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# Singapore's Smart Financial Centre Vision

Technology is transforming the way we live, work, play, and interact. At the national level, Singapore has set its sights on becoming a Smart Nation – one that embraces innovation and harnesses technology to enhance productivity and improve the welfare of Singaporeans. A Smart Nation needs a Smart Financial Centre. Indeed, the financial sector offers fertile ground for innovation and the application of technology.

In 2015, the Monetary Authority of Singapore (MAS) laid out its vision of a Smart Financial Centre, where innovation is pervasive and technology is used widely to increase efficiency, better manage risks, create new opportunities, and improve people's lives. Much of this will take place against the backdrop of several big trends/enablers that are likely to transform finance in some shape or form:

- Digital and mobile payments
- Authentication and biometrics
- Blockchains and distributed ledgers
- Cloud computing
- Big data
- Learning machines
- Application Programming Interfaces (APIs)
- Advanced sensors
- Cybersecurity

Since then, MAS has been working closely with the financial industry, FinTech companies, institutes of higher learning, and other stakeholders towards the vision of a Smart Financial Centre. MAS' role in supporting this FinTech journey is multi-

farious:

1. To provide a conducive environment for innovation acceleration
2. To provide regulation that is conducive to innovation while fostering safety and security
3. To make Singapore more attractive for FinTech investment
4. To build up skills and competencies in technology

## To Provide a Conducive Environment for Innovation Acceleration

FinTech is fundamentally about ideas and enterprise flowing between cities, and a network of connections between players everywhere. It requires bringing a whole range of stakeholders together across multiple fields: technology, finance, venture capital (VC), and startups. In short, it needs a strong ecosystem. Etymologically speaking, the term ecosystem is derived from the Greek root of 'Oikos', which means home. Just as no man is an island, ideas, too, depend on serendipitous interactions within an environment (or home) to evolve and flourish. Observe the intellectual and cultural fecundity of Renaissance Europe,

and in modern times, the vibrancy of Hollywood and Silicon Valley. On the flip side, the ideas of Gregor Mendel, widely credited as the founder of genetics, remained in obscurity until many years after his death principally because he spent most of his life in relative isolation at a monastery in remote Silesia. Time and place are clearly important for innovation.

**MAS' strategy is therefore not to choose between financial institutions and FinTech players but to provide the optimal environment for both to innovate, compete, and collaborate.** MAS' aim is to create a FinTech ecosystem where innovation thrives. This is an ecosystem comprising financial institutions, innovation labs, institutes of research and higher learning, the investor community, and connectivity to regional markets.

When the term 'FinTech' first crept into popular discourse, many observers framed this as a contest between nimble 'Davids' against lumbering 'Goliaths'. The reality is more nuanced, mainly because the incumbents have not been sitting still. Several financial institutions have set up in-house FinTech units to replicate the startup culture, and are collaborating with FinTech companies. In fact, there is a natural synergy – FinTech solutions present financial institutions with opportunities to enhance their product offerings, while collaboration with financial institutions enables FinTech players to broaden their reach.

Initiatives introduced by MAS to grow the Singapore FinTech ecosystem include

- **Introducing the SGD 225 million Financial Sector Technology Innovation (FSTI) scheme to support innovation.** The scheme supports the setting up of innovation labs, institutional/industry-wide projects, and proofs of concepts. For example, more than 20 global banks and insurance companies have set up innovation labs in Singapore; some of these have tapped on FSTI funding. These labs are important touch points between the financial institutions and FinTech players. Financial institutions work with FinTech players in the labs to pilot new and innovative solutions for their customers and abroad.
- **Creating platforms for idea-generation, knowledge-sharing, and networking.** In November 2016, MAS, in partnership with The Association of Banks in Singapore (ABS), organised the inaugural Singapore FinTech Festival, which brought together 13,000 participants from over 60 countries. In 2017, we look forward to welcoming the global FinTech community to Singapore once again, for the second edition of the FinTech Festival which will be held from 13 - 17 November.
- **Enhancing connectivity with other FinTech hubs.** As of July 2017, MAS has signed FinTech cooperation agreements with 12 counterparties, including entities in London, Australia, India, Japan, France, Switzerland, and South Korea. These agreements create frameworks for information sharing on FinTech trends and regulatory issues, and potential joint innovation projects. They also help to create greater understanding between FinTech players in different markets, with the ultimate goal of benefiting consumers and businesses.
- **Facilitating industry experiments in new technologies.** MAS, the Singapore Exchange and eight banks embarked on a proof-of-concept project to use blockchain technology for inter-bank payments. This project has allowed us to better understand blockchain technology and the potential that it has for the financial sector.
- **Working with the industry to advocate open APIs.** MAS is encouraging

the development of open APIs among financial institutions to enable efficient data sharing. In November 2016, the API Playbook co-created by ABS and MAS was launched at the FinTech Festival to guide industry stakeholders in their implementation of APIs. The Playbook features a list of over 400 APIs that the financial services industry can consider publishing. To support efficient data sharing and interoperability, the Playbook recommends standards for data exchange, information security and high-level key technical requirements for each of the APIs. The Playbook also sets expectations on API governance structure and risk management practices that should underpin an API-based financial ecosystem.

Singapore's FinTech landscape is fast evolving, with a proliferation of technological innovations and solutions.

- A Deloitte Report published in April 2017 noted that Singapore was 'a serious contender for the global number one spot in FinTech'.<sup>\*1</sup> Deloitte analysed 44 FinTech hubs around the world through quantitative research and interviews with local FinTech subject matter experts in each hub. Singapore (along with London, New York, Silicon Valley, and Hong Kong) was amongst the top five hubs in terms of its Index Performance Score.
- An Ernst & Young (E&Y) Report published in February 2016 ranked Singapore as the fourth leading global FinTech ecosystem in the world, behind the UK, California, and New York. E&Y benchmarked the ecosystems according to talent, capital, policy, and demand.<sup>\*2</sup>
- David Shrier, the New Ventures Officer at Massachusetts Institute of Technology, picked Singapore as its number one contender to displace London as the FinTech capital of the world. He cited Singapore's significant government effort to support FinTech innovators, its proximity to ASEAN, and dynamic incumbent banks as factors for his pick.
- Singapore is home to more than 300 FinTech startups that address different segments of the financial

services value chain. This runs the gamut from payments services to automated fraud monitoring.

## To Provide Regulation Conducive to Innovation while Fostering Safety and Security

MAS believes that regulation must not front-run innovation – introducing regulation prematurely may stifle innovation and derail the adoption of useful technology. However, regulators must run alongside innovation and stay abreast of new developments and risks.

**MAS applies a materiality and proportionality test**, which means that regulation will only kick in when the risk posed by new technology becomes material or crosses a threshold. Further, the weight of the regulation has to be commensurate with the risk posed. Here are a few concrete initiatives that illustrate MAS' approach towards the regulation of FinTech:

- **Streamlined regulation to keep pace with payments innovations.** MAS will streamline the licensing of payments services under a single, activity-based modular framework. This could mean holding just one licence to conduct different kinds of payment activities, meeting only regulations pertinent to the specific payments activities they undertake, and adhering to common standards for consumer protection and cyber security. Streamlined regulation, inclusive governance, interoperable infrastructure, and pervasive digitisation will contribute to Singapore's vision of an e-payments society.
- **Specific guidelines to promote secure cloud computing.** MAS set out specific guidelines on the use of cloud services by financial institutions. Financial institutions are free to adopt private clouds, public clouds, or a combination of these to create hybrid clouds, so long as they conduct the necessary due diligence and apply sound governance and risk management practices to address potential vulnerabilities.

- **A regulatory sandbox to test innovative ideas.** In 2016, MAS launched a “regulatory sandbox” for financial institutions as well as new FinTech players to test their innovations. The sandbox allows experiments to take place, even where it is not possible at the outset to anticipate every risk or meet every regulatory requirement. It provides an environment where an experiment can fail safely and cheaply within controlled boundaries, without widespread adverse consequences. MAS and the applicant will jointly define the boundaries within which the experiment will take place. MAS will then determine the specific legal and regulatory requirements which it is prepared to relax for the duration of the experiment within these boundaries. For example, NTUC Income and Etiqa Insurance have partnered PolicyPal, a Singapore FinTech startup which offers an integrated insurance solution. It digitally aggregates insurance policies, advises on insurance coverage gaps, and recommends and distributes insurance products to their customers within the sandbox.

## To Make Singapore More Attractive for FinTech Investment

The investment landscape in Singapore is characterised by a diverse range of players that perform early and later stage investments. Investors run the gamut from angel investors, venture capitalists, corporate venture arms, to government-linked investors. The latter include the likes of Temasek, Government of Singapore Investment Corporation, Economic Development Board Investments, and Singtel. Prominent international investors, such as Sequoia Capital and 500 Startups, are also active in Asia and Singapore. Singapore has the most mature VC ecosystem in ASEAN, followed by Indonesia and Malaysia.<sup>\*3</sup> According to a Deloitte Report, Singapore saw USD 86 million in FinTech VC deals in 2016.

**MAS recognises that VC funds are a vital cog in a healthy FinTech ecosystem, due to capital and industry expertise that they provide to startups.** Al-

though the VC industry in Singapore has been growing at a healthy rate, there is room to further expand the size and scope of VC funding available for startups. MAS therefore intends to simplify the authorisation process and regulatory regime for VC. Potential areas under consideration include the following:

- A primary focus on fitness and propriety assessment of the VC managers. Unlike the case for fund managers, MAS may no longer require VC funds to have directors and representatives with at least five years of relevant experience in fund management. A potential outcome is a shortened application process for new VC funds.
- New and existing VC managers may no longer be subject to the capital requirements and business conduct rules that currently apply to fund managers in general.
- The base capital requirements and risk-based capital requirements may be removed.
- Independent valuation, internal audits and submission to MAS of audited financial statements may no longer be required.

In summary, the proposed simplified regulatory regime for VC recognises the lower risks they pose, given their business model and sophisticated investor base. The intention is to allow new VC a faster time-to-market and to reduce their ongoing compliance burden. The overarching goal is to attract more VC and spur them to play a greater role in supporting entrepreneurship and innovation.

## To Build Up Skills and Competencies

It is tempting to speculate about what jobs technology will destroy and what kinds of new jobs it will create. The likelihood is that many jobs will remain, but most jobs will be transformed, requiring new skills and capabilities to make the most of new

technologies. Finance professionals will need new skills and expertise from other disciplines that are traditionally not associated with finance.

In the financial sector, there is already growing demand for skills in data analytics, digital/mobile user interfaces, and app development, in addition to core finance skills. Take for example bank relationship managers who provide wealth management advisory services. They are unlikely to be completely replaced by robo-advisers. But relationship managers will increasingly use data analytics tools to analyse client profiles and offer better, customised financial solutions.

MAS is working to build up the skills and competencies needed in the new world of finance, starting with the curriculum in our tertiary educational institutions, work placement programmes, and extending through to mid-career retraining and life-long learning.

- MAS is working with the financial industry, training providers, and the universities and polytechnics to provide learning pathways relevant for a Smart Financial Centre.
- Some initiatives include the deep-tech curriculum in our tertiary institutions, work placement programs, mid-career retraining, and life-long learning.

Here are some specific examples of recent initiatives:

- On 3 October 2016, MAS and the five local polytechnics signed a Memorandum of Understanding (MoU) that would build upon an agreed framework in the next three years to prepare and equip their graduates with the skill sets necessary to take on new FinTech-related jobs emerging in the financial sector. The MoU covers curriculum reviews, facilitating internship opportunities in FinTech-related roles and joint projects with the FinTech community. More than 2,500 students who are enrolled in the banking and IT-related courses in the polytechnics each year will benefit from this initiative.
- In January 2017, MAS held its first inaugural Tech Talks session at Republic Polytechnic. Tech Talks is organised by MAS in conjunction with the local universities and polytechnics as part of its outreach efforts to get

more students interested in financial technology. Each month, leaders from the industry share their success stories, challenges and opportunities in the financial industry as well as how technology is transforming financial services.

- The Financial IT Academy (FITA) has developed a digital transformation programme for mid-career professionals that includes topics such as data analytics and agile development. The Institute of Banking and Finance (IBF) will also be offering new learning modules on data science, human-centric design, agile thinking, and cyber security awareness.
- Through the Financial Training Scheme (FTS) and IBF Standards Training Scheme (IBF-STTS), MAS provides funding to support professionals in acquiring specific expertise and competencies in the financial sector. There are also schemes within the TechSkills Accelerator (TeSA), an initiative driven by the Info-communications Media Development Authority (IMDA), which provide support for employers to develop their existing employees in the relevant ICT skills.

## Conclusion

Much has been said about technology and FinTech. The larger picture is really about promoting a culture of innovation in our financial industry.

Such innovation is not always about bleeding-edge technology. It is about designing better work processes and creating new business models that will deliver higher growth, more enriching jobs, and better services for the consumer. Technology is likely a key enabler for all of this, and we must make a concerted effort to understand it and use it effectively.

Not everyone can be an entrepreneur. But we all have to build the skills and expertise necessary to power the digital economy. The financial sector in particular has to build new capabilities. The people factor is a critical in Singapore's Smart Financial Centre aspirations, and more broadly in the economy of tomorrow. That is at the heart of what it takes for Singapore to sustain and grow the FinTech movement – the entrepreneurial desire to find new ways and the deep skills and

continuous learning that we need to power innovation.

### Notes

- \*1 <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/Innovation/deloitte-uk-connecting-global-fintech-hub-federation-innotribe-innovate-finance.pdf>
- \*2 <http://www.ey.com/Publication/vwLUAssets/EY-UK-FinTech-On-the-cutting-edge-Executive-summary/%24FILE/EY-UK-FinTech-On-the-cutting-edge-exec-summary.pdf>
- \*3 Vertex, "Snapshot of the Regulatory Environment for Venture Capital in Southeast Asia," July 2016.

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Sopnendu Mohanty is responsible for creating development strategies and regulatory policies around technology innovation to "better manage risks, enhance efficiency and strengthen competitiveness in the financial sector". Prior to joining MAS, Mohanty was with Citibank as their Global Head of the Consumer Lab Network and Programs, which included driving innovation programs and managing innovation labs across multiple geographies globally.

Mohanty has spent 20 years in the APAC region and held various roles in technology, finance, productivity, and business development. He was Citibank's APAC regional head of Branch operations along with heading the Consumer Innovation Lab in Singapore. He spent a significant time in Japan, where he was Citibank's Retail Business Development head and also did leadership stints in various functions within operations and technology. Globally, he played a significant subject matter expert role in driving Citibank's global smart banking program, to transform bank's physical network to digital first, smart & innovative, client centric and highly delightful customer engagement center.

Mohanty has co-authored various patented work in area of retail distribution of financial sector. He is based in Singapore, loves travelling, reads history and pursues culinary innovation as a hobby. He was in the list of Fintech's Most Powerful Dealmakers of 2016 by Institutional Investor.

