

The background is a dark, golden-yellow gradient. In the foreground, there is a large, detailed fingerprint pattern. Behind the fingerprint, numerous vertical lines of varying heights extend upwards, each topped with a binary digit (0 or 1), creating a digital rain or data stream effect.

DIGITAL TRANSFORMATION

IN FINANCIAL SERVICES

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ABOUT THIS WHITE PAPER

This Digital Transformation in Financial Services paper examines five key themes transforming the financial services (FS) marketplace: **1.** the evolution of disruption; **2.** collaboration and investment; **3.** the shifting landscape of regulation and technology; **4.** payments and cryptocurrencies; and **5.** cybersecurity and monetizing data. It is based on a comprehensive global survey and in-depth interviews with organizations across the FS landscape, including representation from major retail banks, investment banks, FinTechs, venture capitalists, asset managers, insurance companies, fund managers, other financial institutions and regulators, supported by analysis and insight from DLA Piper's global Financial Services sector team and secondary research sources. The report highlights the key legal, regulatory and commercial challenges presented by digital transformation in the FS sector, and the opportunities on offer.

Executive Summary

The paper focuses on five core areas that collectively reflect the contemporary digital transformation and FinTech landscape and illustrate the concerns of FS organizations and players – both new and established – across the globe.



EXECUTIVE SUMMARY

1. The evolution of disruption:

The global emergence of FinTech continues to disrupt the traditional international FS landscape. Increasingly, banks and financial institutions are rapidly changing under pressure to innovate: 36 percent of surveyed retail and investment banks now consider themselves to be disruptive to a significant extent, with 69 percent acknowledging that they are impacted by disruption. In contrast, 70 percent of surveyed FinTech companies consider themselves to be significantly disruptive, highlighting the positive impact of the FinTech community as a driving force of change within the sector. Efforts to enhance the customer experience are a major factor in the continuous jockeying for position between and across banks/financial institutions and FinTechs, with 72 percent of participants having evaluated and changed their customer journeys in the past two years. At the heart of these initiatives are global efforts to embrace open banking initiatives, a focus on real-time engagement with customers, and consistent service management across differentiated devices – all driven through digitalization. This section further outlines how, in the coming years, banks, financial institutions and FinTechs will continue to focus on a broad range of areas underpinning new forms of value creation.

2. Collaboration and investment:

The relationship between banks, financial institutions and the FinTech community remains complex, with some entrepreneurs seeking to collaborate, and others to disintermediate established financial institutions and banking practices. Thirty percent of surveyed banks and FS companies say they have been engaged or very engaged with FinTechs within the last two years, with 55

percent planning to be in the next two years. The survey shows that the motivations for engaging with FinTechs are complex and diverse. Reasons cited include access to a range of innovative technologies, business models, disruptive behavior and ideas that they don't necessarily have the capacity, capability or culture to develop internally. Correspondingly, the survey outlines how businesses are prioritizing FinTech investment in payments, mobile applications and InsurTech as key areas of interest. These investments take multiple forms, with more than a quarter of FS companies (29 percent) planning to engage with FinTechs via a range of partnerships, collaborations or joint ventures. A further 19 percent plan to invest in FinTechs, either directly or through their corporate venture capital arm, and 13 percent plan to acquire or buy FinTechs on an outright basis. Lastly, we outline the challenges faced by FinTechs and banks/financial institutions alike in collaborating with one another and how best to navigate these issues.

3. The shifting landscape of regulation and technology:

Regulators continue to walk a fine line, balancing the need to foster competition and innovation while protecting consumers and ensuring consistency and fairness across markets. Despite several regulators announcing various innovation-focused initiatives, including regulatory sandboxes, the survey reveals that many in the banking and FS world feel that regulators are still some distance from reducing regulatory hurdles effectively and easing tensions between innovation and protection. Almost three-quarters of participants agree that regulatory and compliance requirements are limiting businesses from utilizing disruptive technology and business models. However, the story differs

EXECUTIVE SUMMARY

by country: 80 percent of participants in Singapore and 57 percent of participants in the UK score their respective regulator highly in terms of its progressive approach and behavior; but this figure drops to 21 percent in the US, and 18 percent in Hong Kong, highlighting some of the key global variances in the approach and attitude of different FS regulators. This paper further explores existing barriers to innovation, the main areas of regulation that financial institutions want to change, and how regulators can most effectively encourage disruption.

4. Payments and cryptocurrencies:

This section addresses contemporary trends in the payments industry, and illustrates where innovation has been most prevalent in the last couple of years. Consumer trust is identified as the most significant obstacle to payments innovation. Views diverge between innovations in mobile payments and e-wallets (17 percent), real-time payments (14 percent) and digital tokens and cryptocurrencies (14 percent) as to the key priority areas of focus in this market. Indeed, the increased widespread adoption of distributed ledgers and blockchain to facilitate cryptocurrencies was reflected in the survey results: 31 percent of respondents expect central banks to add cryptocurrencies to their balance sheets in the next five years, while 18 percent expect them to establish their own cryptocurrencies. Seventeen percent of asset managers have, or are considering developing, a strategy for cryptocurrency or crypto-assets. The section also identifies and discusses the most significant risks and challenges faced by the payments and cryptocurrency sectors.

5. Cybersecurity and data monetization:

The final section reveals that cybersecurity is still viewed as one of the most important and present threats to the industry. This is unsurprising, given the severe damage a cyberattack can do to a firm's reputation in an industry that runs on trust and security. Just over eight in ten (82 percent) of all respondents are worried about an attack and the detrimental effect on their businesses. Retail banks in particular, at 80 percent of such respondents, are significantly worried about a cyberattack, and keeping security arrangements in step with the speed and sophistication of attacks remains a major concern.

The survey also reveals key strategic opportunities developing across the industry through the use of artificial intelligence (AI) and advanced data analytics to better commercialize and monetize the vast amounts of data that organizations hold. The analysis shows that banks, FS companies and FinTechs plan to undertake a range of data-driven strategic initiatives in the next two years. Thirty-five percent of survey participants plan to better utilize and monetize data in the next two years, with that figure climbing to over 40 percent for banks, who have access to valuable customer insights through the large amounts of data they hold. This section further explores the impact of data protection/privacy regulation and open banking initiatives on data-monetization strategies.

WORD FROM THE EDITORS

In summary, this paper outlines a number of stark new findings that will interest a diverse audience from the FS sector. Through surveys and in-depth interviews with industry experts, a rich picture is painted of the future direction of digital transformation and FinTech disruption across the globe. Specifically, this paper outlines forthcoming investment trends, nuances in regulation, and strategic responses to new technologies, such as blockchain and AI. Current and future perspectives of emergent innovations in payments, data monetization and cryptocurrencies, among others, are reviewed and analyzed. Threats to the pace of innovation, such as

cybersecurity, data risks and appropriate responses, are also explored, to help give readers the edge in this fast-moving, dynamic and transformational space, and to help provide a view on how the global FS market will change over the next few years.

This paper has been made possible with input from across the sector and we would like to thank all participants, contributors and key collaborators, as well as the global DLA Piper team involved.



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THE EVOLUTION OF DISRUPTION

THE EVOLUTION OF DISRUPTION

Banks are not keeping pace with disruption

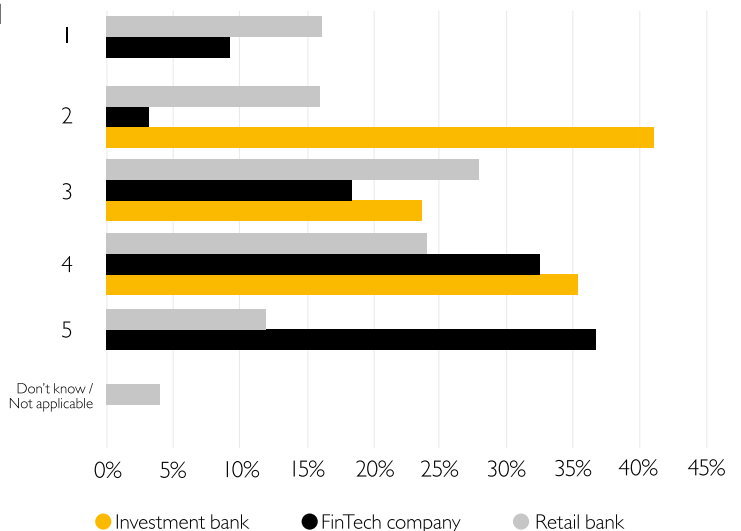
There is no doubt that the traditional global banking and financial services landscape is being disrupted by the rapid emergence of financial technology, or FinTech. From mobile and open banking and blockchain, to AI and machine learning, new technologies are creating huge opportunities and challenges for FinTech players and established banking and FS institutions. There is, of course, more than one way to disrupt. FinTech providers often have the best of both worlds, in that they may either complement banks' own digital transformation programs, or challenge them by providing consumers with alternatives. Faced with the need to keep pace with both consumer demands and the challenge of various new FinTech market entrants, it may perhaps seem surprising that the survey data reveals that only around 36 percent of surveyed banks consider themselves to be disruptive to a significant extent,¹ despite the fact that approximately 69 percent are being impacted by disruption in their sector.

By contrast, it will come as little surprise that 70 percent of surveyed FinTech companies consider themselves to be significantly disruptive, it being the mantra for most aspiring FinTech providers, while the retail and investment banks would typically describe their services in more conservative terms. However, the data highlights more than just a difference of perspective between the two groups regarding terminology: it shows that banks and FS institutions must react fast or risk losing market share to more disruptive competitors and FinTechs.

Although banks and FS institutions have not ignored the benefits of the FinTech ecosystem and the innovation and agility that FinTech solutions can bring, they recognize that contracting with FinTech providers and developing in-house FinTech offerings brings a unique set of challenges – which they are still grappling with. In other words, banks and FS institutions may lack the pace of new market entrants (and so are behind in that regard), but they are far from being at the end of their journey.

We are likely to see the rate of FinTech adoption in banks and FS institutions accelerate, as increased consumer choice and the imperative for real-time customer engagement gather speed, together with the combination effect of the increased maturity and effectiveness of the wide-scale digital transformation programs already in progress across the banking and FS sectors.

Generally speaking, how disruptive do you consider your organization to be? (Please rank on a scale of 1 to 5, with 1 being not very disruptive and 5 being very disruptive)



¹Defined as a score of four or five (out of five)

THE EVOLUTION OF DISRUPTION

Enhancing the customer experience

Both FS institutions and FinTechs are pursuing a wide range of initiatives to keep pace with the speed of change, but the survey clearly highlights that the launch of new digital platforms² and the evolution (and change) of customer journeys³ has been a key strategic priority, complemented by many FS institutions running broader digital transformation programs.⁴

Taken together, the focus in these areas is likely driven in part by regulatory changes in relation to payments and open banking, which for the first time in Europe has provided authorized third parties with access to bank statements of consenting customers. However, another factor is the pointed shift in consumer demand for real-time engagement and online access to services managed uniformly from their mobile and personal devices, which means that banks and FS institutions need to embrace the move from the old world of paper processes to a truly cohesive and digital ecosystem. In Australia, open banking reforms and the expedited timeline for rollout (due to be completed by 2019/2020) are also adding to an escalated push for disruption, with innovative products and services being launched (and planned to be launched) in that market by disruptive competitors and FinTechs.

Engaging with FinTech has also been high on the agenda for many banks and FS institutions globally, with just over half of them – around 57 percent of those surveyed – having worked or engaged with innovation hubs, labs, incubators or accelerators. Assessing this in combination with how disruptive banks and FS institutions view themselves as being in the market, this suggests that, while there has been some level of engagement with FinTech providers in the various innovation forums and accelerators, translating this into contracting for FinTech products and services is still a challenge. Many banks and FS institutions are approaching FinTech engagement with caution, balancing the need for embracing enhanced FinTech offerings to their customers with the more traditional (but unavoidable) needs to preserve competitive advantage, ensure suitable operational continuity, ensure appropriate and robust regulatory compliance, and maintain a coherent strategy across the business. The survey shows that FS disruption is perhaps more pronounced in Asia than any other region, primarily driven by high consumer demand and greater adoption rates for payments services and mobile and e-wallet devices.

²61 percent of participants have launched a new digital platform in the past two years

³72 percent of participants have evaluated and changed their customer journeys in the past two years

⁴58 percent of participants have undertaken a digital transformation programme in the past two years



THE EVOLUTION OF DISRUPTION

The future of disruption: a larger-scale transformation for financial services companies?

Looking into the future, participants have a broad range of focus areas. One striking finding is that 35 percent of survey participants plan to better utilize, and potentially monetize, data in the next two years, with that figure climbing to over 40 percent for banks, who are naturally sitting on a larger pool of data. The trend for greater sophistication and adoption of AI, combined with enhanced analytics/big data, is clearly a key catalyst here.

As an example, rapid progress of Dubai's infrastructure and digital journey over the past ten years is an existing case study of how fast we are moving in this space to get ahead and to ensure customer demands can be met, which came out of Middle East participants' responses. The reality is that digital transformation is a complex and evolving process for larger FS institutions, which view successful digital transformation as an integrated process involving a wide variety of initiatives. These include partnering with disruptive technology companies to streamline customer

processes; focusing on customer-centricity; better understanding their customers; leveraging data-driven insights; and not being afraid to change business models and present them in the market. In particular, many banks and FS institutions have found that enhancing their customer journeys is really all about customer centric processes, and re-engineering underlying business processes.

Many banks and FS institutions appear to have finally worked out that simply adding or replacing technology systems without changes to underlying business processes isn't a solution, and that wider transformational change is required to keep up with and leverage the success of the disruption that is being witnessed in the marketplace.

“For us, digital transformation is an ongoing process that involves a huge number of people at the organization,” says Roland Emmans, UK technology sector head at HSBC. “We are a large firm, and large companies are traditionally not the most innovative.”

“So, as part of our digital transformation, we have our own venture capital fund that invests directly in FinTechs that work on things like cybersecurity and customer-engagement simplification.”

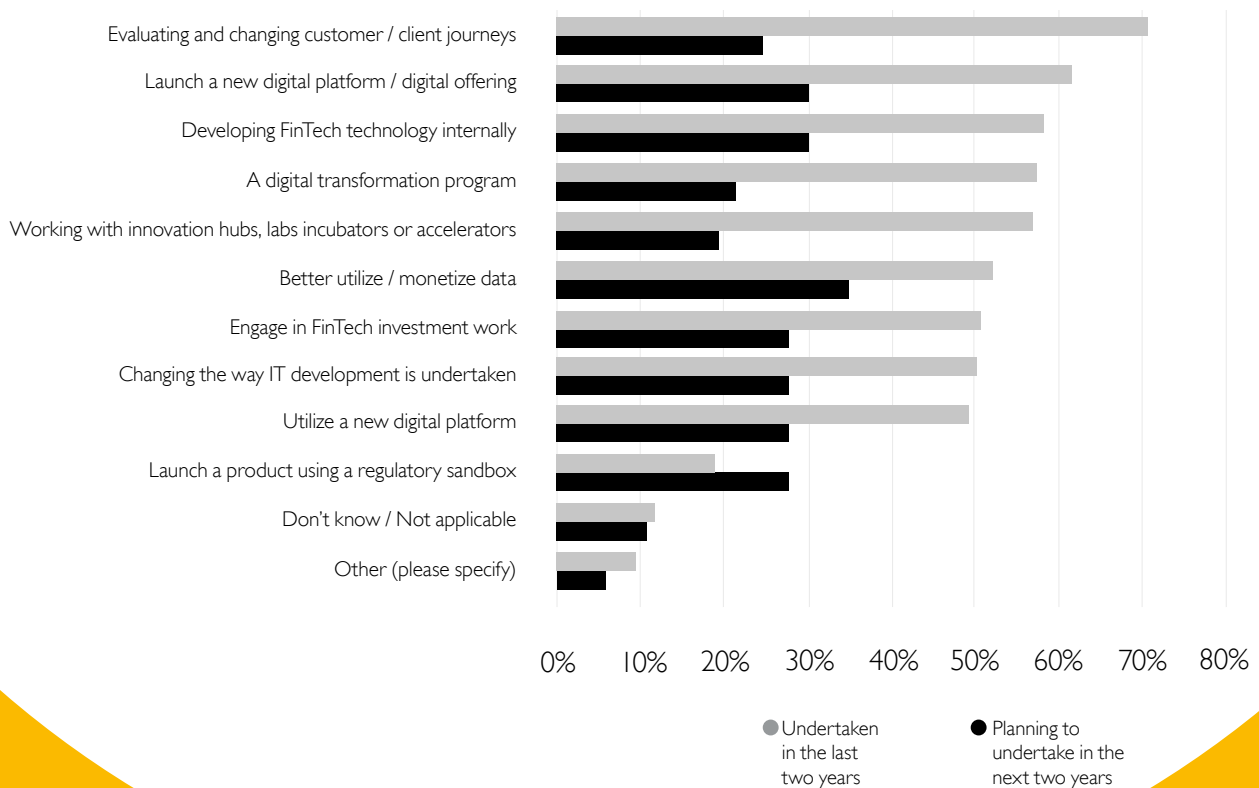
“But digital transformation is more than just embracing the latest FinTech. We are also focusing on working out how we deliver what our clients want, when they want it and how they want it, and delivering this in a really frictionless way. Lots of this is about reducing clunky customer onboarding, identifying people, and making regulatory and compliance processes easier.

It also involves things like moving away from a 15-page contract to a legal document that is a plain English version of what it actually means. This is an equally important part of our digital transformation efforts.”

Roland Emmans
UK technology sector head at HSBC

Which of the following has your organization undertaken in the last two years?

Which of the following do you plan to undertake in the next two years? (Please select all that apply)





COLLABORATION AND **INVESTMENT**

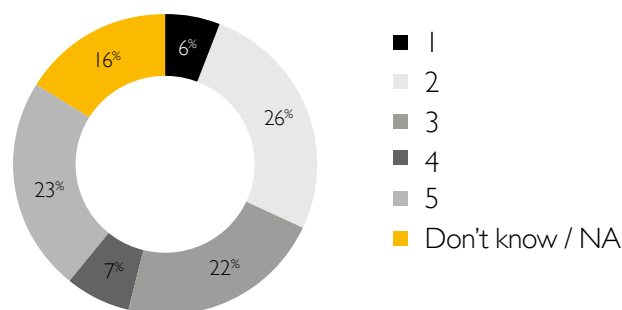
COLLABORATION AND INVESTMENT

FS institutions plan to engage more closely with FinTechs

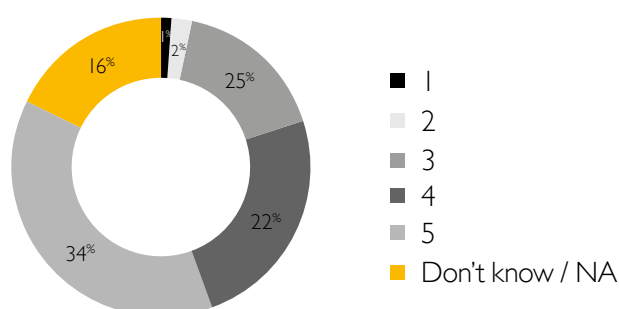
Only 30 percent of surveyed banks and FS companies score their organizations as a four or five (out of five) in terms of their engagement with FinTechs in the last two years. However, this rises to 55 percent regarding their planned level of engagement over the next two years, indicating that we can expect to see a “new age” of FinTech collaboration and adoption. Financial services companies are focusing on the innovation gap, where the pace of change in technology is outstripping their ability to innovate and keep up with changing consumer behaviors and market demands. “There is so much tech-enabled innovation going on within our own business areas, but it just isn't practical for us to try to cover everything ourselves,” explains **Charlotte Wood, head of innovation and fintech alliances at Schroders**. “There are obviously startups that are developing focused solutions to specific problems, and it makes sense to partner with them.”

The survey data reveals that FS companies are most interested in investing in payments technology, which is the clear strategic priority for the majority of respondents. Forty-one percent of surveyed FS companies are prioritizing investment in this area.

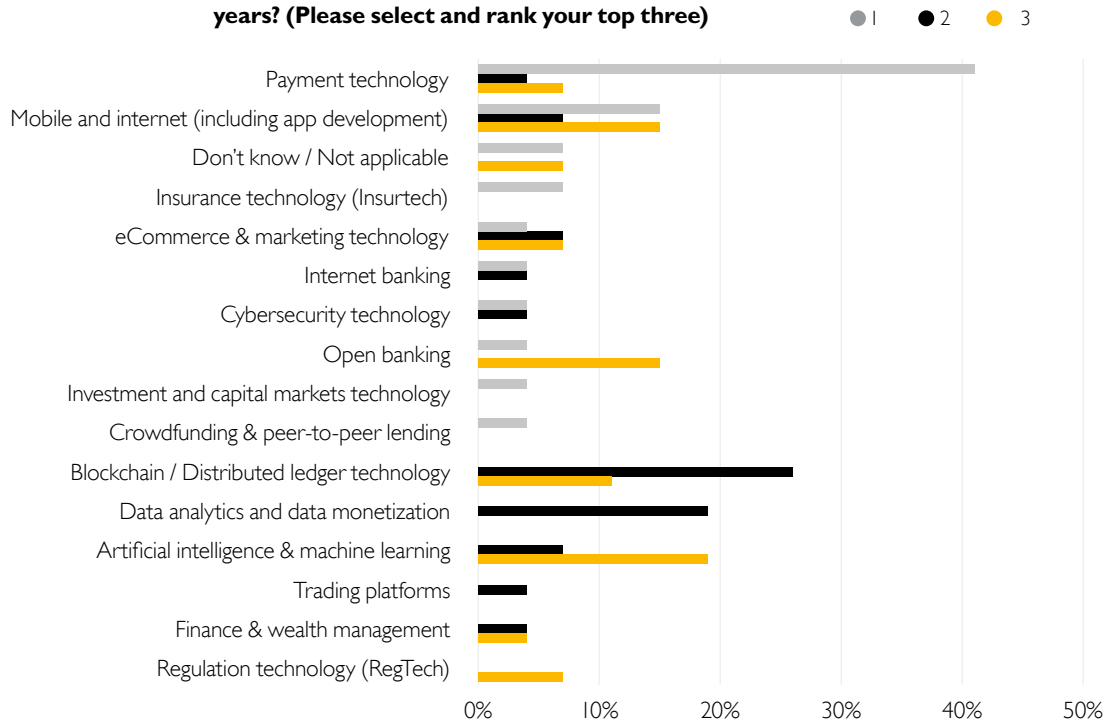
To what extent have you engaged with FinTech companies in the last two years? (Please rank on a scale of 1 to 5, with 1 being no engagement and 5 being very engaged)



To what extent do you plan to engage with FinTech companies in the next two years? (Please rank on a scale of 1 to 5, with 1 being no engagement and 5 being very engaged)



Which areas of FinTech, including technologies and applications, is your business prioritizing in the next three years? (Please select and rank your top three)



The data also reveals some interesting conclusions when broken down by institution type. Blockchain, for example, is a core item on the agenda for both investment and retail banks, with 50 percent of investment banks and 32 percent of retail banks citing it as one of their top three priorities.

The data also reveals different priorities for investment and retail banks after payments technology is taken out of the equation. InsurTech, for example, ranks as investment banks' second-highest priority, whereas retail banks do not see it as a priority. Investment banks also do not appear to be concerned with mobile tech (only 10 percent) whereas (perhaps unsurprisingly) 53 percent of retail banks regard it as a top-three priority. AI and machine learning is also a higher priority for retail banks, with 32 percent citing this as a top-three priority, in contrast to just 10 percent of investment banks.

More than a quarter of FS companies (29 percent) plan to engage with FinTechs through partnerships, collaborations or joint ventures. A further 19 percent plan to invest in FinTechs, either directly or through their corporate venture capital (CVC) arm, and 13 percent plan to acquire FinTechs on an outright basis. Appetite to participate in FinTech programs such as accelerators and hackathons is more limited, though prevalent in key cities/areas with strong technology hubs, such as London, New York or Silicon Valley.

FinTechs are keen to engage with established FS companies on a similar basis. Thirty-eight percent primarily want to engage with FS institutions through partnerships, collaborations and joint ventures, and 25 percent through securing investment.

The macro picture certainly indicates that it is an exciting time to be in this space, with some interesting local market differences explored over the next few pages.

COLLABORATION AND INVESTMENT

According to CB Insights, the UK and US generally lead globally from an investment deal flow perspective. Total global investment in FinTech ventures between 2010 and 2017 reached US\$97.7bn, with US startups accounting for 54 percent of all investments. The expectation is that global FinTech investment will hit a new high during 2018, with the first quarter (already having seen) 323 deals funded to the tune of US\$5.417bn.

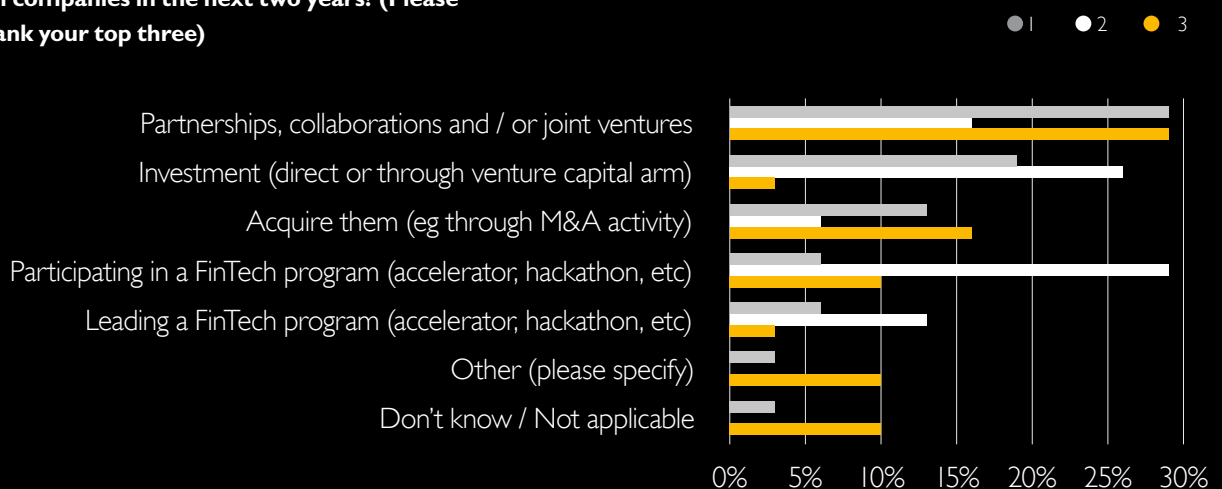
In Australia, we are seeing a mix of strategic investments in adjacent areas and some contracting/partnering arrangements (often entered into with the same FinTechs in

which investments have been made).

Complete buyouts or acquisition of majority interests are less common.

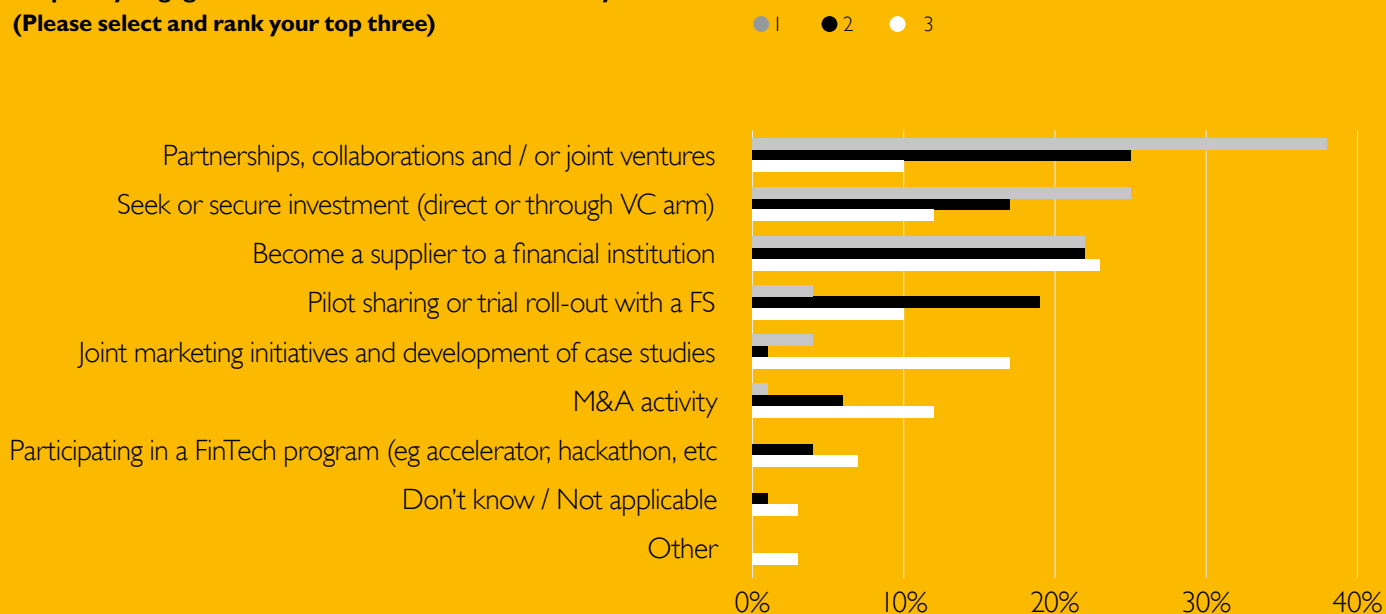
In Asia, acquisitions, joint ventures and minority investments are an increasingly common part of the bank/FinTech collaboration landscape. The open-access nature of pure FinTech developments is fostering a rethink about the tendency for banks and FS companies to prioritize the development of in-house, closed-access systems and solutions.

In which ways will your organization most frequently engage with FinTech companies in the next two years? (Please select and rank your top three)



COLLABORATION AND INVESTMENT

In which ways do you think your organization will most frequently engage with FS institutions in the next two years?
(Please select and rank your top three)



Blockchain in focus

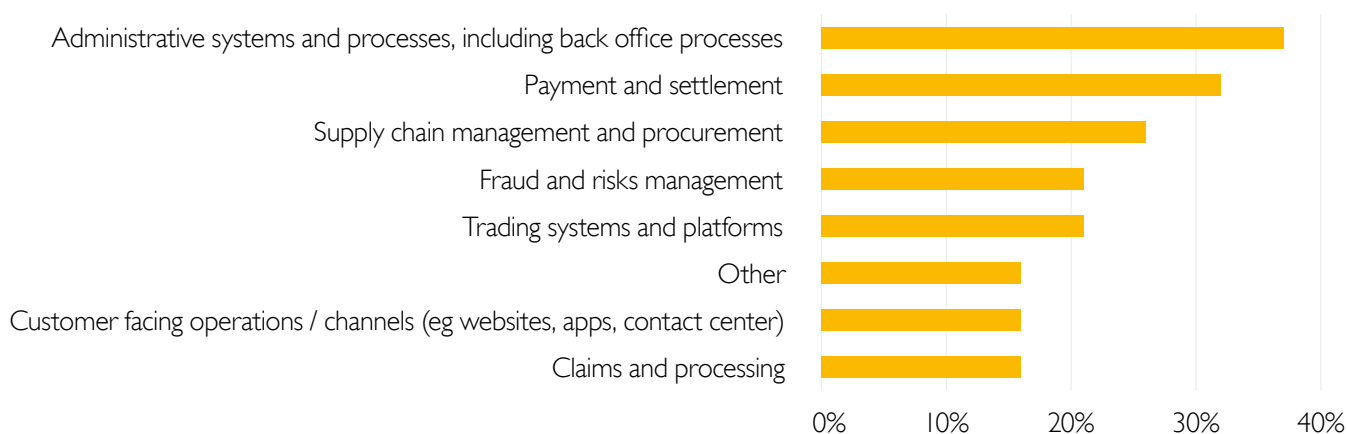
More than a quarter of banks (26 percent) rank blockchain as their second priority for investment, with 37 percent of participants exploring it in relation to administrative systems and processes, and 32 percent

in relation to payments and settlements. We discovered that many respondents may be reluctant to use “public” blockchains with other stakeholders, indicating greater preference for “private” blockchain solutions.

COLLABORATION AND INVESTMENT

For what applications, if any, is your organization utilizing blockchain/distributed ledger technology, either as a pilot or completed project?

(Please select all that apply)



“One project we are participating in is the Utility Settlement Coin (USC), which is a blockchain application that will provide settlement functionality for banks,” says **Stephen Albrecht, general counsel for the strategy and operations group at Barclays.**

“It is blockchain technology, but where bitcoin is a public permissionless technology, USC is a closed network for wholesale institutions to transact more efficiently.”

Though there is tremendous excitement about the possibilities offered by blockchain, survey participants say that many regulatory obstacles need to be overcome.

John Ho, head of legal, financial markets at Standard Chartered Bank, provides one example. “We are looking very closely at using blockchain for smart contracts. But the most innovative smart contracts are embedded in a

coded fashion, so you don’t have words that say, for example, that one party will pay another a certain amount; it’s in programming language that performs the contract entirely in the code.

“In the event of a dispute or claim, is that code admissible in court as a contract? They are recognized as such in some countries, such as the US; but in others, there are no laws about this, so it’s unclear whether it’s enforceable. This raises questions about their use.”

In Australia, we are seeing some pilots underway, including at the Commercial Bank of Australia, which has trialed certain smart contracts and bond issues using blockchain. However, take-up in the FS sector remains generally low, with some detractors seeing blockchain technology as a solution in search of a problem which can often be fixed via other means.

COLLABORATION AND INVESTMENT

The challenges of engaging with FinTechs

There is often an acknowledged lack of understanding and corporate maturity by certain FinTechs when it comes to completing collaborations, investments or funding rounds, including on the due diligence side. This can be a significant delay factor. Here are some of the other key hurdles to getting partnerships up and running highlighted by respondents.

I. Navigating complex procurement processes

Banks' procurement and approval processes are the greatest challenge for 30 percent of retail banks – more than twice the percentage of the second most important obstacle. Similarly, FinTechs cite this as the second most significant hurdle to partnering with FS companies.

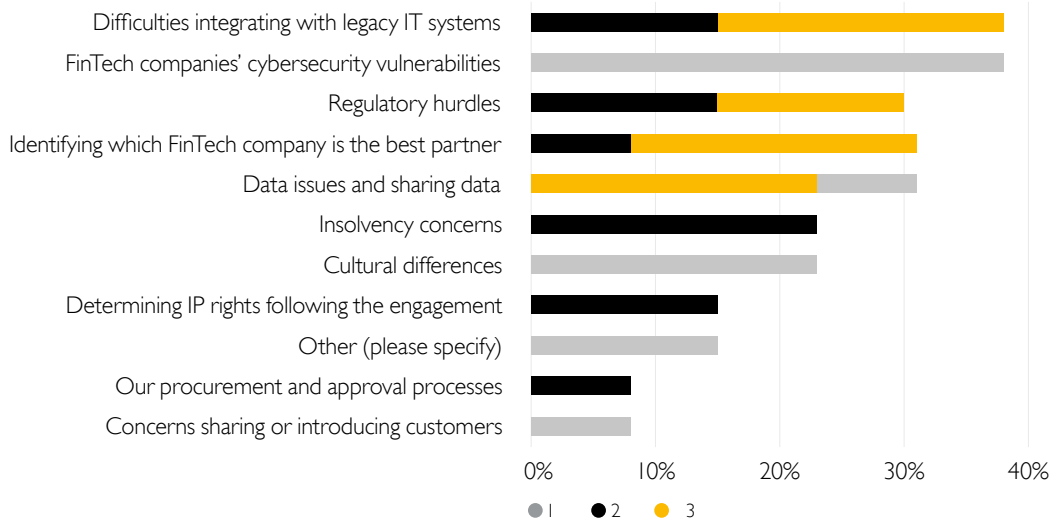
It is not uncommon for an early-stage FinTech to fail while being caught in a bank's or FS institution's procurement cycle, which may take a year or more to get final approvals from the appropriate decision-makers. A different picture emerges with regard to investment banks, however, which appear to be far less worried about procurement. Just 8 percent of investment banks cite procurement as one of their top three obstacles to engaging with FinTechs – in contrast to 50 percent of retail banks.

“Startups most commonly encounter challenges demonstrating that they meet our Information Security requirements,” says **Charlotte Wood, head of innovation and fintech alliances at Schroders.**

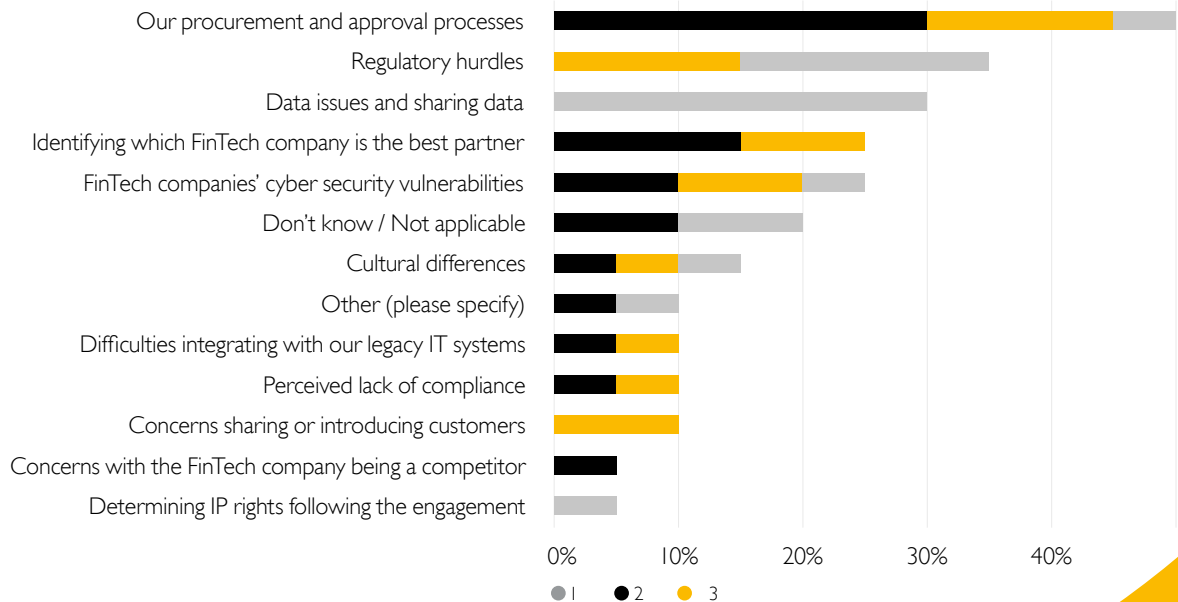
“Obviously, we are obligated to make sure that the companies we work with that might have access to our systems and data fulfil stringent requirements, in order to protect ourselves and our clients. Unfortunately, everyone has a slightly different way of approaching this, and so our questionnaire for FinTechs might be different to those of other financial services companies. The manpower FinTechs need to get through all these procedures at multiple institutions is problematic.

“It's really helpful if we can guide the FinTech to the right person in the company to answer questions throughout the onboarding process,” continues Wood. “We are very conscious of this, so have set up structures to reduce the burden for startups. Our Cobalt program invites startups into our office where they can have desk space and work alongside our teams to develop their proposition, and make it enterprise ready. “By working in our office, they have much easier access to teams such as information security, legal, procurement and others, so we can help them navigate these approvals and reduce their time to market with us.”

Investment banks: What are the greatest challenges your business experiences when forming partnerships with FinTech companies?



Retail banks: What are the greatest challenges your business experiences when forming partnerships with FinTech companies?



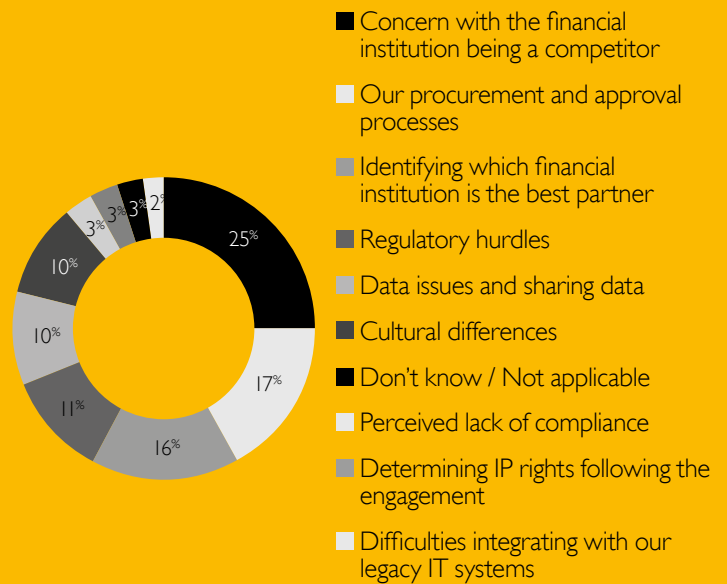
Fintechs: What are the greatest challenges your business experiences when forming partnerships with financial institutions?

2. Insolvency concerns

Concerns about a FinTech partner's potential insolvency is the greatest challenge for 23 percent of investment banks, making it their highest-ranked obstacle to forming partnerships. "A key issue is that we need to know that FinTechs will be around in the long term, because lots don't have a lot of financial backing and run out of gas," says **John Ho, head of legal, financial markets, at Standard Chartered Bank**. "So it's important to do our due diligence and ensure they are credible from a financial standing and track record perspective." Related to this is the challenge of risk allocation. Many financial institutions have expectations that contracting counterparties will provide indemnities and accept liability that is either uncapped or subject to a large liability cap, which is completely at odds with the risk profile of FinTechs and their founders.

3. Regulatory and compliance obstacles

Banks and FS organizations also face a number of regulatory obstacles when partnering with FinTechs. Banks highlight this as the joint-fifth greatest challenge to engaging with FinTechs, which in turn cite it as their fourth most important obstacle. Banks must be cognizant of a number of specific regulations that provide guidance on the use of specific technologies. They also need to ensure they are compliant with general outsourcing regulatory requirements, which require a full assessment of a number of factors, including



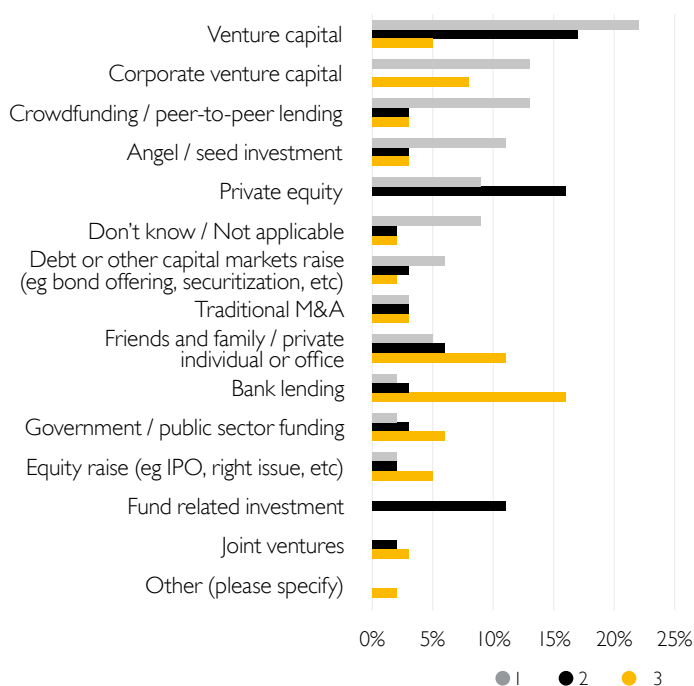
the suppliers' financial position; the level of control and oversight they have in respect of the FinTech; and the ability to integrate with their legacy systems; and data security. This also includes matters such as GDPR, and general privacy/security regulatory requirements that many FinTechs do not have the bandwidth, resources or knowledge to manage or comply with. "Banks always need to consider the regulatory aspects of partnering with fintechs or procuring fintech services given the landscape is changing rapidly, and regulators want to be sure the risks are properly thought through" explains **Stephen Albrecht, general counsel for the strategy and operations group at Barclays**.

4. Cyber vulnerabilities

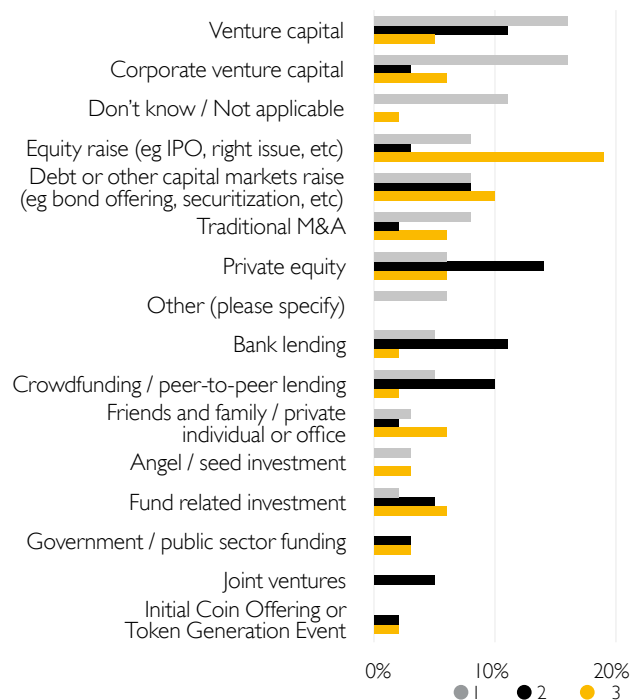
Thirty-eight percent of investment banks and 25 percent of retail banks say FinTechs' cyber vulnerabilities are a significant challenge demonstrating that Cybersecurity is a vital area for consideration. System differences between a nimble tech provider and a more established and older system could prove to be difficult to integrate and thus possibly create a cyber-vulnerability. Innovative solutions are being sought to overcome risks such as a tech provider temporarily hosting a solution while testing commences.

COLLABORATION AND INVESTMENT

What has been your greatest source of external investment over the past two years? (Please select and rank your top three)



What do you expect to be the greatest source of external investment into your business in the next two years? (Please select and rank your top three)



5. Data standards

Large banks and FS companies often have different data standards, which may prove a problem with regard to developing technology interoperability with other institutions or FinTechs. Though no banks cited data issues as their greatest challenge, 31 percent of investment banks and 30 percent of retail banks ranked it as their second or third. An open banking regime could help with interoperability through shared standards, which may pave the way for future solutions to this issue – something we are starting to see in Europe. “Established players that are bulk processors of mortgages are really strapped for resources to work with new people and develop new data standards,” explains **Chris Slater, CEO of Blue Zest Capital**. “They often have the attitude that startups must adopt their standards. A classic example in mortgage applications is that everyone has their own lists and

categories and sub-categories of houses. It may sound like a minor point, but it’s this detail that makes it really difficult for intermediaries to link up with lenders. This has been an issue for a long time, but there is a failure to agree on, say, ten property types and just get on with it.”

6. Investment for FinTechs

Unsurprisingly, the survey confirms that venture capital (VC) and private equity has been the dominant source of financing for FinTechs in recent years, and is likely to remain so. Indeed, VC investment in this sector reached a record high of US\$1.8bn in 2017, up 153 percent year-on-year, according to Innovate Finance. Despite the hype around initial coin offerings (ICOs), only 3 percent of respondents expect them to be a key source of income over the next two years.



THE **SHIFTING** LANDSCAPE

OF REGULATION AND TECHNOLOGY

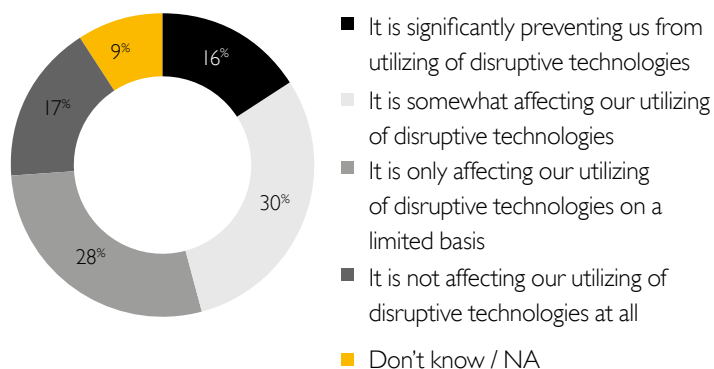
THE SHIFTING LANDSCAPE OF REGULATION AND TECHNOLOGY

The speed of disruption in the banking and financial services (FS) sector is impacted by the regulatory and compliance environment. In this section, we consider not only regulatory hurdles, but also new ideas promoted by regulators to harness innovation in a way that protects consumers and helps enhance the market.

Regulation

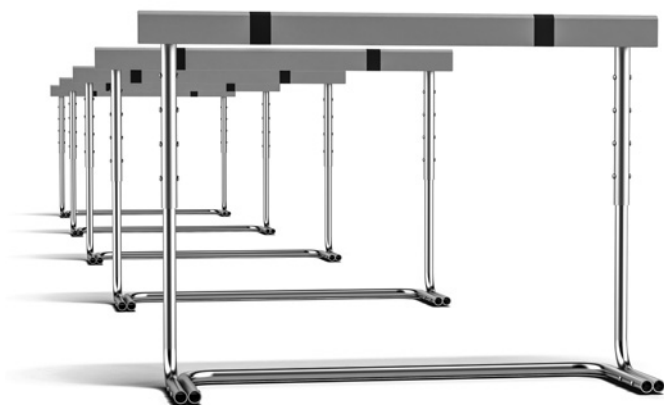
Regulation sets the rules of the game, and will always have some impact on innovation. It is less clear what the effect of such regulation is on firms' uptake of innovative technologies or practices. The survey data reveals that regulatory and compliance obligations are, to some degree, limiting almost three quarters of businesses from utilizing disruptive technology and business models. Over 45 percent of firms consider that the regulatory environment is significantly or somewhat affecting such utilization, and only 17 percent say that regulation is having no impact.

To what extent is the regulatory and compliance environment preventing your business from utilizing and leveraging disruptive technology or business models in its business? (Please select one answer only)

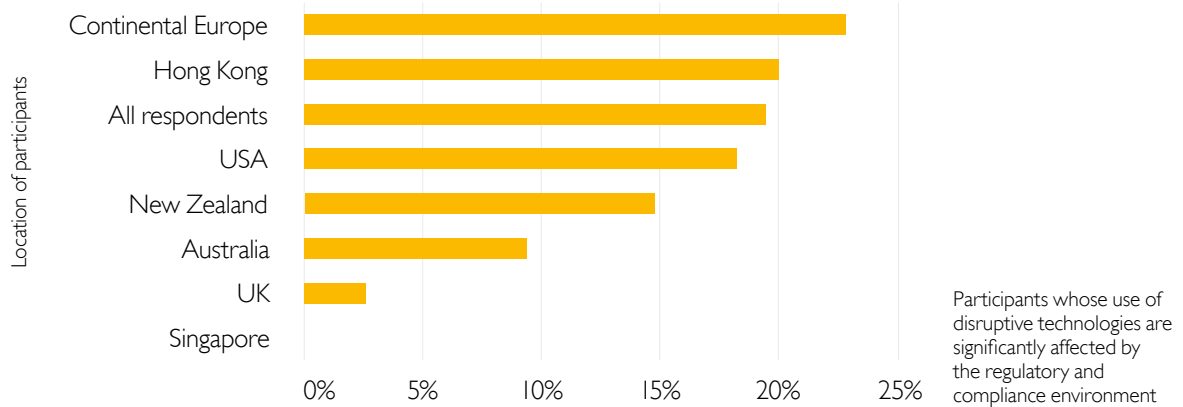


The impact of regulation varies by country. No Singaporean respondents and only 2 percent of UK participants say the regulatory environment has significantly prevented them from using disruptive technologies; however, 18 percent and 20 percent of participants in the US and Hong Kong respectively say they have been significantly impacted. In Hong Kong, disruption is expected to accelerate as new regulatory regimes – such as Stored Value Facility licenses and the Hong Kong Monetary Authority's recently announced Virtual Banking License – will provide a clear and regulated route for tech platforms to compete on a more equal regulatory footing with traditional FS providers.

Such disparities are expected. Whether regulation seeks to control or encourage innovation depends on many factors, and it goes to the very heart of the jurisdiction's regulatory culture. While some countries prioritize innovation as a means of delivering better customer outcomes, others will prioritize standardized requirements that can be regulated appropriately in the interests of consumers.



To what extent is the regulatory and compliance environment preventing your business from utilizing and leveraging disruptive technology or business models in its business?



Regulators embracing innovation

Eighty percent of participants in Singapore and 57 percent in the UK score their regulator as four or five (out of five) in terms of progressiveness in helping to foster innovation. In contrast, the equivalent figures for participants in the US and Hong Kong are only 21 percent and 18 percent respectively.

For some regulators, actively promoting innovation is part of their overall strategy. For example, the UK’s Financial Conduct Authority (FCA) began Project Innovate in October 2014, encouraging innovation that is in the interests of consumers – including the ability for firms to request direct regulatory support and collaboration around technology that can improve regulation (known as RegTech).

Where some regulators lead on such initiatives, other regulators are likely to follow, such as in the Middle East. In the UAE, the Abu Dhabi Global Market’s Financial Services Regulatory Authority (FSRA), Bahrain’s Central Bank (CBB), the Dubai International Financial Centre’s Financial Services Authority (DFSA) and Saudi Arabia’s Capital Markets

Authority (the CMA) have all published guidance enabling qualifying applicants to test their FinTech solutions in a lighter-touch regulatory framework. Although limited per jurisdiction and to securities activities rather than a broader range of financial services, this development demonstrates the willingness of financial regulators in the region to tacitly accept the challenges that their regimes present for FinTech solution developers currently operating outside the regulated FS sector.

In particular, we understand from the DFSA that it tracks the UK, Hong Kong and Malaysian regulators closely for developments, and has entered into cooperation agreements with the latter two to align their positions by sharing information and referral of innovative businesses licensed in their respective jurisdictions. A key development with the Dubai International Finance Centre (DIFC) was the initiation of the Innovation Testing License on May 24, 2017, which allows qualifying FinTech firms to develop and test innovative concepts in or from the DIFC without being subject to all the regulatory requirements that normally apply.

THE SHIFTING LANDSCAPE

OF REGULATION AND TECHNOLOGY

US FOCUS

In the US, there has been much discussion by federal and state regulators about the importance of FinTech innovation, but very little concerted action to actually facilitate that innovation.

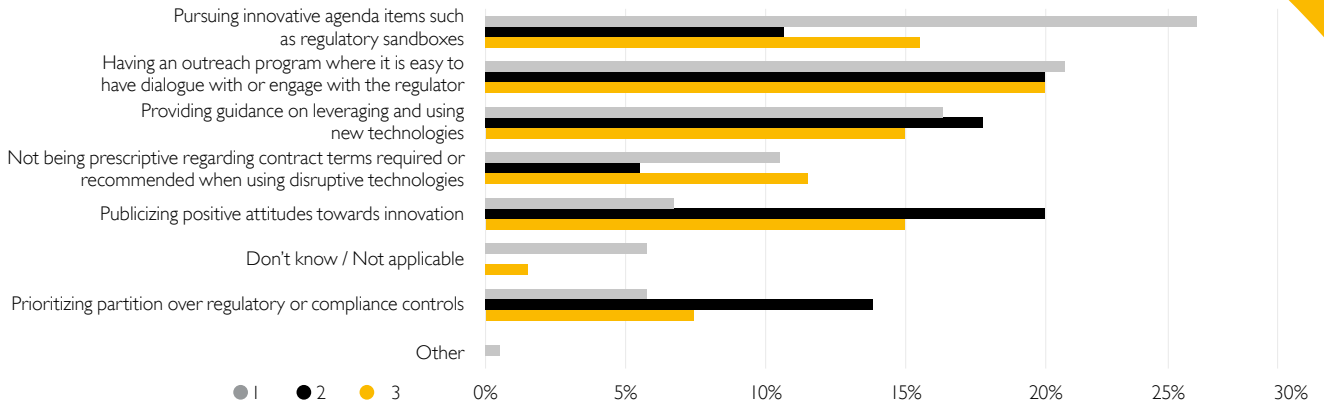
On the federal level, the Office of the Comptroller of the Currency (OCC) projected at least the appearance of seeking to facilitate FinTech innovation when it announced, on July 31st, that it will begin accepting applications for Special Purpose National Bank (SPNB) charters from FinTechs that seek to engage in the business of banking. However, the only two meaningful concessions in the SPNB charter process are that: (1) SPNB applicants will not have to obtain deposit insurance (because they cannot take deposits) and (2) the OCC will take into consideration that SPNB applicants are likely to have a different funding model and risk profile than applicants for a traditional national bank charter. Other than those relatively minor concessions, applicants for a SPNB charter are going to be subject to the full range of OCC expectations with respect to business plans, management expertise, governance, internal controls, risk management processes, capital and liquidity planning and management, contingency plans and resiliency, AML/KYC/BSA, IT resiliency, data security, compliance programs, internal auditing, operational risk management, financial inclusion, OCC examinations, etc.... Given the relatively minor regulatory-burden concessions made by the OCC, it is not surprising that, as of this writing, there have been no applications filed for a SPNB charter.

In addition to relatively minor regulatory-burden concessions by the OCC, the lack of SPNB charter applications is probably also explained in part by the fact that, on September 14th, the New York Department of Financial Services filed suit against the OCC to prevent the agency from offering SPNB charters, arguing that the OCC charter is "lawless, ill-conceived, and destabilizing of financial markets that are properly and most effectively regulated by New York State." In a related development, the Conference of State Bank Supervisors announced on September 12 that it will also file suit against the OCC "at a time deemed appropriate." These pending and likely lawsuits mean that FinTechs must also factor in legal uncertainty when considering whether to apply for a SPNB charter.

Turning to the Federal Reserve, that key federal regulator has been meeting more regularly with FinTech firms. However, the Fed has also been careful to reserve judgement as to whether it will allow FinTechs that obtain a SPNB charter access to payments systems and the central bank's lending facilities. During a Sept. 6th conference, Jeff Ernst, senior fintech risk manager at the Fed stated that: "For any recipient of a charter, there are going to be really difficult policy and interpretive issues the Federal Reserve is going to have to face, such as whether a charter recipient will become a member of the Federal Reserve System and whether they would gain access to Federal Reserve services." In "Fed Speak," that translates to: "FinTechs will need to be essentially identical to conventional banks in terms of capital, liquidity, risk management, and governance in order to gain access to Fed services."

Probably the most meaningful regulatory effort in the US to facilitate FinTech innovation has been made by the state of Arizona. Shortly after the OCC announced its new SPNB charter, Arizona's first in the nation FinTech regulatory "sandbox" officially began accepting applications. Following the lead of the UK, Australia, Singapore and other nations, Arizona's sandbox provides a testing ground for new business models by allowing approved FinTech companies to engage in the testing of products and services on up to 10,000 state residents (and as many as 17,500 residents in some instances) and for up to two years before needing to apply for formal licensure. Eligible products or services may include most types of credit extending services, such as peer-to-peer lending and online marketplace lending, innovative products and services for money transmission and investment management, and certain blockchain or cryptocurrency products or services. In reviewing sandbox applications, the Arizona Attorney General will consider a number of factors, including capitalization, insurance or bonds and their terms, compliance or legal support, accounting practices, cash on hand, and the number and expertise of active advisors and key personnel. However, the Attorney General's Office has stated that "lacking in one or more of these areas is not necessarily dispositive against being admitted."

What are the most effective ways for regulators to encourage disruption in the financial services sector? (Please select and rank your top three)



We believe US bank regulators all realize that FinTech innovation is now a permanent feature of the banking landscape. But, Arizona’s sandbox and the hallow SPNB charter aside, no US bank regulator has done anything material to promote FinTech innovation because, in our opinion, US bank regulators are ultimately highly risk averse. However, we predict that, eventually, President Trump’s appointed leaders of the OCC and FDIC will force their respective bureaucracies to do more to accommodate FinTech innovation. We also predict that, due to its independence from the executive branch and particularly risk-averse culture, the Federal Reserve will be the longest to hold out in terms of accommodating FinTech innovation.

Sandboxes

One key and more recent development in Singapore and the UK is the introduction of regulatory sandboxes for FinTech. Companies can test innovative technologies in a live market scenario, with a degree of regulatory flexibility.

Indeed, 27 percent of survey participants say that initiatives such as regulatory sandboxes are the most effective way for regulators to encourage disruption in the FS sector. “The regulator in Singapore is very progressive,” confirms **John Ho, head of legal, financial markets at Standard Chartered Bank**. “You can’t overregulate, because you can’t predict what advances will come in the future.

“So the regulator has laid out clear guidance on sandbox rules and the parameters in which FinTechs can operate, ensuring they don’t fall foul of AML risk or other compliance risks.”

“The Monetary Authority of Singapore is working with technology companies in a very different and much better way than in North America,” explains **Nilesh Dusane, chief revenue officer at nanoPay**. “It is a very active participant in encouraging new solutions, and is doing more than the sandboxes established by other regulators. The Monetary Authority encourages real use of these technologies, so FinTechs can see the results in the real world – albeit in a limited setting in the first instance, because they are also risk averse by nature.”

Initial discussions have taken place about creating a global sandbox, to allow firms to test innovative products across multiple countries. In 2018, the UK FCA invited stakeholders to submit their views on what such a global sandbox might look like. The countries and regions that UK respondents were most keen to see as part of a global sandbox were the US, South America, Australia, Hong Kong, Singapore, Europe, and certain African countries, including South Africa and Kenya.

THE SHIFTING LANDSCAPE OF REGULATION AND TECHNOLOGY

Regulators around the world are increasingly keen to be seen as innovation facilitators, rather than blockers. For example, different versions of the sandbox have sprouted up outside the traditional financial centers - one example, as noted above, is the Dubai International Financial Centre's Innovation Testing License.

What do financial institutions want changed?

The survey reveals there is no one specific regulatory change that would most benefit digital transformation and FinTech adoption, reflecting the fact that disruptive technology touches on all areas of the FS regulatory landscape. Open banking and data protection (both 16 percent) were the top areas cited, followed by the ability and speed of obtaining new authorizations and approvals (13 percent). Open banking and similar initiatives have been implemented in Europe through the second Payments Services Directive (PSD2), which Member States were required to adopt on January 13, 2018. One of the purposes of PSD2 was to facilitate competition and disruption in the payment services market, an area traditionally dominated by banks, whose closed systems meant there were high barriers to entry for new players. Included in PSD2 are two new types of payment service: account information services (AIS), which can consolidate a person's payment account information held between different payment service providers; and payment initiation services (PIS), which can initiate the transfer of funds on a payment service user's behalf on a user's payment account, with the user's consent and authentication. Banks and other payment service providers are required to open

their systems to allow new players performing AIS and PIS to have the required access to a firm's payment accounts.

Barriers to innovation in pursuit of other interests

In Europe, the new General Data Protection Regulation (GDPR) will be seen, by some, as a large obstacle for innovative startups, both in terms of the processing restrictions and the administrative burden imposed by GDPR. Similarly, satisfying fraud, anti-money laundering (AML) and know-your-customer (KYC) compliance requirements can often be burdensome, reflected by the 13 percent of respondents who think that changes in this area would be most beneficial to their business. However, governments and regulators are often unwilling to relax such requirements, in order to ensure high standards of AML compliance, in line with broader financial crime objectives.

The second Markets in Financial Instruments Directive (MiFID II) in Europe is an example of the competing interests of innovation versus harmonization. MiFID II was designed to open up the EU market through creating a harmonized playing field for market operators. However, the extensive administrative burden of compliance and the tendency to adopt prescriptive harmonized requirements (rather than allow market operators to develop innovative responses) could mean that the end result is market consolidation rather than competition. As with all of the above, whether this is the right approach will depend on which stakeholder's views are being considered, as well as the relative weight assigned to different outcomes.

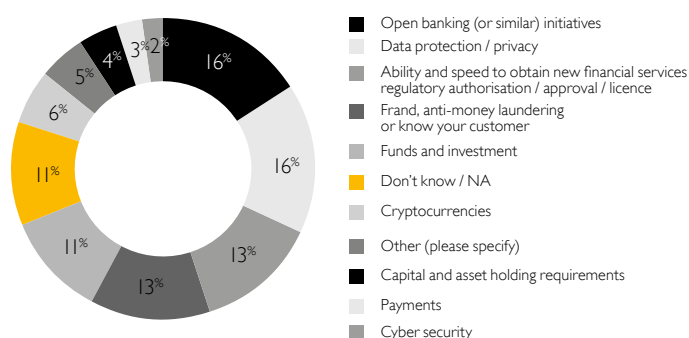
THE SHIFTING LANDSCAPE OF REGULATION AND TECHNOLOGY

Whether the effect of new regulation is desirable will depend on the stakeholder's perspective. While initiatives such as PSD2 and open banking initiatives are undoubtedly designed to promote disruption in the payments market, by forcing banks to allow new payment service providers with access to an individual's financial information, GDPR can have the opposite effect. As with any EU legislation or regulation, proper implementation requires national supervision and enforcement – and some regulators will be more active in, and take a different approach to, pursuing infractions than others.

Legislation playing catch up

Sometimes innovation drives regulation, rather than the other way around. For example, although 13 percent of firms surveyed think changes in fraud, AML or KYC would be most beneficial to their business, it is interesting that the new AML directive soon to be passed in Europe (commonly referred to as AMLD5) is being introduced partly to address some of the gaps in the current legislative framework that have developed from, for example, the growth of cryptocurrencies in recent years. Similarly, PSD2 was partially designed to update the original Payment Services Directive (2007) following the explosion in new payment service offerings facilitated by advances in technology.

In which of the following areas would regulatory / compliance changes be most beneficial for your business? (Please select one answer only)



Where do we go from here?

Some regulators are becoming increasingly adept at finding the right balance. Initiatives such as regulatory sandboxes allow innovation within safely defined parameters, protecting consumers from untested or risky products or services. Dialogue and outreach programs offer ways for potential areas for regulators and market participants to collaborate on ideas and solutions. Whichever approach is taken, countries wanting a vibrant, modern financial sector must find ways of allowing greater innovation in a way that does not undermine consumer protection, competition or market stability.



PAYMENTS AND CRYPTOCURRENCIES

PAYMENTS AND CRYPTOCURRENCIES

Opening the banking and payments system through a combination of changes to regulation and advances in technology is the most exciting opportunity.

Disruption in payments is a core area of focus for banks and FS companies. Forty-one percent of surveyed FS companies are prioritizing investment in payments technology, more than double the number prioritizing investment in any other area of FinTech.

Payments is an attractive area due to the significant innovation in payments technologies, and also because regulatory changes in key markets – such as PSD2 and the UK Open Banking Initiative – have created opportunities for smaller, disruptive payments companies to develop relationships with consumers.

Advances in technology and increased openness to competition are forcing incumbent FS institutions to improve their own payment services, look at innovation and alternative payment systems or potentially risk losing business on a significant scale.

Where has innovation been most prevalent in the payments sector?

Seventeen percent of participants say that there has been the most innovation in mobile wallets and payments within the payment sector.

Perhaps more interesting, given its early stage of development, is that almost as many participants (14 percent) consider that there has been most innovation in digital tokens and cryptocurrencies, whereas another 14 percent of participants identify real-time payments as the area of the greatest innovation.

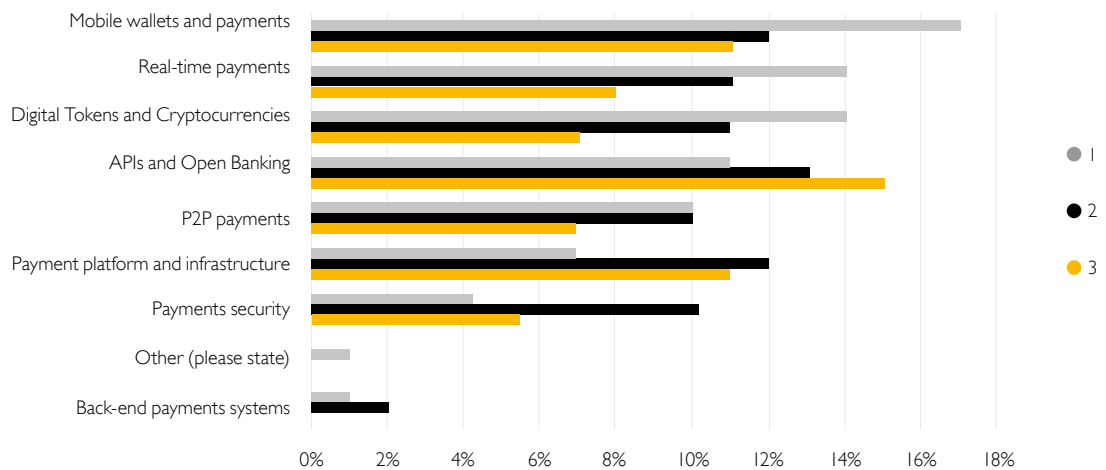
Which of these are the most exciting for your business?

Innovation in respect of application programming interfaces (APIs) and open banking (mentioned by 24 percent of participants), payments platforms and infrastructure (18 percent) and real time payments (15 percent) are currently considered most exciting for survey participants' businesses. Open banking represents a seismic development in retail banking, because it allows third-party FinTech firms access, for the first time, to consenting bank customers' data. Armed with this data, authorized app developers can now offer innovative products and services to bank customers, such as account aggregation or payment initiation services. Rival banks can also potentially access other banks' customers and offer innovative new solutions. The open banking initiative was initially driven by the UK's competition regulator, the Competition and Markets Authority. Similar initiatives are occurring outside the UK, including in Germany by the Berlin Group, and in other EU countries – though these are currently progressing more slowly than in the UK.

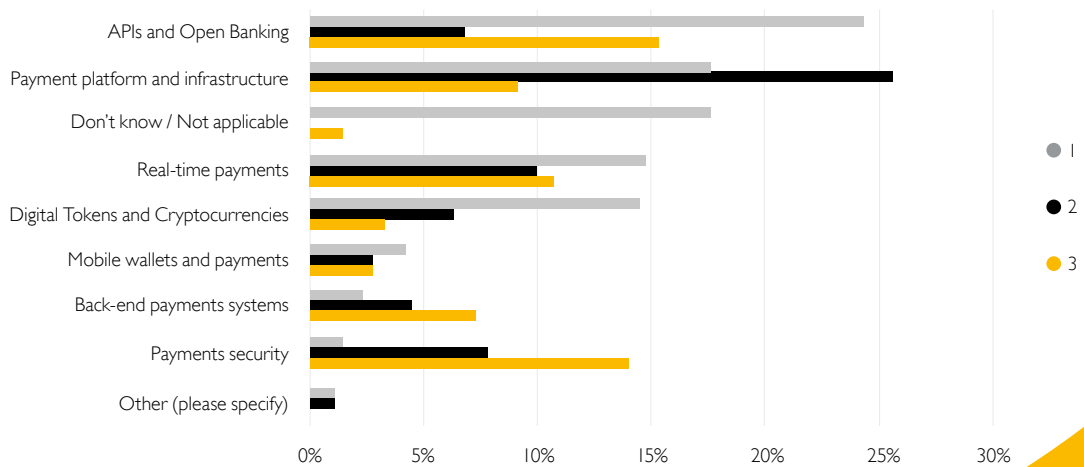
“One of the most disruptive developments in payments is that regulation is changing around open banking and PSD2,” says **Nilesh Dusane, chief revenue officer at nanoPay.** “Regulators are telling banks to open up their systems, and this helps third parties and FinTechs to offer solutions to banking APIs. This is a huge change.” “PSD2 and open banking are extremely transformative, because they allow clients to pick and choose how they wish to interact with

services, rather than services interacting with them,” adds **Khalid Talukder, director and head of FinTech at IFX Payments.** “Where we chose to keep our funds used to be a hard umbilical between us and the bank. With open banking, there is a role reversal, and it’s the clients that can move it seamlessly between different accounts within an ecosystem.”

Where in the payments industry has there been most innovation in the last two years? (Please select and rank your top three)



Which of these are most exciting for your business? (Please select and rank your top three)



PAYMENTS AND CRYPTOCURRENCIES

Digital tokens and cryptocurrencies are gaining increasing attention

FinTechs and FS companies are now paying more attention to opportunities associated with digital tokens and cryptocurrencies. This reflects the relatively rapid uptick of interest in this area and indicates that mainstream FS institutions are beginning to see the opportunities, as well as threats that this presents. Nine percent of participants say they are most excited by innovation in relation to digital tokens and cryptocurrencies, which makes it the fifth most exciting area of innovation in the payments sector.

Four percent of survey participants offer, or plan to offer, crypto-to-fiat currency conversion services to customers, and 17 percent of surveyed asset managers have developed or are planning to develop a strategy for cryptocurrencies or other digital assets. Given the very early stage of development in this asset class, it suggests that adoption levels may be increasing faster than expected. The findings also reveal an expected uptake of digitization as a core monetary tool. Industry expects central banks to significantly increase their use of cryptocurrencies – 31 percent of participants expect central banks to add cryptocurrencies to their balance sheets in the next five years, while 18 percent expect them to establish their own cryptocurrencies. It is likely that this is partly led by sentiment at a state and EU level that developments in the use of blockchain technology “have huge potential for making social and economic transactions more secure online, guarding against attack and removing costs,” says Andrus Ansip, vice-president for the EU Digital

Single Market. “Governments are starting to explore using some form of digital currency underpinned by blockchain, because it leaves a digital footprint, and they can therefore track where the money is going,” says **Jonny Fry, CEO at Team Blockchain**. “It also enables them to more easily collect taxes.”

The government position contrasts with that of banks, which are partly reticent to engage with cryptocurrencies, because regulators have not specified the extent to which they can. “Banks have not really got involved with ICOs and cryptocurrencies more widely yet because it is new, and regulators are working out their approach to it,” says **John Ho, head of legal, financial markets at Standard Chartered Bank**. “So there is a risk of regulatory overreaction and regulators applying retroactive overreaction. So banks are being careful and trying to get clarity from regulators on whether they can get involved or not.”

“From a banking perspective it’s very hard for us to bank a cryptocurrency business, because ultimately the regulator can point a finger at us and say that all of the money that went through us from them needs to be compliant with regulation that says we know where the money came from,” adds **Roland Emmans, UK technology sector head, HSBC**. “The underlying architecture of cryptocurrencies means there is a lot more anonymity around payments, which makes it very hard for us.”

PAYMENTS AND CRYPTOCURRENCIES

In spite of this, some mainstream cryptocurrency business banking is now being made available, and 15 percent of participants are either offering crypto-to-fiat conversion or currently evaluating it. With improved KYC/AML practices, and recognition that blockchain-based KYC/AML may ultimately be more reliable and effective than current banking measures, it is likely that we will see an even greater proportion of businesses evaluating, servicing and potentially offering cryptocurrencies and crypto-based products in the future.

Around the globe, while regulatory uncertainty remains, Hong Kong and Singapore have become global hotspots for ICOs and the creation of new blockchain-based tokens, with the utility being built into these new cryptocurrencies expected to drive and support the creation of new financial ecosystems and markets in Asia. Switzerland, Malta and Gibraltar are also popular host countries for such fundraising initiatives. In the UAE, the regulators have a difficult task of balancing the need for greater innovation and competition in the FS sector with consumer protection and market stability. So while the regulators and policymakers increasingly voice their concerns over the perceived risks of cryptocurrencies and ICOs, their use has mushroomed, attracting attention and speculation.

The US is also a major jurisdiction for the cryptocurrency industry, and several companies have headquartered there despite an uncertain and evolving regulatory and enforcement landscape. Regulators such as the Securities and Exchange Commission (SEC) and the Commodities Futures Trading Commission (CFTC) are actively policing the ICO space, but have yet to provide any definitive guidance.

The SEC has, however, repeatedly warned that many token sales may be violating securities laws, and the regulator has sued several companies allegedly engaged in fraudulent ICOs. It has been recorded that such sales can be subject to federal securities laws; and it has also been found that the CFTC has the authority to regulate virtual currencies such as bitcoin because they are “commodities.” Additionally, the Financial Crimes Enforcement Network (FinCEN), which administers the Bank Secrecy Act (BSA) and works to prevent money laundering, considers entities to be money transmitters if they accept and transmit a convertible virtual currency, or buy or sell convertible virtual currency for any reason. Such entities are required to comply with the BSA, which has registration, record-keeping and reporting requirements.

One area of uncertainty, however, is whether BSA requirements apply to ICOs. FinCEN recently took the position that developers that sell virtual currency are subject to the BSA AML requirements, with the caveat that, depending on their structure, such entities may instead fall under SEC or CFTC jurisdiction. Further, 49 states plus Washington, DC, regulate money transmission, with some expressly regulating both crypto-to-fiat conversion and crypto-to-crypto conversion. As a result of the uncertainty, companies and cryptocurrency exchanges that operate in the US are increasingly taking steps to comply more strictly with US laws.

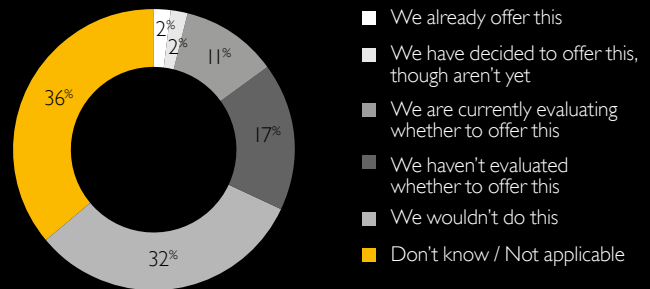
PAYMENTS AND CRYPTOCURRENCIES

Consumer trust is the most significant obstacle to payments innovation

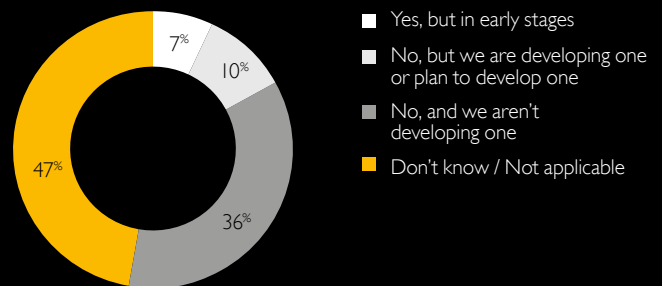
While there has been significant disruption in the payments sector in the last three years, there remains significant obstacles to further innovation. Top of the list, according to 27 percent of survey participants, is consumer trust in new payment methods and cryptocurrencies. In addition, 21 percent cite security concerns as the most significant obstacle.

But are the obstacles becoming less of a problem? The New Payment System Operator (NPSO) for the UK has lofty ambitions. "The establishment of the NPSO has been driven by a mandate from participants and end users to design and deliver a 'New Payments Architecture' (NPA). This marks a generational shift in retail payments with the introduction of a new layered infrastructure and new standards," says **NPSO general counsel Chet Behl**. "The NPA is designed to keep payments safe in a world of evolving threats while catalyzing competitive innovation and introducing new overlay services to the market, unmatched anywhere else in the world. We will be the leading payments authority creating a best-in-class payment infrastructure and standards in the UK for the benefit of end users everywhere. If, by analogy, we were to be compared to the airline industry, participants and end users would represent the airlines, and NPSO would be the air-traffic controller setting the standards, rules, boundaries and parameters for using the airspace. Our aim is to be the leading payments authority globally."

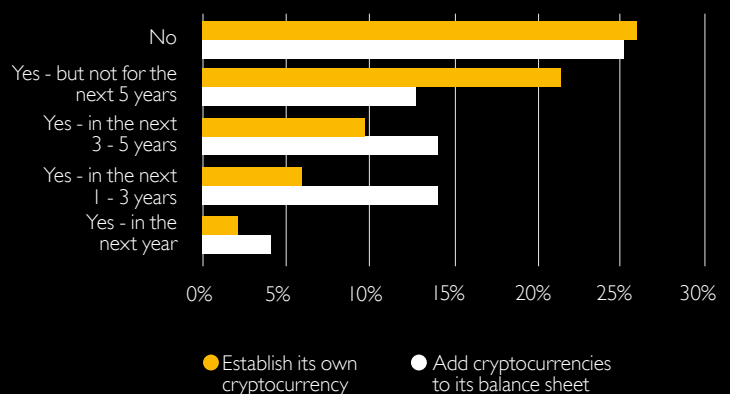
To what extent are you planning to offer crypto-to-fiat currency conversion services to customers? (Please select one answer only)



Do you have asset management strategy for cryptocurrencies or other digital assets? (Please select one answer only)



Do you expect banks or central banks where you are located to add cryptocurrencies to their balance sheet, or perhaps establish their own cryptocurrency, assuming all KYC / AML requirements are complied with?



PAYMENTS AND CRYPTOCURRENCIES

A lack of trust still seems to be a factor. “Fundamentally, the main issue with payments innovation is trust in the service,” says **Khalid Talukder, director, head of FinTech, IFX Payments**. “The established players have been around for many years so there is surety. But some people will wonder whether startups will be around next week if their balance sheet is so small. Even if the service from an established bank isn’t that great, you know they will be there.” Regulatory and compliance hurdles are also potentially an obstacle to payments innovation.

Thirteen percent of survey participants say the regulatory environment and regulator enforcement is the most significant challenge to payments innovation, and a further 13 percent say AML, KYC and counter-terrorist finance compliance requirements are. These compliance requirements vary by country. It is therefore imperative for developers of innovative payments solutions to have these requirements in mind when developing cross-border payment services. It also imposes an extra layer of cost and complexity as these developers achieve scale in their businesses.

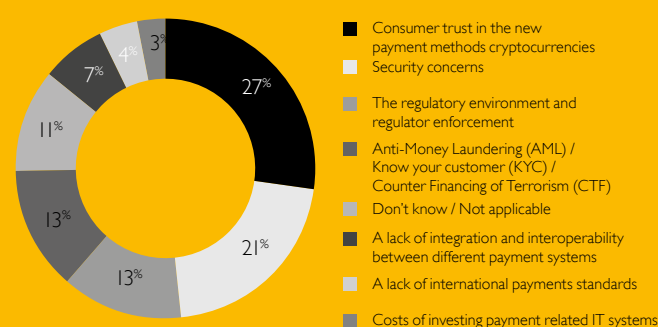
“Unfortunately, payments is not like sending an email, and it comes with rules and regulations in relation to KYC and AML,” explains **Nilesh Dusane, chief revenue officer at nanoPay**. “So FinTechs not only need to solve the basic problem of moving money, but innovate in the area around that payment.

“For example, if you want to send money to China and it’s over a certain amount, the recipient has to send a copy of the invoice to the regulator to show why they are getting that payment. But different countries have different rules. New technologies need to make it more efficient for customers to understand what these rules are, communicate these rules very clearly to the sender and

recipient, and then adhere to them before the transaction takes place.”

Some companies are exploring using distributed ledger technology for payments systems in such a way that fulfills these compliance requirements. “The power of the distributed ledger is that it can remove regulatory problems,” says **Roland Emmans, UK technology sector head at HSBC**. “Today, the regulator wants to know who is making the payment, who it has come from, where it has gone and what information has been attached or stripped from it. The distributed ledger technology will be able to tell you all this. It is one version of the truth without having a central system where things can be stripped out.”

What are the most significant risks and challenges that will have to be overcome to enable further payments and cryptocurrency innovation?



The basic tenet of distributed ledger technology is that the trust requirement is spread across the system, so that there is no longer a requirement to take risk on the records or existence of a single entity. The distributed holding of data also acts as a safeguard to various forms of cyberattack. Given that almost 50 percent of respondents see trust and security concerns as the major factors in adoption of new payment systems, it suggests that further education in the operation of distributed ledger technology and cryptocurrencies – along with more regulatory clarity, or the combination of this technology with established trusted names – could be a big driver for growth in coming years.



CYBERSECURITY

AND MONETIZING DATA

CYBERSECURITY AND MONETIZING DATA

Cybersecurity still the biggest and most present threat

Cybersecurity concerns are cited as the most significant threat to digital innovation and adoption by the majority of respondents, with 82 percent worried about an attack and the detrimental effect on their businesses.

Looking at institution type, cyberattacks are a significant concern for 80 percent of retail banks, 56 percent of investment banks and 53 percent of FinTechs. From a geographical perspective, the UK, US and Asia Pacific are most worried, with Singapore (a major global FinTech hub) seeing a 75 percent response in this category.

This concern is understandable, given the surge in high-profile cyber-incidents in 2017 and 2018, which saw sophisticated attacks including Equifax (affecting 800 million consumers and 88 million businesses worldwide), WannaCry (affecting an estimated 300,000 computer systems in just four days) and NotPetya (which affected many global businesses, including DLA Piper).

Key challenges for banks and FS companies are the pace at which cyberattacks continue to evolve, coupled with the relentlessness and, often, ruthlessness of attackers.

The cyberthreat landscape has expanded vastly in recent years, so confronting these issues requires a huge amount of ongoing resource, time and expenditure, including sufficient screening for new hires; substantial amounts of employee training; significant levels of investment in IT infrastructure, (both hardware and software); adequate and continual patching; and active management of vendors/supply chain. The interconnection of banks and FS companies with

other third parties and the use of new technologies, such as mobile banking and cloud computing, are crucial to the effective functioning of financial organizations, but can increase the risk of a cyberattack due to greater attack surface area and entry points. In addition, the regulatory landscape has been trying to keep pace with the increased cyberthreat, and in doing so has raised the stakes in the event of a personal data breach.

So what can banks and FS companies do to try and combat these issues? Clearly, the priority is to prevent a cyber-incident from occurring in the first place. However, while it remains important for banks and FS companies to have a secure perimeter, the reality is that even for sophisticated firms, it is more likely a question of “when” rather than “if” a breach will occur. It is therefore vital to have an effective response capability so that attacks can be quickly and effectively detected, analyzed and responded to. Equally important is having well-established organizational procedures to enable senior leadership to monitor situations, cascade communication through their organization and make key decisions, such as whether to notify regulators or individuals, under critical time pressure. Knowledge sharing and industry collaboration is also important to stay ahead of the threat, for example, enhanced exchange of cyberthreat knowledge between banks, and more effective sharing of knowledge and experiences across the banking and FS sectors.

With cybersecurity high on government agendas, it is important that the banking and FS sectors continue to take a proactive approach by continuing dialogue with key government departments and authorities to ensure that new policies reflect sector requirements and practical experience.

CYBERSECURITY AND MONETIZING DATA

Monetizing data - a new wave of initiatives

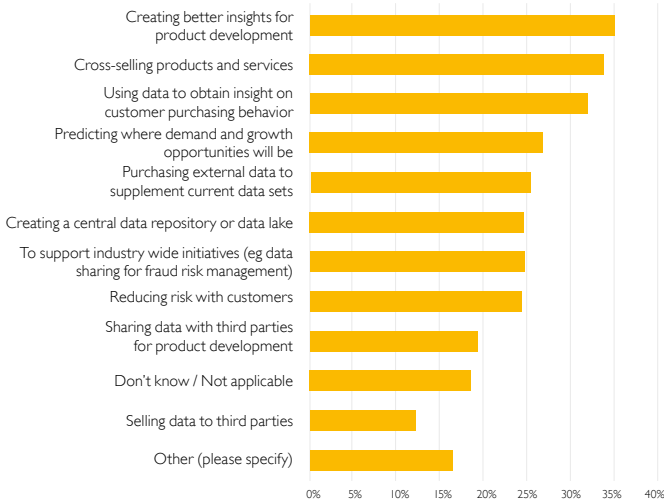
Finding new ways of unlocking the value in the vast amounts of data held by banks and FS companies remains a key strategic focus for the industry. The survey data reveals that banks, FS companies and FinTechs plan to undertake a range of strategic data-driven initiatives in the next two years. Thirty-five percent of survey participants plan to better utilize, and monetize, data in the next two years. More than 30 percent plan to use data to create better insights for product development, cross-sell products and services, and obtain enhanced insight on customer purchasing behavior. FS institutions are eager to use their data to have greater insight on their customers, to ensure products and services are better meeting their needs in the future and to improve the customer journey.

Notably, however, only 12 percent of participants plan to monetize data by selling it directly to third parties. This may be because the data is seen as a core asset, with firms preferring to seek ways to extract value from the data they hold before they release this to others. However, as regulators increasingly push the FS sector towards an open banking model, it will be more important than ever that FS institutions have the best possible products and enhanced insights, so that customers can see the value of the institution's services and products and improve customer trust; the days of offering a simple bank account or credit product are likely to be numbered.

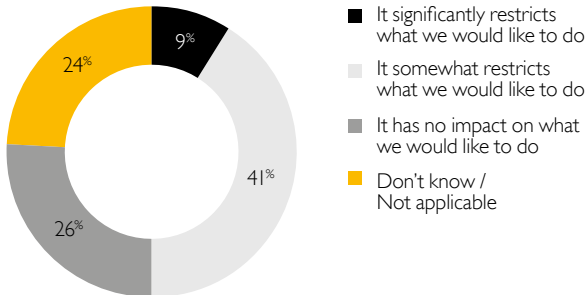
There are other potential obstacles to monetization strategies. One of the biggest concerns around cybersecurity is the sharing and monetizing of data, with

47 percent of our survey respondents agreeing that it makes them more vulnerable to cyberattacks. In addition, the increase in regulatory and compliance requirements in relation to data security and privacy are cited by half of survey participants as preventing their business from undertaking some of the data-monetization strategies they would like to pursue.

Which data monetization initiatives is your organization planning to undertake in the next two years?



To what extent do regulatory and compliance requirement (including data protection / privacy requirements) prevent your business from undertaking the data monetization strategies it would like to?



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While caution is apparent for retail banks, **Murshid Ali, co-founder and CEO at Huddlestock**, describes its Crowd Investing digital platform offering as “a key advantage for us, as we have ready access to large sets of data on customers, their investment preferences and their trade history. The system is fully compliant, and all the data is controlled by the client. We are looking at using the data to optimize and customize opportunities to each individual client, and we can do this on a scale that you could never do through a traditional stockbroker model, unless the individual stockbroker knew you personally.” FS institutions and banks will continue to look to monetize data through traditional product offerings such as loans, credit cards and identifying key transactions. However, new structures such as open banking and other AI solutions will see banks and FS institutions looking to pure-play tech companies for inspiration on how to use their data more effectively.

Open banking impact

Various international initiatives have been set up by FS regulators to encourage or require FS providers to enable customers to access or move their data. The common aim is to drive competition, and to reduce the entry barriers for new innovative plays in the market. Significant regulatory developments include the portability requirements under the EU General Data Protection Regulation (GDPR, see below) and the second EU Payment Services Directive, but one of the most advanced programs is the Open Banking initiative set up by the Competition and Markets Authority on behalf of the UK government. This was designed to transfer ownership of account information from banks to the customer, enabling the secured sharing of transaction data with other banks and third parties. It has already started to stimulate competition and encourage true innovation to the FS Sector in the UK.

Since January 2018, UK banks have been obligated to share customer data with Financial Conduct Authority (FCA) approved financial organizations and third-party providers if the bank’s customer asks (or gives consent) for their data to be shared. At the moment, the nine largest UK banks and building societies are enrolled on the Open Banking Directory, and others will soon follow. Initial uptake of Open Banking will depend on the efficiency and security of application programming interfaces (APIs) that will enable customer data to be shared. However, it seems reasonable to expect that user-friendly APIs will become commonplace, in much the same way as e-commerce has overtaken high-street shopping.

The challenge for big banks, and other organizations that sit on large quantities of valuable customer data, is how to respond to this new reality, in which their core data assets can be placed in the hands of their competitors.

Rather than seek to push back the tide, the better solution may be to get ahead of the curve in the adoption of data portability and become the preferred destination when customers start hopping from one organization to another. Organizations should consider the ways in which way they develop and innovate new services for customers, and the extent to which they are equipped to analyze and replicate and adopt offerings brought to the market by their competitors. This may involve reviewing data collection, data repositories, data-sharing across teams and departments, and data infrastructure. Rigorous internal data governance will also enable organizations to clearly separate personal data (which fundamentally belongs to the customers themselves; it is defined by and subject to complex data protection legislation, such as GDPR) from proprietary data (owned by the organization).

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There is also a question regarding how valuable customer data will be if open banking materializes in other countries. From a more global perspective, current open banking reforms in Australia are not “write access” on data, but they are likely to be included in later evaluations, which would allow a customer to act independently of the bank when transacting, thus facilitating an increase in peer-to-peer payment platforms and a bypass of the traditional big banking platforms.

According to **Roland Emmans, UK technology sector head at HSBC**, “Open banking is coming, and HSBC was one of the first to introduce an open banking app that enables you to put various accounts through it. They are looking at what insights you can get from it.”

“Data analysis is very important, but we won't ever sell our customers' data – it's theirs, not ours,” says **Sam Stubbs, managing director, Simplicity**. “We could ask the customer in the future if we can sell it, but I am not sure how valuable that will be. I can understand banks wanting to sell customer data, but open banking will allow the customer to do it themselves. But in asset management, I can't see a data-monetizing solution that will be acceptable to the customer in the foreseeable future.”

Data protection and primary issues

The common thread in all the above topics is the issue of personal data and personally identifiable information. It is therefore not surprising that the evolution of data protection and privacy laws around the world have pushed data compliance high up the regulatory and commercial agenda for FS firms.

The most significant recent change was the introduction of GDPR in Europe, which represented the largest shake-up of data protection laws for many years, and which has become a global benchmark influencing regulatory approaches around the world.

The impact of GDPR is wide ranging, and includes new or enhanced requirements in a number of areas along with a significant increase in the maximum potential fines – now up to 4 percent of global turnover. Of particular relevance to the themes outlined above are requirements regarding notification of data breaches, higher standards of notification and consent, and a new right to data portability.

The breach notification requirements under GDPR raise the stakes in the event of any cyber incident. A personal data breach meeting certain criteria will need to be notified to the relevant national authority within 72 hours of awareness of the breach, and some breaches will trigger an additional requirement to notify the affected individuals. These factors should be incorporated into cyber-response planning, so that appropriate decisions can be made quickly and external communications managed carefully in difficult and time critical circumstances.

Many data monetization projects will include the “processing” of personal data, and therefore firms will need to ensure that they have a legal basis for such processing and that the individuals concerned had received appropriate notification. Relying on consent as the legal basis for such processing is more difficult under GDPR and can be withdrawn at any time; however, there may be other legal grounds available for such processing. As a result, analysis from a data protection perspective is crucial when

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formulating a data-monetization strategy. In addition to the sector-specific requirements such as open banking, GDPR imposes a more general right for individuals to be given their personal data in a commonly used electronic format to enable them to “port” this data to a new provider.

In Australia, given the status of the largest four or five banks, brand and reputational protection are certainly the key drivers for banks on third-party data-disclosure strategies. FinTech organizations, particularly startups, are less concerned in this area, which reflects the level of maturity and understanding on these issues as compared with the larger FS institutions. Concerns around data compliance are not the whole story. Putting data protection and commercial concerns aside, companies are reluctant to sell data due to the reputational damage it might cause. These concerns have been heightened given the reputational damage caused to Facebook and Cambridge Analytica by the revelations of how 50 million Facebook profiles were alleged to have been harvested, and the data monetized, by building a system that targets voters with personalized political advertisements based on psychological profiling – all without individuals being made fully aware of this.

The FinTech revolution has been brought about by increased computer power and big data. The opportunities are bountiful, but the damage of doing something wrong, particularly with data, can damage companies' reputation severely, which takes a long time to recover from, if at all. With this in mind, and because the reach of GDPR is not

confined to EU companies, regulators (for example) in the Middle East are catching up with GDPR, but the same concerns from global companies based in the Middle East apply; there appears to be a lack of innovative solutions for consumers due to perceived privacy concerns. In Asia, though GDPR has created a sharp focus on pure compliance work, Asia banks (or the Asia-based part of multinational banks) have been working on projects that look at data as a strategic asset, and developing data collection and handling methodologies that are intended to maximize the potential future value of the data they hold. A hallmark of such projects is that issues such as confidentiality, intellectual property rights, customer restrictions and third party contractual terms have been added to the pure privacy compliance requirements. All these items can potentially create barriers to monetizing data: if organizations don't have the relevant rights, they are restricted in what they can do with client and customer data.

“It is a good thing that rules are now being developed to provide clarity around use of data,” says **Stephen Albrecht, general counsel for the strategy and operations group at Barclays**. “However, regardless of whether a company is technically compliant, you also have to think about what customers are comfortable with.”

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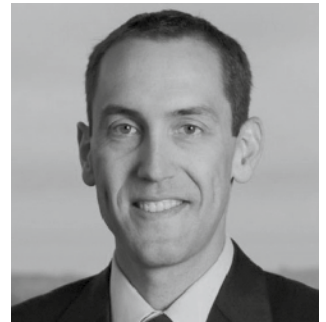


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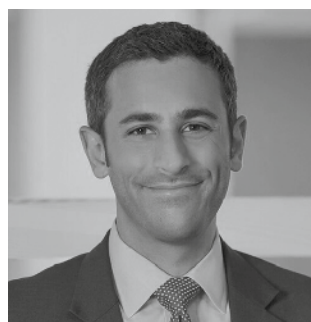


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