that persistent friction continues to make BCAs sticky. Easier switching services, combined with more prevalent use of SME product/pricing comparison, could be an effective way to stimulate awareness (and potential adoption) of SME FinTech banking alternatives.
- Development of SME financial passports: the concept of an open platform to support SMEs in accessing multiple credit providers, while presenting a picture of their affordability and credit worthiness, could be an effective proposition to reduce asymmetry of information and increase efficiency in SME lending. In this regard, there could be a role for government to play in generating momentum for such a proposition alongside FIs, FinTechs and relevant trade bodies.

Deep and diverse sources of FinTech demand: SME — international best practices		
Support SME demand for FinTech	Australia	In Australia, c.40% of B2B end customers are SMEs.[1]
		This has been led by demand for lending products where FinTechs are applying technology to improve approval and risk management processes.

FI and Government FinTech demand:

To encourage greater collaboration between FIs and Government, and FinTechs, FIs and Government could consider steps to standardise third party vendor risk assessment frameworks: FIs (e.g., largest retail and investment banks) and public sector bodies could create a standard framework that FinTechs can comply with to make it easier for FinTechs to partner with such clients.

Deep and diverse sources of FinTech demand: FI and Government — international best practices		
Support FI demand for FinTech	US	FIs are increasingly willing to partner with FinTechs to benefit from new technologies and capabilities.
		By fostering a dynamic FinTech ecosystem, FIs in the US are increasingly partnering with FinTechs to enhance processes and onboarding, and launch new products (e.g., BoA &, HighRadius).

[1] EY FinTech Australia Census 2019, EY, 2019 (accessed via https://fintechauscensus.ey.com/2019/Documents/EY%20FinTech%20Australia%20Census%202019.pdf, 10 January 2020).

Appendix

Appendix A: UK FinTech market sizing methodology

Our definition of FinTech

For our UK market sizing, we have defined a FinTech as an organisation that undertakes one or more business activities that relate to the use of innovative business models and technology to enable, enhance or disrupt financial services. This definition includes those undertaking B2C and B2B services and companies that describe themselves as B2B2C, within the B2B category.

This definition can be referred to as ‘emergent’ FinTech (see HM Treasury’s UK FinTech: *on the cutting edge 2016* and UKTI’s *Landscaping UK FinTech* for further details). We note that this is distinct from the high levels of innovation undertaken by ‘traditional’ FIs, as part of their established business models.

The estimated c.£11.0b of FinTech revenues relates to this definition of ‘emergent’ FinTech. Please see a list of indicative service categories to the right.

List of in-scope service categories by customer segment

Retail
Money Transfer and Payments
Budgeting and financial planning
Savings and investments
Borrowing
InsurTech

B2B
Banking and Payments
Financial Management
Financing
InsurTech
Enterprise FinTech Services

Contacts

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