FinTech's state of play

Taking stock of Singapore's FinTech landscape, 2022

pwc

SFA SINGAPORE FINTECH ASSOCIATION

Contents

Foreword

The journey of development that individuals, institutions and nations alike find themselves on can provide profound moments of reflection and insight when one looks back and takes stock of how far one has progressed since the journey began.

With regard to the journey that Singapore's FinTech space has undertaken since its establishment, 2022 proves an opportune moment to glance back and observe the progress it has made.

From the recent highs in deals and fundraising of recent years to the boost in use resulting from the catalysing effect of the COVID-19 pandemic, Singapore's FinTech industry has expanded and developed impressively so in the time it has existed.

This is due to many factors, of course, from the strong and targeted regulatory support and those of policymakers to the innovation exhibited by the local FinTech start-up scene, from Singapore's openness in attracting foreign FinTech firms to establish themselves here, to the regional connectivity and position it is taking among the fast-growing ASEAN markets and the wider APAC region.

As we note the state of play of the FinTech industry in Singapore, the resilience and opportunity on offer to the various players continue to impress.

Foreign firms increasingly recognise Singapore as the natural location for the ASEAN or APAC regional headquarters.

Venture capital firms have an impressive array of investment opportunities on offer before them, from early-stage to late-stage investments.

As for the FinTech themselves, they are well-served by a regulatory environment which provides extensive support to them and ensures numerous initiatives are actively working to build on the capabilities of the industry within Singapore and across the region.

Whilst the journey of Singapore's FinTech industry is only just beginning, the current state of play is looking good.

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FinTech Leader
PwC Singapore

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Executive summary

Following extensive efforts and initiatives by policymakers and regulators, FinTech in Singapore has progressed substantially from its initial days.

Fast-forwarding to today, Singapore in 2022 remains an open and global FinTech centre, with the country hosting both locally and internationally-headquartered FinTech firms.

Singapore as the command center for ASEAN

The majority of our survey respondents with business in Singapore also operated in other ASEAN markets, with strong indications that Singapore continues to serve as a base for accessing the rest of ASEAN.

It is promising to see that substantial amounts of revenue were derived in Singapore and that a high number of employees were also based here.

Additionally, all firms surveyed have reported operating in at least one other market or region. Of the respondents headquartered outside of Singapore, the United Kingdom and Europe (both EU and non-EU nations) comprised the majority of internationally-headquartered firms.

Breadth of funding levels promise investment opportunities

Singapore also boasts a wide range of funding levels among companies, from early-stage through to late-stage.

It was observed that most companies at a “Seeded” level of fundraising focused on the B2B (Enterprise) segment. Most of the FinTechs who reported to be “Unfunded” or in “Series A” funding levels focused on the B2C or B2B (SME/Enterprise) areas.

The breadth of funding levels provides ample opportunity to the numerous Venture Capital (VC) firms located in Singapore and the wider region, enabling them to have a dedicated firm strategy or raise funds to target FinTech’s at specific funding levels.

FinTechs are offering solutions beyond their core product

Survey respondents provided a diverse mix of responses across the various categories and subcategories of FinTech products and solutions offered.

Within FinTech sectors, participants appeared to offer a wide range of services across identified sub-sectors.

For instance, on average, those in the “Infrastructure Providers” sector offered 3.7 FinTech products and solutions across multiple categories.

Payments remain to be the largest sector

In terms of the largest aggregate responses per category, Payments also boasted the top two sub-categories, being Money Transfers and Remittances, and Online Payment Gateways.

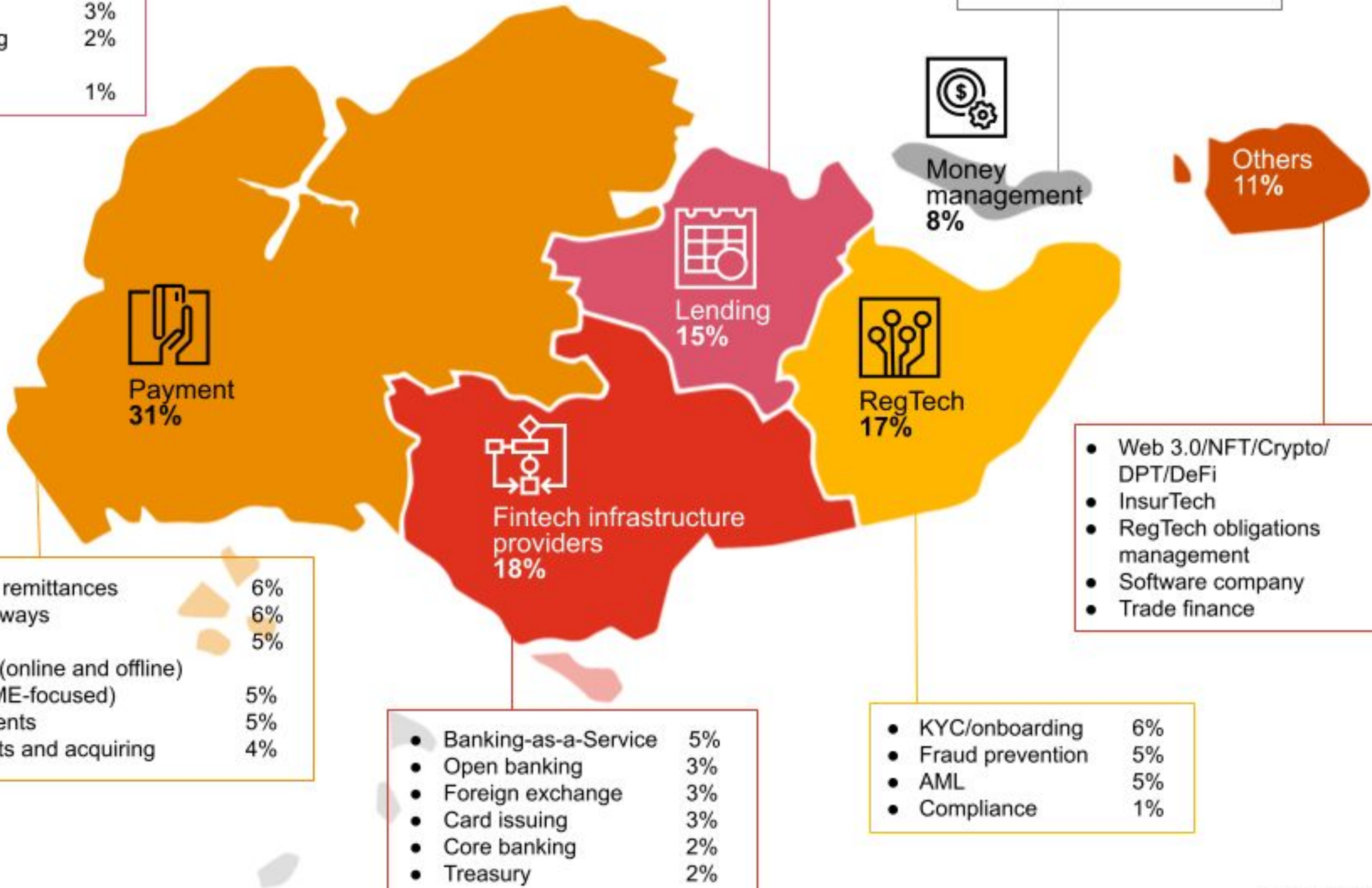
This is likely a reflection of the Payments’ role as the gateway to growing and developing a FinTech space across ASEAN, as well as the high levels of financial infrastructure within Singapore, which enables numerous payment gateways to operate.

A solid foundation provided by regulators and policymakers, numerous opportunities for investors across all stages of FinTech growth, a diverse and multi-faceted array of FinTech products and services offered, and an open environment suitable for foreign and local players alike, the state of play of FinTech in Singapore is that FinTech is in a state to play!

I. Mapping Singapore's FinTech space

- SME/business lending 6%
- Consumer/P2P lending 3%
- Risk management/scoring platforms 3%
- Invoicing/online-factoring 2%
- Credit card/loan Comparison sites 1%

- WealthTech 4%
- Robo-advisory 2%
- Personal finance management 1%
- Trade surveillance 1%



- Web 3.0/NFT/Crypto/ DPT/DeFi 5%
- InsurTech 3%
- RegTech obligations management 1%
- Software company 1%
- Trade finance 1%

- Money transfers and remittances 6%
- Online payment gateways 6%
- Mobile wallets 5%
- Buy-Now; Pay-Later (online and offline) (consumer and/or SME-focused) 5%
- Trading and investments 5%
- POS/mPOS payments and acquiring 4%

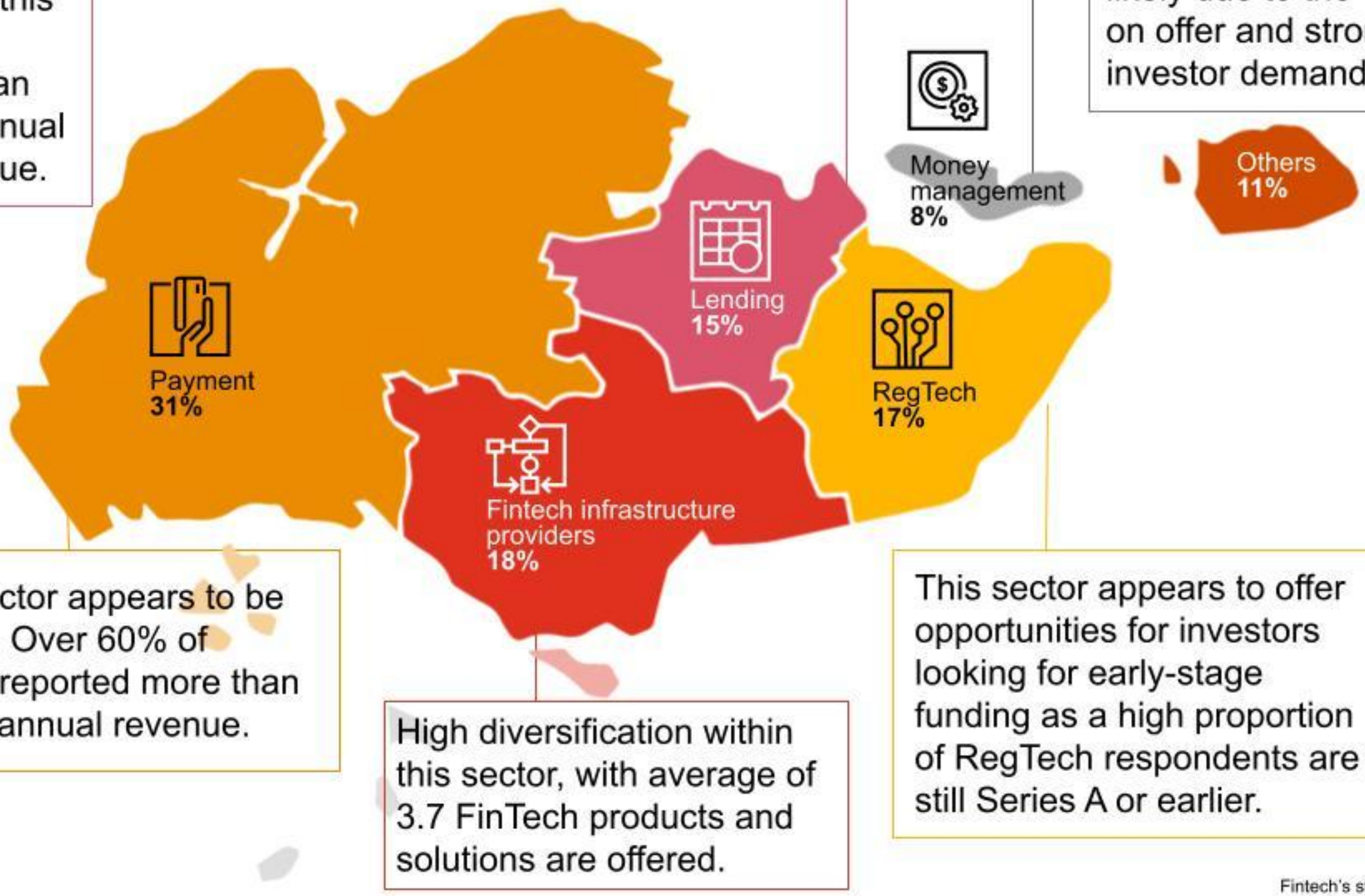
- Banking-as-a-Service 5%
- Open banking 3%
- Foreign exchange 3%
- Card issuing 3%
- Core banking 2%
- Treasury 2%

- KYC/onboarding 6%
- Fraud prevention 5%
- AML 5%
- Compliance 1%

I. Mapping Singapore's FinTech space (continued)

Over 35% of respondents in this sector reported having more than SGD 10m in annual company revenue.

This sector derives the highest proportion of its revenue from Singapore, likely due to the wealth on offer and strong investor demand.



Payments sector appears to be most mature. Over 60% of respondents reported more than SGD 10m in annual revenue.

High diversification within this sector, with average of 3.7 FinTech products and solutions are offered.

This sector appears to offer opportunities for investors looking for early-stage funding as a high proportion of RegTech respondents are still Series A or earlier.

II. The growth and development of FinTech in Singapore

Phase 1: The time for innovation and experimentation

The inception of Singapore's FinTech industry was concurrent with the country's transition towards an innovative, knowledge-based economy that focuses on value creation rather than just value-adding.

In the financial sector, commitment to such innovation was embodied by the Monetary Authority of Singapore (MAS), launching the Financial Sector and Innovation (FSTI) Scheme in mid-2015. Alongside FSTI, MAS set up a new FinTech and Innovation Group (FTIG) within its organisational structure that would be in charge of regulations and policies regarding the use of technology and innovation. Shortly after in 2016, MAS launched the FinTech Regulatory Sandbox framework to encourage and enable experimentation of technology innovation to deliver financial products and services.

With that, Singapore started to see a flurry of activities in the form of incubators and accelerators. We also saw a focus on technology such as biometrics, cloud computing, artificial intelligence, blockchain, API and mobile payments. At the same time, there were crowd-sourcing of industry problem statements to which these technologies were trying to solve. This defined the phase of exploration and experimentation. Incumbents explored ways of working with new technologies while new entrants experimented with different ways of tackling industry problems.

It was also the inception of the world's most impactful FinTech event - Singapore FinTech Festival (SFF). The inaugural SFF was held in November 2016 and created a platform for collaborations, connections and co-creations within the FinTech ecosystem in Singapore and around the region. Since then, the SFF was held annually even during the peak of the Covid-19 pandemic, virtually and round the clock.

Phase 2: Innovation goes international

In retrospect, it was only a matter of time before the fast-growing FinTech industry set its sight on going global.

ASEAN, as a region, showed growth and potential. Many new entrants began to look across borders to expand their footprint. Emerging populous countries such Indonesia and Philippines were especially attractive. Consequently, global investors followed. According to UOB, funding into ASEAN FinTech firms were up at least 25% in 2018 compared to 2017.

Grab was a notable milestone in the local FinTech industry at the time, a Singapore-based ride-hailing technology company. Grab grew rapidly to become one of the leading online-to-offline mobile platforms in Southeast Asia, and by the end of 2018, Grab had expanded their offerings to include an e-wallet, with further additions made in the following years.

A significant development occurred during the 2018 SFF, with the launch of the API Exchange (APIX). APIX is a global, open-architecture platform that supports financial innovation and inclusion in ASEAN and around the world. The launch of APIX was a substantial step forward for both Singapore and the wider ASEAN region with regard to their FinTech ambitions, and signified a substantial boost to regional capabilities and FinTech competitiveness.

Phase 3: From start-up to scale-up

The successes of FinTech in transforming the financial industry encouraged Singapore to double down on its efforts and increase resources to further foster innovation and growth in the various sectors comprising FinTech, as well as promote its growth and development in other markets. We also saw firms re-strategising, as some pivoted to serve the B2B segments in particular the small-and-medium sized enterprises (SMEs). This was also in response to the digital banking licenses to be awarded in 2019. Many FinTechs saw this as an opportunity to scale-up either through bidding for a digital banking license themselves or through partnering with aspiring digital banks.

MAS launched Sandbox Express to provide firms with a swift option to test certain innovative financial products and services in the market. As compared to the previous FinTech Regulatory Sandbox, Sandbox Express allows users to customise their sandboxes in a shorter time.

In addition, the Payment Services Act (PSA) was also passed later in the same year to unify and streamline regulatory requirements for various payment services in Singapore, including e-payments.

When the fallout of COVID-19 hit home in early 2020, MAS announced an SGD 125 million support package for the financial and FinTech sectors to deal with the immediate challenges they were facing.

Phase 4: COVID-19: Is it really a FinTech winter?

2020 was the peak of the pandemic. Many lives were lost and affected. It was difficult to predict when the end would be and how things would turn out. As the pandemic progressed, Singapore did not slacken its efforts to cultivate FinTech. Similar to rest of the world, digital transformation accelerated as a result. With the headwinds, investors were also careful.

However, many FinTech companies persevered and took this chance to reinvent themselves. Some relooked at the growth strategy while others ensured cost effectiveness. We also observed how some took the bold step to pivot to a different business model, for example using the same platform but to address a different problem statement.

For example, Environmental, Social and Governance ("ESG") started to take center stage. It remains as a hot topic; a key concern which everyone should take interest in. Project Greenprint was launched by the MAS in 2020 as a collection of initiatives that aims to harness technology and data to enable a more transparent, trusted and efficient ESG ecosystem to promote green and sustainable finance. Consequently, some of the FinTech companies rebranded to focus on this holistically.

On the fundraising side of things, Singapore has been adamant in its efforts to hinder the pandemic's corollary manifestation of a FinTech Winter. The end of 2020 saw Singapore well-entrenched as Asia's highest-ranking FinTech country and fourth-placed globally[1].

(1) source; findexable

Phase 5: The current state of FinTech

As we moved into the current state of FinTech, anecdotal evidence indicated that Singapore had surpassed the 1,000 threshold with regard to the number of FinTech firms operating in its jurisdiction.

Deal activity and fundraising across VC's continued. Data from Preqin indicates that 138 FinTech deals occurred over the first three quarters of 2022, with an aggregate reported deal size of USD 2.12bn.

Whilst the deal numbers are only down slightly from the 169 reported across all of 2021, the aggregate deal amount has fallen substantially from the reported USD 10.49bn across last year, though two deals comprised nearly 60% of this total amount which skews the data.

Singapore's FinTech space remains robust, with a broad and diverse range of FinTech operating within it, opportunities for VC investment across a wide gamut of fundraising stages, from early-stage to late-stage, and it is increasingly becoming the location of choice for global FinTech looking to access the growth markets of ASEAN. Through our survey results, we noted that almost 83% of the respondents headquartered in Singapore. A majority of them also operated in another ASEAN market.

We also noted the diversification of products and services. In particular, an average of 3.7 solutions were offered by FinTech infrastructure providers. It was also not uncommon for players to take on a diversity of business models i.e. B2C and B2B.

Following years of promoting the start-up aspect of FinTech, Singapore is shifting to the scale-up phase, providing a solid foundation for local and foreign firms alike to expand across ASEAN, APAC and globally.

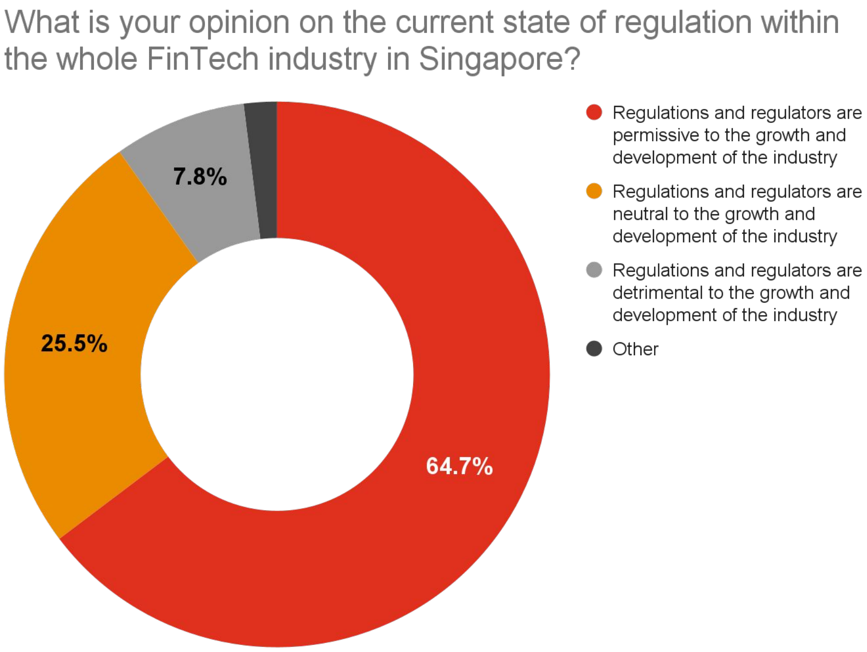
Phase 6: The future of FinTech

(a) Industry and outlook

The vast majority (more than 70%) of survey respondents were optimistic about the future of the FinTech sector in Singapore, expecting faster growth and more opportunities to emerge over next three to five year. “Very Optimistic” responses were recorded from FinTech’s across all annual turnover levels, so it is not an exclusive perspective of the largest firms by annual turnover to be very optimistic regarding the overall outlook of the FinTech industry over the next three to five years. Ideally as such, firms of all annual turnover levels should be able to partake in the expected future success. A small portion of the FinTech players is expecting consolidation in the industry.

(b) Regulations

The regulatory environment in Singapore has been, and continues to be, an important factor behind the success of the FinTech industry. Nearly two-thirds of respondents believed that state authorities peruse a permissive approach, with 85% of respondents holding such views being Singapore-headquartered firms. Notably, based on the portion of respondents reporting on a local versus overseas headquarters basis, even foreign-headquartered firms appeared to share this positive assessment of state regulators. Transparency and consistency of regulators has been a key consideration for FinTechs when they assess for the most suitable location to be the global or regional headquarters. In addition, the “prestige” of being a Singapore regulated entity often opens door to regional opportunities and conversations with potential investors or customers.



Phase 6: The future of FinTech

(b) Obstacles to growth

While the outlook of the FinTech industry and its various sectors look promising, no industry is without challenge. When asked about potential obstacles that may hamper further development, the majority of respondents believe that Singapore's small market size is the main handbrake on future FinTech growth. Therefore expansion outside of Singapore is critical.

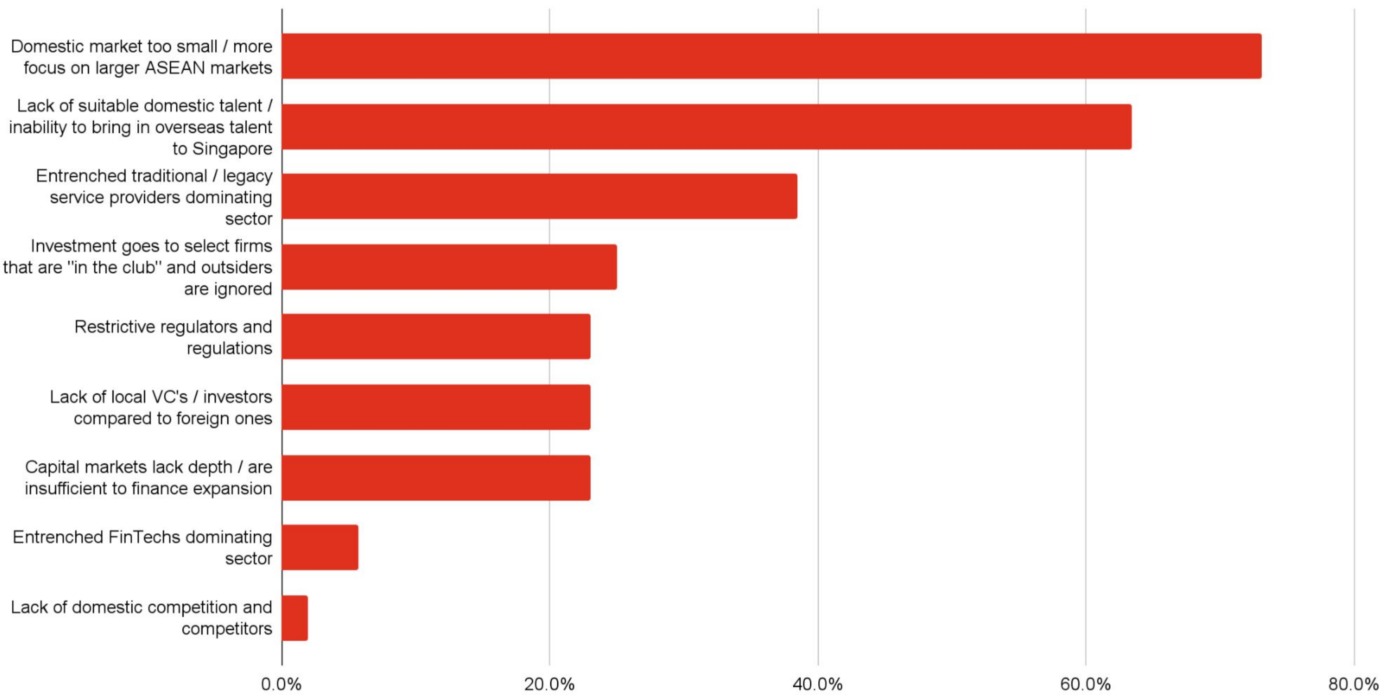
While limited by market size, it is observed that the FinTechs located in Singapore found advantages through access to financial markets, legal system, etc. These are important aspects that make the secure expansion of a company possible. With a stable base, they then focussed their operations in larger growth markets surrounding Singapore.

Aligned to this methodology, despite the concern in Singapore market size, 84% of those with such concern are still headquartered in Singapore.

On the other topic, talent remains to be the challenge for FinTechs. Domestic talent pool available to the FinTechs remains to be limited, and there are obstacles to bringing in talents from outside of Singapore.

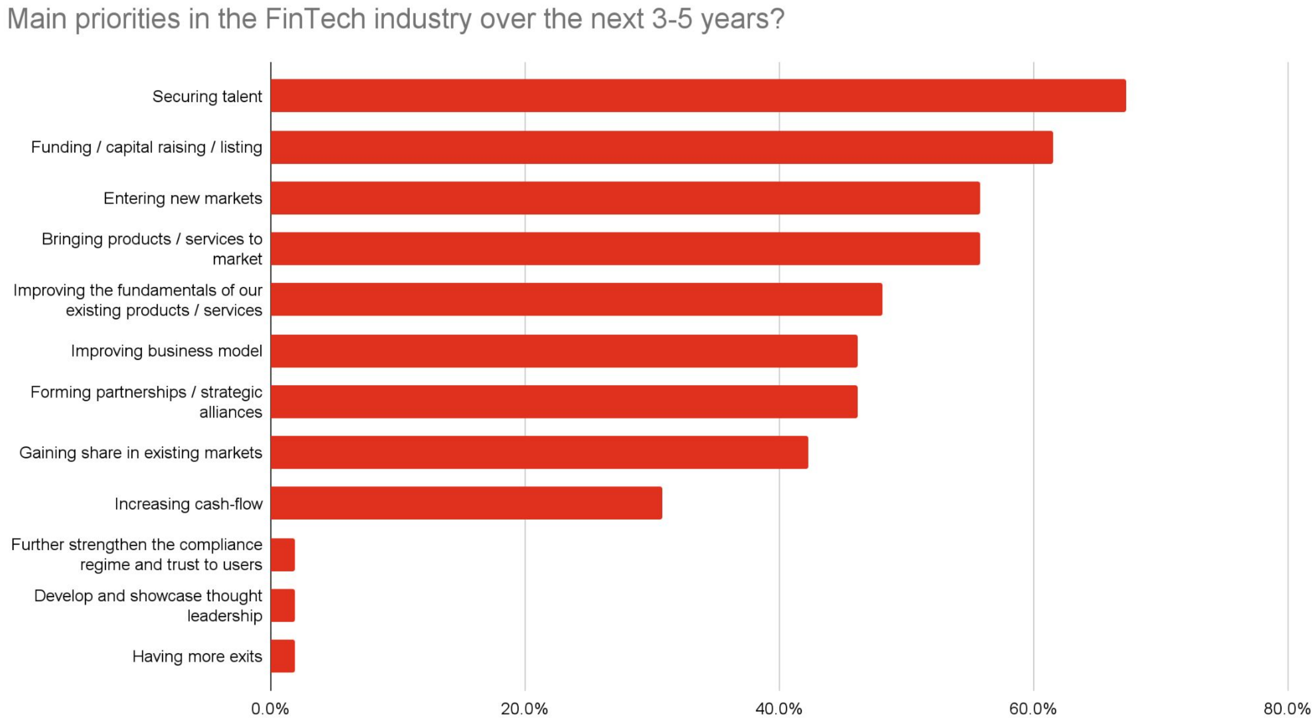
The well-established financial sector in Singapore is a double-edged sword for the FinTech industry. Consumers and users are comfortable with the "traditional" players who have significant influence over the systems and stakeholders. Therefore, it may not be easy for some FinTech players to continue to push for growth in the domestic market.

Main weaknesses in Singapore's FinTech industry curtailing growth over the next 3-5 years?



Phase 6: The future of FinTech

(c) Priorities



Corresponding to one of the key obstacles to growth, the sourcing and retention of talent remain at the forefront of FinTech's priorities in the coming years. The shortage of talent appears to be particularly felt within entities that have been around long enough to establish themselves in the market.

The inability to secure adequate talent may impede the ability of such firms to grow and progress their organisational value chains, and will likely hinder their abilities to grow to their full potential.

As a result, we saw that FinTechs started to offer better packages to attract talent. In fact, in 2021, it was reported that larger FinTechs paid more than the banks[1].

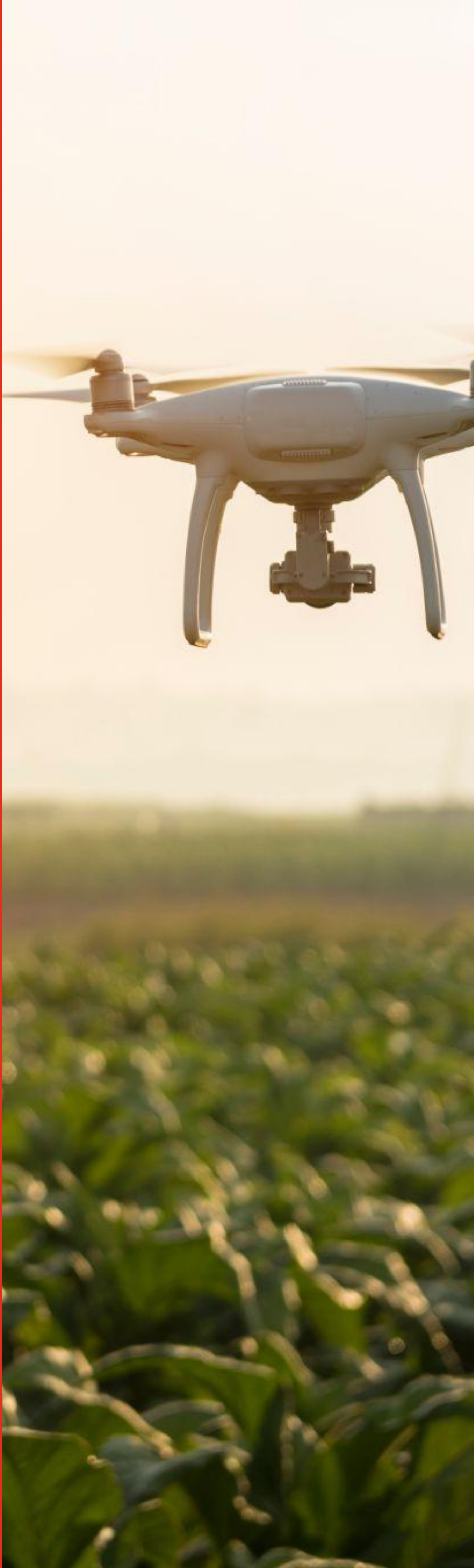
Moreover, while various initiatives between the industry, policymakers and educational institutions are still in effect to increase the domestic supply of talent in the future, foreign talent is still set to play a substantial role in the competition for viable employees.

The opportunities in Singapore and the wider regional and global spaces are reflected in the fact that a plurality of respondents were looking to equally drive growth from entering new markets, as well as from the introduction of new products and services.

Notably, 35% of the firms, who reported that they would be focusing on both business aspects, are categorised as "Seed" in their company's fundraising status, while another 20% are categorised as "Unfunded".

This may reflect the need for firms at those levels of development to rapidly expand their product and service offerings, in addition to entering new markets to drive growth, as it is logical for relatively nascent start-ups to focus on these areas equally in order to increase their market share and drive future investment concurrently.

(1) source; efinancialcareers



III. Current drivers of growth and development

As a result of years of initiatives and development, Singapore is now a top destination for firms looking to establish a base from which they can access the ASEAN or APAC markets

Singapore is the leading FinTech market across the ASEAN economies, and a strong centre for fundraising and deal-making within Asia-Pacific (APAC).

Its highly competitive industry has been steadily growing in recent years, as have the funding levels being directed towards the FinTech space.

This growth is driven by increasing numbers of new startups and incumbents seeking new opportunities across a range of services, including digital payments, alternative finance, wealth management, and blockchain applications and technology.

With many global partners establishing their regional headquarters in the country, the collaboration between local and foreign firms remains high.

Strong regulatory support and direction have also played their part, with the current market environment being well developed as Singapore boasts sturdy financial infrastructure, allowing easier access to neighbouring markets and the financial system.

The local legislative landscape also encourages foreign firms to establish their base in Singapore and allows for a conducive environment for businesses to exist.

During the Covid-19 pandemic, many financial entities, both traditional and new-age, seized on the opportunities presented by the digitalisation trend.

This accelerated the integration of technology and innovation into people's daily lives, with the sudden and abrupt change forcing both users and providers alike onto digital platforms to undertake activities and tasks that had previously been done in person.

The catalysing nature of this sudden shift in lifestyle is likely to be permanent in many facets of finance.

Rising penetration rate for digital financial technology

Growth in virtual banking usage proliferated in 2020, as physical touchpoints were limited for consumers for an extended period of time due to restrictions.

Despite the shock of Covid-19, changing customer expectations and growing demand for digital financial services from consumers have also been driving change in this space.

According to a 2021 global study by Finastra, Singapore's investments in digital banking and technology rose by 25%, the highest of any market. The percentage of Singapore-based financial services professionals who responded that their organisations are increasing their investment/budget, was also the highest of any market at 84%.

Another regional survey conducted by FICO in 2020 observed that 68% of Singaporean consumers preferred to utilise digital channels to communicate with their banks during financial difficulties, and a further 28% opted to engage with their banks through internet banking.

From January to September 2020, several financial institutions enhanced their apps, leading to an uptake in engagement with services, including mobile banking, Robo-advisory and online wealth management products. Active user growth for select mobile banking apps also grew by 17% in 2020 year-on-year.

Additionally, the period January to August 2020 saw a growth of close to 100% year-on-year, and this can once again be owed to the effects of the pandemic as Singaporeans turned towards an omnichannel presence for their imperative digital banking needs.

The next phase of digitalisation is likely to come in the form of the digital banks. The two digital full banks (GXS Bank and Trust Bank), together with the other two digital wholesale banks (Greenlink Bank and ANEXT Bank) have already “soft-launched”. With the strong B2B focus among FinTechs in Singapore, it will be interesting to see how the firms compete or collaborate, or both, with the new entrants.

Accelerated adoption of online payment systems and increasingly embedding financial services into e-commerce and other platforms

In examining the growth and development of FinTech industries across ASEAN and APAC, the genesis is arguably found in online and offline payment systems and e-Wallets.

As shown earlier,"Payments" as a category remains the largest FinTech segment in aggregate, and two of its sub-categories placed first and second as well.

Singapore's traditional financial institutions have also been active in this space, especially with PayNow, the country's peer-to-peer fund transfer service operating on the Fast And Secure Transfers interbank payment platform. According to a 2022 report by Fintech News Singapore and Alibaba Cloud, PayNow saw a 1.6 million increase in number of individual users over 2020, bringing the total number of registrations to 4.9 million.

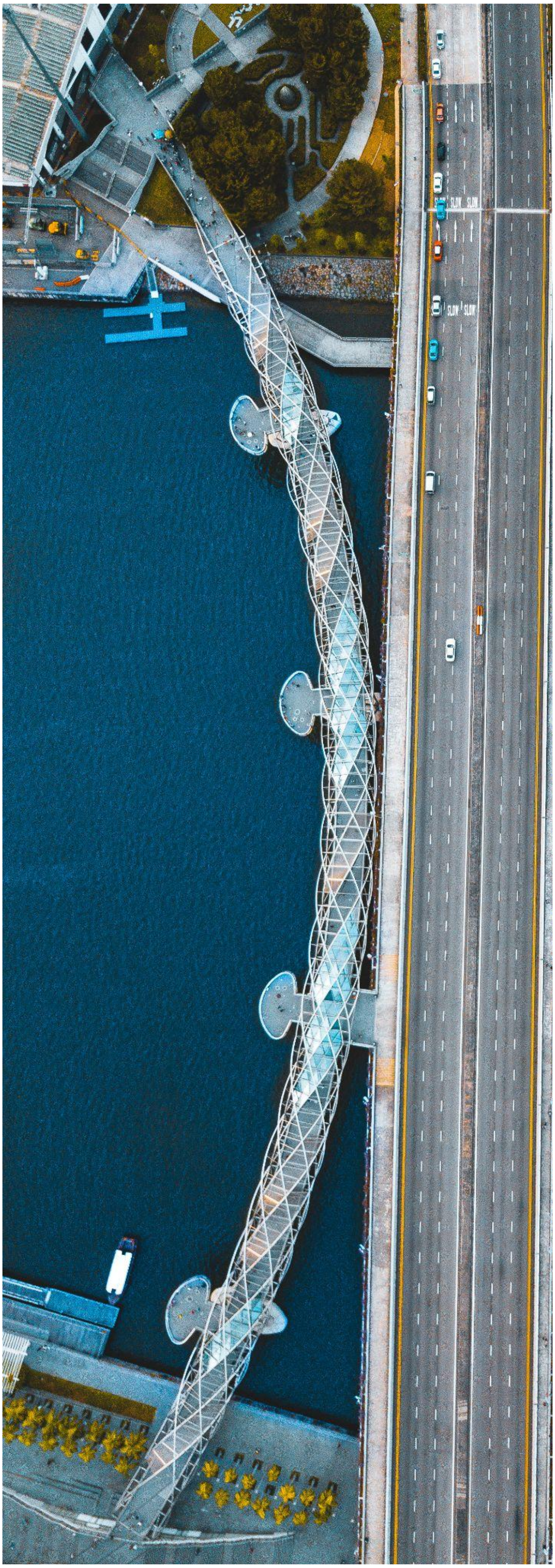
The number of users for PayNow Corporate also reached around 240,000, a 100% increase over the same period that contributed to significant increase in digital payments and continues to facilitate huge volumes of transactions.

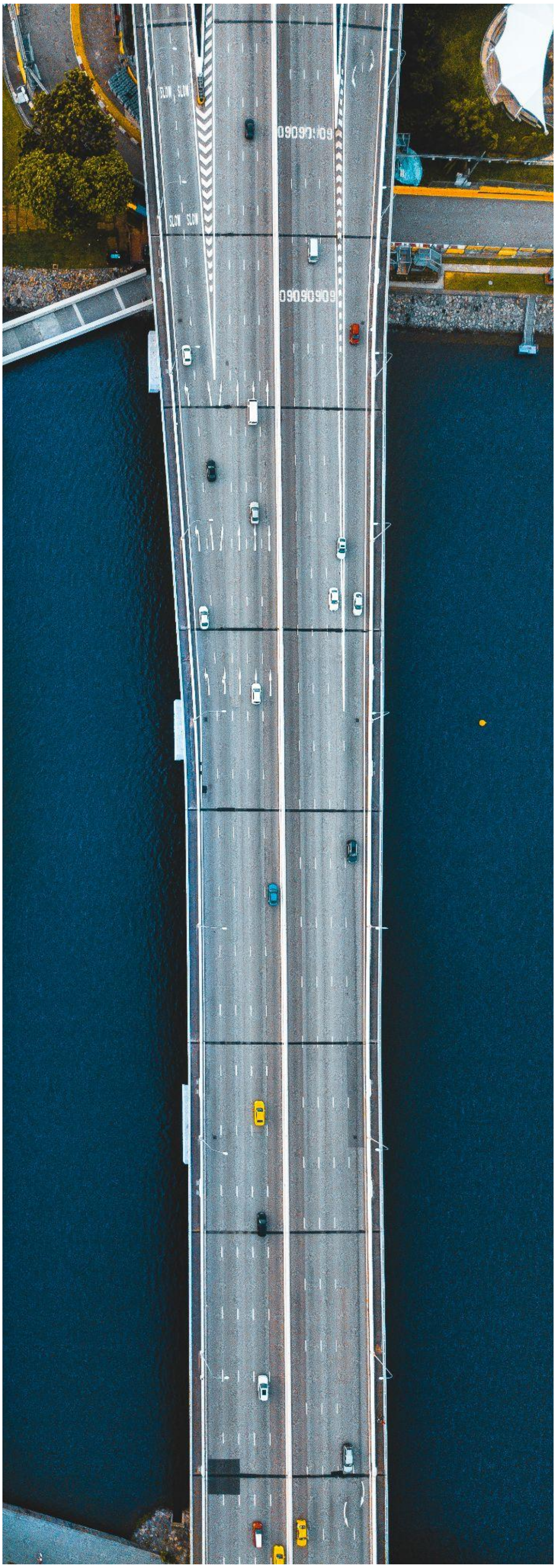
The growth of online shopping, cashless payment systems and real-time payment systems are also driving a surge in digital payment solutions, especially e-wallets. As observed in the FIS 2021 Global Payments Report, e-wallets were the second most preferred choice (behind credit cards) for e-commerce purchases in Singapore. E-wallets are also slated to surpass credit cards by 2024 and make up 27% of all online transactions.

Payment FinTechs are also increasingly active in their efforts to partner with e-Commerce and other shopping platforms in order to embed their service or payment solution into the sales process.

The Covid-19 pandemic acted as a strong catalyst for the adoption of online payment systems, and a huge surge in demand for digital payment streams has resulted as consumers look for more efficient avenues to settle their daily transactions and services.

This practice has entrenched itself and is likely to continue as Payments firms look to embed their financial offerings with e-Commerce and other shopping platforms via partnerships and other tie-ins.





Growth of Buy now, Pay later

Buy Now, Pay Later (BNPL) has seen tremendous growth, not just in Singapore but across ASEAN and APAC, though not without some challenges along the way.

In Singapore, BNPL has been utilised since at least 2017 by both FinTechs, generally payment solutions providers, and traditional financial institutions, who offer it via credit card services.

In response to parliamentary questions regarding its increasing use, it was noted that BNPL transactions reached SGD 440 million over 2021, less than 0.5% of overall credit and debit card transactions. Further, according to the 2021 Milieu "The Big Picture Payments Singapore Report", 19% of Singaporeans reported trying BNPL services. The same report noted that BNPL was mainly used for relatively smaller payments, with 48% of transactions amounting to a maximum of SGD 100.

Notably during the pandemic, Hoolah, a large player in Singapore, reported transaction growths of more than 1,500%, with the company's sales value rising over 800%.

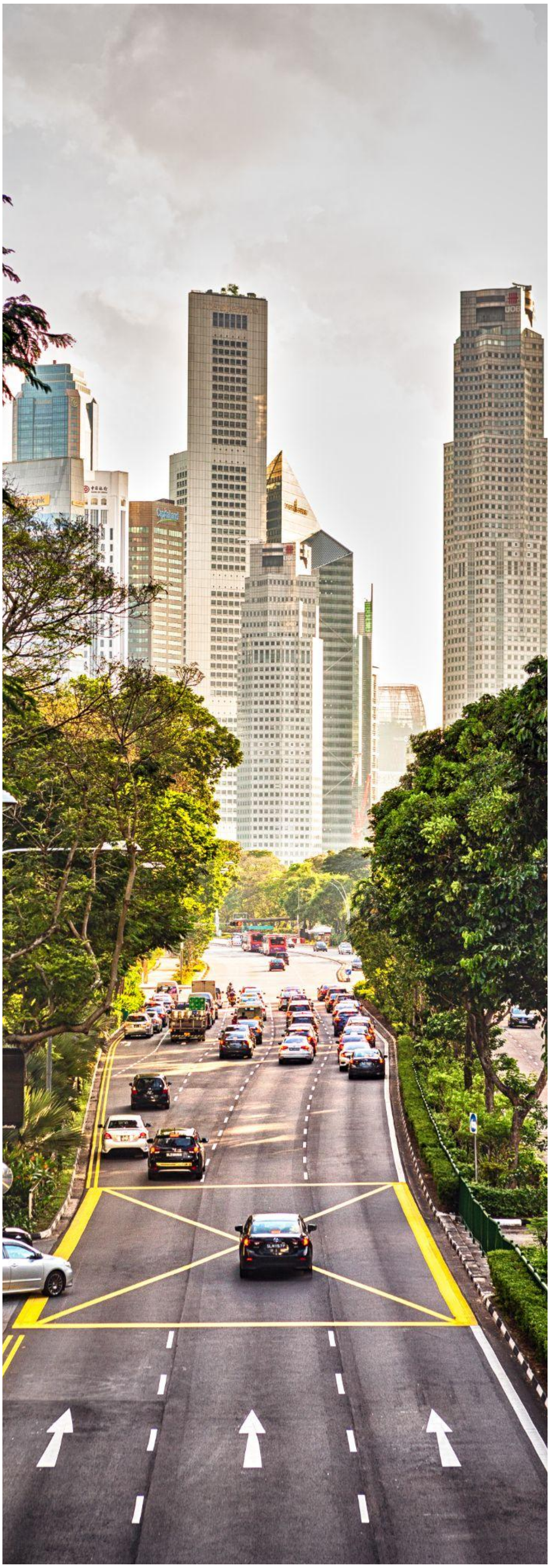
This culminated in the cashback startup, ShopBack, agreeing to acquire Hoolah for an undisclosed amount, with the announcement made in late 2021 before being approved in 2022.

Further developments in this space saw Standard Chartered sign a 10-year strategic partnership with Atome Financial, a large BNPL platform in Asia, in October 2021, with the bank committing USD 500 million to support Atome Financial in expanding its group of merchants and customers.

Also, January 2022 saw Pace, a Singapore-based BNPL solution, close a USD 40 million Series A funding round.

Despite this strong growth and interest among investors, concerns have been raised as to BNPL users making impulse purchases and whether it may lead to overspending and rising debt.

SFA has since formed a working group which recently launched the BNPL code of conduct. The new code provides guidelines for BNPL providers on areas such as creditworthiness safeguards, ethical marketing practices, fee transparency and disclosures, etc.



Deals activity expected to increase despite the global fall

Data from Preqin shows that globally, 2021 saw USD 137.5bn in FinTech deals across all investment stages over 3,469 deals. As of September 2022, USD 66.8bn in aggregate deals were reported across 2,577 deals. Economic and geopolitical events in 2022 have no doubt impacted investor sentiment, though the strong volume of deals with one quarter of the year left to playout gives cause for some optimism.

Within Singapore, deal volumes have remained relatively robust when compared to the rest of the world, with deal volumes over the first three-quarters of 2022 only circa 15% below 2021 full-year deal numbers. This compares to over 25% for global FinTech deals.

With some industry players noting that ASEAN is relatively insulated from the wider fundraising chill sweeping the globe, Singapore's role at the centre of ASEAN may see it withstand current market forces and end 2022 with deal volume in a similar, if not slightly higher, state as seen in 2021.

Regardless of the number of deals that occur in the market, the FinTech sector in Singapore is maturing, as evidenced by 37% of survey respondents, who noted they had been in operation for more than five years, and 38% of respondents, who stated they had been in operation for between three to five years.

Whilst the start-up space in FinTech is still active, 25% of respondents had started operating in the last two years, and many of those start-ups from yesteryear have scaled up or are in the process of doing so, and moving into a different phase of their lifecycle.

As firms scale up, especially to the high-growth markets found within the ASEAN region, Singapore's role is likely to evolve and converge on being the location of choice for firms to headquarter themselves for regional or global expansion.

Ensuring that the relevant policies and initiatives are enacted to ensure the transition from a start-up market to one of the scaled-up firms will be crucial in securing the future growth of Singapore as a FinTech centre.

Increased regulations for cryptocurrencies

The MAS introduced “The Financial Services and Markets Bill 2022” (The Bill) in order to tighten cryptocurrency regulation on companies with a local presence, but which offer digital token services outside of Singapore.

The guidelines, published in January 2022, instruct market players to halt the advertising of offerings to retail investors in public spaces, citing concerns about the “risky” nature of such investments. Cryptocurrency service providers may promote their services on their own websites, mobile applications, or social media accounts, but are not allowed to trivialise the risks of trading digital assets.

Further restrictions exist around having promotional material in public areas in Singapore or through media directed at the general public, nor should third parties be engaged to advertise their services on their behalf.

After seeing the crypto-currency and digital asset industry in Singapore as a promising start, the introduction of The Bill is considered a setback for the local cryptocurrency industry.

These views are reinforced by the fact that, as of February 2022, MAS has only granted three licenses, out of circa 170 applications, for services in this space.

Further, the comments of a MAS official at a Swiss conference in June 2022 to be “Brutal and unrelentingly hard” to those seen as bad actors in the crypto-currency industry, may also not have instilled confidence in those who see themselves as good actors.

The once promising future of cryptocurrency exchanges and other industry players in Singapore is not looking as bright, however, the situation is very fluid and can change relatively quickly.

IV. Emerging trends for Singapore's FinTech industry

FinTech emerging trends for Singapore's FinTech industry

The potential of FinTech in Singapore has constantly been reinforced, despite recent headwinds and disruptions.

Rising interest rates and the collapse of supposedly stablecoins, along with geopolitical and macroeconomic factors, have posed serious threats that look to stultify the recent strides of growth made in FinTech.

Despite these travails, investments into FinTech remained robust, with over USD 130 bn flowing through the sector last year as per Preqin. FinTech in Singapore has made consistent strides in providing digital finance to a wider audience, as well as providing digital solutions to traditional financial institutions.

These investments have been complemented by clear regulatory direction and support, strengths which should continue to promote and assist in the growth and development of FinTech within Singapore.

In addition to promoting FinTech trends and developments, Singapore nurtures ambitions in other areas, and there appear to be increasing crossover opportunities for FinTech to aid in the growth and development of these other ambitions, and vice-versa.

How these different areas complement each other and serve to potentially further their respective growth, is explored over the following pages.

Singapore to become a regional green finance hub

The MAS recently pledged USD 1.8 bn of its official foreign reserves to five asset managers under the Green Investment Programme (GIP) for climate-related investments. Additionally, it launched the world's first grant scheme for green and sustainability-linked loans, encouraging banks to develop frameworks so SMEs can access such financing more conveniently and in a sustainable manner.

Various foreign and domestic Institutions jointly created a global exchange to incentivise emissions cuts, along with a blockchain-based platform, the ESG registry, which launched in May 2022 and now allows financial institutions to access ESG statistics from multiple certification bodies and verified sources with ease.

Individual investors are looking more closely at the ESG and sustainable credentials of products offered by money managers, and institutional investors and lenders are refining and evolving their investment and lending strategies and practices.

Singapore's FinTech sector may be well-placed to proffer its services and adapt its solutions and offerings to assist in the growth of ESG and sustainable finance, with blockchain, exchanges, payments and other solutions likely to find a wide range of applications in the space, tracking and monitoring carbon credits for instance.

Opportunities for growth in the digital assets sector

There is a growth among individual and institutional investors to invest in digital assets, inducing crypto-currencies, non-fungible tokens, tokenised securities and assets, and others, and Singapore is well-placed to capitalise on this.

However, proper guidance is currently lacking in certain areas, especially around the classification of digital assets.

Despite this, digital assets are gaining in prevalence, and Singapore is at the forefront of the digital assets space, with its robust traditional financial services sector, blockchain industry, wider FinTech sector, talent and the respect the city-state garners from the international community has for its stringent but practical regulatory approach, the nation is poised to thrive.

By updating Singapore's fund exemptions and relevant incentive schemes, there would be a ready-made statutory framework that digital asset managers could readily utilise.

Accordingly, leveraging the interest that many investment managers and fund industry associations in Singapore have in FinTech and digital assets to present use cases to regulators may see this area progress.

Further, the area of digital asset custody has also seen impressive growth. This is observed in both traditional financial institutions, such as DBS, via their DBS Digital Exchange (DDEx) and new entrants, such as the ADDX platform.

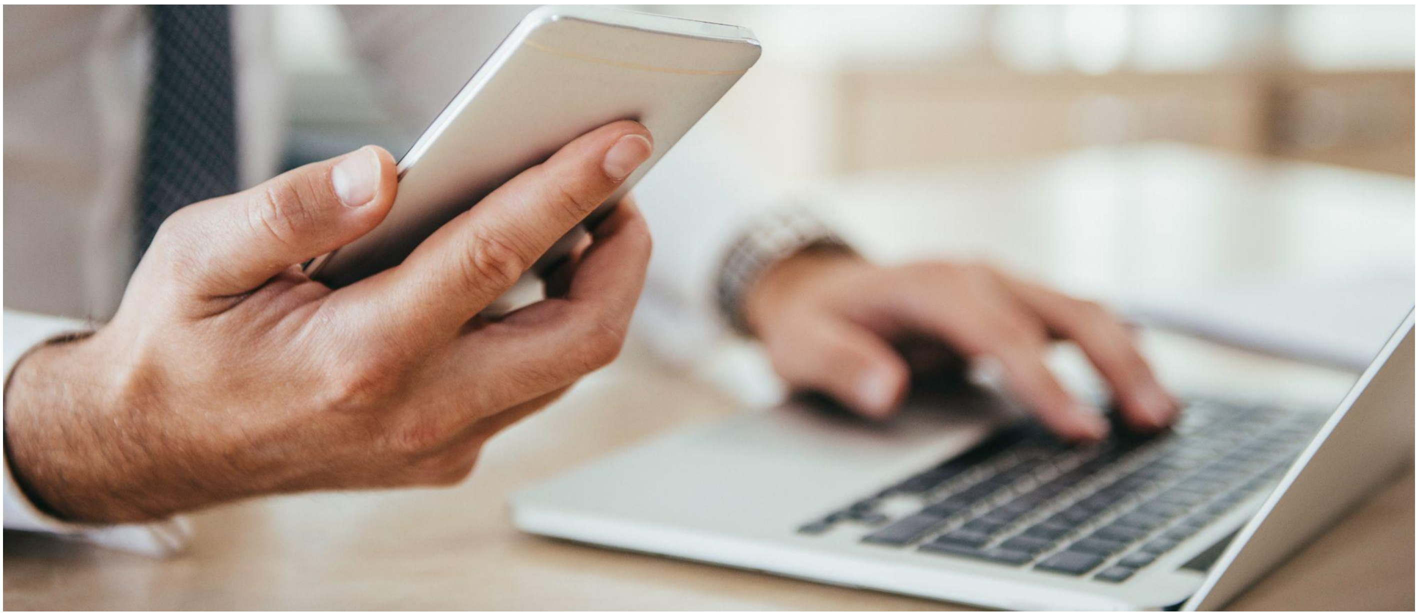
Use of blockchain technologies

Blockchain technology is increasingly looking to decentralise most conventional day-to-day operations. As a result, FinTech, InsurTech firms and banking startups have increasingly adopted this technology in their operations. This shift has enabled financial transactions to be executed cheaply and efficiently, which looks to provide global accessibility.

Payments, financial services, contracts/dispute resolutions and even identity management are amongst the major application areas of Blockchain technology. This has been exemplified most recently by DBS Bank, which is establishing crypto trading for its investors.

This would provide retail investors a direct touchpoint with the crypto realm however, within the MAS' stringent playbook.

It has been prognosticated that 2025 would be the tipping point when blockchain technologies will be adopted at a large scale across economies worldwide.



Use of AI

BFSI is just one of the industries that is increasingly being influenced by the advent of Artificial Intelligence (AI). This technology has aided banking processes, money transfers and back-end operations to be quicker and more coherent overall. In addition, it enhances customer experience with round-the-clock customer service, Robo-advisors and AI voice with minimal human intervention.

Many banks have already started to recognise the advantages of using AI, with reference to an OpenText survey stating that about 75% of them are already utilising this technology. Financial institutions and FinTechs continue their investments in AI-based security systems with the objective of lowering the occurrence of digital attacks and picking up suspicious activities in real-time.

MAS has been active in promoting strong and responsible internal governance for the use of AI, including in the management and use of data collected from it.

Towards this end, and as part of Singapore's National AI Strategy, MAS, along with industry participants from within and outside of Singapore's finance sector, launched the Veritas Initiative. The initiative, which was first announced in 2019, began its phase in 2020, and continued with its second phase in 2021.

Phase 1 focused on two banking use cases, namely credit risk scoring and customer marketing, with Phase 2 expanding to add predictive underwriting and fraud detection to the Phase 1 topics.

WealthTech increasingly looking to help shape the AWM sector

Recently, WealthTech platforms and concepts have proliferated in Singapore and across ASEAN, especially during and in the aftermath of the Covid-19 pandemic.

As a segment of FinTech, the concept looks to utilise innovative forms of technology, including AI and Big Data, to provide alternate streams of wealth management as opposed to the conventional practice. This is done to allow the process to remain more efficient and, in part, automated to erase physical touchpoints.

The Covid-19 pandemic served as a direct impetus as retail investors looked for alternative streams of investments away from traditional channels. Consumer tastes and expectations gradually changed as the pandemic continued to rage on, coupled with the large-scale proliferation of technology served up a winning combination as WealthTech started to take off.

Despite this, WealthTech remains relatively nascent in its development, with its primary aim to tap into a myriad of clients from various wealth segments and provide them with a range of investment products or portfolios to allocate their capital to.

With Singapore's ambitions extending into the investment management space, an area that has seen substantial growth and development, the digital distribution aspect is one that is of particular interest to traditional money managers.

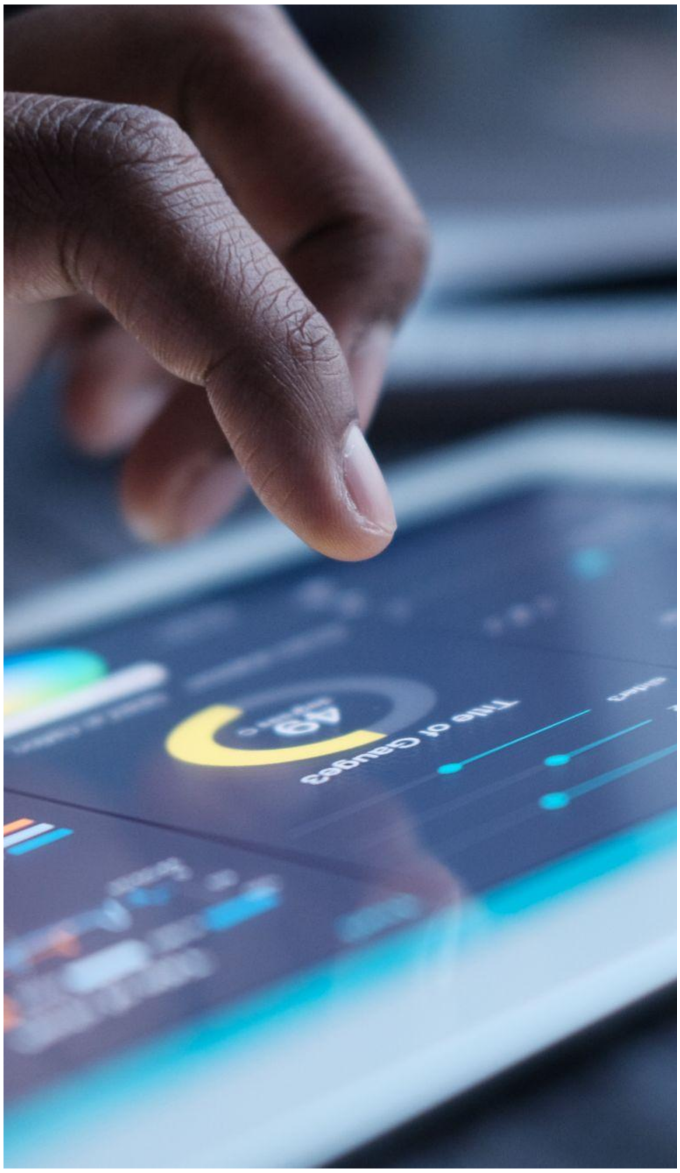
With several MAS-licensed WealthTech platforms reporting AUM reaching into the billions of Singaporean dollars, this interest is likely to grow and present opportunities for Singapore's FinTech to partner and participate in the asset and wealth management sectors.

Other aspects of FinTech within Singapore are likely to find their ways into the investment space as well, with the launch of Fundnode built on DLT and Blockchain technology looking to make a significant impact within the asset and wealth management industry.

Institutional funding of FinTech looks set to continue despite recent market downturn

Despite recent headwinds, FinTech funding has remained robust in recent times. Several SMEs and early-stage FinTech start-ups in Singapore have received substantial capital and cash injections from institutional investors as FinTech, in general, remains a growth area.

Examples of this include the recent USD 100 million debt facility entered into by HSBC and Atome Finance, allowing FinTech to expand its deferred payments

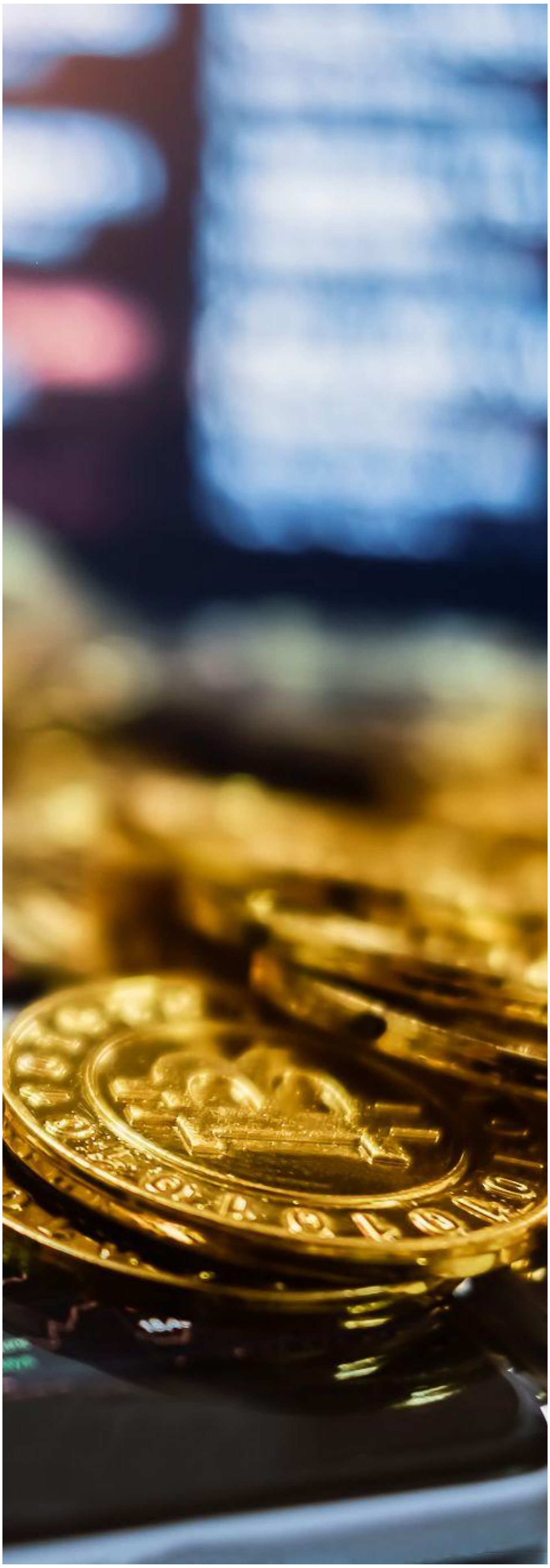


services across Asia and Temasek's increase in allocations towards the FinTech sector. With the Sovereign Wealth Fund entering into numerous funding rounds with a wide range of FinTech within and outside of Singapore.

Investments from Temasek can serve as a vote of confidence in the latter stage strength of FinTech in Singapore, along with acting as a pointer for where Singapore's next steps and areas of focus will be.

The positives of FinTech have been prominently on display during this time as individuals looked to automate the delivery of financial services. Additionally, the boost to digital services brought about by the Covid-19 pandemic seems set to stay, with FinTech likely benefiting enormously from the shift in behaviours.

The continued interest from institutional investors in this area should ensure FinTech are able to capitalise on these opportunities.



MAS increasingly looking to review the approach to stablecoins

Recent failings of various stablecoins and crypto-exchanges have seen a strong reaction from the MAS, with the financial watchdog now exploring alternative avenues to better regulate the stablecoin industry.

The regulator remains staunch in assuring that there are no further cascades into the financial and macroeconomic system, and that retail investors are shielded from exposure and advertising to these investments.

Accordingly, they have stepped up their efforts in regulating the space as they look to avoid any domino effects within Singapore.

Stablecoins and other cryptocurrencies are currently bundled under the moniker Digital Payment Tokens (DPTs), which is stringently regulated under the Payment Services Act, and MAS is now seeking to take its regulatory oversight a step further by including consumer protection within this mandate as well.

This would entail expanding the definition of DPT services. This comes in light of repeated warnings by MAS on the risks of trading DPTs. As a result, it has most recently banned the marketing or advertising of such services in public areas in Singapore.

Despite this, the MAS notes the strong potential in stablecoins. They have reiterated that such a cryptocurrency has to be sufficiently backed by well-regulated prime reserves.

With interest in Central Bank Digital Currencies (CBDC's) increasing across APAC, and with the MAS taking an interest in its own CBDC, Singapore's existing cadre of DPT, crypto, and other service providers may form the foundation for a local or regional, CBDC in the near future.

V. Conclusion

As Singapore's journey into FinTech is maturing, the path that has already been taken and the distance already travelled are substantive and offer insights to the wider region as constituent markets undertake their own journeys.

Singapore has effectively leveraged its various financial, technological, regulatory and other strengths, and marshelled its resources to rapidly grow and develop its FinTech industry.

Starting from payments, this ecosystem now extends across a wide range of sectors and sub-sectors, with firms operating in Singapore, as well leveraging its access to the growth markets of ASEAN and beyond.

With the catalysing impact of the COVID-19 pandemic accelerating the growth and adoption of FinTech into the lives of people across all walks of life, as Singapore, and the world, emerges from the pandemic era in whatever new normal awaits, FinTech will likely maintain its allure to investors and users alike.

This has already been witnessed in several aspects, with other industries, such as the investment management industry, actively bringing in FinTechs as members and facilitating use-cases and partnerships between FinTechs and investment managers. MAS continues to support with their initiatives to promote the growth, development and use of FinTech within Singapore.

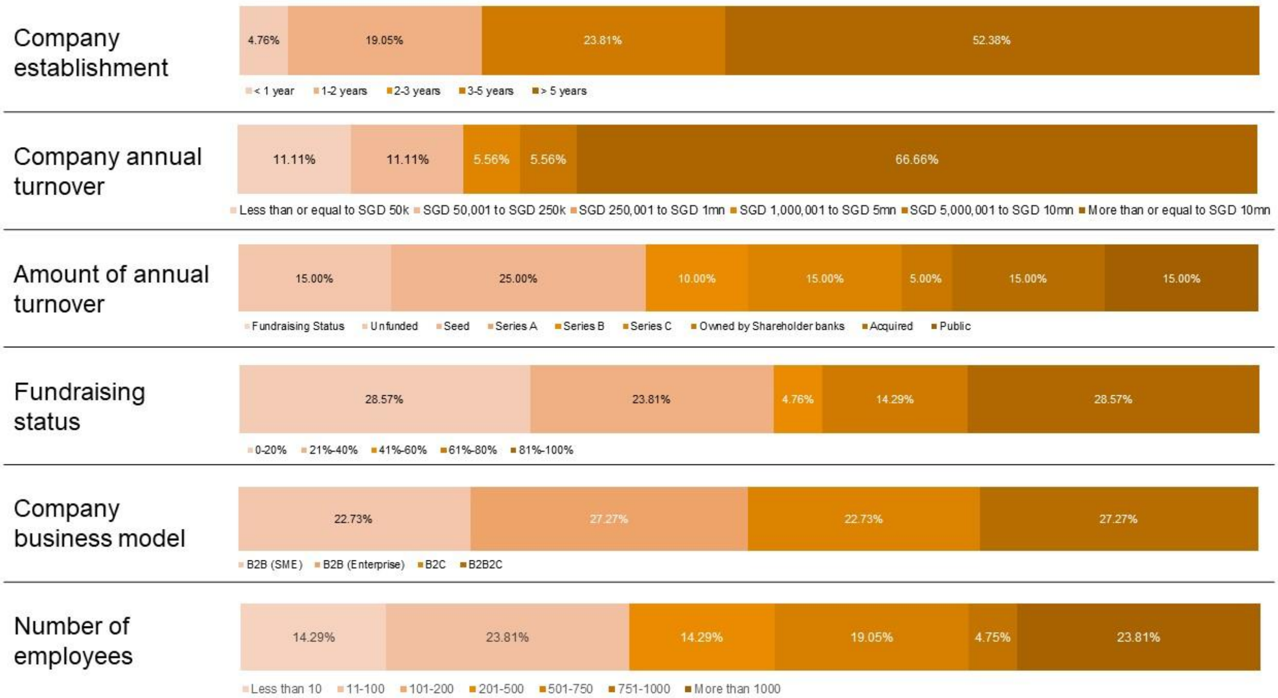
With Singaporean FinTechs now shifting towards the "scale-up" phase of growth, the potential markets and growth opportunities for the sector are expected to increase substantially.

By holding true to what has made it a leading global centre, Singapore will continue to attract and encourage foreign FinTech's to establish operations here, as well as nurturing a domestic startup scene to ensure that new solutions and services make their way to market.

With the early stages of the journey laying the foundations for future success, the state of FinTech in Singapore has never been better!

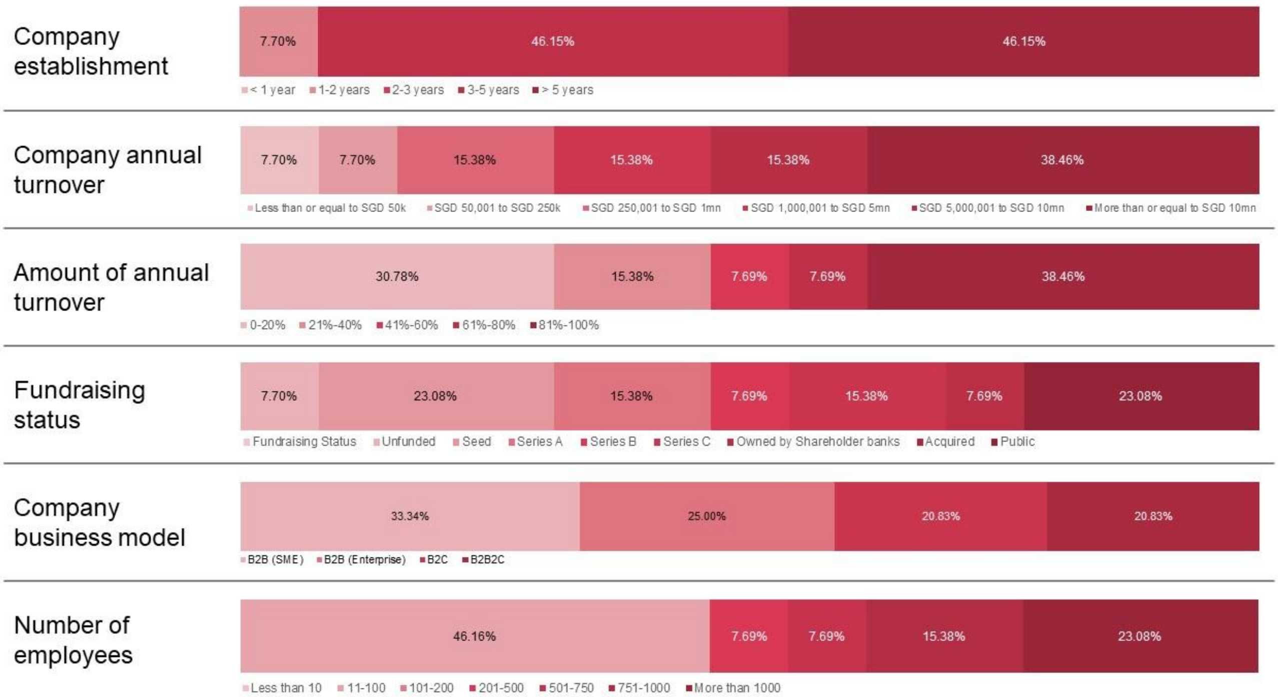
Appendix - Detailed survey findings

Payments

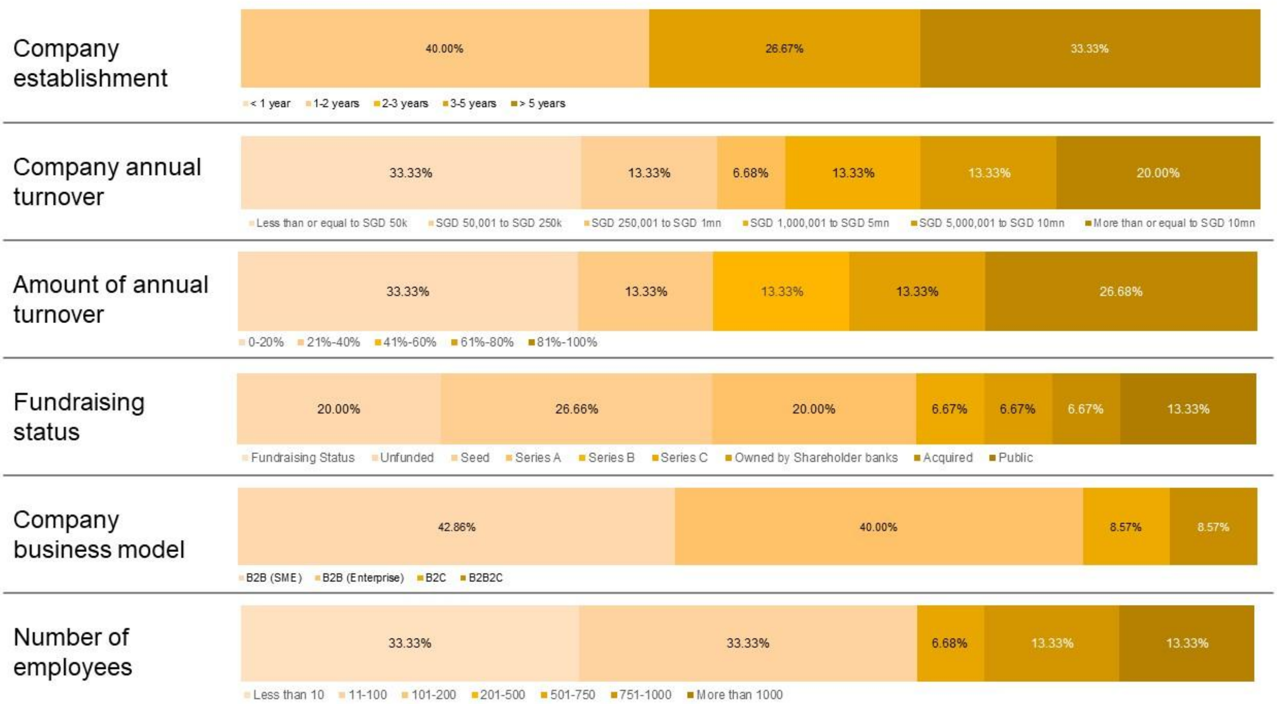


FinTech infrastructure providers

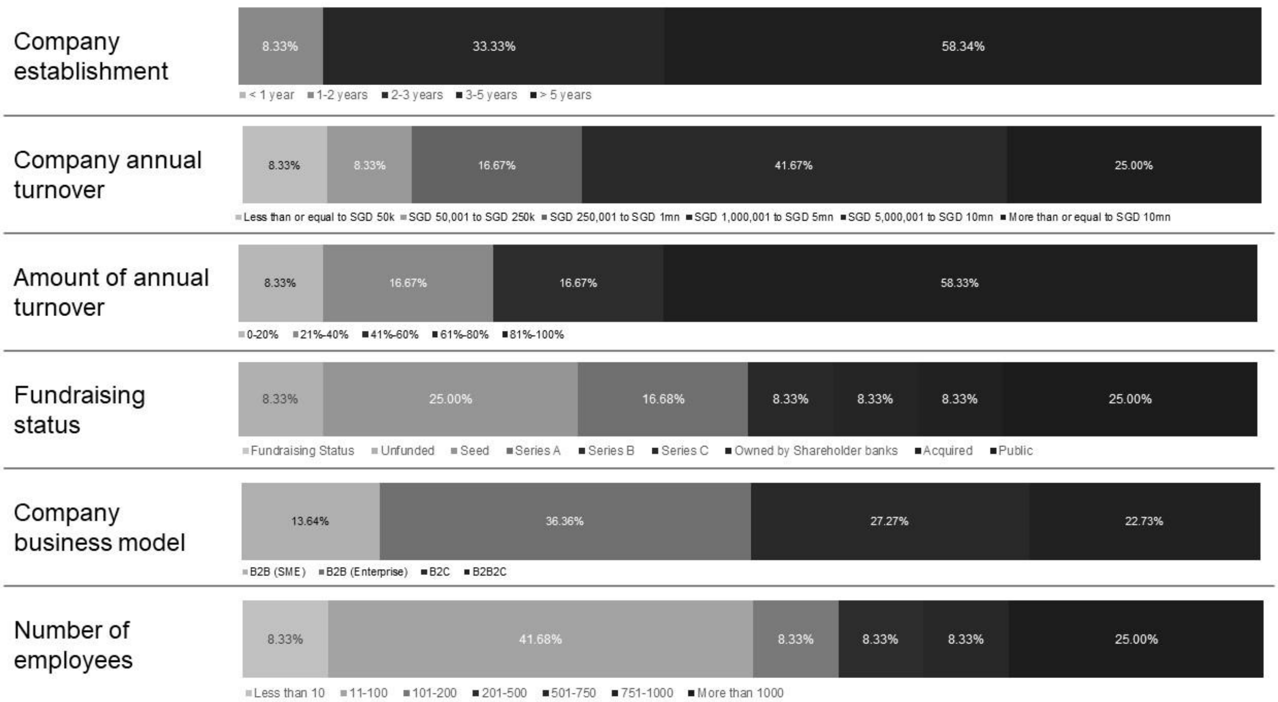
Lending



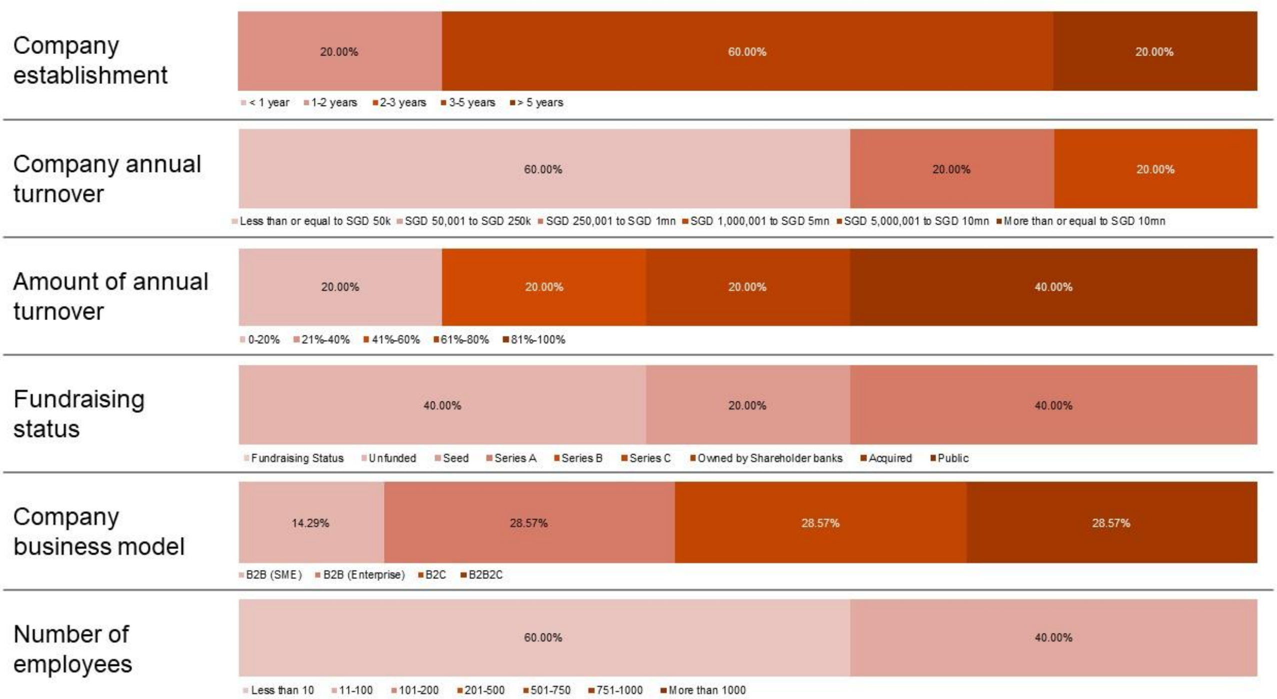
RegTech



Money management



Others



About the survey and respondents

The survey was sent to FinTech firms in Singapore who were clients, members, or that had some level of connection with either PwC Singapore or the Singapore FinTech Association.

A total of 52 final responses were utilised.

Over 66% of respondents reported their position as being in the C-Suite, with an additional 15% working in senior management positions.

The vast majority of respondents were stand-alone FinTech entities, with FinTech entities backed by traditional financial institutions and those backed by TechFin entities also featured.

Respondents were a mixture of the various categories and subcategories of FinTech products and solutions offered.

Categories and subcategories were created with input from the Singapore FinTech Association.

No one business model subsection represented a majority across respondents. B2B (Enterprise) had a plurality and formed a collective majority when combined with B2B (SME). B2C and B2B2C were also represented.

Just over 17% of respondents were headquartered outside of Singapore, with the United Kingdom and Europe (both EU and non-EU nations) comprising the majority of internationally-headquartered firms.

In addition to operating in Singapore, 65% of those surveyed reported their firm also operated in other ASEAN markets and all firms surveyed operated in at least one other market or region.

About Singapore FinTech Association

The SFA is a cross-industry non-profit organisation. Its purpose is to support the development of the FinTech industry in Singapore and facilitate collaboration among the participants and stakeholders. The SFA is a member-based organisation with over 800+ members. It represents the full range of stakeholders in the FinTech industry, from early-stage innovative companies to large financial players and service providers. To further its purpose, the SFA also partners with institutions and associations from Singapore and globally to cooperate on initiatives relating to the FinTech industry. Well-connected globally, the SFA has signed over 70 international Memorandum of Understanding (MoU) to lay the network for its members and ecosystem.

About PwC

At PwC, our purpose is to build trust in society and solve important problems - this is at the core of everything we do from the value we provide to our clients and society to the decisions we make as a firm.

Our services started with audit and assurance over a century ago. As times change and the issues faced by businesses and individuals evolved, we have developed specialised capabilities in tax, advisory and consulting to help you address emerging new challenges across focus areas like ESG, sustainability and climate change, digital transformation, cyber security and privacy, data, mergers and acquisitions, and more.

In Singapore, we have more than 3,500 partners and staff to help resolve complex issues and identify opportunities for public, private and government organisations to progress. As part of the PwC network of nearly 328,000 people in 152 countries, we are among the leading professional services networks in the world focusing on helping organisations and individuals create the value they are looking for.

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