

World Bank Fast Payments Toolkit

Case Study: Singapore

FAST (Fast and Secure Transfers) | 2014

Payment Instruments



Credit Transfer



Direct Debit



E-money

Use Cases/Services



Merchant Payments



Bill Payments



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Glossary of terms

S. No.	Term	Definition
1	GDP	Gross Domestic Product at current price
2	Income Category	Classification as per World Bank based on Gross National Income (GNI) per capita
3	CPMI	Committee on Payments and Market Infrastructure
4	FPS	As per CPMI, fast payment System is defined as payments in which the transmission of the payment message and the availability of final funds to the payee occur in real time or near-real time and on as near to a 24-hour and 7-day (24/7) basis as possible
5	Oversight	Regulating or governing body supervising the payments system
6	Operator	Institutions responsible for the operation of the payment system
7	Alias	Alternative to bank account numbers for increased convenience of the customer. For e.g., mobile number, national identification number
8	Access Channels	Modes used by customer to initiate transaction on FPS. For e.g., branch, internet, mobile
9	Individual Payment Type	Person to person (P2P) – Payment between individuals for non-business purposes
10	Business Payment Type	Person to Business (P2B) – Payment from an individual to a business entity Business to Person (B2P) – Payment from a business entity to an individual Business to Business (B2B) – Payment between two business entities
11	Government Payment Type	Person/Business to Government (P/B2G) – Payment from person/Business to a government institution Government to Person/Business (G2P/B) – Payment from government institution to a person or business entity
12	Credit transfers	Credit transfers are payment instruments based on payment orders or possibly sequences of payment orders made for the purpose of placing funds at the disposal of the payee
13	Direct Debits	Direct debits are payment instruments in which the transaction is pre-authorized, and funds are blocked in account for a debit to be initiated at a future date. In direct debits, payer's account is debited on execution of mandate by merchant or payee
14	E-money	E-money is a prepaid value stored electronically, which represents a liability of the e-money issuer (a bank, an e-money institution or any other entity authorized or allowed to issue e-money in the local jurisdiction), and which is denominated in a currency backed by an authority

Abbreviations

S.No.	Term	Expanded form
1	ABS	Association of Banks
2	BCS	Banking Computer Services Pte Ltd
3	FAST	Fast and Secure Transfers
4	FIN	Foreign Identification Number
5	MAS	Monetary Authority of Singapore
6	MEPS+	New MAS Electronic Payment and Book-Entry System
7	NRIC	National Registration Identity Card
8	RTGS	Real-time Gross Settlement
9	SACH	Singapore Automated Clearing House
10	SCHA	Singapore Clearing House Association
11	UEN	Unique Entity Number
12	VPA	Virtual Payment Address

Select parameters



GDP
USD 372 billion



Income Category
High



Population
5.70 million



Access to mobile phone*
93.55%



Access to internet*
84.12%



Bank account*
97.93%



Branches per 100,000 adult
8.49



Made or received digital payment in last 1 year*
90.10%



Received government wages or transfer in account*
67.56%

Source: GDP and Population: World Bank – 2019, Income Category: World Bank – June 2019

Currency Exchange Rate 1 USD = 1.35 S\$ <2018 Average, World Bank>

Others – World Bank 2017

* For age >15 years

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How to read this report

- This **deep dive report** relates to **FAST** in **Singapore**
- It has been developed based on **primary interviews** with key stakeholders such as **regulators, operators** and **participants** in the system as well as by leveraging **secondary sources**
- Key secondary sources include MAS website, ABS website, and IMF publications
- The table below presents a legend to assist readers as they navigate through different sections of the report

Legend



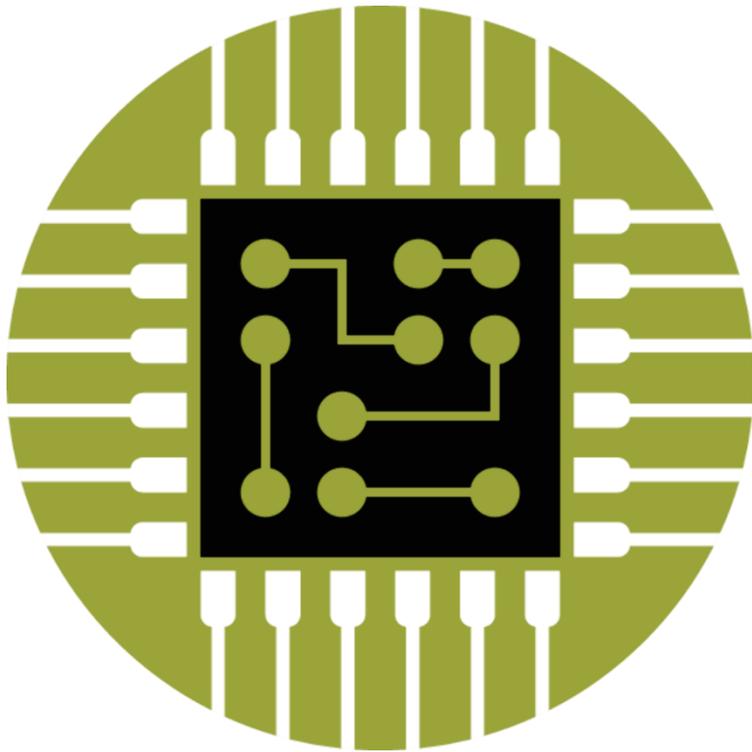
The first slide of every section includes a chapter summary to provide readers with an overview of the section contents



The green box with the adjacent icon indicates **section/sub-section summary across** the report. Reader may choose to read through this for a **high-level overview on the selected topic**

A. Executive Summary

FAST | Singapore FPS



- **FAST** (Fast and Secure Transfers) is an electronic funds transfer system that enables customers of the participating entities to transfer Singapore Dollar funds from one entity to another in Singapore. FAST was launched in 2014.
- Prior to the introduction of FAST, instant fund transfers were only available between accounts held at the same bank. Most interbank funds transfers by consumers take up to **three working days** to complete.
- **Monetary Authority of Singapore (MAS)** monitors and assesses FAST to ensure that they have proper structures, processes and rules in place for safety and efficiency
- FAST can be accessed via a **customer's bank's internet/mobile banking service** using a recipient's name and bank account number. PayNow, an overlay service, enables transactions through a proxy identifier such as a mobile number, NRIC, or UEN. These proxies can also be presented in the form of a QR code.
- The transaction limit for FAST has been raised multiple times to facilitate adoption, and **maximum limit for each transaction is currently S\$200,000.**
- **Eligible non-bank financial institutions (NFIs) can access FAST and/or PayNow as direct participants. The first wave of NFIs went live as FAST and/or PayNow participants from Feb 2021 onwards.**

B. Detailed Report

1. Overview

Chapter sections:

- 1.1. Background and Objectives
- 1.2. Key Milestones



Chapter Summary:

- **FAST** (Fast and Secure Transfers) is an electronic funds transfer system that enables customers of the participating entities to transfer Singapore Dollar funds from one entity to another in Singapore
- Prior to the introduction of FAST, instant fund transfers were only available for transactions between accounts held at the same bank and interbank transfers could take up to **three working days** to complete
- FAST was launched to enable real-time inter-bank payment interoperability, by building a national e-payments infrastructure to facilitate simple, swift, seamless, and secure e-payments
- Initially, there was limited uptake of FAST by corporates and smaller businesses. Once **PayNow**, the overlay service, was launched, it boosted adoption
- Mastercard's **Vocalink**, assisted Singapore in implementing immediate bank transfers and debit requests as part of its FAST service
- **Eligible non-bank financial institutions (NFIs) can access FAST and/or PayNow as direct participants.** The first wave NFIs went live as FAST and/or PayNow participants from **Feb 2021 onwards**

1.1. Background and Objectives



- FAST was launched in **2014**, to enable customers of participating banks to make real-time funds transfers
- Prior to the introduction of FAST, interbank transfers could take **up to three working days** to complete.
- The launch of **PayNow, the overlay service**, led to a boost in adoption and introduction of additional use cases
- Eligible non-bank financial institutions (NFIs) have been granted direct access to FAST and PayNow

FAST (Fast and Secure Transfers) is an **electronic funds transfer service** that enables customers of the participating entities to transfer Singapore Dollar funds from one entity to another in Singapore.

The system was launched on 17 March **2014**. **ISO20022 message standard** has been adopted as the payment messaging standard between FAST participants and the Automated Clearing House (ACH). The system is owned by Singapore Clearing House Association (SCHA) and operated by the Banking Computer Services Pte Ltd (BCS), and inter-participant settlement takes place on MEPS+.

Prior to the introduction of FAST, instant fund transfers were only available for transactions between accounts held at the same bank and interbank transfers could take up to three working days to complete

Introduction of FAST in Singapore was largely **market driven**. Before FAST, Singapore had GIRO* and cheques; both took more than a day to reflect in the account of the recipient. FAST was introduced in response to the increasing demand from consumers and businesses for faster and more efficient funds transfer services. FAST was built with advanced features e.g., ISO20022 message formats and real time debit transfers. Eligible non-bank financial institutions (NFIs) can access FAST and/or PayNow as **direct participants**. The first wave NFIs went live as FAST and/or PayNow participants from **Feb 2021 onwards**.

Key objectives

- FAST was launched to enable real-time inter-bank payment interoperability, by building a national e-payments infrastructure to facilitate simple, swift, seamless, and secure e-payments

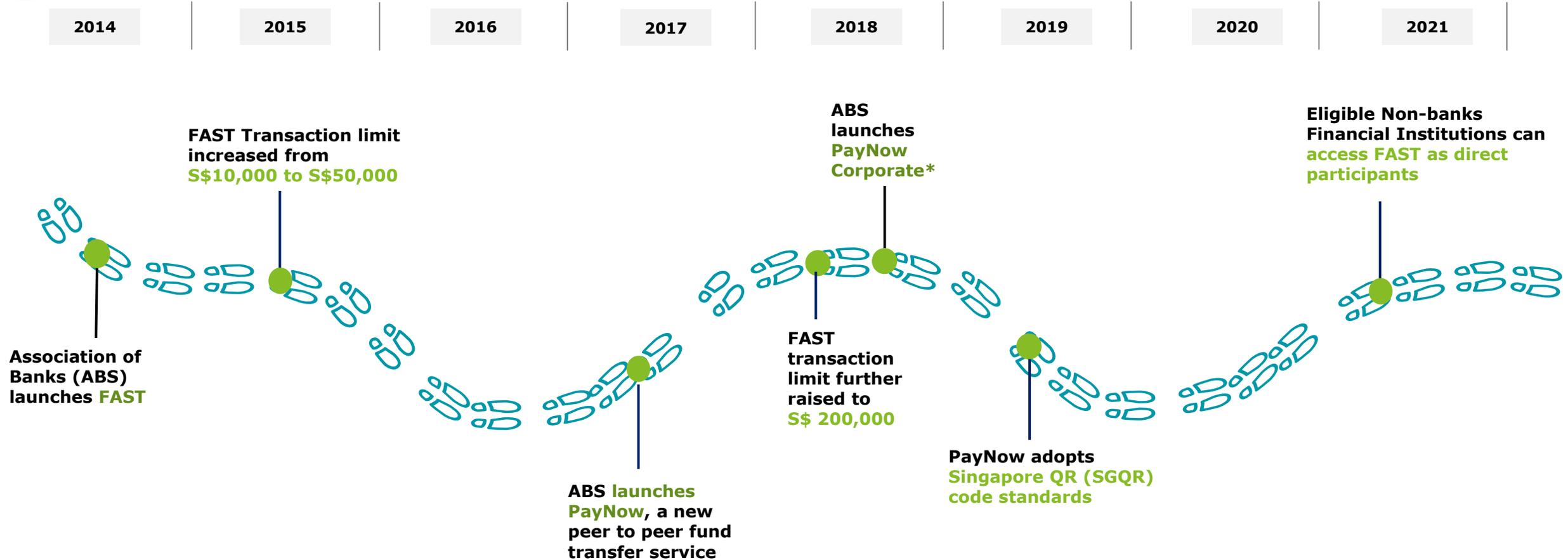
Upgrades

- Initially, there was limited uptake of FAST by corporates and smaller businesses till 2016-17
- Once PayNow, the overlay service was launched, it **boosted adoption** as it facilitated additional use cases such as **P2B** and **point of sale payments**
- **PayNow** is the main upgrade to FAST
- The first wave of non-bank financial institutions (NFIs) went live as FAST participants from Feb 2021 onwards. NFIs can access FAST as **direct participants**

1.2. Key Milestones



The launch of FAST took place in **2014** and as of February 2021, eligible Non-bank Financial Institutions can access FAST as direct participants.



*PayNow Corporate caters to corporates, businesses, Singapore Government agencies, associations and societies. PayNow Corporate enables Entities to pay and receive Singapore Dollar funds instantaneously by linking their Unique Entity Number (UEN) to their Singapore bank account. They do not need to know the bank and account number of other entities when transferring funds.

2. Business and Operating Model

Chapter sections:

- 2.1. FPS Structure
- 2.2. Payment Instruments, Payment Types, and Use Cases/Services
- 2.3. Aliases and Access Channels



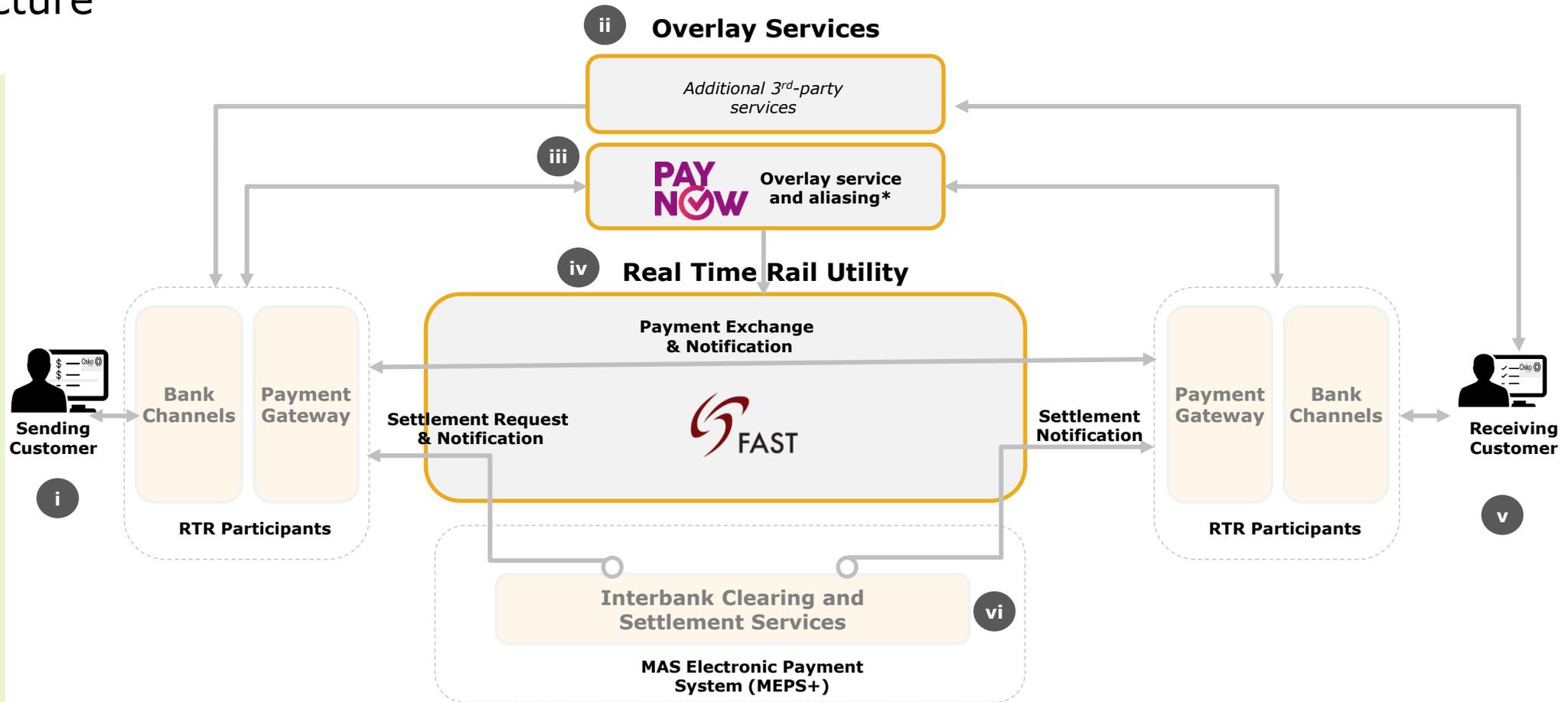
Chapter Summary:

- FAST has **28 participating institutions (23 banks and 5 NFIs)**, and does not have any indirect participants
- FAST allows businesses and consumers in Singapore to electronically transfer funds between accounts held only at **participating financial institutions** in seconds
- Payments through FAST can be made **via internet and mobile banking** application of participants
- Payments instruments FAST supports are **direct debits** and **credit transfers**
- Use cases FAST supports are **merchant payments** and **bill payments**
- In Singapore, payments through **proxy identifiers** is through **PayNow**, an overlay service. **Mobile number**, Singapore **NRIC/FIN**, **Virtual Payment Address (VPA)** can be used as proxies for bank account numbers by individuals and **Unique Entity Number (UEN)** can be used as the proxy address for business recipients
- **PayNow** has the option of scanning a **QR code** to make payments. Entities and consumers can carry out PayNow transfers by scanning the PayNow QR code using existing mobile banking applications of participating banks
- PayNow's convenience and myriad of use cases supported (including government disbursements) have driven market acceptance

2.1. FPS Structure



- Monetary Authority of Singapore (MAS) **monitors** and **assesses** FAST to ensure that they have proper structures, processes and rules in place for safety and efficiency
- **MEPS+** is MAS' real-time gross settlement system
- **Banking Computer Services Private Limited (BCS)** **manages** and **operates** the clearing and payment infrastructure of FAST



Monetary Authority of Singapore (MAS)

- Payments Department within MAS monitors and assesses FAST to ensure that they have proper structures, processes and rules in place for safety and efficiency
- MEPS+ is MAS' **real-time gross settlement system**. It began operating on 9 December 2006

Banking Computer Services Private Limited (BCS)

- BCS, owned by NETS - Singapore's leading payment solutions provider, **manages and operates** the clearing and payment infrastructure for the Singapore Clearing House Association (SCHA)
- It was set up in 1976 and is the current operator of FAST

2.2. Payment Instruments, Payment Types, and Use Cases/Services



- FAST enables transfers between accounts at **different participating banks**
- Currently, there is a maximum **transaction limit of S\$200,000** using FAST
- FAST supports **merchant payments** and **bill payments**

Payment Instruments Supported

	Credit Transfer	✓	<div style="background-color: #ADD8E6; padding: 5px; border: 1px solid #ADD8E6; margin-bottom: 10px;">Interoperability</div> <ul style="list-style-type: none"> FAST allows businesses and consumers in Singapore to electronically transfer funds between accounts held at participating financial institutions in seconds
	Direct Debit	✓	
	E-money	✓	

Transactions Supported

Payment Types	 Individual	 Business	 Government	 Non-Financial*
	✓	✓	✓	

Transaction Currency

(Singapore Dollar)

FAST can only be used for Singapore Dollar funds transfers between customers of the participating banks in Singapore.

Use Cases

 Merchant Payments		 Bill Payments
<ul style="list-style-type: none"> Merchant payments include both P2B and B2B payments 		

Transaction Limit

FAST enables retail and corporate customers of participating financial institutions to transfer funds 24/7/365 with a **maximum limit of S\$200,000 for each transaction**

*e.g., Balance Enquiry, Transaction status check, etc.

2.3. Aliases and Access Channels



FAST can be accessed via a **customer's bank's internet/mobile banking service** using a **recipient's name and bank account number**. PayNow, the overlay service, enables transactions through mobile number, NRIC, UEN proxies. These proxies can be presented in the form of a QR code.

Aliases



- In Singapore, the **proxy addressing service**, known as PayNow, rides on the FAST payment system. The proxy database is centralized
- PayNow was launched in July 2017 and is available 24/7, 365 days. It is provided **free of charge to retail customers**. PayNow is owned by ABS and operated by BCS
- PayNow acts as an initiating interface of payments in FAST for retail customers of **nine participating banks and three NFIs** in Singapore
- PayNow enables retail customers to send and receive Singapore Dollar funds from one entity to another in Singapore through FAST by using just their **mobile number, Singapore National Registration Identity Card (NRIC) number/Foreign Identification Number (FIN), or Virtual Payment Address (VPA)** instantly
- In addition to P2P payments, PayNow is also used for payments involving **merchants, government agencies, businesses**, etc.
- PayNow also allows use of the **Unique Entity Number (UEN)**, which is the standard identification number of a business entity registered in Singapore, as a proxy address for the recipient, enabling businesses to migrate from traditional checks and cash to electronic payments and collections
- PayNow has the option of scanning a **QR code** to make payments. Entities and consumers can carry out PayNow transfers by scanning the PayNow QR code using existing mobile banking applications of participating banks
- PayNow transactions adopt the **same security standards established by the banking industry** in Singapore for funds transfer
- The proxies' (NRIC, Mobile Number, UEN and VPA) information used in PayNow are collected from the banks or NFIs during account set up. If a miscreant attempts to use someone else's NRIC as a proxy for their own bank account, it will be rejected. PayNow registration rides on KYC performed by the bank, which involves collection and verification of account holder's details such as NRIC and mobile phone number. So it would not be possible for account holder to indicate a separate NRIC when registering for PayNow with the bank. A second layer check is created at the **verification page** where the sender can view the recipient's nickname before confirming the transfer. This assures customers that the funds are being sent to the intended party. Additionally, **notifications are sent from the bank or NFI** to the sender and receiver, confirming the successful transfer of funds

Access Channels



Branch



ATM



Internet
Banking



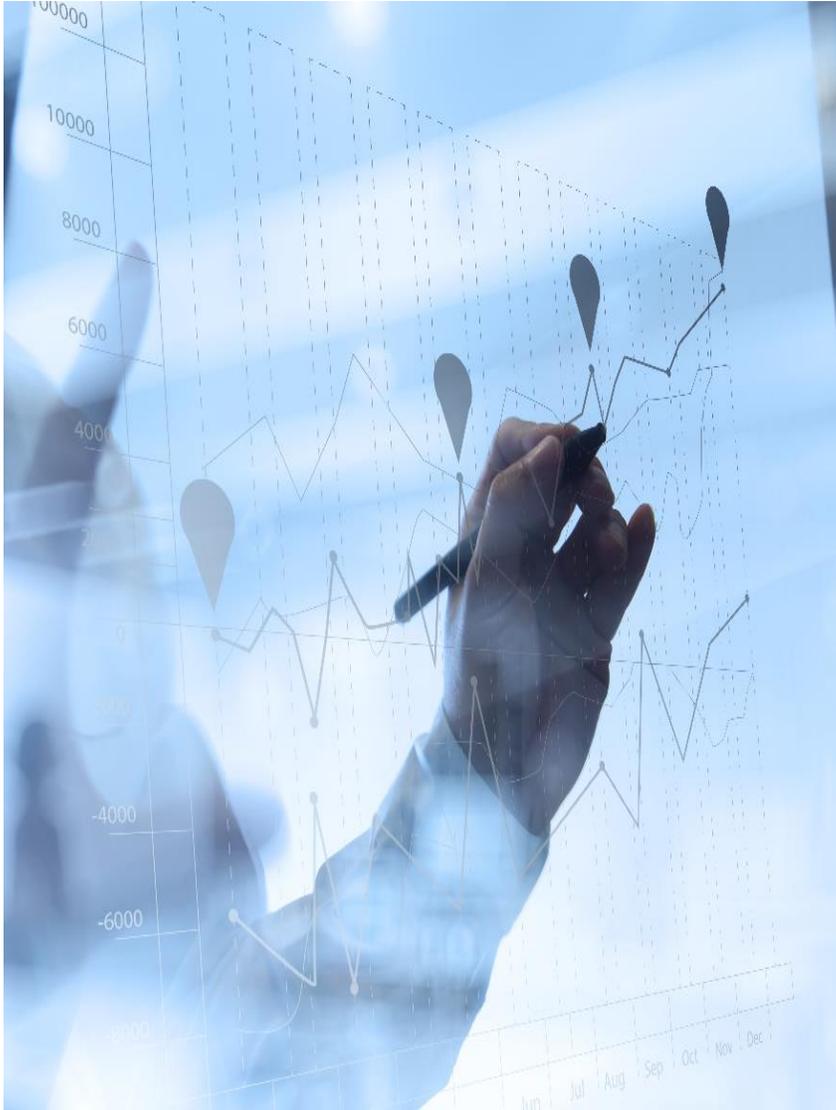
Mobile
Banking/Apps

- FAST payments can be made by logging into **the internet or mobile banking application** of a **participating financial institution** using devices such as tablet, smart phone or personal computer
- The recipient's name and bank account number are needed to transfer funds. This limits channels of access available to a user to make a FAST payment
- A FAST transfer can be initiated at an ATM or in a branch
- With the help of PayNow, the overlay service, customers can use **mobile number, NRIC, VPA or UEN**, to make payments

Agent Networks

- FAST is not supported by agent networks

3. User Adoption



Chapter Summary:

- FAST has been seeing growing transaction volumes since its inception, and witnessed a further boost in transaction volumes and values in July 2017 with the launch of PayNow, the overlay service that leverages FAST as the underlying payment rail
- Usage of FAST and PayNow for Government disbursements also led to a boost in customer uptake
- Media campaigns and public awareness measures have also served as user adoption drivers
- Between July and September 2020, FAST transaction volumes averaged more than 12.5 million per month. As of November 2020, PayNow monthly transaction volumes account for almost half of all FAST transactions

3. User Adoption

- FAST saw a boost in transaction volumes and values in July 2017 with the **launch of PayNow**
- The Singapore Government has also taken the lead in recent years to use PayNow for **citizen disbursements**, which further leads to greater usage of PayNow and FAST as individuals and businesses begin to understand the benefits of using real-time payment alternatives
- With the **Covid-19 pandemic**, the Government introduced various financial support measures to individuals and businesses and prioritized disbursements via PayNow
- MAS also worked closely with the Association of Banks in Singapore (ABS) from April to July 2020 to launch a campaign to actively promote PayNow and PayNow Corporate. The initiative also included a **media campaign** and consumer **outreach efforts** to raise public awareness of these e-payment solutions
- FAST now processes more transactions than cheques, as well as Interbank GIRO (bulk payments)
- FAST transaction **volumes and values have been growing significantly over the years**, as shown in the figures below

Key user adoption highlights for PAYNOW



2.62 million mobile number and 1.8 million NRIC/FIN number registrations



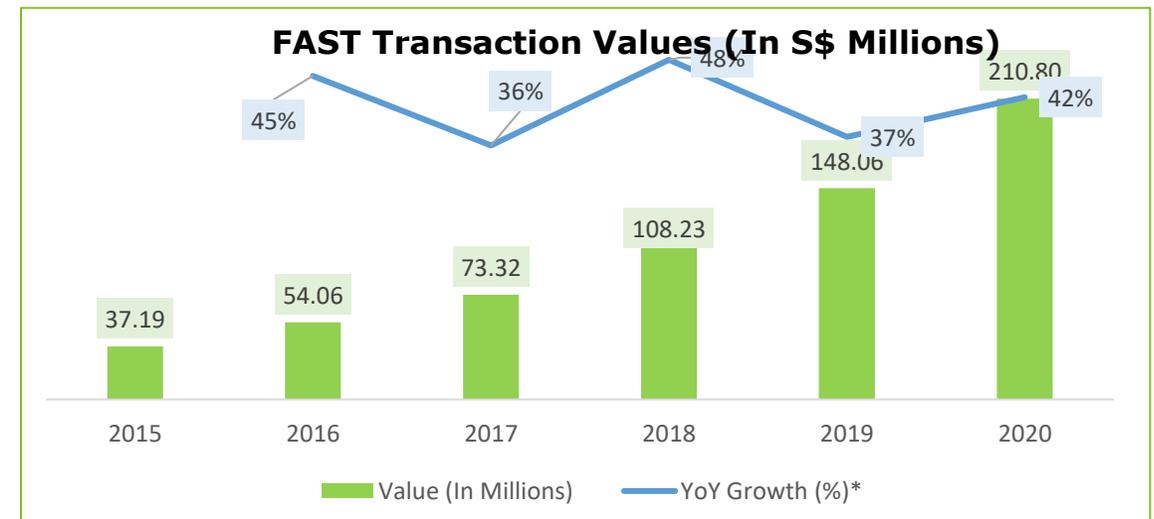
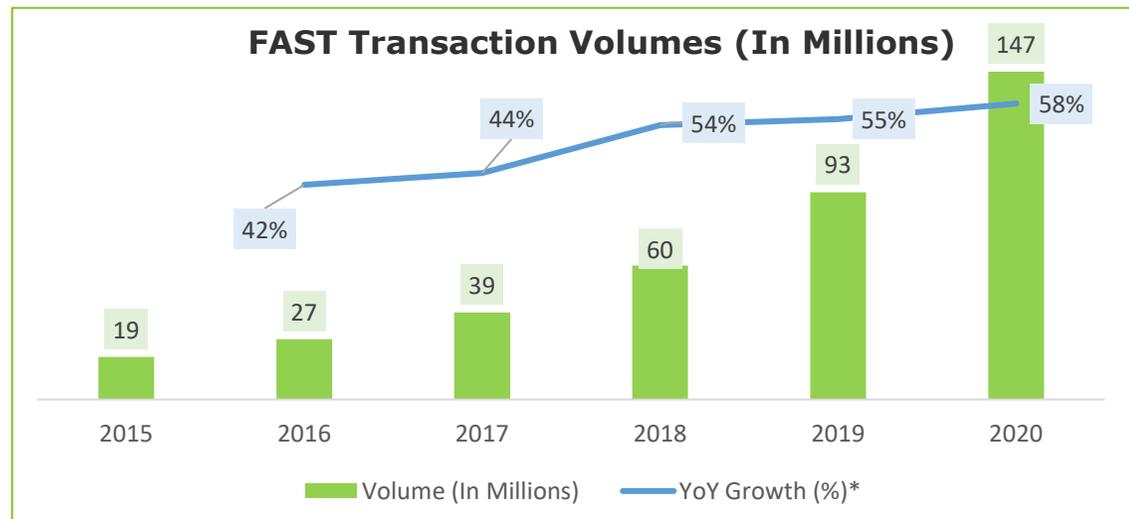
More than 236,000 unique entity numbers (UENs) have been registered for PayNow Corporate



150,000 transactions worth S\$24 million during the first month of operations



As of November 2020, PayNow monthly transaction volumes account for almost half of all FAST transactions



4. Technical Details and Payment Process

Chapter sections:

4.1. Technical Details | Messaging Format, Customer Authentication, APIs, Cross-border payments

4.2. Payment Process (Customer Registration, Transaction Fulfilment, Liquidity Management and Settlement)



Chapter Summary:

- FAST has adopted the **ISO 20022 messaging standard**, which is a global standard for financial messaging that is flexible and extensible. Interaction between banks and BCS is through ISO 20022 messaging format
- An **API payment gateway** has been launched in November 2020 to facilitate connectivity to FAST, for NFI participants
- Banks who offer FAST decide **on their own customer authentication standard**, balancing out the need for security without hindering customer experience
- User registration for sending and receiving payments via FAST is not required. However, users are required to register for PayNow to receive payments via PayNow
- FAST follows **deferred net settlement** where settlement takes place in **two cycles per business day**
- The settlement is carried out by the **New MAS Electronic Payment and Book-Entry System (MEPS+)**, the **real-time gross settlement (RTGS)** system operated by MAS
- Participating banks need to **deposit collateral** with MAS to cover their net outflow position as well as that of the NFIs they act as settlement agents for, else the participant will be cut off from the system

4.1. Technical Details | Messaging Format, Customer Authentication, APIs, Cross-Border payments



FAST uses the **ISO 20022** messaging format, has recently launched an **API gateway** to facilitate connectivity of NFIs to FAST and is working on multiple cross-border payments initiatives.



Messaging Format

ISO 20022

FAST has adopted the **ISO 20022 messaging standard**, which is a global standard for financial messaging that is flexible and extensible. Interaction between FAST participants and FAST is through ISO 20022 messaging format. ISO 20022 was chosen to align with the global trend.

The ISO 20022 message schema can capture and transmit data in a consistent and structured way alongside a payment. These data elements can be **customised for specific payment types** and their data requirements.



APIs

Launched an API gateway

- An API payment gateway has been launched in November 2020 to facilitate **connectivity to FAST, for NFI participants**



Cross-Border Payments

Capability present between PayNow and Thailand's PromptPay

- In April 2021, MAS and BOT launched the linkage of PayNow and Thailand's PromptPay. The linkage is the culmination of several years of extensive collaboration between MAS and BOT, both countries' payment system operators, bankers' associations, and participating banks. Customers of participating banks in Singapore and Thailand will be able to transfer funds of up to S\$1,000 or THB25,000 daily across the two countries, using just a mobile number



Customer Authentication

Depends on sending institution requirements

Banks who offer FAST decide **on their customer authentication standard**, balancing out the need for security without hindering customer experience. In Singapore, all financial institutions, including FAST participants, have to meet relevant risk management principles and best practice standards as set out in the MAS' **Technology Risk Management Guidelines**



4.2. Payment Process | Customer Registration and Transaction Fulfilment



FAST and PayNow appear as a default option for customers. However, in order to receive funds using PayNow, a customer can register onto PayNow through their financial institution.

- Customers do not have to register separately to pay using FAST or PayNow. Customers simply need to login to their banking channel in order to avail the option to pay via FAST or PayNow, provided their bank is FAST participant.
- Details for user registration onto PayNow, the overlay service, have been provided below. Users do not need to register to make transfers using PayNow but **need to register in order to receive funds using PayNow**. While an invitation service is not available in case the payee is not PayNow, MAS, ABS and the banks have been engaging consumers and issuing educational materials since 2017 to encourage and facilitate registrations by new users

- ✓ Users can choose to register either **NRIC or mobile number** or both of these numbers. Users can register a **maximum of 2 bank accounts** for PayNow - one linked to NRIC number and one linked to mobile number. Users of NFI e-wallets can also register for PayNow VPA to receive monies directly into their e-wallets
- ✓ Only **individual savings and current accounts** in Singapore can be used for PayNow registration. In the case of Singapore joint accounts, only those accounts where each joint account holder can sign individually to operate the account qualify for PayNow registration

Process for users to register on PayNow with Financial Institutions*

Step 1: User accesses his/her account with a FI via its internet /mobile** platform

Step 2: User logs into his/her account with the FI

Step 3: Once logged in, user taps on <Pay & Transfer>

Step 4: User taps on <PayNow>

Step 5: User taps on <Your Profile>

Step 6: User taps on <Register Your Mobile No.>

Step 7: User enters preferred nickname and account that will link with PayNow

Step 8: User reviews information and taps on <Register Now>

Transaction Fulfilment

- Intra-bank transfers don't flow through FAST and banks use their own systems
- FAST enables almost immediate receipt of funds. Customers know the status of the transfer by accessing their bank account via internet banking service or via other channels offered by their bank. Payment receipt for FAST is almost immediate, on a 24x7 basis



4.2. Payment Process | Liquidity Management and Settlement



FAST follows **deferred net settlement** where settlement takes place in **two cycles per business day in MEPS+**.

Settlement

Approach



Hub



Deferred Net Settlement

Type | Time

2 Cycles | Day

- FAST follows **deferred net settlement** where settlement takes place in **two cycles per business day**
- **Collateral** and **risk position** are two important components that need to be considered with regards to settlement. Collateral is the amount banks need to keep with MAS as the settlement entity and the risk position is the net of outflows vs inflows. Thus, the collateral needs to cover the net outflow position, else the participant will not be allowed to transact further until the net outflow position is reduced. During settlement, the risk position of a bank is looked at
- The settlement of the risk position is carried out by the **New MAS Electronic Payment and Book-Entry System (MEPS+)**, the real-time gross settlement (RTGS) system operated by MAS
- The clearing for FAST is instant and done by **Singapore Automated Clearing House (SACH)**. SACH prepares the net settlement files and sends them to MEPS+ for settlement at stipulated times twice a day
- MEPS+ was enhanced to cater for the settlement of the FAST inter-participant clearing obligations in RTGS

5. Governance Framework

Chapter sections:

- 5.1. Legal and Regulatory Aspects
- 5.2. Risk Management
- 5.3. Dispute Resolution and Customer Complaints



Chapter Summary:

- The **Payment Services Act** empowers MAS to collect information from all payment systems in Singapore. This enables MAS to monitor the development of the payment system ecosystem in Singapore, maintain surveillance for better supervision of payment systems and make informed policy decisions
- The Payment Services Act also empowers MAS to designate a payment system if it is considered a systemically important payment system or a system-wide important payment system "SWIPS"), or where it is otherwise in the public interest to do so. FAST is a **SWIPS** that has been designated under the Payment Services Act
- MAS monitors and assesses FAST to ensure that the system has **proper structures, processes and rules in place** for **safety** and **efficiency**

5.1. Legal and Regulatory Aspects (1/2)



The Payment Services Act empowers MAS to collect information from all payment systems in Singapore. This enables MAS to monitor the development of the payment system ecosystem in Singapore, maintain surveillance for better supervision of payment systems and make informed policy decisions

Institutional and Governance Framework

Legal Framework

Payment Services Act 2019

Regulator and Overseer

MAS

Operator

BCS

- The **Payment Services Act** unifies and streamlines the regulatory requirements for various payment services provided in Singapore, including electronic payments and cryptocurrency dealing and exchange services. It is a forward looking and flexible framework for the regulation of payment systems and payment service providers in Singapore. It provides for regulatory certainty and consumer safeguards, while encouraging innovation and growth of payment services and FinTech
- The Payment Services Act has the following powers:
 - Information gathering powers over payment systems
 - Designation of payment systems
 - Obligations of operators and settlement institutions of designated payment systems
 - Access regime
 - Voluntary transfer of business
 - Control of controllers of operators of designated payment systems
 - Control of officers of operators and settlement institutions of designated payment systems
 - Audit of operators and settlement institutions of designated payment system
- The Payment Services Act empowers MAS to collect information from all payment systems in Singapore. This enables MAS to monitor the development of the payment system ecosystem in Singapore, maintain surveillance for better supervision of payment systems and make informed policy decisions
- Under the Payment Services Act, several measures have been prescribed to ensure technological risk management (detailed out in slide 32) and **cyber resilience** of payment systems, among other requirements. Some of the measures pertaining to cyber resilience include security patches, security standards, secure administrative accounts, multi-factor authentication, malware protection, and network perimeter defense

5.1. Legal and Regulatory Aspects (2/2)



Monetary Authority of Singapore (MAS) **monitors** and **assesses** FAST to ensure that the system has proper structures, processes and rules in place for safety and efficiency. FAST is a system-wide important payment system (SWIPS).

Institutional and Governance Framework

Legal Framework

Payment Services Act 2019

Regulator and Overseer

MAS

Operator

BCS

- Monetary Authority of Singapore (MAS) **monitors** and **assesses** FAST to ensure that the system has proper structures, processes and rules in place for safety and efficiency
- MAS is empowered to **collect information from operators, settlement institutions or participants of FAST** so it can provide access to comprehensive and reliable information. This also allows MAS to monitor the development of the payment system industry and make informed policy decisions
- Payment systems can be classified as a systemically important payments system (SIPS) or a **system-wide important payment system (SWIPS)**. SWIPS are “systems whose disruption could affect public confidence in payment systems or the financial system of Singapore. Although a disruption or failure in these systems may have system-wide implications and may affect many users, there is negligible risk of systemic impact to financial stability.” FAST is **classified as a SWIPS** and is designated under the Payment Services Act
- MAS’ **regulatory powers** over **designated payment systems** (DPSs) include the following abilities:
 - Regulate access rules for participation
 - Impose restrictions and conditions
 - Establish standards
 - Make regulations
 - Approve and remove chief executive officers and directors
 - Approve substantial shareholders and other controllers
 - Issue directions and inspect DPSs’ operations

- Banking Computer Services (BCS) operates FAST on behalf of The Singapore Clearing House Association (SCHA)

5.2. Risk Management (1/2)



MAS issues **regulatory requirements and guidelines** that all financial institutions (FIs), including operators of designated payment systems such as FAST, are expected to adhere to.

- MAS issues regulatory requirements and guidelines that all financial institutions (FIs), including operators of designated payment systems such as FAST, are expected to adhere to. **Technology risk management, business continuity management (BCM)** and **outsourcing** are some areas covered
- **System-specific risk mitigating measures** are laid out by the payment system operator and its governance body, e.g., Singapore Clearing House Association
- In 2019, MAS introduced a set of **E-payments User Protection Guidelines** to provide consumers with the assurance that banks and major wallet providers handle their payment matters in a fair, timely and responsible way. The guidelines covered the following:
 - Expectations for FIs to provide **timely notifications** in order to help users monitor and deter the occurrence of unauthorized transactions
 - In instances where **users observe unauthorized transactions**, rules for users to speedily notify their FI in order to support the FI in immediately commencing investigations and providing compensation to claims (where applicable) and in a timely manner
 - Simplified processes for **handling erroneous transactions** i.e., where a sender initiated the transaction but sent it to the wrong recipient

Technology Risk

- Technology risk management notice and guidelines as per the **Payment Services Act** cover governance and oversight, operational controls on prevention, detection, response and recovery, and IT audit
- According to **MAS Notice No.: PSN05 on Technology Risk Management**, operators and settlement institutions of **designated payment systems** are mandated to:
 - Put in place a framework and process to **identify critical systems**
 - Make all reasonable efforts to **maintain high availability for critical systems**. The relevant entity shall ensure that the maximum unscheduled downtime for each critical system that affects the relevant entity's operations or service to its customers does not exceed a total of 4 hours within any period of 12 months
 - Establish a **recovery time objective (RTO)** of **not more than 4 hours** for each critical system. The RTO is the duration of time, from the point of disruption, within which a system must be restored. The relevant entity shall validate and document at least once every 12 months, how it performs its system recovery testing and when the RTO is validated during the system recovery testing
 - **Notify the Authority as soon as possible**, but not later than 1 hour, upon the discovery of a relevant incident
 - Submit a **root cause and impact analysis report** to the Authority, within 14 days or such longer period as the Authority may allow, from the discovery of the relevant incident
 - Implement **IT controls** to protect customer information from unauthorized access or disclosure

5.2. Risk Management (2/2)

Cyber Risk

FAST participants are required to comply with security guidelines issued by the FAST operator

MAS issued a set of legally binding requirements in August 2019 that set out the measures that financial institutions must take to **mitigate the growing risk of cyber threats**. MAS sought feedback from the public in September 2018 on the proposal to make this range of cyber security measures into legally binding requirements, that were welcomed by financial institutions

The Notice, which came into effect on 6 August 2020, makes it mandatory for financial institutions to comply with the following requirements:

- Establish and implement robust security for IT systems
- Ensure updates are applied to address system security flaws in a timely manner
- Deploy security devices to restrict unauthorized network traffic
- Implement measures to mitigate the risk of malware infection
- Secure the use of system accounts with special privileges to prevent unauthorized access
- Strengthen user authentication for critical systems as well as systems used to access customer information

Fraud Risk

According to **MAS Notice No.: PSN03 on Reporting of Suspicious Activities and Incidents of Fraud**, licensees, operators and settlement institutions of **designated payment systems** are mandated to:

- Lodge a report with MAS upon discovery of any suspicious activities and incidents of fraud where such activities or incidents are material to the safety, soundness or reputation of the relevant entity. The report shall be lodged no later than 5 working days after the discovery of the activity or incident by the relevant entity, as the case may be
- Where a relevant entity has not reported to the Authority a suspicious activity or incident of fraud, it shall document the reasons for its decision
- For incidents of fraud, a relevant entity should also lodge a police report and submit to the Authority a copy of the police report. Where the relevant entity has not lodged a police report, it should notify the Authority of the reasons for its decision
- For the avoidance of doubt, a relevant entity shall continue to comply with the provisions in the Corruption, Drug Trafficking and Other Serious Crimes (Confiscation of Benefits) Act (Cap. 65A) and Terrorism (Suppression of Financing) Act (Cap. 325) as well as the paragraphs in the applicable Prevention of Money Laundering and Countering the Financing of Terrorism Notices, including the obligation to promptly submit reports on suspicious transactions (including attempted transactions) to the Suspicious Transaction Reporting Office, Commercial Affairs Department of the Singapore Police Force, and extend a copy to the Authority for information

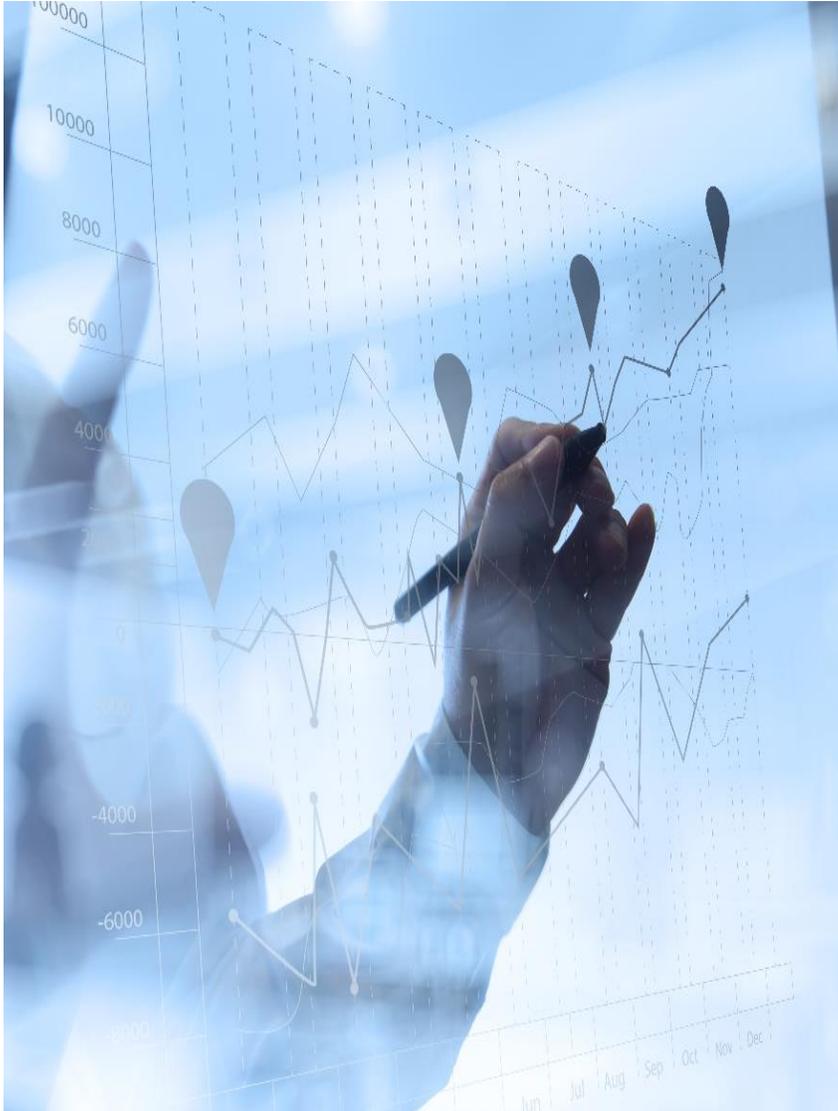
5.3. Dispute Resolution and Customer Complaints



Disputes may arise between FAST and the participating FIs, while a customer complaint may arise between the participating FIs and end-users.

- FAST is governed by the by-laws of the Singapore Clearing House Association (SCHA), which all participants in FAST must be members of. **There are no specific resolution or adjustment processes to handle dispute or exception on a processed FAST transaction, as the industry has agreed to handle them bilaterally**
- Customer complaint registration and resolution (including fraud reporting) is handled **directly between the FAST participant and their customers**

6. Annexure



Chapter Sections:

6.1. Key Features

6.1. Key Features

👤 Features

Key Highlights

	Operating hours	• 24*7 including weekends and bank holidays
	Payment speed	• Real time (<15 seconds)
	Transaction limit	• S\$ 200,000
	Alias	• Mobile number, Singapore NRIC/FIN ID ¹ , Unique Entity Number (UEN)
	Channel	• Internet, Mobile
	User charges	• Commercial decision of banks • PayNow is free for retail customers
	Infrastructure setup	• New system
	Messaging format	• ISO 20022
	Use of Open APIs	• API gateway for NFI connection
	Authentication	• Depends on sending institution requirements

Payment Types & Use Cases

		
Individual	Business	Government
	Merchant payments	
	Future payments	
		
		Bill payments

Settlement

Approach	 Hub	 RTGS
Type Time	Deferred Net settlement	 Distributed clearing
		2 Cycles Per Day ²

Source: MAS | ABS | NETS | PayNow | Payment systems in Singapore report | FIS report | BIS report

¹Linked to a specific bank account
²Planning to increase to multiple cycles per day