

## **Singapore FinTech Journey 2.0**

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Ladies and gentlemen, good morning and welcome to the second edition of the Singapore FinTech Festival.

- This is the largest gathering of the global FinTech community anywhere in the world.
- We have more than 25,000 participants from across 100 countries.

### **“The Future is Already Here”**

The world is becoming more digital. Especially here in Asia.

- According to Bain & Company, in the past year alone, the number of online-engaged consumers in South East Asia has surged by 50% to 200 million people.

And FinTech – or the application of technology to financial services – has been at the forefront of this digital renaissance.

- According to Ernst & Young, FinTech has already achieved initial mass adoption and is now poised for mainstream adoption.
- 1 in 3 digitally active users globally already consider themselves regular users of FinTech services. In China that figure is nearly 70%.

Singapore’s FinTech journey is set against this emerging digital future.

- It is also part of Singapore’s broader Smart Nation agenda, to harness the power of technology to support better living, increase productivity, and create new jobs.
- A Smart Nation needs a Smart Financial Centre.

Globally, the financial industry is facing slower economic growth, tighter regulation, and keener competition. It needs to foster innovation and transform itself.

- This means harnessing technology
  - to increase efficiency, manage risks better, create new opportunities, and improve people’s lives
- If Singapore is to maintain its position as one of the top financial centres in the world, it must embrace FinTech – maximising its benefits, minimising its risks.

## STRATEGIES FOR A SMART FINANCIAL CENTRE

And so, for the last two to three years, the Monetary Authority of Singapore (MAS) has been working together with the industry to foster a thriving FinTech hub. This requires getting several pieces right:

- an ecosystem of diverse players competing and collaborating;
- an open architecture economy that enables connectivity and innovation;
- a web of international links to promote the exchange of ideas and scale solutions;
- a strong talent pool and deep research capabilities;
- a conducive regulatory environment; and
- a safe and secure cyber environment.

### **Ecosystem of Diverse Players**

We want to create an ecosystem for innovation, where established financial institutions and FinTech start-ups compete as well as collaborate.

Financial institutions are no longer the laggards and technology dinosaurs of popular myth.

- I know this from my conversations with CEOs of global banks and insurance companies.
- Almost every major financial institution has an active innovation agenda to strengthen its business by harnessing technology.
- Many CEOs today can carry on an intelligent conversation about blockchains without looking at their notes – this is a big change from just two years ago.

Singapore wants to be the place where these financial institutions test, develop, and apply new technology solutions.

- Just in the last few years, global MNCs have set up more than 30 FinTech innovation labs or research centres in Singapore.

The FinTech start-up space has become a lot more vibrant.

- More than 400 FinTech enterprises have set up base in Singapore.
- We have start-ups experimenting with new ways to pay, save, invest, buy insurance, and plan for retirement.

No innovation ecosystem is complete without physical spaces to facilitate experimentation and collaboration.

- Last year, we saw the launch of LATTICE80, Singapore's first FinTech innovation village, occupying two whole floors of 80 Robinson Road.
- ***Well, the entire building at 80 Robinson Road will now become a FinTech innovation hub.***

- It will be named 80RR – that’s 100,000 square feet dedicated to housing FinTechs, right in the heart of the financial district!

## **Open Architecture**

A Smart Nation needs an “open API economy.” APIs are the “connectors” that allow systems to talk to one another, enabling service providers to harness information from multiple sources and produce holistic solutions for customers.

MAS has been encouraging financial institutions to develop and share their APIs openly, so that they can work with other service providers to give customers a richer and more seamless experience. We started the ball rolling last year.

- With the Finance-as-a-Service API Playbook, banks have a common guide to identify and develop APIs.
- And with the Financial Industry API Register, FinTech start-ups have a one-stop shop to explore the open APIs that have been made available.

We are pleased to see more banks in Singapore opening up their APIs, with tangible benefits to consumers.

- OCBC Bank has 43 open APIs on its platform that are actively being tapped on by FinTech players, and even government authorities such as the Inland Revenue Authority of Singapore.
- DBS Bank has launched the world’s largest banking API developer platform with more than 170 APIs and over 50 successful collaborations.
  - Customers looking for properties on the PropertyGuru platform can instantly find out if they are eligible for a property loan and even apply for the loan online.
- UOB has also recently put in place its regional open banking API platform.
  - Customers can submit and read restaurant reviews, place reservations, and pay for their food, all within UOB’s mobile app.

To-date, over 270 open APIs have been made available by the Singapore financial industry.

## **Network of International Links**

By the end of this week, MAS will have signed 16 FinTech cooperation agreements with governments and authorities around the world<sup>1</sup>.

- These agreements facilitate information sharing on FinTech trends and regulatory issues.

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<sup>1</sup>Abu Dhabi, Australia, Denmark, France, Hong Kong, India, Japan, Malaysia, Philippines, Poland, South Korea, Switzerland, Thailand and the United Kingdom, as well as the Association of Supervisors of Banks of the Americas.

- They also have a referral mechanism that support Singapore FinTech start-ups in overseas markets, and facilitate overseas start-ups to set up in Singapore as a gateway to Asia.

Some of our co-operation agreements also include joint innovation projects. Let me give a tangible example.

- Singapore and Thailand have each developed their own systems for making payments from one bank account to another - in real-time, 24/7.
- We call our system PayNow; Thailand calls theirs PromptPay.
- ***MAS and the Bank of Thailand have agreed to work together to link PayNow and PromptPay.***
- The aim is to enable someone in Singapore to send money to someone in Thailand, and vice versa, using just their mobile phone numbers - instantly, securely, and at any time of the day.

## **Talent and Research**

To sustain our FinTech efforts, we need a strong pipeline of talent and research capabilities.

***We are pleased to announce that MAS and the Massachusetts Institute of Technology (MIT) have agreed to enter an R&D collaboration in FinTech.***

- This will enable our local FinTech talents to work alongside world-class researchers at the MIT Media Lab to come up with technology solutions to real-world use cases.
- They will run pilots using distributed ledger technology, cryptography, quantum computing and big data, artificial intelligence, and machine learning.

One area where we want to make a concerted effort is data analytics and artificial intelligence.

- ***MAS is launching a S\$27 million Artificial Intelligence & Data Analytics Grant.*** This is part of the S\$225 million Financial Sector Technology & Innovation Scheme.
- The new grant will support the adoption and integration of AI and data analytics in financial institutions.
- Just as important, it will be used to help professionals in the financial sector to up-skill and adapt to the use of these new technologies.

## **Conducive Regulation**

One of the most critical pieces that we must get right is regulation.

- How can we make regulation conducive to FinTech innovation, while still ensuring that the system remains stable, key players are sound, and consumer interests are safeguarded?

- This requires a keen understanding of emerging technologies and new business models, and being alert to potential risks, while taking care not to stifle innovation.
- Easier said than done! Let me give a few examples of how MAS has tried to strike the right balance.

Take for example virtual currencies, or commonly known as crypto-currencies. MAS does not regulate virtual currencies; in fact, we welcome them as an innovation that can potentially reduce the cost of financial transactions.

But we regulate the activities that surround virtual currencies if these activities pose specific risks.

- First, virtual currency transactions could potentially be exploited for money laundering or terrorism financing due to the anonymous nature of the transactions.
  - And so intermediaries in virtual currency services will be subject to anti-money laundering requirements.
- Second, virtual currencies can go beyond being a means of payment to representing ownership of assets, as we see in many Initial Coin Offerings or ICOs. This makes them look very much like a share or bond certificate.
  - So, if the digital token is structured like a security, then the ICO must meet the requirements of the Securities and Futures Act. This is to protect investors.

FinTech developments are forcing regulators to review the way regulation is done.

- If FinTech is unbundling the financial services value chain, then regulators may have to “unbundle” their regulations too.
- I suspect, increasingly, we will have to take a *more risk-specific* approach and an *activity-based* approach with respect to FinTech. This means:
  - Setting thresholds for when regulation kicks in;
  - calibrating regulatory requirements to specific risks; and
  - applying these requirements to activities rather than entities.

A good example of our attempt to do this is the new Payment Services Bill, which we will publish for public consultation next week.

- Our aim is to right-size the regulations, to fit the various new developments that are taking place in electronic payments.
- Licensees will be regulated according to the activities they conduct, because different activities pose different risks.

Finally, there are areas – be it new technologies or new business models – where regulators will never know enough. This is where the regulatory sandbox comes in – to facilitate experimentation in a contained environment.

## **Cyber Security**

Finally, cyber security.

- As we go more digital and online, cyber risks will mount. And if these risks are not managed well, public trust and confidence in technology will suffer.
- To fully harness the benefits of digital technology, we must build robust cyber defences and have effective remediation plans when things go wrong.

First, cyber surveillance and information sharing. ***We are pleased to see the official launch in Singapore of the Asia-Pacific Regional Information & Analysis Centre by FS-ISAC.***

- FS-ISAC, or the Financial Services Information Sharing and Analysis Centre, is a global intelligence gathering and sharing initiative for the financial sector, with over 7000 members worldwide.
- The new centre in Singapore will facilitate the sharing of cyber threat information in a timely manner, and enable a rapid and coordinated response to emerging threats.

Second, ***MAS is reviewing its Technology Risk Management Guidelines.*** We do this regularly, but this time we are doing it differently.

- For the first time, MAS is partnering the Association of Banks in Singapore (ABS) to co-create the guidelines.
- We will develop cyber risk management guidance *with* the industry, *for* the industry.

Third, penetration testing. MAS already requires key financial institutions to conduct penetration testing of their cyber defences by independent third-parties. We need to go further.

- ***MAS is partnering ABS to establish guidelines for “red-teaming”, to enhance cyber security testing.***
- Red-teaming is a covert penetration test conducted on a financial institution’s *live* environment – its people, processes and technology – to assess their ability to respond to infiltration attempts.
- It will complement other forms of testing and assessments that are already in place.

I cannot emphasise enough how mission-critical cyber security is to the FinTech agenda.

## SOME POTENTIALLY TRANSFORMATIONAL FINTECH INITIATIVES

I have described our strategies. Let me now highlight five specific FinTech projects in Singapore that could potentially prove transformative in solving real-world problems.

### **Enhancing Customer On-Boarding: KYC Utility**

First, solving the “know-your-customer” (KYC) problem. KYC is one of the biggest pain points in the financial industry.

- It is an obligation in any customer on-boarding.
- But the process is costly, laborious, duplicative, and still not all that effective in detecting tax evasion or money laundering.

The government has taken the first step with MyInfo - a single platform containing personal data submitted to and verified by the government.

- MAS and the Government Technology Agency of Singapore have done a pilot with several banks to enable customers to open a bank account online using MyInfo.
- The pilot saw application timings shortened by as much as 80%.

We are now taking the next step. ***MAS is working closely with local and foreign banks to explore a Banking KYC Shared-Services Utility that will streamline end-to-end KYC.*** This means centralising processes such as:

- leveraging on MyInfo for customer identification and verification;
- collecting and validating KYC documents; and
- screening against sanctions and blacklists.

The Banking KYC Utility is potentially a transformative project.

- It will harmonise and enhance KYC checks across the industry.
- It will improve the quality of risk management while reducing cost and time taken.
- If all goes well, we hope to see the Utility in place next year.

### **Making Trade Finance Safer and More Efficient: Global Trade Connectivity Network**

Another area that could do with transformation is trade finance.

- Today, it is largely paper-based. This is not only inefficient, but increases risks such as fraud and duplicate invoicing.

Blockchain technology offers good promise to make trade finance safer and more efficient.

- Last year, DBS Bank and Standard Chartered Bank completed a proof-of-concept that demonstrated how blockchain technology could enable banks to detect if an invoice had already been financed.
- Shortly after, HSBC and Bank of America did a proof-of-concept that showed how trade finance processes could be streamlined using blockchains and smart contracts.

***Building on these, MAS and the Hong Kong Monetary Authority will jointly develop the Global Trade Connectivity Network, a cross-border platform for trade finance using distributed ledger technology.***

- GTCN will be an open architecture platform that enables the seamless transfer of digital documents and data across borders, starting with the Singapore-Hong Kong trade corridor.
- If all goes well, we expect the GTCN to go live in early 2019.

### **Strengthening Supervision and Reducing Compliance Cost: SupTech**

It is not only the financial industry that needs FinTech, but regulators as well.

- MAS has embarked on its own FinTech journey to make our supervision more effective and the compliance burden we impose less painful.
- We call it Supervisory Technology, or SupTech for short.

Let me give an example: detecting trade syndicates in the stock market.

- One of the most difficult things to detect in the market is collusive behaviour and price manipulation.
- MAS has put in place a data analytics and pattern recognition system, to study trading behaviour and detect accounts that may be
  - acting in concert to manipulate share prices, or
  - engaging in circular trading to create a false impression of market interest.

Another example is that MAS is now working on a data analytics system to scour through the 3,000 “suspicious transaction reports”, or STRs, that financial institutions file each month on money laundering or terrorist financing risks.

A major source of pain for financial institutions is regulators requesting for the same data more than once under different data collection exercises.

- We will fix this. ***By taking a more cohesive approach to data, MAS will aim to achieve zero duplication in our data requests to financial institutions.***
- If we ask for the same data twice, the institution will be allowed to gently turn us down!
- We will work with the industry on making this a reality.

And saving the best for the last: MAS will transform the way it collects data from financial institutions for supervisory purposes.

- Today, financial institutions’ data submissions to MAS often involve manual processes to extract the information from their databases and fill up the MAS-provided form or template.
- And over at MAS, processing that data is also done manually.

We will make this more painless. ***We have set a goal: all data requests from MAS will eventually be in machine readable templates.***



- The requested data will flow seamlessly from financial institutions' databases to our forms and ultimately to the supervisory dashboards of MAS officers.
  - No more "cut-and-paste".
- We will work with the industry on an implementation plan and a reasonable timeline.

### **Making Cross-border Payments and Settlements Cheaper and Faster: Project Ubin**

Next, we must re-imagine a more efficient and secure way to conduct cross-border interbank payments and settlements.

- Cross-border payments today rely on a correspondent banking network.
- Banks hold balances with one another, and settlement occurs by adjusting these balances.
- There is counterparty risk, liquidity is split, and reconciliation is a major pain point.
- Cross-border transactions often take days to settle, and at high cost to customers.

This is the problem that Project Ubin seeks to solve, using distributed ledger technology to enable entities across different jurisdictions to make payments directly with one another:

- without intermediaries;
- with much greater speed and efficiency, and
- at lower cost and risk.

It is not an easy problem to solve, but we have made some progress.

- Last year, Phase 1 demonstrated that banks could conduct inter-bank payments without going through MAS, using a blockchain-based digital representation of the Singapore Dollar.
- Phase 2, just recently concluded, successfully produced three software prototypes that achieved decentralised netting of payments, in a manner that preserved transactional privacy.

MAS has received keen interest on Project Ubin from many parties, including academia and other central banks.

- We are committed to share what we have learnt, to encourage others to take a crack at solving this problem.
- We have just published the report on Phase 2.
- ***More significantly, MAS will release publicly, free-of-charge, the source codes for all three successful prototypes from Project Ubin Phase 2.***
- Please take a look at the prototypes, study them, build upon them.

What's next? We are now preparing to extend Project Ubin beyond Singapore.

- ***We are pleased to announce a collaboration on cross-border payments with the Bank of Canada using blockchain technology.***

## Deepening Financial Inclusion: ASEAN Financial Innovation Network

Finally, we want to use FinTech to deepen financial inclusion across ASEAN.

- ***MAS and the World Bank's International Finance Corporation have teamed up to establish the ASEAN Financial Innovation Network (or "AFIN").***
- The goal of AFIN is to help banks and FinTechs in ASEAN collaborate, so as to broaden and deepen access to digital financial services across ASEAN.

AFIN is working on a cloud-based industry platform which will do three things:

- It will allow banks to search for and connect to innovative FinTech offerings.
- It will give FinTech firms an opportunity to scale up their business across borders.
- It will provide an industry sandbox to test out cross-border solutions. Regional regulators will be invited as observers of the sandbox.

Most of all, AFIN will provide a powerful platform to extend financial services to the millions of under-banked people in ASEAN.

## Conclusion

Singapore is on the FinTech journey because we want to make pervasive a culture of *innovation* in our financial sector. We must have

- a restlessness to make things better,
- a spirit of enterprise to try new ways,
- a willingness to take manageable risks, and
- the resilience to bounce back from failure to try again ... and again.

But FinTech must safeguard *trust* and *confidence*.

- Trust is the foundation for a market economy.
- In financial services and in the digital economy, it is absolutely critical.
- Customers must have the confidence that systems are reliable, transactions are safe, their data are secure, and service offerings are in their best interest.

Finally, everything we do in FinTech must have a larger *purpose*. Ultimately, it must solve real-world problems, so that people's lives are better off ...

- so that deserving small and medium enterprises can get financing to grow their businesses;
- so that migrant workers can send money back to their families cheaply, quickly, and securely;
- so that people can plan their finances holistically to meet their needs.



This room is filled with innovators, investors, business leaders, and policymakers from around the world.

- Together we can re-create finance with technology and innovation.
- As Tennyson puts it, *"Come my friends, 'tis not too late to seek a newer world"*.

Thank you.