

Fintech innovation: perspectives from Singapore and London



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Executive summary

The efficiency, convenience and reach of financial services has been significantly enhanced by the development of the fintech industry. Today, services including payments, insurance, lending, capital raising and investment management have all benefited from the boom in fintech. These opportunities are reflected in the fast growing investment value of the fintech sector, with global fintech investment almost doubling to US\$38.9bn between 2014 and 2017. As a result, many countries want to be a centre of fintech innovation.

Research consistently places London and Singapore as excellent hubs for fintech activity and, by exploring their strengths and challenges, we can highlight what drives successful fintech innovation more generally. This report summarises the findings from research undertaken by ICAEW and ISCA (Institute of Singapore Chartered Accountants) into fintech in London and Singapore.

Interaction, learning and collaboration

Fintech is most effective when innovators, investors and regulators can interact, build networks and learn from each other. As a result, the development of fintech solutions is generally concentrated in specific geographical locations, or 'hubs', where five key elements co-exist and work together – markets, talent, capital, progressive regulation and strong government support.

Both London and Singapore benefit from having all of these elements in a single location, as well as mature and successful financial services sectors which provide strong foundations for fintech. However, no hub operates in isolation, and there is a need to draw on markets and global talent, and develop strong links with other hubs.

Sustainable customer benefits

Fintech innovation must focus on delivering essential financial services in a way that better serves the needs of customers and ultimately delivers value to investors. As the sector matures, successful fintech businesses face new challenges in funding growth and expansion. They need to build profitable and transparent business models. They may also encounter new questions about ethics, especially how they are generating revenue through the use of customer data.

Sandboxes can help regulators to develop appropriate interventions which manage risk and promote innovation. However, the ultimate purpose of fintech developments may not always be clear. For example, cryptocurrencies do not easily fit into established concepts of financial services such as stores of value, means of exchange, or investments, making it harder to understand their long-term risks and benefits.

Local differences

While the five core elements of innovation are common, there are also many differences between fintech markets. Therefore, businesses, regulators and governments need to adapt and tailor their fintech strategies to meet the particular needs of the country.

London and Singapore show the importance of tailoring detailed measures to reflect local differences. Singapore, for example, puts stronger emphasis on collaboration between start-ups and the established sector, and acts as a gateway to new markets across Southeast Asia. By contrast, in London, there is more of a push for start-ups to disrupt the incumbents and more focus on the challenges of scaling up fintech businesses.

Introduction

THE VALUE OF FINTECH

The purpose of financial services is to provide certain essential functions to economies and societies. The ultimate purpose of fintech, therefore, must be to deliver those functions in a way that better serves the needs and interests of customers. This can be done by making financial services cheaper, more efficient, more targeted and more convenient. Fintech can also allow many more people across the world to access financial services, thereby supporting economic growth and enabling greater financial inclusion.

Functions of financial services and fintech

FUNCTION OF FINANCIAL SERVICES	EXAMPLES OF FINTECH INNOVATIONS
Forms of money and payment systems	This is a major area of fintech innovation including new payments systems, such as mobile money, digital banking services and more efficient ways of making cross-border payments
Stores of values	Cryptocurrencies are sometimes cited as a new type of asset class which can store value
Provision of finance (through banks or capital markets)	Fintech has enabled alternative ways of raising capital, for example peer-to-peer (P2P) lending, and new sources of data can improve credit ratings, thereby helping individuals or small businesses get better access to finance
Investment opportunities	A growing area of fintech innovation is concerned with more intelligent investment tools such as robo-advising
Risk management	Insurance is likely to be transformed by fintech, for example through more personalised insurance products in areas such as health and motor vehicles

Source for Function of financial services: Market Failures, Market Solutions, ICAEW, 2012

The potential benefits and value from fintech are reflected in the growing interest and investment in the sector, with global fintech investment almost doubling to US\$38.9bn (£29.6bn or S\$53.3bn¹) between 2014 and 2017. As a result, many countries want to be a centre of fintech innovation.

EXPLORING LEADING FINTECH HUBS

Fintech is most effective when innovators, investors and regulators can interact, build networks and learn from each other. As a result, the development of fintech solutions is generally concentrated in specific geographical locations, or 'hubs' where a number of different elements co-exist and work together. Exploring successful hubs, therefore, should be a good way of learning about what drives successful fintech innovation more generally.

¹ Converted at rate of US\$1 = £0.76/ S\$1.37 on 18 September 2018

Research consistently places London and Singapore as excellent hubs for fintech activity. They are particularly interesting to explore because they have many of the same strengths, but also very different circumstances, providing a richer picture of fintech development around the world.

OVERVIEW OF FINTECH IN SINGAPORE

Singapore is a small island city-state, with a population of **5.64m**. It is part of the Association of Southeast Asian Nations (ASEAN), and the ASEAN Free Trade Area, which supports economic growth and co-operation in the region. The ASEAN countries have a combined population of **634.5m**.

Despite its small population, Singapore's geographical position has given it strategic importance and enabled it to thrive as a global commerce, finance and transport hub. It was rated in the March 2018 Global Financial Centres Index (GFCI) as having the fourth most competitive financial sector in the world, providing a full spectrum of services.

Singapore's fintech industry builds on its existing strength in financial services. While it is the largest hub in Southeast Asia, the industry is still in relatively early stages of development. The regulator, the Monetary Authority of Singapore (MAS), set up a Fintech and Innovation group in 2015 as investment started to grow. **Figures from EY in 2016** showed the size of the market to be circa £0.6bn (\$\$1.06bn), with investment of circa £44m (\$\$77.8m) and around 7,000 jobs.²

In less than two years, Singapore FinTech Association has grown into one of the largest FinTech associations in the world with more than 300 corporate members and international partnerships in more than 30 countries.

OVERVIEW OF FINTECH IN LONDON

London is the capital city of the UK and has an estimated population of around 8.8m (UK National Statistics Office), with the UK population being 66.6m (2018, worldometers.info). The capital is rated as the leading financial centre in the world by the GFCI.

London is consistently rated as one of the leading fintech hubs in the world, and the size of the sector, as of 2016, was roughly 10 times that of Singapore, according to EY's figures - market size of circa £6.6b (\$\$11.67bn), investment of circa £524m (\$\$926m) and staff of around 61,000. The sector has a long history and many of the leading fintech businesses based in London are now well-established. For example, Transferwise and MarketInvoice were both founded in London in 2011. The industry started to become more formalised in 2014, when the lead regulator, the Financial Conduct Authority (FCA), set up Project Innovate. Innovate Finance, the body that represents the fintech sector, was also established at that time.

It should be noted, that although this report focuses on London, which hosts 80% of the fintech sector, there is a lot of fintech activity across the UK. Many of the points made in this report are also applicable across the whole of the UK.

ICAEW and ISCA came together to undertake joint research that focused on the strengths of Singapore and London as leading fintech hubs, and the challenges they face. This included a desk-top review and interviews with a range of experts in both locations. ICAEW and ISCA also convened a roundtable discussion in Singapore, which brought together fintech innovators, banks, advisors and investors to share their different perspectives. A list of contributors and further reading is included at the end of this report.

² Converted at rate of £1 = \$\$1.77 on 4 September 2018

Features of a successful Fintech Hub

RESEARCH FINDINGS

Five elements underpin a fintech hub

These elements are markets, talent, capital, regulation and government support. An established financial centre can help to deliver some of these elements. However, for others, such as technology talent, hubs need specific strategies in order to encourage the growth of fintech.

A key benefit of a hub is interaction and learning

A fintech hub brings together these different elements in one place, enabling them to interact and encourage learning between regulators, innovators and established players. Both London and Singapore benefit from having all five elements in a single location. However, hubs do not operate in isolation and need to draw on markets and talents from around the world.

THE ROLE OF HUBS

The value of hubs (or clusters) is well established in economic development research. Hubs benefit from the presence of different elements in a single place, which interact and support one another, and thereby spur economic development and growth. A hub can refer to specific buildings, areas, cities or towns.

Generally, successful hubs bring together people with the right skills, the financial infrastructure to support businesses and growing markets for products or services. These focal points also enable more informal interactions and networks, promoting further innovation, connections and ideas.

Over time, the concentration of resources in one location can help to build critical mass and specialist knowledge. For example, investors may be able to develop deep knowledge of one area of technology that can help them to make more informed decisions about investments. It can also help to build economies of scale.

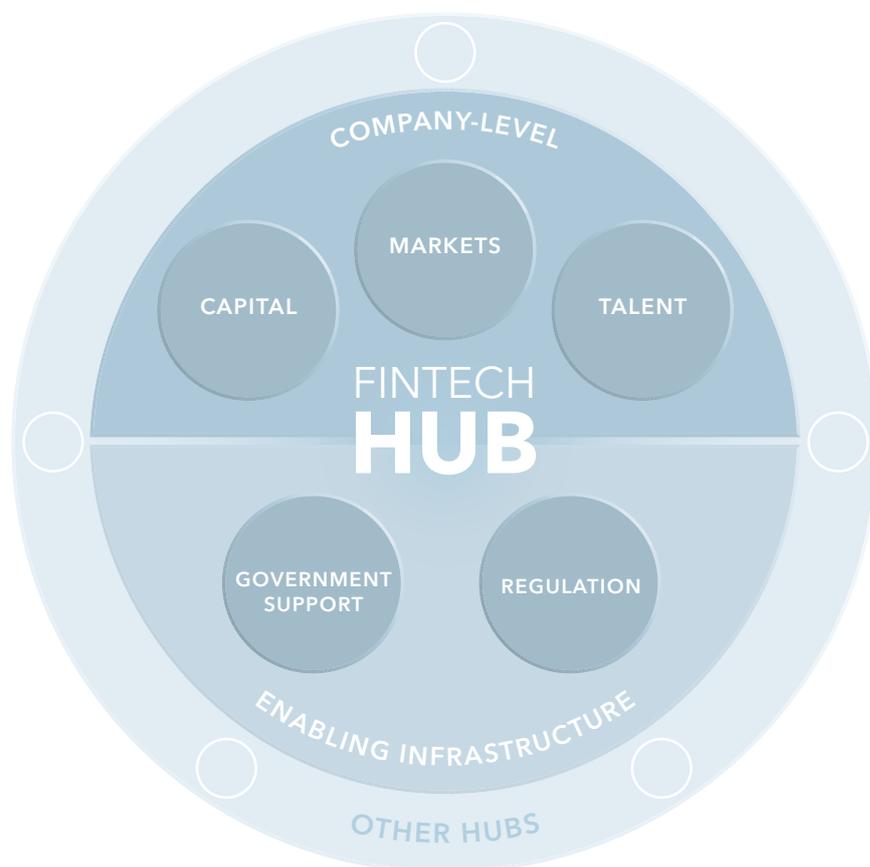
The location of hubs is driven by different features, depending on the sector. In the technology world, for example, hubs are often strongly associated with universities, such as Stanford or Cambridge, which provide highly-skilled people and an early development environment for new technologies.

The location of financial centres was historically driven by links to trade routes or other commercial activities. Over time, a variety of factors influenced the development of centres, such as the impact of wars, government policies and economies of scale.

FIVE ELEMENTS FOR A FINTECH HUB

There is a lot of literature about fintech hubs, which is broadly consistent in approach, and identifies five elements for success as depicted in the diagram.

Three of these elements - markets, talent and capital - are the responsibility of individual fintech companies, with the other two - regulation and government support - providing the underlying infrastructure and foundation for success. While regulators and governments might co-operate with other hubs, they tailor their strategies to the specific needs of their own fintech hub. In contrast, businesses might need to draw extensively on markets, talent and capital from elsewhere to succeed.



Of these features, regulation is a key difference when compared with other areas of technology innovation. As financial services is a regulated sector, regulation needs to be considered from the early stages in the development of fintech products and services. This provides a significant opportunity to use regulation as a competitive advantage in fintech, and creates challenges for aspiring fintech hubs where there is less experience with financial regulation, or where regulators are slower to respond to the opportunities.

However, while the five core elements of innovation are common, there are also many differences between fintech markets. Therefore, businesses, regulators and governments need to adapt and tailor their fintech strategies to meet the particular needs of the country.

A KEY ADVANTAGE OF SINGAPORE AND LONDON: A SINGLE LOCATION

Both London and Singapore benefit from having all the key elements that support fintech innovation in a single location. Both have access to significant markets in financial services. Both have investors who are providing capital to fintech companies. Both have deep talent pools in financial services, technology and regulation. Both have regulators and governments who are actively supporting innovation and the growth of the sector.

Furthermore, both already have mature and successful financial services sectors, which provide strong foundations for fintech, with a lot of financial services talent already in place and established markets for new products and services. However, not all of the largest financial centres have yet built strong fintech centres, which suggests that an established financial sector alone is not enough.

Focusing on a single location enables a high degree of interaction between all the different elements. Regulators can be very close to innovators, helping them to have good understanding and visibility over new developments. Innovators and established providers can tap into a strong industry presence, and investors can build relationships with those looking for funding.

In fact, London and Singapore are unusual in bringing all five elements together in one place. The US, for example, is still the leading location for fintech - in terms of value - but the sector is somewhat split in terms of location - Silicon Valley is the centre for the technology talent and capital, New York has the established financial sector and skills and Washington DC has the regulatory functions, alongside state regulators. Similarly, in Germany, the centre of tech innovation is Berlin, whereas the financial sector is in Frankfurt.

However, no hub operates in isolation, and the characteristics of the fintech hubs in London and Singapore highlight the importance of strong links with other hubs. In Singapore, there is a clear need to collaborate, given the small size of the population, and it has positioned itself as a 'hub among hubs' and a gateway to Southeast Asia. London also needs to work with others, for example drawing on talent from across the UK and internationally.

Financial services and markets

RESEARCH FINDINGS

Fintech can disrupt markets but increasing competition is hard to achieve

Disrupting mature markets and increasing competition through fintech has been a key objective of regulators, especially in the UK. But many start-ups have struggled to get traction in the market and increasingly work with established players rather than compete.

Fintech can open up new markets in financial services

Fintech presents significant opportunities to provide financial services to approximately 2bn 'unbanked' people across the world. Singapore is well positioned to be the gateway into some of these new markets, especially in Southeast Asia.

DISRUPTING CONSUMER MARKETS

One route to market for fintech companies is to sell directly to consumers or businesses and compete with traditional providers. This is the more disruptive model of fintech which takes advantage of its ability to be more agile and unencumbered by legacy technology infrastructures. New providers are usually customer centric and focus on one specific service area.

London and Singapore have quite different markets in this respect. Singapore, with its smaller population, has a limited domestic market. As a result, Singapore-based fintechs often use Singapore as a gateway and test-bed to the much bigger markets across Southeast Asia.

Southeast Asia is an attractive market, with a young, increasingly middle-class and digitally-driven population, who are likely to be open to new fintech solutions. Furthermore, many countries in Asia have large populations of 'unbanked' citizens, which provide strong potential to be new markets. However, these are complex and heterogeneous markets, comprising many different languages, cultures and regulations. Further afield, China is becoming a leader in fintech and, given Singapore's large Chinese-language population, there are opportunities to forge closer links between the sectors in these two countries.

Similarly, London has often been seen as the gateway into the wider European markets and most ambitious fintechs based in the UK have international aspirations. However, the UK domestic market is substantially bigger than Singapore and therefore presents more opportunities for new businesses. This market is dominated by large, established players, which need to be disrupted by new fintech competitors. Consequently, the UK has placed particular emphasis on challenger banks, and new, disruptive digital models.

EXAMPLE: DIGITAL CHALLENGER BANKS

A number of digital-only banks, such as Monzo and Starling, have been established in the UK in recent years. They typically have no branch infrastructure and operate primarily through a mobile app. While they are fully regulated and have a banking licence, to date, they have largely focused on current account and payments-related services, and are not providing the full suite of possible services.

As they build their services on modern technology infrastructure and have a strong customer-centric approach, digital banks are often differentiated by features such as current spending updates, commission-free spending overseas and easy ways to split bills with others. They have been particularly popular with younger customers. However, in many cases, they supplement rather than replace banking services with the main high street banks.

SERVING THE EXISTING FINANCIAL SECTOR

While disrupting the incumbents has been a prime focus of fintech companies in the UK, this has been difficult to achieve in practice. Established players have large customer bases, strong brands, mature compliance functions and deep pockets. Furthermore, while many customers have been prepared to try out new providers, they have been reluctant to move all of their business from existing to new providers. As a result, many start-ups have struggled to gain traction in the market place, so they had to seek collaborations and partnerships with the existing sector. Consequently, customers benefit from new fintech services through the established providers, who buy services from start-ups or invest in them.

In Singapore, there has been stronger emphasis on collaboration between the two sectors, which reflects a more incremental overall approach. The banks in Singapore have strong brands and are well-trusted, placing less stress on disruption and more focus on helping the established sector to digitalise and innovate. Fintechs therefore often work closely with the banks rather than trying to compete directly.

EXAMPLE: V-KEY

V-Key is a Singapore-based company founded in 2011, and the inventor of V-OS, a patented technology recognised worldwide for digital authentication, verification and threat protection in mobile software. This solution has eliminated the need to carry around multiple hardware tokens when processing payments.

It is a versatile and highly secure hardware token replacement that can be easily integrated into the mobile application of any smartphone. The multi-layered security features of V-OS allow it to serve as the core security foundation of many different use cases including digital-only bank, national digital identity, tokenisation, card-less ATM withdrawals, and mobile document signing. It is designed to meet the security requirements for some of the strictest industry standards, and, according to V-Key, has never been broken in any of the security penetration tests to which it has been subjected.

V-Key has been successful in getting its product incorporated into the services of others, and it is used by government agencies, payment gateways, and major banks globally. For example, banks, such as DBS and UOB, have integrated V-Key's solutions into their mobile banking applications - DBS digibank and UOB Mighty.

Although collaboration between the start-up and established sectors is getting more common in both countries, it has a range of practical challenges. For example, there are typically different cultures, with many of the essential features of start-up culture - innovation, agility and customer-focus - not common in the more conservative, risk-averse and compliance focused culture of large financial service providers. Companies are taking different approaches to bridge this gap, and there is no consensus yet on the best model. For example, we see established providers investing in start-ups, creating formal partnerships and building internal innovation units as ways of working with the fintech sector.

INCREASING ACCESS TO FINANCIAL SERVICES

One of the most transformational opportunities presented by fintech is financial inclusion, as new technologies enable more people to access financial services. Around 2bn people worldwide do not have a bank account and rely entirely on cash; however, many of the people in these areas have mobile phones. As building a physical presence is prohibitively expensive, financial providers are taking up the opportunity to use mobile technology to connect large parts of the developing world to the financial system.

This element of financial inclusion is particularly important in Asia, which is home to large 'unbanked' populations. Asia also has a large population of migrants who work across the world and send money back to their families in their home countries, many of whom are unbanked. Cross-border remittances are a particular issue across the developing world, as the involvement of many intermediary banks makes them costly and time-consuming. Currently, migrant workers pay around 10% in commissions and fees when sending money to their families through intermediaries. Fintechs can help with practical solutions for these kinds of real-world problems.

EXAMPLE: LALA WORLD

LALA World is a fintech start-up based in Singapore, set up in October 2017, which aims to solve this problem. LALA World's vision is simple - to touch 100m lives by 2020 and make them better. It has focused its efforts on building a global digital decentralised financial ecosystem to support the inclusion of the unbanked, undocumented, micro-entrepreneurs and students, among others.

Based on blockchain technology, it aims to build an eco-system of products that enables people to transfer money, pay bills, access cash and borrow money. By using blockchain, and bypassing middlemen, LALA World aims to process transactions at a fraction of current remittance costs, ensuring significant savings for migrants and their unbanked families.

In July 2018, within six months of completion of its Initial Coin Offering (ICO) process, LALA World launched the LALA World APP in India for Recharges and Bill Payments and disbursed the first loan to an Indian customer 10 days later. Later in that month, LALA WORLD extended its LALA PAY services to its customers in UAE in partnership with ManGo Point Payment Services, which enabled them to perform mobile recharge services across ten international locations. Next in the pipeline are multiple in-country launches and global coverage for remittances.

Attracting the right talent

RESEARCH FINDINGS

Fintech requires a mix of technology, financial services and customer-centric skills

Having an established pool of resource of financial services specialists, as in London and Singapore, can give a head-start. However, fintech companies may also need to look outside the sector to acquire innovation and customer-centric skills.

Hubs need to build sustainable strategies for technology talent

London and Singapore benefit from being magnets for foreign talent. However, to manage the political pressures around migration, they both have a long-term focus on training more domestic workers with relevant fintech skills, as well as collaborating with other hubs to deliver work.

UNIQUE SKILLS MIX

Fintech requires a blend of skills that incorporates technology, financial services and general innovation and customer-centric thinking.

Fintech businesses need financial services specialists, who understand the markets, customer needs and the business models, and who can manage the relevant compliance requirements. London and Singapore are both well-positioned in this regard as they already have large pools of financial services talent, based on the strength of their existing sectors. However, in practice, start-ups may find it hard to recruit specialists, especially when they are in the early stages of their businesses and competing against large established business that pay higher salaries.

Fintech also needs softer skills that support innovation, for example business analysis, business development and project management. When asked about the skills they looked for, one start-up in Singapore, for example, said that the ideal candidate should be able to interact with the clients, understand their needs and then deliver the technical solution. In this context, deep technical skills are less important than broad flexibility and commerciality.

Furthermore, fintech models are built on a customer-focused mindset and an emphasis on outcome, which can be quite different from traditional financial services. Therefore, even if staff have strong skills in the sector, it may be challenging for them to transition into a more innovative company. Indeed, [ICAEW research suggests](#) it may be necessary to recruit from outside the sector to harness these skills.

FINDING TECHNOLOGY TALENT

The most pressing skills challenge for a fintech company, though, is attracting tech talent. The specific technology skills needed will vary depending on the products and services involved. For instance, a business may need data scientists or machine learning experts if they are building products around the use of data or artificial intelligence. This may include coding, statistical or data skills. Alternatively, they may be looking for skills specifically in blockchain technology, or cyber security.

Attracting the right technical talent is not a fintech-specific challenge, and global shortages of skilled people exist in areas such as data science and machine learning. Despite many programmes encouraging students to study STEM (science, technology, engineering, mathematics) subjects, this does not immediately help to fill current talent shortages. These challenges may be compounded by the desire of technical talent to work in the top technology companies or in industries where they can make a difference to the world, rather than financial services. A complex interplay with investment can also

create a 'catch 22' situation. On the one hand, investors typically put a lot emphasis on people, and want the business to have appropriate skilled staff in place before they will invest in a company. On the other hand, staff may only be prepared to join the company if funding is already in place. Therefore, it can be difficult to align these two elements.

London's good track record of attracting technical talent from around the world is one of its key strengths. A 2018 survey by **Innovate Finance** found that 42% of the workforce in the surveyed fintech companies were foreign nationals, most of whom were working in computer science and technical roles. There are concerns about the impact of Brexit, and stronger immigration controls in general, on the available talent pool.

Singapore is also able to attract high quality foreign talent to work in the sector, but, just as in the UK, there are concerns about reliance on foreign talent. Consequently, Singapore works closely with other hubs, especially in Southeast Asia, where there may be suitable technical talent that can deliver the work needed. Malaysia is not only geographically close, it also offers a much lower cost location. Similarly, Indonesia, with its large population, may be able to provide significant technical resources for fintechs that are based in Singapore.

Furthermore, both the UK and Singapore are putting significant efforts into increasing the domestic talent pool for technology in general, and fintech specifically. In the UK, for example, the government has introduced a requirement to teach coding in schools, and established new vocational qualifications and technical training institutions. Innovate Finance and the Open University offer a free 'Fintech 101' online course. The Singapore FinTech Academy also aims to increase Singapore's domestic talent pool specifically for fintech.

EXAMPLE: SINGAPORE FINTECH ACADEMY

To support the Singapore FinTech Association, the Singapore FinTech Academy aims to equip and certify learners in the essential skills for fintech - namely technical, leadership and soft skills - and to help expand networks by connecting mentors, leaders, and entrepreneurs.

It provides education on relevant technologies and fintech products, services and business models, and is developing an on-line training platform aimed at both fintech start-ups and those working in the established sector. It takes a very practical approach and builds deep-dive case studies into relevant companies.

Additionally, it works with the education sector to embed teaching about fintech into existing modules in STEM and finance degrees and other programmes. Developing new modules on fintech would take significant time and therefore working with existing programmes, especially with polytechnics, is potentially a quicker way to upskill students and get them ready to work with fintech.

Access to finance

RESEARCH FINDINGS

Capital is available for fintech but scaling up is challenging

As fintech markets mature, they face new challenges in funding growth and expansion. This puts more focus on developing profitable business models and creating exit strategies for investors, as well as having later stage capital available.

EARLY STAGE FUNDING

Although the US is the leading location for capital in the technology sector, London also has a strong track record in this regard. Indeed, **according to KPMG**, fintech investment in the UK in the first half of 2018 was higher than in the US and China, and more than the rest of Europe combined.

London has a well-established scene for seed funders and early stage venture capital in fintech. It has many incubators and accelerators for start-ups, which provide a range of early stage support, both financial and non-financial. Many banks also have incubators or accelerators for fintech start-ups. For example, the Barclays Accelerator scheme provides some investment as well as mentoring and access to technical resources.

Singapore's fintech sector is younger than London's and, as is common in fintech hubs, the sector has been heavily dominated by payments and remittances start-ups, limiting the opportunities for diversification for investors. However, there has been a growth of start-ups in other areas of the sector, such as regtech, insurance and cyber security. This is providing a wider range of investment opportunities and enabling the sector to grow.

The sector is also getting more organised and focused. For example, the annual Singapore Fintech Festival, hosted by the regulator MAS, has developed into a major event in the fintech calendar, incorporating an exhibition, conference, pitching for investment by start-ups and many other activities.

FUNDING EXPANSION

Due to the different stages of maturity in the fintech markets in the UK and Singapore, the challenges of scaling up businesses and providing an exit strategy for investors is more pressing in the UK. In Singapore, the sector is younger and the focus is still primarily on early stage business and building customer and user bases. However, in order to grow the sector in the longer term, it will need to consider these issues.

A key challenge in London is finding UK capital to scale up businesses. While this is not a problem specific to fintech, as more and more fintech businesses look to scale up, they may have to look elsewhere to acquire the capital, or sell the business.

One specific barrier that fintech businesses face in attracting scale-up investment is creating a profitable business model, and not just building user numbers. In the UK, certain core banking services, such as current accounts, have traditionally been free, and have been cross-subsidised by other services such as the provision of overdrafts. The culture of 'free' services has been emphasised by digital business models more generally, making it difficult for any start-up to charge direct fees for these kinds of services.

As a result, revenues have to be built either around transaction processing models, taking a small percentage of the transaction value, or else around advertising models, based on data and similar to other internet business models. This can make business models complex and opaque, with the connection between customer services and revenues unclear.

It also raises new ethical questions around using personal financial data to underpin revenue streams and business models. MAS, the Singapore regulator, has recognised these issues and assembled a group of industry players to develop and publish guidance around the ethical use of AI and data analytics in financial services in 2018. In the UK, the FCA has also encouraged fresh thinking around the ethical implications of data and AI through its insights hub.

Despite these challenges, London has been able to deliver significant investment to enable some successful fintech businesses to grow. According to a survey by CB Insights and Business Insider UK from May 2018, London had three **fintech 'unicorns'**, or privately-owned tech businesses valued at more than \$1bn - P2P lender Funding Circle, Revolut, which does foreign exchange and banking services, and Transferwise.

EXAMPLE: TRANSFERWISE SCALING UP

Transferwise is one of London's most successful fintech companies. Started in 2011 by two Estonians, and based in London, it is a platform for transferring money overseas, which enables customers to avoid bank and foreign exchange charges and is more transparent than traditional models.

The business has successfully secured capital to grow - it now has 3m customers and has been profitable since early 2017. In November 2017, it secured £218m (\$385m) to fund expansion especially in Asia.¹² An IPO is expected at some point in the future.

Transferwise presents a good example for successfully scaling up. However, in many cases, investment to scale up and exit has come courtesy of the established financial institutions buying out fintech companies. While this may be a realistic approach to funding, it potentially detracts from the overarching aim of increasing competition in the marketplace.

Progressive regulation

RESEARCH FINDINGS

Good regulators adapt to encourage innovation

Regulators need to support experimentation in the early stages of fintech businesses, and at the same time regulate to build trust, manage risks and encourage growth. Regulators in London and Singapore are leading examples of how to balance regulation while promoting positive engagement with the sector, without stifling innovation. Cryptocurrencies and ICOs are the biggest test of regulators' thinking currently.

BALANCING REGULATION AND FINTECH INNOVATION

Financial services is a heavily regulated industry in order to protect citizens and customers from harm. Some regulation focuses on financial stability and risks to the economy presented by large financial institutions. Other areas of regulation focus on consumer protection.

Clear tensions exist between regulation and technology-driven innovation, especially given the pace of change in fintech. On the one hand, experimentation is often needed to see how new services work in practice and to identify potential benefits and risks. Regulating too early can stifle this and hinder innovation.

However, in order to encourage widespread adoption of new services, they need to be trusted and sustainable. Regulation can play an important role in building this environment and ensure a level playing field in the market between start-ups and traditional services. Furthermore, as services grow and represent a greater share of the market, risks around failure become more material.

EXAMPLE: THE P2P LENDING JOURNEY TO REGULATION

The P2P lending market started in the UK in 2005, when Zopa built a platform to connect lenders and borrowers directly. The sector started to grow, with new platforms launched, but with little regulatory oversight. In 2014, regulatory responsibility for P2P lending moved from the consumer protection authorities to the FCA and at that point regulation of the sector had increased in order to improve confidence and encourage growth of the sector. This aligned with the FCA's remit to increase competition in financial services and enable more alternative finance providers, especially for the SME market.

P2P lenders needed to apply for a new licence and comply with minimum capital and client money requirements, as well as follow the business rules of the FCA. This has supported the growth of the market from £500m (\$\$884m) in 2013 to £2.7bn (\$\$4.8bn) in 2015. However, the regulatory environment continues to evolve – a 2018 review by the FCA into P2P highlighted a number of bad practices and proposed further regulation.

This makes fintech different from other areas of tech innovation, where there is no regulation, or where start-ups avoid the regulation of the established sector, such as with taxis or hotels. Avoiding regulation is not a viable strategy in financial services – start-ups have to engage with it from the beginning and build their model on that basis.

SHOWING LEADERSHIP IN FINTECH REGULATION

Both Singapore and London see their regulatory environments as key strengths in the development of their fintech sectors. The FCA has taken the lead in the UK in working with the fintech sector, although

there are other regulators involved; for example the Bank of England has some oversight over systemic risks and there is a dedicated Payment Systems Regulator. The FCA was the first regulator to target specific engagement with fintech, setting up 'Project Innovate' in 2014, and its initiatives have been highly influential around the world.

MAS is the sole regulator in Singapore and this potentially gives some advantages in terms of agility and integrated approach. It set up its fintech innovation unit in 2015 and has subsequently been very proactive in its approach, for example, by pursuing regulatory cooperation on cross-border fintech activities.

Both regulators are consistently described as 'progressive', which broadly translates into encouraging innovation, working closely with the fintech sector to understand new models and helping innovators understand the regulatory environment. There is also a shift to thinking in terms of regulating by activity rather than by entity and introducing regulation which is proportionate to the specific risks created by new models.

EXAMPLE: REGULATORY SANDBOX

The regulatory sandbox was an innovation of the FCA in 2014 and has subsequently been adapted by many countries around the world, including Singapore, to meet local needs. The sandbox aims to help bring new products to market more quickly and cheaply, and help innovators raise funds, while ensuring appropriate protections are in place for customers.

The sandbox enables innovators to try out new products and services in a controlled environment. They are given a case officer who works with them to develop tests that will identify how their product fits with the existing regulation. Testing uses real customers and therefore additional safeguards may be put in place to ensure customers are protected. For example, testing for a new robo-advising service may require a secondary review of advice by a qualified financial advisor.

In the case of Singapore, technology companies enter the sandbox on the basis of two criteria. First, the proposed financial service should include new or emerging technology, or incorporate the use of existing technology in an innovative way. Second, the proposed financial service **addresses a problem or brings benefits to consumers or the industry.**

However, the two regulators have some differences in emphasis. Increasing competition is a key driver behind the UK approach to fintech, and the FCA has a specific competition-focused objective. In Singapore, while competition is encouraged, a more collaborative approach is taken across the ecosystem.

This has led to differences in policies. The FCA has been quite aggressive in pushing measures to increase competition and demand for new services. For example, under Open Banking rules in the UK, banks must open access to their data to third parties based on Application Programming Interface (APIs). The FCA also has a scheme for SME businesses whereby, if they are rejected by banks for finance, there is a mandatory referral to alternative financial providers. Singapore, in contrast, has encouraged APIs rather than making them mandatory. This more incremental approach is seen as more appropriate to the local markets and has enabled Singapore to take a leading role in Open Banking in Asia.

Given the international nature of financial services, regulators are also keen to collaborate and share experience, as well as encourage cross-border services. The UK and Singapore were the first to agree a 'fintech bridge', which encourages information sharing and helps fintech firms expand into other markets. In August 2018, 11 regulators including the FCA and MAS, launched the Global Financial Innovation Network (GFIN), which aims to help regulators collaborate, and help fintech companies test cross-border solutions.

NEW REGULATORY CHALLENGES AND OPPORTUNITIES

Cryptocurrencies and ICOs are providing some of the most difficult challenges for regulators currently, as it is unclear how cryptocurrencies, such as Bitcoin, fit into traditional categories of financial services, making it harder to understand their long-term risks and benefits. Some argue that they are alternative means of transacting; others may see them as new stores of value or investments. However, they are not backed by central banks and represent no tangible assets. They are extremely volatile in terms of value, and can be too expensive or slow to be used in everyday transactions. Cryptocurrencies are sometimes associated with criminal activity, and there is concern that regulation could provide legitimacy for such activity. Many in the sector, though, are asking for regulation to give clearer guidance and help build trust.

ICOs are alternative ways of raising funds for new businesses that typically use cryptocurrencies and, in return, give the provider of funds a 'token' rather than equity. This token can be used to access the company's services at some point in the future and can be traded on crypto exchanges.

EXAMPLE: SQ2 FINTECH AND MOBILE BLOCKCHAIN

SQ2 Fintech is a Singapore-based company which was established in January 2017. They are building a blockchain technology, AURAE, that avoids some of the issues surrounding the current generation of blockchain technologies.

It is based on the combined resources of end-users' mobile phones and does not require the common 'mining' element in other blockchain technologies that is costly and resource intensive. Their blockchain solution can be used by businesses for processing transactions within their own network or even linked with other businesses to form a web of connected and inter-changeable points systems or cryptocurrencies. In essence, the customer or end-user 'witness' or validates the transactions of the business through their mobile phone. Just by downloading a mobile application, it will automatically run the process in the background with a proof of reputation algorithm. It is light-weight and does not use any more resources than a common application on the end-users' mobile phone. The customer or end-user will then get a 'witnessing' or validation fee in return, which they can then reuse in the business.

This is different from the current available blockchains and cryptocurrencies, such as Bitcoin or Ethereum, where those validating the transaction (the miners) are a separate community from the actual users of the system. With AURAE, the users are also the miners. They are currently working on 16 projects regionally to assist businesses in financial services, retail, telco, gaming, social apps, insurance, events and agriculture industries to integrate blockchain into their businesses.

SQ2 Fintech plans to do an ICO to raise further funds in 2018. In return for the funds, investors will gain AURAE tokens, which will be traded on crypto exchanges, and used to purchase the certifications required to 'witness' transactions within the platform.

While some regulators have banned ICOs entirely, MAS has taken a pragmatic and flexible approach that provides clarity on regulatory implications to ICOs and encourages innovation. If the token being offered is effectively an investment whereby the buyer gets a financial return, it should be classed as a security and the security laws must be followed. If it is a genuine utility token, whereby the buyer gets the right to use a service by having the token, then no regulation applies and innovation can be encouraged.

MAS has also been at the forefront of regulator engagement with blockchain, the distributed ledger technology that underpins cryptocurrencies, examining how it could improve the financial infrastructure.

EXAMPLE: PROJECT UBIN AND DISTRIBUTED LEDGERS

Project Ubin, led by MAS, is a collaboration with industry to explore the use of Distributed Ledger Technology (DLT) for clearing and settlement of payments and securities across multi-phases:

- Phase one of the project focused on domestic inter-bank payments using a Singapore dollar equivalent.
- Phase two focused on decentralised inter-bank payments and, specifically, how the technology could enable the netting of different transactions to manage liquidity across the system while retaining transactional privacy. Three different platforms were tried and the source codes from the successful prototypes have been released to allow further development.
- Future phases include two projects which will leverage lessons of the prototypes developed. The first project, led by Singapore Exchange (SGX), focuses on making the fixed income securities trading and settlement cycle more efficient through DLT. The second project focuses on new methods to conduct cross-border payments using **central bank digital currency**.

Government support

RESEARCH FINDINGS

Government support for sector development is important

The UK and Singapore both have specific fintech sector strategies that incorporate other government support such as investment funds or programmes to boost skills. This provides a wide range of financial and non-financial support to boost confidence and investment in the sector.

BENEFITS OF FINTECH SECTOR STRATEGIES

Governments can provide important support for the development of the fintech sector more broadly and both the UK and Singapore governments have specific fintech sector strategies. These cover a wide range of government activities to support the development of the elements highlighted in this report, for example:

- building pipelines of talent through investing in education initiatives and attracting top talent from around the world;
- encouraging investment through tax breaks or providing direct funding for innovation; and
- empowering, or mandating, regulators to encourage innovation and competition.

These activities have a variety of objectives. In many cases, governments are providing direct investment and support to build the required capabilities, such as skills. They are also showing a willingness to engage with the sector and promote it, as well as provide a higher level of certainty around government support, thereby boosting confidence.

GOVERNMENT FINTECH SUPPORT IN SINGAPORE AND THE UK

Fintech in Singapore is part of the government's bigger strategy of 'Smart Nation'. This aims to digitalise government services and make better use of data and other new technologies, thereby improving services to citizens. Building a 'Smart Financial Centre' is part of that wider strategy, and therefore has high levels of government support.

Specifically, Singapore has introduced a fintech patent scheme (FinTech Fast Track initiative) to encourage more research and development (R&D). The government has committed S\$225m (£127m) over the next five years under the Financial Sector Technology & Innovation scheme to provide support for the creation of a vibrant ecosystem for innovation. Additionally, it has a large hub for fintech (80RR), which incorporates over 100,000 square feet of office space in Singapore's financial district for use by fintechs. The 'AI for Everyone' programme is a government-wide partnership which aims to increase skills in artificial intelligence across the economy, providing free training in **AI basics for 10,000 people**.

In the UK, the government published its fintech sector strategy in March 2018 as part of the wider industrial strategy. It includes a broad range of measures to reduce the burden of compliance, increase the talent pipeline, improve access to capital, for example through a new investment fund in the British Business Bank, and encourage the take up of services. There are three Fintech Regional Ambassadors to grow the sector outside of London, and work is ongoing to develop standards that will help fintech firms partner more easily with established financial service providers.

Implications for the accountancy profession

Accountancy and financial services are closely intertwined and fintech therefore raises direct opportunities and challenges for the profession. Based on our research, we identified four key ways in which accountants, professional bodies, academics and others can engage with the fintech sector to help deliver the benefits of innovation.

UNDERSTAND THE IMPACT OF FINTECH ON ACCOUNTING, AND CHANGE PRACTICES WHERE NEEDED

Fintech provides direct opportunities and challenges for accountants, and the profession must be prepared to change practices to deal with them where needed. As key users of financial services, innovations in the sector can help accountants do their jobs better. There may also be more radical changes. For example, **blockchain** – a ledger and accounting system – could fundamentally change how books are kept and audited. Cryptocurrencies also have significant implications for accounting, auditing, tax and financial reporting.

ADVISE FINTECH BUSINESSES AND SUPPORT THE GROWTH OF THE SECTOR

The vast majority of fintech businesses are start-ups or small businesses and therefore face all of the challenges experienced by this sector more generally. Managing cash flow, for example, is typically a key challenge for a small and growing business. This is where accountants can provide practical advice. Accountants can help fintech businesses acquire finance and manage the ongoing reporting requirements of investors. They may be able to help them access relevant funding, or make the most of tax breaks or other incentives. They can also advise fintech businesses on appropriate controls, and assist in navigating some of the regulatory requirements, thereby helping individual businesses succeed and, in turn, the sector to grow.

FOCUS ON THE CORE PURPOSE AND VALUE OF FINTECH SOLUTIONS

This report has highlighted some challenges around the core purpose of some fintech solutions and the extent to which they fulfil the traditional roles of financial services. A key challenge around cryptocurrencies, for example, is to decide what, if any, essential service they deliver – are they a store of value, a medium of exchange or an investment? There can also be questions about the sustainability, transparency and ethics around fintech business models, and where their profits will come from. Accountants can play a crucial role in evaluating how new models deliver against the essential functions of financial services, understanding how businesses actually make money, and identifying where the risks lie.

SHARE EXPERIENCE ON REGULATION AND INNOVATION

There may also be lessons for the profession around regulation and innovation. Financial services is at the vanguard of experimentation in a regulated sector, and regulators have been innovative in how they deal with that, such as the use of sandboxes. This may provide lessons for other regulated sectors as they consider how best to encourage innovation while continuing to protect customers, maintain trust and manage risks. This is a challenge that is already being encountered in audit, as data analytics and machine learning transform the way that firms carry out audits. Sharing experience with regulators from other sectors on how to engage with innovators, test developments and respond quickly to new innovations could be very valuable.

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Further reading

Accenture, the Monetary Authority of Singapore and the Association of Banks in Singapore (2017), Project Ubin Phase 2: Re-imagining Interbank Real-Time Gross Settlement System Using Distributed Ledger Technologies

Carney, M. (2017), The Promise of FinTech - Something New Under the Sun?, Remarks by Mark Carney, Governor of the Bank of England at the Deutsche Bundesbank G20 conference on "Digitising finance, financial inclusion and financial literacy", Wiesbaden, 25 January 2017

Deloitte and the Monetary Authority of Singapore (2017), Project Ubin: SGD on Distributed Ledger

Deloitte and Global Fintech Hubs Federation (2017), A tale of 44 cities: Connecting Global FinTech, Interim Hub Review 2017

EY (2018), ASEAN Fintech Census 2018

EY (2017), EY Fintech Adoption Index 2017

EY and HM Treasury (2016), UK FinTech: On the cutting edge

EY, HM Treasury and Innovate Finance (2017), UK Fintech Census 2017

UOB (2017), State of Fintech in ASEAN

HM Treasury (2018), Fintech Sector Strategy: Securing the Future of UK Fintech

ICAEW (2018), Blockchain and the future of accountancy

ICAEW (2018), The Essential Guide to Fintech

ICAEW (2018), Culture and Purpose in Financial Services

ICAEW (2012), Market Failures, Market Solutions

Innovate Finance and WPI Economics (2018), Supporting UK Fintech: Accessing a Global Talent Pool

KPMG (2018), Pulse of FinTech

Menon, R. (2017), Singapore FinTech journey 2.0, Remarks by Mr Ravi Menon, Managing Director of the Monetary Authority of Singapore, at the Singapore FinTech Festival, Singapore, 14 November 2017

Mohanty, S. (2017), 'Singapore's Smart Financial Centre Vision', Nomura Journal of Asian Capital Markets, Autumn 2017 Vol.2/No.1, pp. 19-22

Monetary Authority of Singapore (2017), A Guide to Digital Coin Offerings

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