FOCUS NOTE

SCHEME RULES IN FAST PAYMENTS

Part of the World Bank Fast Payments Toolkit

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WORLD BANK GROUP

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1 SETTING THE CONTEXT

The World Bank has been monitoring closely the development of fast payment systems (FPS) by central banks and private players across the globe.[1] This comprehensive study has resulted in a policy toolkit. The toolkit was designed to guide countries and regions on the likely alternatives and models that could assist them in their policy and implementation choices when they embark on their FPS journeys. Work on the FPS Toolkit work was supported by the Bill and Melinda Gates Foundation. The toolkit can be found at *fastpayments.worldbank.org* and consists of the following components:

- The main report *Considerations and Lessons for the Development and Implementation of Fast Payment Systems*
- Case studies of countries that have already implemented fast payments
- A set of short focus notes on specific technical topics related to fast payments

This note is part of the third component of the toolkit and aims to provide inputs and guidance to policymakers on fast payment scheme rules, including regulatory implications, and scheme governance. As fast payments continue to mature in markets, it is important for country authorities seeking to introduce/foster fast payments in their jurisdiction to grasp the components and key focus areas for setting them up.

2 BACKGROUND

The demand for fast payments has been increasing exponentially and it is reflected in the accelerating rate of new implementations across regions. Every country with different conditions and challenges has its own unique scope, implementation time, features and services, schemes, and systems. Increased mobile penetration and the expansion of internet connectivity have significantly reduced the associated costs for end users and payment service providers (PSPs), thereby improving the viability of fast payment systems (FPS). As fast payment services evolve and integrate with new-age initiatives, the need for a well-defined set of scheme rules for future implementations grows.

In most cases, an FPS designed and developed by an individual central bank/operator has its own scheme rules. Scheme rules define the way the system will operate and the behavior and interaction of participants. Scheme rules are defined to minimize risks, maintain integrity, and provide customers with a seamless, common, convenient, secure, and reliable payment experience. Framing rules, standards, and guidelines with certain degrees of flexibility helps make implementation and subsequent upgrades easy for participants. For example, to facilitate interoperability, scheme rules could define a high-level framework that bridges differences across solutions and addresses only those areas that are essential for interoperability. Defining scheme rules with consideration for supporting geography-specific rules and regulations brings variation and uniqueness to each implementation.

Every scheme has its own set of unique rules, applicable to all scheme participants. These rules specify the minimum requirement framework applicable to all members for operating while upholding the safety, security, soundness, integrity, and interoperability of the FPS. Scheme rules are defined and modified by schemes to support the use and advancement of services.

Several factors need to be considered while defining scheme rules for an FPS. These range from the way different participants interact and the messaging formats they use to communicate to the type of transactions that would be offered to customers and the settlement between the different participants.

KEY OBJECTIVES OF DEFINING SCHEME RULES

Since scheme rules specifically govern the constitution and administration of a particular scheme, it is important that they are set holistically. Well-defined scheme rules ensure that the roles, processes, and responsibilities to be adopted are upheld by all stakeholders involved. This will help create a well-balanced payment ecosystem. Scheme rules are standardized guidelines that provide predictability and clarity to participants on all facets of the fast payment scheme,

including compliance, participant management, and technology. Below are objectives of defining scheme rules:

- Standardizing processes and methodologies
- Increasing organizational integrity and transparency
- Complying with industry standards and laws
- Enhancing security and fraud-management practices
- Defining the scope of interoperability with other payment schemes and enhancing the fast payment scheme framework
- Promoting uniform end-user experience
- Upholding the value of scheme branding and marketing

3 COMPONENTS OF FAST PAYMENT SCHEME RULES

FIGURE 1 Key Components of Scheme Rules

TABLE 1 **Scheme Rules around Components**

KEY COMPONENT	SCHEME RULE	SUBAREAS
Participant management	Membership guidelines	• Membership onboarding • Membership eligibility requirements • Rights and duties of scheme participants • Suspension and termination
Compliance and guidelines	Regulatory compliance and industry certifications	• Mandatory compliance framework • Framework for redress for scheme noncompliance • Mandatory industry certifications
	Risk management and mitigation	• Internal controls • Member restrictions • Fraud-risk-management policy
Operations	Reconciliation and settlement	• Settlement framework • Reporting
	Dispute management	• Dispute-resolution framework • End-customer transactional disputes
	Monitoring	• Transaction monitoring • Fraud checks and related monitoring
Fees and charges	Scheme fees	• Onboarding fee structure • Cost of scheme participation
	Transaction fees	• Switching fee • Interparty fees
	Others	• Noncompliance charges: noncompliance assessment (process and technology) • Financial penalty
Technology	Messaging mode and communication standard	• Mode of communication/messaging protocol • Message standards • Transaction type
	Technical infrastructure and contingency standards	• Technical infrastructure • Contingency standards
	Security protocols	• Data encryption • Identity and account validation • Message security • Protecting authentication credentials
Marketing and branding	Payment scheme brand guidelines	• Fast payment scheme framework for branding and marketing guidelines • Fast payment scheme guidelines for other branding and marketing

PARTICIPANT MANAGEMENT

Major payment schemes around the world have focused their frameworks for participant management on inclusiveness, transparency, and predictability. These rules help in streamlining participant admission and provide a framework for continuous scheme participation. Various payment schemes follow a set of requirements for granting access to their payment systems. These rules might apply to a specific jurisdiction as defined in the scheme rule book.

3.1.1 Participation Frameworks

Payment schemes have historically restricted scheme membership to traditional financial institutions. As payment systems have evolved, payment schemes have expanded their ambit to include as active participants such new players as technology companies, wallet players, telecom companies, and e-commerce players. PSPs that enable the last-mile delivery of fast payments to end users can be segregated as given below.

TABLE 2 **Types of Institutions**

BANKS	NON-BANK PSPs
Authorized deposit-taking institutions that can play various roles in the payment scheme, such as settling participants, connected participants, and participants that have direct connection to the scheme and can settle transactions as well	Organizations that typically play the role of a technology enabler in the payment scheme, such as overlay service providers, but their role can be extended to roles performed by bank PSPs as well—for example, technology companies, wallet players, and telecom companies.

In addition to the above segregation, the payment scheme can also provide various participation options to its potential members as below.

TABLE 3 **Participation Options**

DIRECT PARTICIPANTS	INDIRECT PARTICIPANTS	OVERLAY SERVICES	AGGREGATORS	THIRD-PARTY INITIATION SERVICES
Scheme members who can access the scheme's core payment infrastructure directly and have the right to settle transactions. Also, direct members have an explicit direct membership agreement with the scheme owner.	Schemes also allow indirect participation, wherein nonmembers can use the scheme's core payment infrastructure via a direct member for settlement and connectivity to the scheme. Some indirect participation arrangements require the indirect participant to have a direct agreement with the scheme owner detailing the scope of participation of the nonmember. In other cases, the direct participant is required only to intimate to the scheme owner about the indirect arrangement, or it is required of the indirect member to get a sign-off from the direct member as well as the scheme owner.	Digital overlay services are built on top of the FPS infrastructure that adds value to the core payment rail. These services can enable the settlement of transactions or provide ancillary payment services. Some examples of real-life overlay services are Phone Pay in India, Zelle in the United States and Osko by BPay in Australia.	Aggregators are typically fintech companies but can be PSPs as well. They combine access demands from various PSPs to provide direct access to the FPS infrastructure. The unique selling proposition for aggregators is that they guarantee the same service-level agreement (SLA) related to FPS direct participation but at a lower per-transaction cost.	Third-party service providers now have the capability to connect with the bank/PSP's architecture via application programming interfaces (APIs) to initiate secure payments beyond the banking/PSP application. Such providers are known as payment initiation service providers and are governed by open-banking regulations in addition to the specific payment scheme regulation that is triggered after payment initiation, such as the presence of consent IDs in the payload.

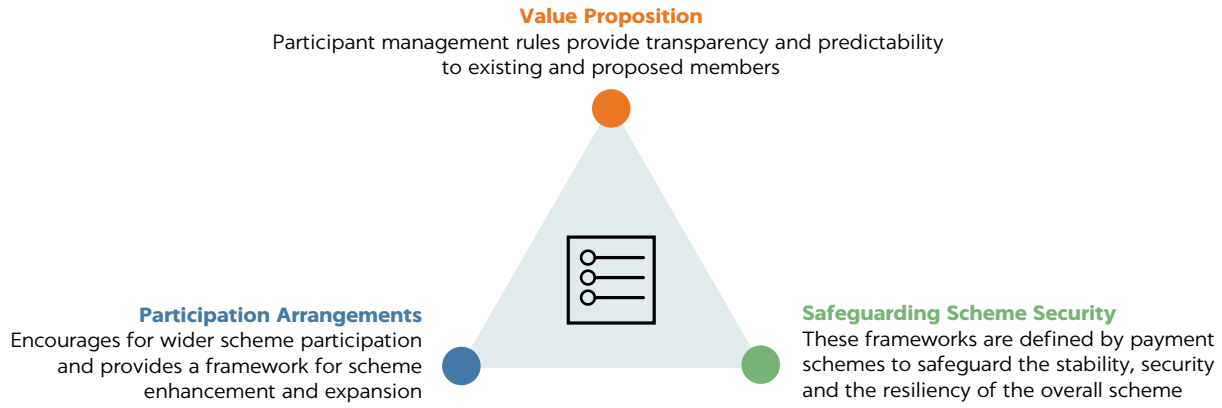
Below is an indicative participation framework that explains the high-level participation criteria to access fast payment schemes and certain variations in FPS participation agreements.

TABLE 4 **High-Level Indicative Participation Framework**

PARTICIPATION CRITERIA	VARIATION IN PARTICIPATION AGREEMENTS
• Allow participants access to the scheme based on available access options and the eligibility of the institution to take advantage of the option. Some fast payment schemes can mandate the inclusion of only authorized deposit-taking institutions and other authorized/licensed non-bank PSPs as directly connecting and settlement participants/third party initiators—although non-bank PSPs might need to designate a settlement agent. • Fulfill the financial eligibility criteria of the scheme. • Organizational overview and company description, including such factors as the name of senior officers, external auditor details, details of material shareholders, and the legal structure of the organization.	• Direct versus indirect participation: In addition to direct scheme members, allow other institutions to participate via direct members. • Participation agreements based on roles: Some direct members can have varied roles. For example, a scheme can have different agreements for settling participants and participants that have direct connection only to the scheme members.

3.1.2 Objective of Participant Management in Scheme Rules

FIGURE 2 **Objectives of Participant Management in Scheme Rules**



3.1.3 Scheme Rules for Managing Scheme Participants

FIGURE 3 **Managing Scheme Participants**

3.1.3.1 Member Onboarding

A proposed member is evaluated against the eligibility criteria defined in the scheme rule book before being admitted to the fast payment scheme. On meeting the eligibility criteria, proposed members are required to complete various formalities, such as account opening and paying one-time joining fees.

The scheme can lay out the eligibility criteria to admit only certain types of participants. This is vetted as an eligibility criterion by the scheme during member onboarding. The various types of participants in fast payment schemes around the world are banks and non-banks, such as e-money issuers, telecom operators, technology companies, and fintech companies.

Based on the region in which the scheme intends to operate, the jurisdiction is mentioned in the scheme rules, which, in turn, will require prospective participants to be able to do business in a particular geography mentioned in the scheme rule book.

Based on the settlement conditions employed by the scheme, it can allow the participants to hold a settlement account with another scheme or utilize the group's account to settle transactions. This would be based on the participation arrangement that the member has with the scheme or, in the case of tiered participation agreements, with other participants.

The scheme typically establishes a nondiscriminatory one-time joining fee to be paid at the time of the membership.

In various fast payment schemes, a prospective participant might be required to submit the membership application in the mode preferred by the scheme (online/offline). The application must provide sufficient details about the company and justification for the scheme to assess the competency of the incumbent. From the participant's end, the member application needs to be signed and vetted by competent and authorized officials.

The scheme communicates its decision on whether the application of the proposed member was accepted or rejected within a stipulated time period.

In case of rejection, the applicant may have recourse to an elaborate appeal process at which it can present its case and facts to contest the scheme decision.

FIGURE 4 **Member Onboarding Elements**

3.1.3.2 Membership Eligibility Requirements

Upon receiving an application from a prospective scheme participant, the scheme would conduct a thorough assessment of the application and the supporting documents against the eligibility criteria listed in the scheme rule book. The initial assessment of the scheme participant can also be succeeded by a second-level assessment by the scheme that can include the assessment of such factors as the organization's readiness to connect with the FPS infrastructure. Below are some eligibility requirements sought of scheme members by the payment scheme:

- **General compliance attestation:** A document signed by senior officials of the applicant stating that the organization can comply with all rights and duties mentioned in the scheme rule book and all relevant laws external to the scheme, such as being in good standing with external regulatory authorities, including the central bank of the country.
- **Financial soundness:** The scheme can require applicants to provide financial statements for a specified period that can provide insight into the financial standing of the organization. In addition, the scheme can require the

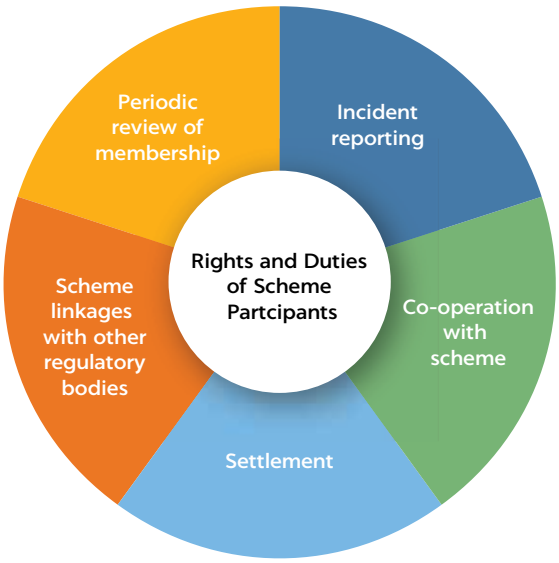
submission of a business plan that explains the intended commercial benefit that the applicant is expecting to derive from the fast payment scheme.

- **Operation plan:** The applicant must also provide the scheme with the operational plan, detailing such parameters as its incident-management plan, business-continuity plan, and details of third-party service providers used by the applicant. The key intention here is to establish whether the participant's business practices are sound and secure and will not harm the integrity, resilience, and security of the fast payment scheme.

3.1.3.3 Rights and Duties of Scheme Participants

Based on the guidelines set forth in the scheme participation rules, members are expected to behave in a certain manner to have continued participation in the scheme. Any deviation from the expected behavior can attract punitive action from the scheme in the form of warnings, fines, restrictions, and termination. An elaborate set of rights and duties are intimated to prospective participants during the member onboarding process but can be amended/changed—for example, amending the periodic review of membership guidelines related to voluntary exit by amending such parameters as exit fee and notice period. Below is an indicative set of rights and duties viewed across various fast payment schemes.

FIGURE 5 **Rights and Duties of Scheme Participants**



- **Scheme linkages with other regulatory bodies:** From time to time, participants must acknowledge that the scheme will need to evaluate the performance and operations of the scheme members on the basis of various regulations/rules established by regulatory authorities external to the scheme—for example, sharing market competition data with authorities looking after fair market competition.
- **Scheme cooperation:** Participants must cooperate and exchange information with the scheme in a timely manner upon request by the scheme. Requests can be related to payment processing, operations, expansion, and scheme enhancement.
- **Settlement:** The participant must provide other participants with adequate settlement information and system availability as defined in the scheme rule book.
- **Incident reporting:** The participant must promptly report any incidents related to unmitigated risks that might have scheme-wide importance. Also, any major incidents that might affect scheme operations, such as data-leakage events, must be reported to the scheme.
- **Periodic review of membership:** Every member in the scheme has the right to decide to continue/discontinue its participation in the fast payment scheme. This decision can be based on multiple factors, such as the viability of the business case presented earlier. Participants can choose either to continue or to terminate their scheme membership as per guidelines in the scheme rules.

3.1.3.4 Suspension and Termination

In addition to the voluntary-exit scenarios discussed earlier, exigencies are covered in the scheme rule book by rules and regulations related to forceful termination or temporary suspension from the scheme. The key basis for terminating a scheme membership is generally noncompliance with scheme guidelines, such as nonpayment of financial dues, but can also be mandates from external regulatory authorities, such as a ruling by a judicial authority. However, the termination of a scheme participant is a last resort, taken by the scheme when the continued participation of a scheme member would impair the efficiency and integrity of the payment scheme. Below are some of the parameters that govern a fast payment scheme's suspension and termination process.

- **Data retention:** The fast payment scheme can describe how long the participant would be required to retain data after the termination of the participant agreement. For example, FPS in the United Kingdom requires a defaulting participant to keep detailed records of its activities related to its participation in the fast payment scheme for at least six years after the termination of the participant agreement.
- **Appeals process:** After the scheme decides to terminate a specific participant agreement, the defaulting member may present its case before the scheme or any committees formed by the payment scheme. The number of appeals available to scheme members would be explicitly mentioned in the FPS scheme rule book.
- **Implications of termination:** Suspension and termination do not preclude the defaulting member from having transactions settled through the FPS infrastructure. The defaulting institution can still enter into an agreement with another participant unless specified by the scheme. From a financial perspective, the defaulting member needs to adhere to its liability that may arise at any future time from any breach of the FPS regulations that occurred prior to or on the date of termination.
- **Notification by scheme:** The payment scheme will define in its scheme rule book the stakeholders that would need to be notified upon the termination and suspension of the scheme. Examples of notified stakeholders are the central bank, the network service provider, other direct scheme participants, and overlay service providers.

COMPLIANCE AND GUIDELINES

A payment scheme continuously strives to assess if all its rules are unambiguous, complete, and enforceable. The ambit for scheme compliance extends beyond the scheme and includes various guidelines/regulations that are applicable to various payment schemes and the overall functioning of the industry. Such compliance structures are overarching and need to be adhered to strictly by the scheme and its constituents—for example, Financial Action Task Force (FATF) guidelines, company laws, and data security.

Compliance with scheme rules acts as a first line of defense against any risks. Therefore, it is important for the scheme to evaluate and assess compliance guidelines continuously. The scheme must monitor its participants and identify those that have deviated from guidelines and procedures.

Schemes should adopt a standardized template with such details as requirement description, effective compliance date, and categories such as operational integrity. Standardized templates make it easy to communicate mandatory compliance requirements to participants and to track compliance by scheme members.

3.1.4 Objectives of Compliance Frameworks

Compliance frameworks are created by the scheme to ensure that participant business does not impair the integrity, efficiency, resilience, and security of the fast payment scheme. A detailed compliance framework ensures that participants can internally assess what is required of them to comply with the framework. Below are the objectives of a payment scheme compliance framework.

As mentioned above, to achieve the objectives of scheme compliance, the scheme needs to describe the high-level parameters related to operationalizing the compliance framework set forth in the scheme rule book. Below is an indicative framework that describes the various components of a payment scheme compliance framework.

TABLE 5 **Stages of Compliance**

INTERNAL CONTROLS	RISK MITIGATION	MANDATORY COMPLIANCE
• Place the control mechanism within the scheme to identify, report, and remediate deviance from expected compliance behavior promptly	• Minimize and mitigate the risk of systematic and idiosyncratic shocks to the payment scheme and subsequent impacts on scheme participants	• Certain scheme compliance rules require their participants to get industry certifications benchmarked to global payment practices, with the aim of safeguarding the resilience of the payment scheme • In addition to this, the scheme also obtains certifications for the scheme that help it benchmark its processes to international standards and provide an extra layer of validation for predefined frameworks

TABLE 6 High-Level Indicative Compliance Framework

IMPACT ASSESSMENT	COMPLIANCE REQUIREMENTS	COMPLIANCE ENFORCEMENT
Qualitative assessment undertaken by the scheme to describe mandatory compliance requirements related to its technical risk, complexity, and impact on scheme members. The assessment of impacts is based on measured impacts on the key compliance pillars of the scheme. Tools utilized by schemes to assess impact are stress testing, heat maps, and so on.	A requirement set out or prospectively set out that the scheme deems fit to be integral to scheme performance, integrity, availability, and resilience. In addition, schemes provide an added impetus on periodic assessment of the compliance framework to evaluate if the scheme is functioning in line with objectives defined in the scheme's compliance framework, resulting in a process that includes gap identification, impact assessment, mitigation framework, and forming the final compliance requirements.	Internal controls that a scheme has in place to ensure enforcement of scheme rules. Also, specific procedures in place to deal with noncompliance and remediation procedures. Below are some of the tools used by schemes to encourage compliance: • Independent compliance audits to check any aspect of compliance • Optional guidance letters issued by the scheme to provide participants with a chance to comply • Non-compliance penalties levied by the scheme for infringement

3.1.5 Scheme Rules for Compliance Frameworks and Guidelines

3.1.5.1 Regulatory Compliance and Industry Certifications

Payment schemes and their members need to follow guidelines and frameworks defined by the regulators and other agencies. The schemes are subject to various on-site and off-site audits by the regulator to ensure compliance. The schemes implement the following checks and balances to gain compliance:

- Self-assessment by the scheme of compliance with various overarching regulations under which the payment scheme operates
- Creating technical workstreams in the scheme's organizational framework for compliance with regulatory requirements related to participation
- Highlighting issues that the scheme faced while complying with various regulations
- During member onboarding or in due course, the scheme mandates certain certifications to pursue the compliance objectives—for example, technology, security, data protection

a) Mandatory Compliance Framework

- Based on the compliance framework developed by the payment scheme, participants baseline their processes and requirements in relation to the scheme. The following are minimum features of the mandatory compliance framework.
- Managing compliance against identified regulations and continuously evaluating participants' approaches to taking reasonable precautions and exercising due diligence
- Engaging with regulatory authorities in the event of compliance breaches and handling participants' reasonable information requests
- Implementing, monitoring, and overseeing the regulatory framework

b) Framework for Handling Scheme Non-compliance

Non-compliance-related disputes mentioned in the scheme rule book generally cover such areas as discrepancies in the participant admission process, financial liability/obligation due to be cleared by participants, and breaches related to operational and technical guidelines.

Few payment schemes choose not to participate in transaction-related disputes and focus on regular monitoring of participants to avoid any noncompliance with the scheme and regulatory guidelines.

Payment schemes intervene in internal disputes related to participants wherein a dispute or difference arises for either of the following reasons:

- Any non-compliance with scheme constitution
- Any financial liability/obligation due to be cleared by the participants

In addition to this, institutional processes, such as appellate bodies, are established by the scheme to deal with various noncompliance issues—for example, the constitution of risk-management bodies within the payment scheme ambit to deal with non-compliances related to the risk-management policy of the fast payment scheme.

c) Mandatory Industry Certifications

Certain certifications, provided by third-party institutions, are used by payment schemes to attain a certain degree of confidence about the participant's ability to comply, benchmarking to global standards and meeting scheme-level service-level agreements (SLAs). Such certifications can be mandated during member onboarding or introduced by the scheme because of scheme enhancement, expansion, and reported breaches.

FIGURE 6 **FPS-Mandated Industry Certifications**

A scheme wants to attain the following objectives while mandating certifications:

- Set of requirements intended to ensure that participants are in line with enhanced data-security standards that ensure that customer and transaction data are adequately protected (for example, PCI-DSS for the card industry)
- Ensures that the participant has adequate technical infrastructure to comply with scheme requirements with appropriate technical accreditation (for example, technical accreditation by vendors identified by the scheme during member onboarding)
- Ensures that the customer-facing payment application is certified in line with global benchmarks and conforms to guidelines related to such parameters as performance (for example, certification of applications by the payment scheme baselined against specific technical and functional standards)
- Ability to resume critical operations during exigency scenarios and provide assurance of availability, security, and so on, in line with business-continuity-management standards (for example, business-continuity procedures and frameworks are baselined and approved by the payment scheme)

3.1.5.2 Risk Management and Mitigation

A payment scheme needs to identify, measure, and mitigate risks effectively to ensure that there is ample protection for the scheme and its constituents.

a) Internal Controls

A payment scheme must implement controls to assess the effectiveness of its risk-management policies and procedures. This would be useful in assessing the current situation and provides a basis for future enhancements and modifications. Internal controls exercised by payment schemes to monitor their risk-management framework include the following:

- Ensuring that the scheme has an appropriate risk-management framework for the effective identification, assessment, reporting, and management of risks and undertaking a periodic review of this framework
- Ensuring enforceability of mandated scheme rules through internal and independent compliance programs
- Reviewing internal controls to ensure effectiveness and efficiency
- Reviewing the effectiveness of the scheme's systems for monitoring compliance with laws, regulations, and any actions taken by management in the event of noncompliance
- Monitoring and advising the board on the effectiveness of the scheme's administrative policies, financial practices, and controls

b) Member Restrictions

A payment scheme's participation requirements need to be fair and nondiscriminatory and should be tailor-made to the scheme's risk-management framework. However, certain restrictions might be imposed on prospective members, based on certain risk-related criteria. Also, such restrictions can be imposed due to local laws and policies enacted in the jurisdiction of the scheme's operations.

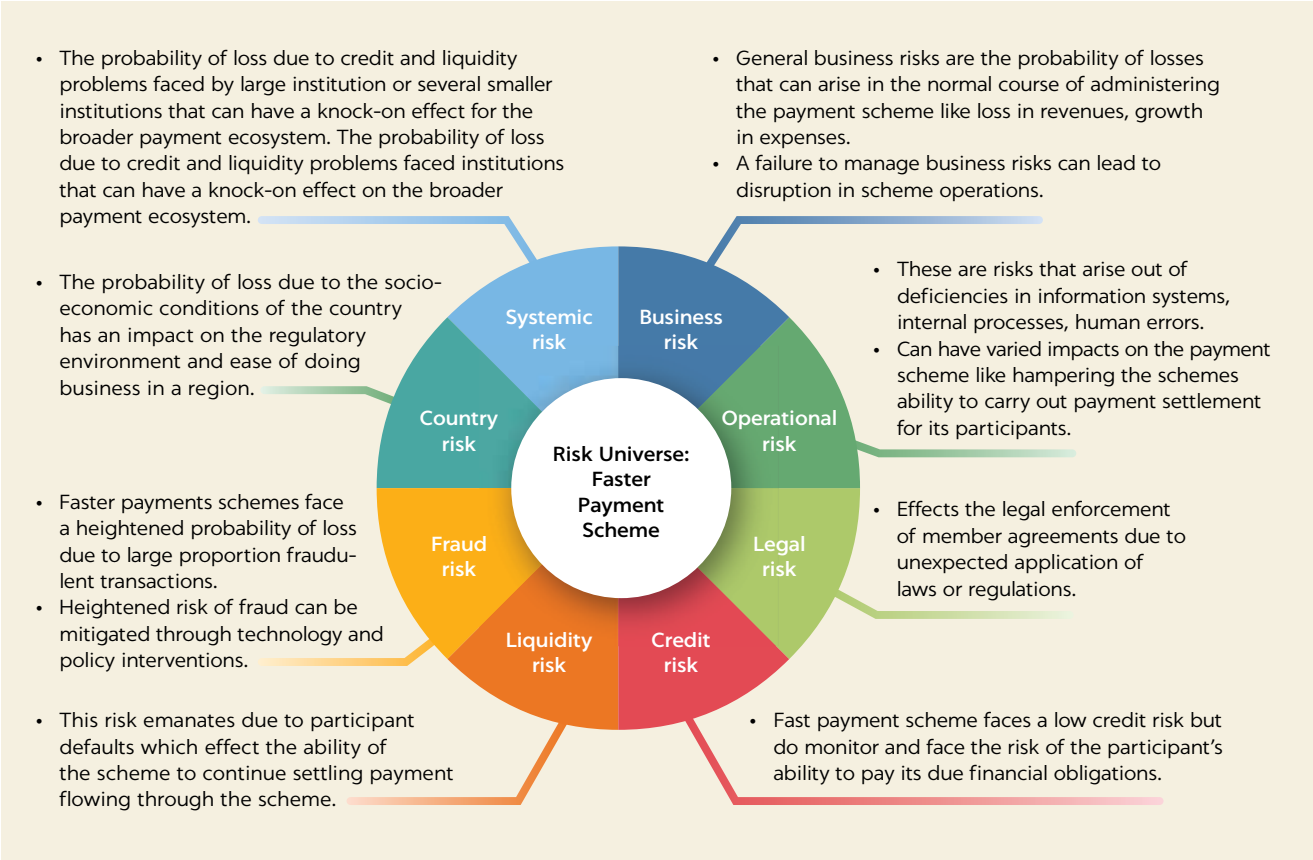
Also, during the operation of the payment scheme, extra restrictions might be put on participants if the scheme determines that a participant poses heightened risk to the scheme.

From a policy perspective, the scheme will reserve the right to provide amendments to restrictions imposed on participants based on predefined frameworks and triggers.

c) Fraud-Risk-Management Policy

The scheme's overarching policies on fraud management provide the overall framework that governs the identification of associated risks and their mitigants, the management of fraud-related incidents, reporting, and so on. Payment schemes typically have an independent

FIGURE 7 **Fast Payment Risk Universe**



standing committee on fraud management. The key responsibility of the committee is to advise and provide recommendations to the scheme's fraud-risk-management policy.

Key constituents of a fraud-risk-management framework are the following:

- Identifying associated risk in the payment system and its mitigants
- A communication and reporting process for the scheme and its participants for any identified fraud incident
- Assigning the liability for fraud on relevant leak points
- An elaborate framework for arbitration between stakeholders and remediation
- Clearly defining the parameters of the scheme's liability in the event of fraud
- Overseeing the fraud-management techniques employed by scheme participants and reviewing them during audits

OPERATION

Operating rules and guidelines lay the foundation for participants to undertake day-to-day functioning of the payment system. Payment schemes define comprehensive operating rules for participants to ensure efficient and transparent operations. Geography-specific rules, depending on the coverage of the payment system, apply to the participants within the relevant geography.

The operational guidelines expand on the rules, providing a complete operational framework to each participant on its routine roles and responsibilities and an overview of clearing and settlement, dispute management, and fraud monitoring and management.

3.1.6 Objective of Operational Guidelines

A detailed operational framework ensures interoperability among the participants and eases their day-to-day operation.

Operating rules are open to change with new regulatory norms and continuous risk assessment.

FIGURE 8 **Objectives of Operational Guidelines**

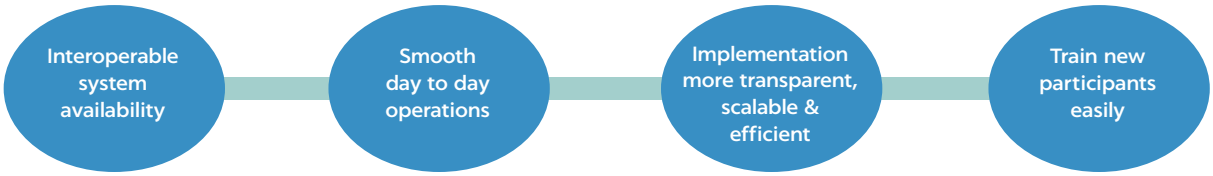


FIGURE 9 **Key Subareas of Operational Guidelines Set Forth by Payment Schemes**

3.1.7 Scheme Rule for Operations

To achieve the objectives of scheme operations, the scheme needs to describe the high-level indicative framework to operationalize the rules set forth in the scheme rule book.

3.1.7.1 Reconciliation and Settlement

Settlement guidelines are mandated by payment schemes to ensure smooth, secure, and effective operation. Payment schemes usually have a separate clearing-and-settlement technology platform governed and operated by the scheme. Participants are onboarded on the platform in addition to the transaction processing/switch platform. Each payment scheme follows a separate onboarding process, depending on the types of services offered by the participant.

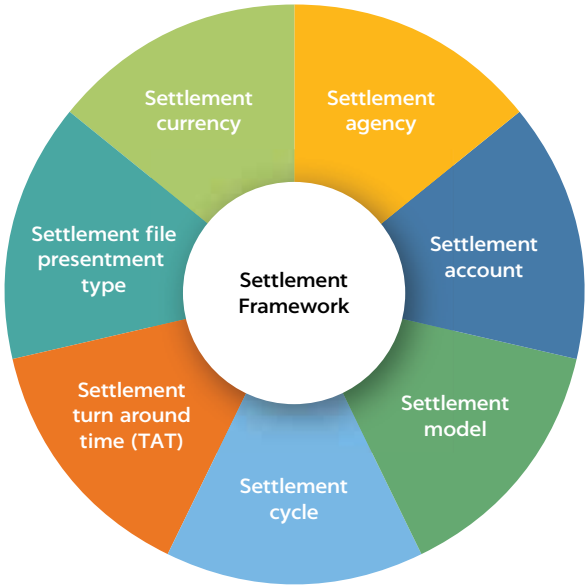
Reconciliation and settlement systems are designed to settle transactions passing through the central switch and to support the dispute-resolution process for the processed transactions. Participants are onboarded on the reconciliation and settlement system platform in addition to the transaction processing/switch platform. The scheme may levy a penalty on a participant in the event of noncompliance with any provision of the settlement procedure.

In relation to the operations, payment schemes define the settlement framework and reporting structure as may be applicable. Payment schemes frame rules and regulations, adopting globally followed best practices, to achieve smooth end-to-end processing and alleviate the bottlenecks and challenges associated with the reconciliation and settlement workflows. Each participant is bound to follow the settlement framework laid down by the payment scheme.

As part of the settlement framework, the payment scheme appoints a settlement agency to act as an intermediary between the participants and payment scheme. To follow a unified settlement methodology, each participant is required to onboard on the designated settlement agency, as specified by the payment scheme. Another requisite for all participants is the settlement account, which is to be maintained with the central bank of the country or any bank designated by the payment scheme and through which the interparticipant transactions are settled in the day-to-day banking activity. All participants are bound to maintain adequate funds to ensure seamless settlement. Additionally, the settlement framework also entails a settlement model that the payment schemes are required to follow. Payment schemes settle all approved transactions either by way of deferred net settlement or by individual settlement. In deferred net settlement, transactions are settled in batches after netting with the net adjustment amount. In individual-transaction settlement, each transaction is settled individually by simultaneously crediting and debiting the participants' accounts.

Moreover, payment schemes define settlement cycles for the participants to present the transactions for settlement. Since FPS are available 24 hours a day, seven days a week, 365 days a year, settlement guidelines are resilient and trans-

FIGURE 10 **Settlement Framework Elements**



parent and also subject to revision from time to time. Settlement turnaround time is also defined by the fast payment scheme for the participants. It refers to the time taken to settle the funds between the participants after the transaction has been processed. Depending on the linkage between the settlement agency and the payment schemes, rules and regulations affect the settlement guidelines, including turnaround time. Another requisite for all participants is defining the settlement file presentment method that is adopted by the participants. It is either bulk file upload of settlement transactions or individual transaction upload by the settlement agency. The settlement file presentment method is mandated by the fast payment scheme. Besides the above-mentioned guidelines, for international transactions, the currency-conversion methodology is specified by the payment scheme. For domestic transactions, payment schemes specify transaction reconciliation and settlement currency.

Furthermore, payment schemes provide participants with the reports in electronic format. These reports serve a specific purpose. The raw data report comprises a list of all transactions undertaken by end customers during the previous settlement cycle. For reconciliation, the participants compare the transactions available in raw data report with the report generated by the participant switch. The settlement summary report comprises the net settlement position after netting the transactions disputes/adjustments, penalties, customer compensation amount, interchange tax, and switching fees, as applicable. Any other reports as may be relevant are generated on a periodic monthly/quarterly/annual basis as defined by the payment scheme.

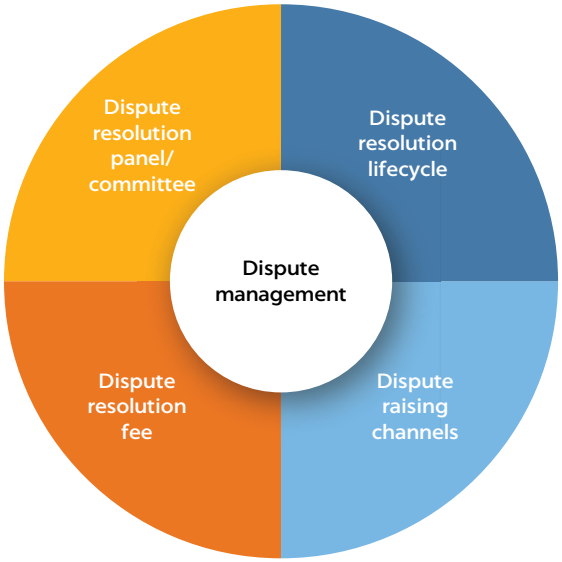
3.1.7.2 Dispute Management

Payment schemes address transaction-related disputes usually occurring because of fraud, authorization error, or processing errors. To continue operating seamlessly and to resolve disputes, payment schemes mandate that participants adhere to predefined dispute-resolution guidelines. A few payment schemes lay end-to-end responsibility with the participants for resolving transaction-related disputes.

Operating rules for dispute management facilitate how participants raise and resolve disputes on transactions that had been processed earlier by the scheme. Disputes are not applicable for nonfinancial transactions. Payment schemes define roles and responsibilities related to the dispute-resolution mechanism that each participant is bound to follow.

Dispute-resolution frameworks cover transaction disputes generating from wrong account transfers/refund transactions, double debit, and other such scenarios. The dispute-management guidelines include the delineation of roles, responsibilities, and liability allocation that reasonably protects end customers against losses related to fraud or errors and adheres to applicable laws or regulations.

FIGURE 11 **Dispute-Management Elements**



Payment schemes manage transaction disputes for exception transactions. Exception transactions are those that are not reconciled and/or are disputed by the end customer/participants. Payment schemes lay out rules for transaction participants to endeavor to settle disputes collaboratively during the dispute-management process. To resolve the disputes, payment schemes formulate dispute-resolution panels/committees whose role is to resolve disputes amicably. Payment schemes form these panels/committees, whose guidelines are binding for participants. Usually as a practice, once the dispute is put up to a dispute-resolution panel, payment scheme participants cannot withdraw the case.

Additionally, the dispute-resolution life cycle is defined in terms of how disputes are raised, and which steps are involved in resolving the dispute. Below are widely followed dispute-resolution methods, adopted in sequence to resolve transaction-related disputes.

A charge-back is the first step. A dispute against an approved transaction is raised by the end user to the remitter participant. As the next step, the remitter bank investigates the transaction at its level. The scheme has minimal/no involvement for processing charge-backs. As a general practice, after completing the settlement process between participants, the remitter institution may return the original transaction to the beneficiary institution as a charge-back for resolution. Some disputes are not settled during the charge-back. In such cases, a pre-arbitration step is followed, wherein the payment scheme provides another opportunity

for participants to raise their concern if they were dissatisfied with the outcome of the dispute and want further action taken. Arbitration is the next step. If the end customer is dissatisfied with the evidence/documents provided by the beneficiary bank at the pre-arbitration stage, the remitter bank may refer the dispute to arbitration within the timeframe for referring a dispute to arbitration. An arbitration decision is binding for all participants.

- Dispute-raising channels defined by payment schemes could be used by participants to raise disputes. Most payment schemes usually raise and track disputes via the portal being used for transaction settlement for participants.
- Payment schemes define a dispute-resolution fee that all participants are bound to pay depending on the payment model adopted by the scheme. For example, some schemes might prefer to deduct the fee at the time of net settlement, and some might collect it separately. To raise the dispute, almost all schemes require the fee to be paid within the scheme-specified turnaround time. The dispute-resolution fee covers administrative costs incurred by the payment scheme in resolving the disputes.
- Very few payment schemes provide end customers with functionality to raise disputes directly with them. End customers have provisions to raise disputes/complaints by selecting transactions from their past transaction history and/or by entering any other unique reference, such as a transaction ID number.
- Payment schemes that offer dispute-raising functionality extend their services to end customers by providing customer-support services. Payment schemes' redress mechanisms aim to create hassle-free experiences for end users regarding the resolution of various transaction-related issues.

3.1.7.3 Monitoring

Monitoring is an important subarea that falls under operation. Payment schemes oversee their transactions on a regular basis so they can take timely action in case of adversity. Monitoring is broadly classified into two subareas: transaction monitoring, and fraud checks and related monitoring. Details on the two subareas are presented below.

FIGURE 12 **Monitoring Elements**

Payment schemes' transaction monitoring is based on defined rules to mitigate fraud, for business analytics, and for reporting. The fraud-management team updates/refines these rules based on emerging transaction and fraud patterns. The entire operation pertaining to the payment scheme is monitored by the scheme on its own or by any third party authorized by the scheme. Payment schemes usually have a dedicated monitoring team for constant real-time transaction monitoring to detect any of the following:

- Unusual transaction patterns or a high frequency of transactions
- A sudden increase in merchant transaction volumes
- Fraudulent transactions

Additionally, as a general practice, payment schemes may choose participant transaction monitoring to manage thresholds, noncompliance, and any transaction spurts, if applicable.

Payment schemes have certain mandatory checks before, or in parallel with, payment initiation and execution that help detect and mitigate fraud—that is, fraud checks and related monitoring. Customer/merchant due diligence is one such check. Screening for fraud, money laundering, the financing of terrorism, and sanctions is conducted within seconds for transactions that are cleared from less than a minute to less than a day. A few payment schemes do not mandate fraud checking and lay end-to-end responsibility on participants to implement suitable fraud checks in line with their own policies, under the larger ambit of prevailing legislative guidelines regarding anti-money-laundering and know-your-customer processes, sanctions filters, local regulations, and FATF recommendations as applicable.

Based on the context and ambit of scheme operation, specific rules can be introduced by the payment scheme that participants can use as inputs in their fraud-detection models and platforms. The following are parameters that can be advised as checkpoints by the scheme:

- Average transaction amount
- Suggest the window of variance between normal and abnormal activity
- Enhanced due diligence based on a threshold limit for transaction values
- A threshold limit on the number of reversals on an account based on the normal activity
- Managing limits on the different channels/client segments

FEES AND CHARGES

All payment systems require an advanced and sophisticated infrastructure to process a high volume of transactions that are instant in nature. The cost of setting up the scheme is very high, which is why recovering costs and eventually generating profits are key considerations while pricing intelligently. Determining the fees and charges is important to ensure that the onus of pricing does not fall on a single stakeholder and compensates all.

3.1.8 Objectives of Pricing

The pricing objective and the fees and charges that may be payable vary for each stakeholder depending on the function and the nature of interaction.

3.1.9 Scheme Rule for Fees and Charges

Fees incurred can be categorized at each step since inception of the members as follows:

A scheme participation fee is paid by any institution that wants to participate in a fast payment scheme. This may include an onboarding fee, a support and maintenance fee, or an administration fee.

An onboarding fee includes a one-time fee for onboarding new participants to the payment infrastructure. It covers the cost of providing services for such activities as migration and routing fees. The participants will have to obtain certification from the selected network service provider (a list will be provided by the scheme), and the costs of certification and maintaining connection lines to the scheme are to be paid directly to the network service provider. It is a one-time fee charged by the scheme for providing comprehensive migration support to participants. Legal fees for drawing up relevant legal requirements are charged on a time and material basis from participants at the time of joining. Other charges, such as insurance charges, are to be paid. Members should cover claims against scheme participants (for example, professional indemnity, cybersecurity, and insurance). A fixed and one-time application fee is also to be paid along with the completion of various onboarding arrangements. Additionally, a technical accreditation fee is to be paid by the participant to the scheme or an authorized third-party institution.

Support and maintenance fees could include additional fees, such as desk support and maintenance charges, to be recovered from members at specified intervals. Based on connectivity setup and links opened between the scheme and members, a communication fee may be charged participating institutions that are directly connected. Or message costs may be borne by scheme participants based on how messaging standards are set up. Additionally, a recertification fee may be charged upon the completion of testing related to reaccreditation to the scheme or an authorized third-party institution.

An administration fee would include an annual administration fee that can be charged to cover overlay services, direct participants.

Transaction fees may be imposed by members or participants on other members or participants in the ecosystem and are of two types: a switching fee (paid to the switch

TABLE 7 Rationale for Fees

COST RECOVERY	EQUITABLE DISTRIBUTION	PROFIT GENERATION
• Cost of setting up • Operational cost	• Ensure that the pricing burden is equitable	• Fees and charges should be levied so they do not disincentivize the participants but help them generate profits after recovering costs

TABLE 8 Objectives of Pricing for Each Stakeholder in an FPS

STAKEHOLDER	FUNCTION	FEES AND CHARGES
Participants	• Members who participate in the scheme	• Participants levy fees on end users as per the business case that would be presented to the scheme at the time of joining. This helps the participant to derive economic value from scheme participation. • Participants also levy a fee on other participants for transactions with the purview of promoting interoperability and correcting any imbalance that may be hampering the ecosystem.
Scheme operator	• Operator who maintains and runs the scheme and ensures adherence to scheme rules by participants	• Scheme operation is a function of various costs related to running and maintaining the payment infrastructure and includes costs levied by service providers. Fee-based income provides a steady and predictable revenue stream that can be used to deal with the costs of doing business.
Switch operator	• Entity that creates the switch and operates and maintains it	• The switch operator enables a secure and seamless real-time transaction flow. It transmits, confirms, and settles transactions between participants, end users, and scheme managers (clearing function). Fees received by a switch operator compensate it for the cost of creating and maintaining the central infrastructure.

operator) or interparty fees. There are many types of interparty fees, which are charged and paid by different participants and stakeholders. Ultimately, the revenue stream for a fast payment scheme can be understood as the fee that end users pay to participants, who, in turn, pay the scheme manager or switch operator for using the payment infrastructure (switching fee) or other participants of the transaction. Switching fees charged to the participants act as a means of cost recovery for the infrastructure provider. Participants of the scheme may be charged a switching fee on a volume or *ad valorem* basis. It can be charged on a one-off basis, depending on the scheme structure and business model. To maintain economic balance throughout the transaction flow, various interparty fees, such as a merchant discount rate, an interchange/interparty fee, a scheme fee, or a PSP fee, are imposed on the scheme participants. To compensate for this cost, participants may charge the end consumers a convenience fee or an infrastructure usage fee.

Non-compliance fees are penalties and compensation stated in the scheme rules for instances of noncompliance with scheme rules by participants. In case of termination of a participant from the scheme, a one-time lump-sum fee can be charged directly by the scheme for offboarding.

Other fees are laid down in the scheme rules, to which each participant agrees to adhere at the time of onboarding, including rules about noncompliance, offboarding, or other miscellaneous participant actions that might warrant additional fees or charges. The rules also foresee fees for clearinghouse function errors or for the investigation of disputes.

TECHNOLOGY

The technology guidelines provide necessary direction to set up a robust governance structure and implement common minimum standards for infrastructure and security controls for the scheme.

Fast payment schemes are modern payment infrastructures set up to support the nonstop digital economy by providing fast, flexible, data-rich payment systems that enable end users to receive payments in real time 24 hours a day, seven days a week, 365 days of the year.

FPS are highly available, focusing on a set of SLAs that need to be met by participants on a continuous basis. Schemes define a set of technical requirements that need to be met by scheme participants to meet these SLAs, along with elaborate guidelines for contingency scenarios ensuring maximum system uptime and performance.

3.1.10 Objective of Technology Framework

The objective of defining technology guidelines is to offer baseline architecture, a technical framework, and a set of standard messaging protocols to facilitate fast payments, leveraging trends such as increasing smartphone adoption, language interfaces, and universal access to the internet and data. The accompanying figure shows other objectives.

FIGURE 13 **Technology Infrastructure Elements**

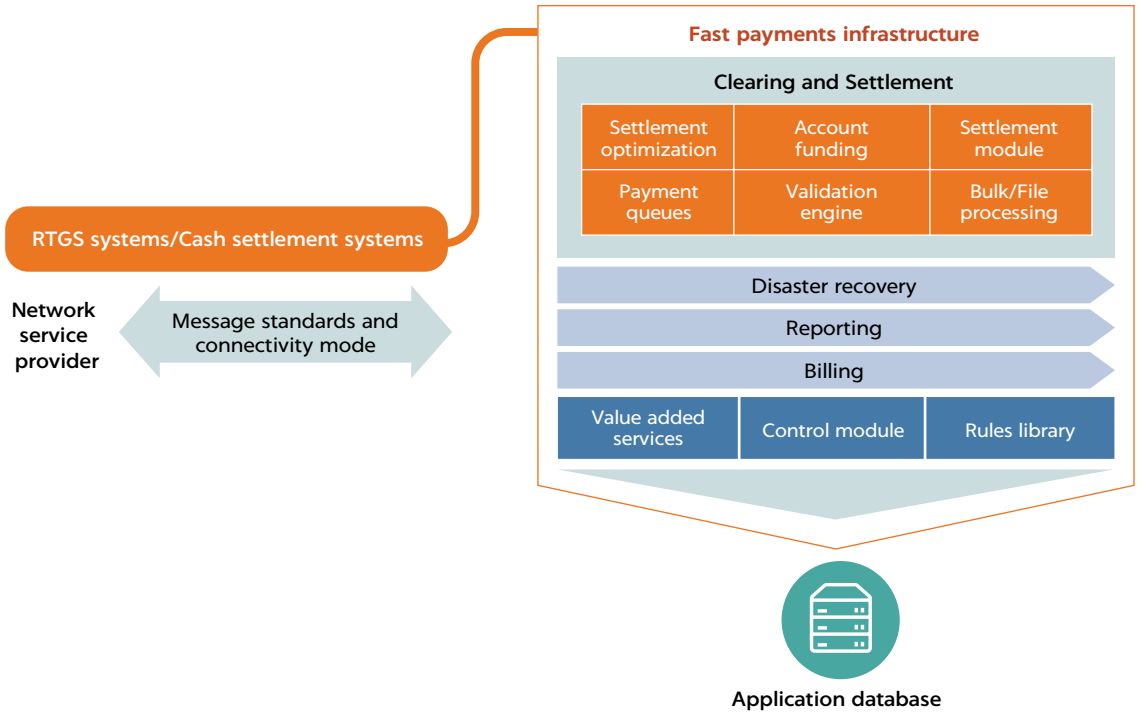


TABLE 9 Objectives of Technology Framework

EXPANDABLE	ADAPTABLE	REAL TIME	SECURE
Allow for innovations in newer forms of identity, authentication, and banking	Adaptable to technological evolution	Allow participants to provide a real-time experience for interactive transactions	Allow for traceability through the entire transaction chain

3.1.11 Technology Framework

The technology framework acts like a backbone of the entire payment scheme operation. To achieve the objectives of the technology framework, the scheme needs to describe high-level indicative subareas for the participants to follow. The accompanying figure shows key subareas related to the operational guidelines of a payment scheme.

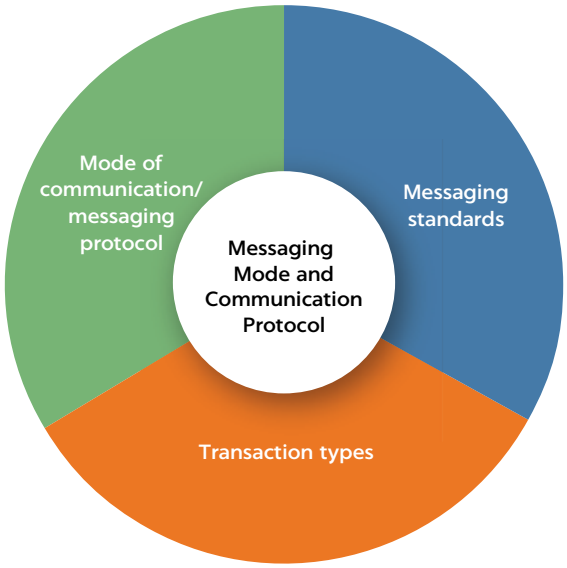
FIGURE 14 Operational Guidelines for Payment Scheme

3.1.11.1 Messaging Mode and Communication Standard

The selection of the communication type and its protocol forms the base of a technical system design meant to accommodate the multiparticipant interaction required in a real-time payment rail. Payment schemes thoroughly evaluate messaging protocols available across the globe before selecting a protocol. Due diligence ideally includes the following factors:

- Ease of implementation
- Security
- Geographical compliance
- Flexibility and compatibility in terms of potential ramifications for future scheme enhancements
- Interoperability with other payment systems, such as external settlement engines and cross-border transaction processing
- Benchmarking with global standards

FIGURE 15 Messaging Mode and Communication Standards Elements



The choice of a scheme-mandated messaging standard affects how participants communicate between themselves and with the scheme and vice versa.

The key tenets of an optimal messaging mode and communication standard are mode of communication/messaging protocol, message standards, and transaction type.

Most fast payment schemes adopt API-based communications, which are an efficient choice for payment schemes, but a few payment schemes have also adopted non-API-based communication/messaging protocols for implementation. If defined by the payment scheme, open API standards can be leveraged for communication if API-based message communication is selected. Non-API communication can be used by participants for internal communication.

If payment schemes operate via API-based communications, choosing to work on a synchronous or asynchronous mode of communication is another domain to be evaluated. While a synchronous communication protocol is fast and limits extra overhead, an asynchronous communication protocol provides the flexibility to maintain multiple parallel sessions.

Additionally, fast payment schemes describe the minimum functionality required by the participants to ensure seamless operation and interoperability between the participants. Payment schemes specify message standards to be followed by the participants. A scheme-defined communication standard affects the transmission of payloads, reconciliation communication, and other non-value messages in the payment system. Participants need to ensure that any service upgrade is in line with the scheme rules.

Payment schemes opt for such global communication protocols as ISO 8583 or ISO 20022 or use a proprietary communications protocol catering to specific needs of the schemes. Whereas ISO 20022 is the most common standard adopted globally for fast payments, it is costly and time-con-

suming to implement, as it requires a detailed impact analysis and an update of legacy systems to work with new data requirements. Proprietary messages provide flexibility and can be customized, and they are cost-effective but lack the ability to drive interoperability for cross-border transactions.

Moreover, fast payment schemes support multiple use cases for real-time payments working on a credit-push or a debit-pull transaction. While technically a fast payment scheme can be designed to run on either or both of the transaction types, as payment systems narrow down the type they would choose, they need to be cognizant of the existing regulations in the underlying country.

Choosing to implement either a credit-push or a debit-pull use case for the entire payment scheme might be a cost-effective decision and easier to implement, but building both as a part of the design can enable multiple use cases and enhance customer experience.

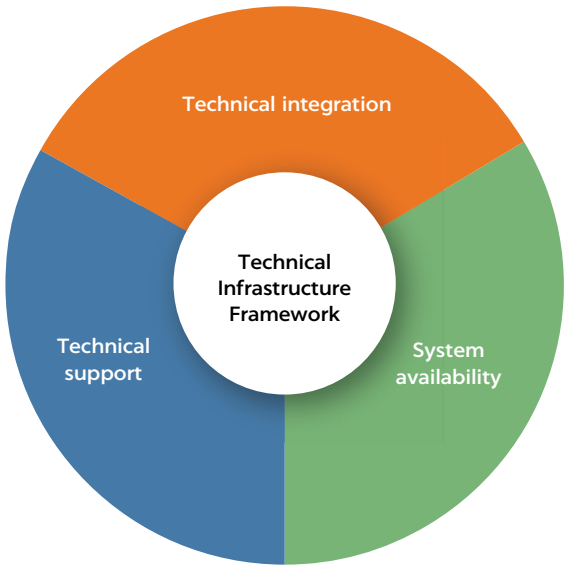
3.1.11.2 Technical Infrastructure and Contingency Standards

Participants must comply with the technical infrastructure and contingency standards set forth by the payment scheme. Any noncompliance may lead to termination or penalty, as defined by the scheme.

Payment schemes set out the minimum requirements of the technical infrastructure framework for participants that install and configure infrastructure establishing a secure connection to the fast payment scheme. The technical infrastructure framework primarily comprises of three elements: technical integration, system availability, and technical support. Participants need to use scheme-approved hardware elements and technical integration rules that are mandated to be utilized while connecting to the scheme, such as the scheme-mandated choice of network service providers. Each participant undergoes mandatory certification and onboarding to ensure that all participants undergo testing requirements laid out by the payment scheme. Participants are also required to adhere to system availability as defined by the schemes and to ensure that all the elements operate as per the transaction-level SLAs and that all back-office systems are available and fully operational. In case of any deviance from SLAs due to connectivity or any other technical issues, participants need to report the deviances promptly, as per scheme guidelines. SLAs that need to be defined by the fast payment scheme include the following:

- System uptime
- Response-time SLAs
- Overall processing time SLAs

FIGURE 16 **Technical Infrastructure Framework**



For the benefit of its participants, the payment scheme may constitute a multichannel round-the-clock technical support service for queries related to scheme components, additional components, and a periodic check of its production environment to identify potential security, availability, and performance risks.

From a technology perspective, most of the schemes around the world have a fall-back framework, termed a contingency plan, that is triggered based on certain events. An example of such a fall-back scenario would be ensuring system availability by switching automatically to a contingent infrastructure after a network outage. During system connectivity and testing, participants also need to ensure that they have uninterrupted and working links to the contingent systems. Examples related to contingency switches include the following:

- Connectivity failures
- Security/malware breaches
- Network outages (planned and unplanned)
- Technical defects in the scheme's orchestration layer, payment queues

Contingency plans add to the scheme's end-to-end resilience and are essential to develop an integrated framework within controlled procedures.

Establish appropriate lines of defense before any contingency measure is triggered by the scheme. A part of the scheme rules is a general business-continuity plan that aims to resume operations from an alternate site, with minimal or no data loss, within a specified time frame. Key

FIGURE 17 Contingency Plan

components of a business-continuity plan include the following:

- A framework for testing the business-continuity plan
- Identifying and maintaining alternate infrastructure sites to resume operation in the shortest possible time
- Identifying recovery plans and tools to enable continuity of operations

Additionally, as part of a contingency plan, a scheme must identify scenarios that may potentially prevent it from being able to provide its core operations and services as a going concern and assess the effectiveness of a full range of options for recovery plans. Based on the results of the assessment, the scheme needs to plan for its recovery, in addition to providing relevant information to authorities for the purposes of resolution planning. Potential benefits of a thorough recovery-planning framework include the following:

- Helps the scheme navigate systematic and idiosyncratic stress to the overall technology infrastructure
- Allows for the recovery of operational processes and provides remedial frameworks for payment orders sent during that period
- Enables modification/correction of multiple payment orders, helping to remediate all transactional SLAs and procedures
- In addition to the contingency plans, one of the key objectives of any payment scheme is providing the highest level of data security and ensuring that payment data is securely transmitted for processing. It is therefore essential to build systems and operational reliability to complement the scheme's information security protocol.

Payment schemes focus primarily on four security protocols: data encryption, identity and account validation, message security, and protecting authentication credentials. Data encryption lays guidelines for the storage and transmission of sensitive information, such as biometrics, account information, passwords, and so on. The scheme can mandate whether participants can store and transmit various data types based on their participation type. In addition, identity and account validation guidelines are laid out by the

FIGURE 18 Security Protocol Elements

payment scheme. The parameters for a payment transaction need to be validated by various parties in the payment value chain. Types of information to be validated are account ownership, ultimate creditors/debtors, national IDs, and so on. For these purposes, the scheme clearly calls out the party that will be responsible for validating the data, how the data will be validated from a channel perspective, and when the validation needs to take place in the transaction life cycle. Furthermore, the transmission of payloads in the wider payment infrastructure needs to take place over secure channels and with a unique stamp in the form of message identifiers to track and identify duplicate requests. To address this, payment schemes outline message security–related guidelines in addition to digital signatures required during message transmission for added security. Moreover, protecting authentication credentials is one more security protocol for a payment infrastructure to safeguard authentication credentials such as PINs and biometrics during payment capture. A key methodology for safeguarding credentials is encrypting credentials using public key infrastructure during capture.

MARKETING AND BRANDING GUIDELINES

Payment schemes lay out branding and marketing guidelines for communication between participants and end users, either directly or via merchants. Payment schemes' guidelines define what and how participants interact with end customers, guaranteeing a similar tone and ensuring scheme visibility. Therefore, implementing strong and unified branding and marketing guidelines is a key element for payment schemes.

Schemes that effectively focus on their brand stand out from the competition. Branding and marketing builds a degree of trust, reliability, and credibility for any business, and so it is for the payment schemes. The exhaustive features and benefits of an FPS are not the only factors that influence an end customer's selection of a payment channel and participants' choice for onboarding onto a payment scheme.

3.1.12 Objectives of Marketing and Branding Guidelines

The accompanying table presents the key objectives of a payment scheme's marketing and branding guidelines. The objectives' common theme is spreading awareness of the fast payment scheme among end users.

3.1.13 Marketing and Branding Framework

Payment schemes aim to frame best-in-class branding and marketing guidelines that are comprehensive and have wide coverage. Few guidelines are mandatorily framed by a payment scheme, although a few others are framed and followed, depending on the program type.

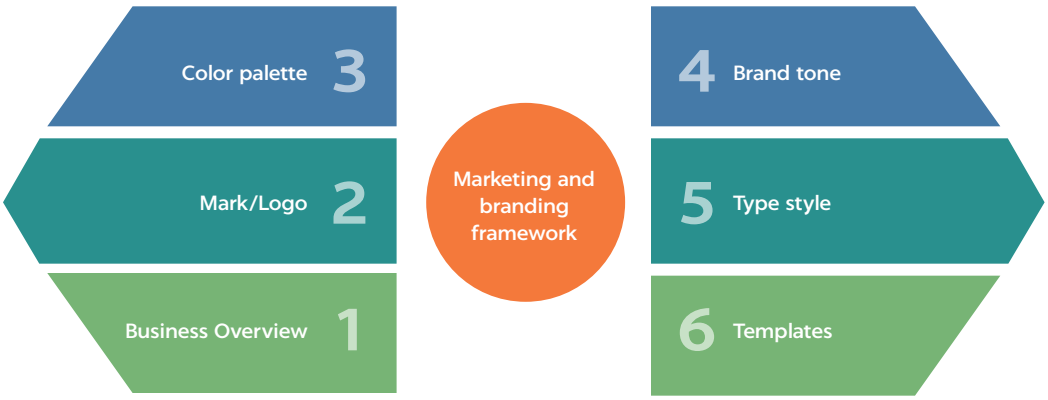
Fast payment schemes' branding and marketing guidelines include (i) a **business overview,** with vision, mission, and values; (ii) a **mark/logo,** showing logo size and spacing; (iii) a **color palette,** describing the colors to be used across channels; (iv) **a brand tone,** with tonality of the payment scheme; (v) a **type style,** showing the fonts, headers, and footers; and (vi) **sample templates** for internal and external communication.

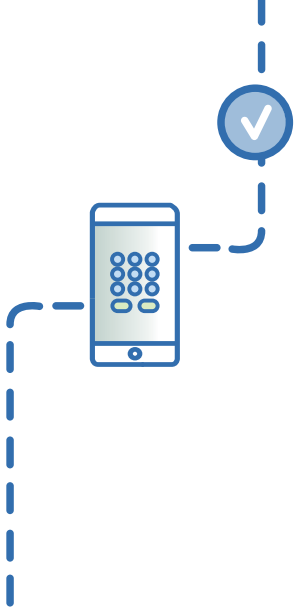
Other parameters included in branding and marketing guidelines are (i) **brand positioning**, which creates an edge among its competitors and occupies a distinctive place in the minds of the end customers, (ii) **usage of scheme logos/marks**, in which payment schemes define the proportions, space, and size relationships of all collaterals. In addition to this, payment schemes define (iii) **restrictions on the usage of marks,** intending to protect brand reputation. (iv) Guidelines on the **use of similar marks** are also laid out by payment schemes, making clear that participants should not use any component of the mark or a mark similar to the one defined by the scheme for any purpose unrelated to the scheme. Moreover, each scheme grants to each participant a nonexclusive, nontransferable license to use the mark. The right to use a mark may be sublicensed by a licensee to any sublicensee only in accordance with the standards and processes laid down by the scheme. Furthermore, specific marketing channel guidelines are laid out by payment schemes—that is, for digital and physical (print media and so on) marketing channels. A few payment schemes also provide marketing tools to provide consistency across channels, helping participants in their marketing activities.

TABLE 10 **Branding and Marketing Guidelines**

BUILD BRAND AWARENESS	ENHANCE CUSTOMER RETENTION	INCREASE TRANSACTION VOLUMES
Acquire new leads—that is, participants and, ultimately, end customers	Build stronger relationship with existing customers/clients	

FIGURE 19 **Marketing and Branding Framework**





4 KEY TAKEAWAYS FROM COMPARATIVE ANALYSIS OF FAST PAYMENT SCHEMES AND OTHER PAYMENT SCHEMES

Below are key takeaways based on the comparative analysis, which was undertaken to compare components of fast payment scheme rules against those of other payment schemes. For a detailed analysis, please refer to the appendixes.

PARTICIPANT MANAGEMENT

The key tenets related to participant management, such as member application, rights and responsibilities of scheme participants, and termination scenarios, are like other payment schemes. However, the fast payment scheme can draft these scheme rules to make it relevant to the scheme context—for example, by allowing non-banks to access the scheme directly, which might be different from a high-value payment scheme that has only direct banking participants.

COMPLIANCE AND GUIDELINES

From a regulatory compliance perspective, certain regulations, such as FATF regulations, apply to all payment schemes. However, certain customized regulations would apply only to the fast payment scheme regulations, such as payment application security, which would be enforced locally by the scheme operator.

From an internal control and risk-management perspective, fast payment schemes adopt customized and contextually relevant guidelines that would be substantially different from other payment schemes, given that material risks facing the fast payment schemes would be different from other payment schemes—for example, fraud risk in fast payment schemes and other payment schemes would be contextually different.

OPERATIONS

From a reconciliation and settlement perspective, parameters such as settlement agency, settlement account, settlement cycle, and settlement currency are defined by fast payment schemes as they are in other payment schemes. The major differentiating parameter that is adopted by a few FPS is the individual settlement model, which is not practiced by any other payment scheme. From a dispute-resolution perspective, most FPS do not participate in resolving transaction-related disputes as other payment schemes do, and responsibility for transaction-related dispute resolution lies with the participants outside the purview of payment scheme. Transaction monitoring and reporting in fast payment schemes is mostly like other payment schemes. However, details specific to fast payment schemes might be different from other payment schemes, such as the number of steps in authenticating a transaction.

FEES AND CHARGES

Fees and charges levied remain consistent across the payment systems, but transaction fees charged by fast payment schemes have more components. Substantial importance is also given to noncompliance with fast payment scheme

rules and offboarding from the scheme, as compared to other payment systems.

TECHNOLOGY

Messaging mode and communication guidelines followed by fast payment schemes are inferred from the set of messaging and communication modes available globally. Fast payment schemes can follow such standard messaging templates as ISO 8583 or ISO 20022 or use a proprietary standard and implement the template based on the local payment scheme context. Technical infrastructure and contingency standards in fast payment schemes are mostly similar to those in other payment schemes. However, explicit requirement related to security protocols might be different from other payment scheme, such as encryption methodology.

MARKETING

Fast payment schemes lay out marketing and branding guidelines for the participants. In case of overlay services, the decision to give precedence to the overlay service logo over that of the fast payment scheme is made by the scheme operator. However, a common point with other payment schemes is laying down a standard set of branding and marketing guidelines for participants to communicate a common branding message to end customers.

5 ISSUES AND POTENTIAL TRIGGERS FOR REVIEWING FAST PAYMENT SCHEME RULES

Payments is a fast-paced industry, and most nations have adopted modern payment techniques to widen the payment industry horizon. Regulators continuously adapt to changes in the market to mitigate foreseeable risks. The review process of regulators is forward looking and strategic, based on analysis of past performance as a benchmark for refining the existing scheme rule and ensuring continuous improvement while fixing the gaps.

The process of reviewing scheme rules is intended to assess performance and evaluate and implement necessary changes to the rules. Regulators face multiple issues while reviewing rules. These can be broadly categorized as internal and external.

Outdated rules may not be in sync with new laws and regulations and can leave payment schemes at risk. They may not keep pace with the ever-changing technology landscape, resulting in inconsistent processes among participants. Hence, periodic reviews of rules and procedures are needed to keep payment ecosystems up to date with the latest regulations and technology.

OBJECTIVE OF SCHEME RULE REVIEW

Reviews of the rules don't always result in policy revisions. At times, minor tweaks to existing rules are sufficient to sync with new laws and regulations. Regulators need to ensure that scheme rules are aligned with the latest technology and processes. The accompanying infographic states key objectives of a review of scheme rules.

- Identify the relevance of each rule
- Continuously review and identify gaps, to sync the rules to changing market requirements, upcoming technology, or process improvisation
- Comply with relevant legislation, industry and other standards, and community expectations
- Promote safety and soundness
- Promote operational efficiency

FIGURE 20 **Categorization of Issues Faced by Regulators while Reviewing Scheme Rules**

Internal issues	Internal issues include examples like governance framework, business performance, customer satisfaction, SLAs, risk management.
External issues	External issues encompass the whole environment in which the Regulator operates including social, cultural, legal, political, statutory, economical, at all levels including local, state, country, and even international.

Scheme rules are usually reviewed on predefined intervals as prescribed by the regulator. Several dynamic trigger points could lead to a review of scheme rules prior to the review due date. On every trigger point, a set of mandatory and discretionary actions may be laid down to preempt any loophole in the payment industry. The rationale for classifying the actions as mandatory or discretionary is that some of the actions are immediately essential to restore the financial health of participants, while other actions could be taken at the discretion of a regulatory body depending upon the trigger point.

The trigger points serve as speed breakers to further strengthen the entire payment ecosystem. Scheme rules are usually reviewed on predefined intervals, either annually or biannually, to help detect and track any emerging issues. In addition to the periodic interval review of system performance indicators, regulatory bodies could review rules on any of the potential trigger points.

Any unexpected incident or policy violation indicates the need for a rules review. After any kind of incident, regulatory bodies may debrief, as a cautionary measure, to ensure that the rules cause the intended effect. Examples of incident or policy violations include the following:

- Sudden breakdown of technical infrastructure
- Sudden increase in transaction volume
- Transaction-related fraud
- Operational breach
- Stakeholder feedback

Besides the above trigger points, the social, political, and economic context could be a considerable factor for review. These factors are extrinsic to the overall operations of the regulators. Examples of factors in the social, political, and economic context include the following:

- A budget announcement
- A government policy promoting digitization

Furthermore, laws and governmental regulations change constantly, affecting certain rules. Regulatory bodies need to ensure that all the existing rules and rules yet to be defined are in line with the latest laws or regulations.

When a payment scheme organization undergoes large-scale changes, such as a change in governance model, any change in strategic direction, new leadership, or a merger, regulatory bodies, as a precautionary measure, may review the scheme rules pertaining to payment scheme management to determine the relevance of existing policies and discard any older ones. Examples of payment scheme organizational changes include the following:

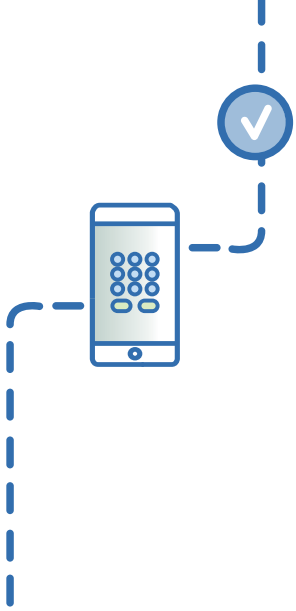
- Business expansion of the payment scheme to the international market
- New leadership

Additionally, specific events, including both natural disasters and anthropogenic events (sudden changes in market conditions or wars), demand the immediate attention of regulators. The urgency of the situation influences response timing. Examples of specific events that may lead to a review of scheme rules include the following:

- Natural calamity
- Pandemic
- International agreements and treaties
- Acts of war

Lastly, regulators may review the scheme rules to promote innovation or upcoming technology. Regulators may review existing rules or set new rules to accommodate innovation. Such initiatives by regulators set a positive acceptance approach among the participants.

FIGURE 21 Potential Triggers to Review Scheme Rules



6 FAST PAYMENT SCHEME GOVERNANCE

HOW TO STRUCTURE SCHEME GOVERNANCE

6.1.1 Introduction

FPS globally have evolved considerably since their inception and have become important pieces of the global payment landscape. Fast payment schemes are also more inclusive than legacy payment frameworks such as high-value payment systems in terms of the number of use cases available and the innovations that have helped extend the value proposition for person-to-business and business-to-business payments, among others.

Some of the key functions of a governance arrangement that allow for efficient fast payment operation are the establishment of goals and milestones, progress assessments, gap identification, and recommendations of appropriate corrective actions.

To achieve the above objectives, fast payment schemes across the globe have adopted varied governance models based on globally recognized principles. Key factors that are common across various governance models for fast payment schemes are inclusiveness, support for the broad goals of the fast payment scheme—that is, security, integrity, trust, and interoperability—fair representation of stakeholder interests and risks, and transparency. Key objectives that fast payment schemes aim to achieve by establishing a sound governance arrangement include the following:

- Sustainability and continued business growth
- Providing strategic direction to the scheme manager, thereby influencing scheme operational guidelines
- Ensuring fair and inclusive participation in the payment scheme

6.1.2 Components of the Fast Payment Governance Charter

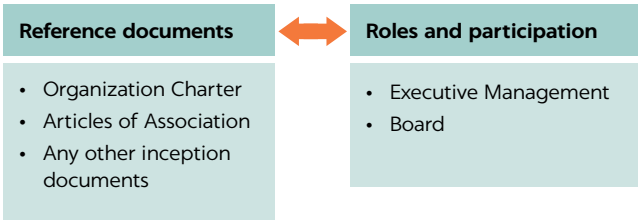
Effective fast payment schemes are driven by clear ownership and agile governance arrangements, which enable a high-performing underlying operational framework and ultimately have a positive effect on scheme operations and the sustainable growth and expansion of the payment scheme.

The rules for governance arrangements are hosted and defined in various charter documents that define the functioning of the FPS as an organization. Key components of these charter documents include the following:

- The powers and responsibilities of the board
- Appointing and dismissing directors and key executives, such as the chief executive officer
- Voting rights
- Interpreting board limitation and liability
- Sharing capital (in case of for-profit FPS organizations) and winding up

Independent directors are important constituents of the board. They provide impartial and objective points of view on scheme operations and can be appointed for a variety of reasons. For example, central banks in countries such as India and Australia have appointed independent directors to the boards of fast payment schemes to represent the overall interests of the local payment framework beyond the internal scheme functions.

FIGURE 22 **Governance Rules Documentation**



Effective fast payment schemes are also driven by a clear and transparent ownership structure. Fast payment schemes around the world have varied ownership models. Possible ownership structures include privately held entities, enterprises wholly owned by public entities, public-private partnerships, for-profit and not-for-profit companies, and public or private limited companies. Another point to note is that ownership models are not static and may change over time.

6.1.3 Governance Models for Fast Payments

In centrally governed fast payment schemes, a country's central bank owns and is responsible for governance.

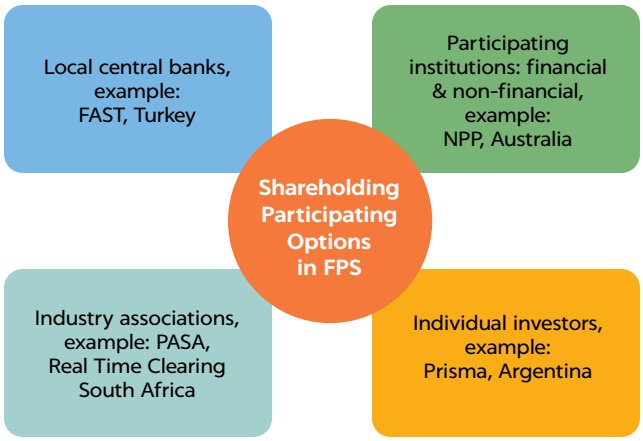
In participant-led schemes, the direct participants lead the governance arrangement for the realization of such common objectives as innovation, coordination, effective scheme operations, and so on. Such models are common across privately owned fast payment schemes, such as Zelle in the United States, which is owned by a bank consortium.

In fast payment schemes led by a dedicated entity, a dedicated organization is set up to steer the governance arrangement. Such an organization can be built as a dedicated entity by a regulator or work under the broader supervision of another regulatory body in the country. From an ownership perspective, such organizations can have shareholding by participating institutions or be owned exclusively by a regulator.

6.1.4 Parameters for Defining Scheme Governance for FPS

To develop contextually relevant governance arrangements for a fast payment scheme, there are certain key principles to keep in mind and draw inference from. The principles are drawn from from a document issued by the International Organization of Securities Commissions and Committee on Payment and Settlement Systems on standards for payment and clearing and settlement systems (that is, *Principles for Financial Market Infrastructures*). The source document has been utilized to draw upon some principles that might be relevant from an FPS perspective.[2]

FIGURE 23 **Shareholding Participating Options in FPS**



Below are some of the high-level questions that should be addressed, ideally before proceeding with structuring the governance arrangement for a fast payment scheme.

What is the level of stakeholder interaction between other payment market infrastructures in the country?

This would be relevant for assessing the broader local payment infrastructure of the country and ensuring that there is participation from all relevant external stakeholders, if required.

What regulatory and legal framework is applied to the fast payment scheme?

Upon setting up of the FPS, the central bank needs to decide either to take control of the scheme governance arrangement or to delegate it to a dedicated entity under its broad supervision. The regulatory and legal frameworks should be applied in a consistent manner to other payment and clearing systems but can be amended to the FPS context.

If the target governance structure intends to mimic the model of an existing payment scheme or system, what are its key benefits and objectives?

A new fast payment scheme may intend to mimic the governance arrangement of an already-existing payment scheme. Key parameters to consider before deciding on this parameter include the following:

- Synergies between the new and existing payment schemes
- The level of flexibility provided by the existing governance arrangement
- Benchmarking to global fast payment governance arrangements

TABLE 11 Key Considerations for Defining Governance Arrangements for Fast Payment Schemes

KEY CONSIDERATION	FAST PAYMENT SCHEME GOVERNANCE
Disclosure of rules, key procedures, and market data	Given the universal reach of fast payment schemes, the public disclosure of rules and procedures is relatively more important than it is, for instance, with a high-value payment framework.
Efficiency and effectiveness	When compared with legacy payment schemes, fast payment frameworks operate in a high-paced, dynamic environment that requires decisions and strategy to be implemented within strict timelines.
Inclusivity and diversity	Create an inclusive and diverse governance arrangement that ensures participation in the decision-making process from all relevant stakeholders and is free from monopolies, select participation, and so on.
Independence	Ensure sufficient independence for such critical functions as risk management, internal controls, and audit. A typical way to ensure independence from the views of management is to require the inclusion of nonexecutive board members, including independent board members, as appropriate.
Conflict of interest	Potential conflicts of interest in fast payment schemes can arise for various reasons and are mitigated via regular disclosures and assessments from the governance board.
Risk-based approach	Like any other payment scheme, fast payment schemes also follow a risk-based approach to governance, but due to the nature of scheme operations and the diverse participation types in fast payment schemes, the ambit of risk assessment and internal controls is wider than it is with a legacy payment framework.

What is the direct participation model of the fast payment scheme?

For an inclusive participation framework in the scheme's governance process, the direct participation models would dictate that various institutions should be included in the governance arrangement—that is, only banks or both banks and non-banks.

6.1.5 Key Components of an Indicative Governance Structure for an FPS Governing Entity

Below are key formations of the core governance arrangement for a fast payment scheme. Additions to, or modifications of, the core governance arrangement might be found across various global fast payment schemes.

- Pursuant to the articles of the governing organization, the board of directors is responsible for the strategic direction and overall supervision/control of the fast payment scheme, for which the board might exercise powers allocated to it or delegate them to a person or a group of persons.
- To facilitate the smooth discharge of the scheme strategy and vision, multiple board committees are constituted by the board with participation from the board of directors to deal with matters related to human resources, risk, technology, management, audit, and so on.
- Advisory committees are specialized working groups created to oversee specific issues that arise during scheme operations—for example, a fraud-advisory committee to look into and provide guidance on increasing fraud events within the payment scheme. Also, these committees can be constituted on a permanent or temporary basis to perform an advisory role to the scheme's governance construct.

6.1.6 Select Case Studies of Governance Structures of Fast Payment Schemes

1. FPS, United Kingdom

Governance entities

Pay.UK is the payments service operator with the governance falling on a consolidated entity known as Payment Service Regulator (Subsidiary of the Financial Conduct Authority in UK) which also governs other payments schemes within the UK like BACS. However, the overall oversight is maintained by Bank of England across all payment systems including faster payments.

Governance structure

PSR Executives, non-executive directors from Financial Conduct Authority (Supervising Body) and independent directors. In addition to this various advisory committees are formed to provide expertise on various issues related to strategy, policy. The constitution of such committees can have representatives from various areas on a need basis.

Not for profit vs for profit

- PSR (regulator): For Profit limited company
- Pay.UK (PSO): For Profit

Separation of payment operators and governing authority

- Separated

2. FAST, Turkey

Governance entities

Developed, owned, and operated by the Central Bank of the Republic of Turkey.

Governance structure

Chaired by the governor of the bank along with 6 members with support of a dedicated executive committee that draws up proposals for the governing board to consider and ensures collaboration with participating institutions.

Not for profit vs for profit

- Not for Profit: Central Bank

Separation of payment operators and governing authority

- Not Separated

3. NPP, Australia

Governance entities

Operated and Owned by a separate legal entity that has shareholding membership from the central bank along with shareholding from 12 participating institutions in the payments scheme.

Governance structure

The payment service operator is mutually owned by 12 deposit taking institutions representing some of the major banks in Australia.

Not for profit vs for profit

- For Profit

Separation of payment operators and governing authority

- Not Separated

4. TIPS, Europe

Governance entities

Operated and owned by the European Central Bank

Governance structure

European Central Bank is constituted and owned by the central banks representing the 19 member states of the EU zone. The % of ownership by each of the central bank is determined by the population of the country.

Not for profit vs for profit

- For Profit

Separation of payment operators and governing authority

- Not Separated

IMPLICATIONS OF SEPARATING SCHEME GOVERNANCE FROM THE OPERATION OF THE PAYMENT SYSTEM

Governance and operations are two key parameters for the functioning of any fast payment scheme. Governance provides the strategic direction to scheme operations, whereas operational guidelines are key to ensuring the integrity, resilience, and security of the fast payment scheme. These vital functions are institutionalized in the scheme structure as either separate entities or an amalgamated entity looking after both functions.

Overlay services provide FPS services to end users by connecting to the FPS infrastructure. For the overlay service provider to keep on connecting to the FPS scheme, it must conform with all operational rules dictated by the scheme operator. However, the overall strategic direction of the overlay services' participation in the scheme is dictated by the scheme's overall strategy, which is formed by the FPS governing body.

Some fast payment schemes have kept both the governance and the operational function within the same entity with implementation. For example, in UPI in India, NPCI takes care of both the operational and the governance aspect of the scheme, while with FAST in Turkey, scheme operations and governance are taken care of by the central bank. Below are some of the key advantages and disadvantages seen in such an arrangement.

Advantages of Keeping Scheme Governance and Operations Together

- Unified and interlinked approach toward scheme strategy and operations
- Participants have a clarity in communication, as they are received from a single entity
- Easier for external stakeholders to collaborate, as there is a single point of contact
- Streamlined operationalization of scheme strategy due to enhanced control on scheme operations by the dedicated entity

The timely transformation of the payment strategic direction to operational guidelines is more streamlined and effective through dedicated entities. Some of the major aspects of this are interoperability, the strengthening of weak links within the scheme, addressing security concerns, and rules and standards for cross payments.

Disadvantages of Keeping Scheme Governance and Operations Together

- Increased load on a single entity, as two critical functions of the fast payment scheme are centralized within a relatively small group of stakeholders
- Complex organizational structures might be a deterrent to decision-making process, adversely affecting scheme strategy and operations
- Dedicated entities focusing only on fast payments might ignore the linkages with other payment schemes

Some fast payment schemes have decided to separate the governance and operational aspect in separate entities. In other words, governance is carried out by a different entity than the FPS operational entity, so that the latter focuses solely on FPS operational aspects, such as scheme connectivity and transaction processing.

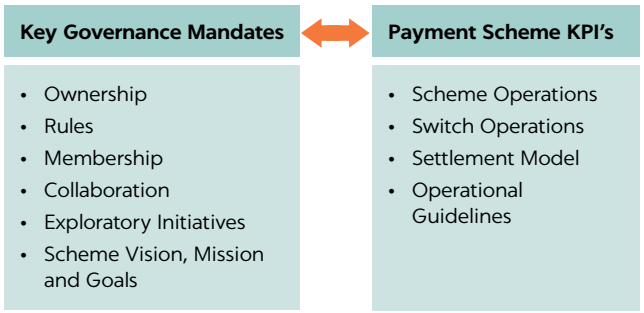
In FPS in the United Kingdom, one of the earlier fast payment schemes, scheme operations and governance functions are separated and held in dedicated entities, while the operational entity (Pay.UK) works under the oversight of the Financial Conduct Authority.

Whether the governance and operational entities are kept separate or together is a decision that needs to be made by a country's relevant financial sector authority (or authorities), keeping in mind such factors as the country's overarching payment landscape, the strategy undertaken by the central bank, and the level of institutionalization required for multiple payment frameworks. (For example, the Payment Systems Regulator in the United Kingdom already looks after the broader governance of multiple payment schemes, including fast payments.) The main reason for this is that it is the central bank that provides the initial push for a new payment infrastructure in any country and is instrumental in setting the initial framework of the fast payment scheme.

Deciding whether to separate or amalgamate fast payment scheme governance and operations has the following implications for various stakeholders:

- The amount of control that the central bank wants to exert over the fast payment scheme—that is, does the central bank want to extend its mandate of oversight and own the fast payment scheme's operations?
- The level of expansion required from a fast payment scheme's perspective that would require dedicated institutions to be set up and built upon consequently
- Some of the most popular payment schemes around the world have driven fast payment adoption on the back of industry collaboration
- Clear lines around scheme governance and operational bodies ensure balanced economic incentives along with safe and reliable operational models

FIGURE 24 **Separation Model of Scheme Governance and Operation**



Advantages of Segregating Fast Payment Governance and Operations

- Separation of governance and operational activities allow entities to focus and specialize on each of these functions
- A separate governance entity allows a dedicated focus on collaborations between regulators, industry bodies, participants
- Institutional entities can help in the formation of various new alternative payment frameworks with effective collaboration with the fast payment scheme
- Encourages participation forums for various market players in a variety of issues related to governance and scheme operations, thereby providing an added incentive for direct and prospective scheme participants

Disadvantages of Segregating Fast Payment Governance and Operations

- Possible delays to transformation/enhancement activities due to separate processes of the governance and operation entity
- Disjointed communication received from participants from multiple entities looking after the same scheme

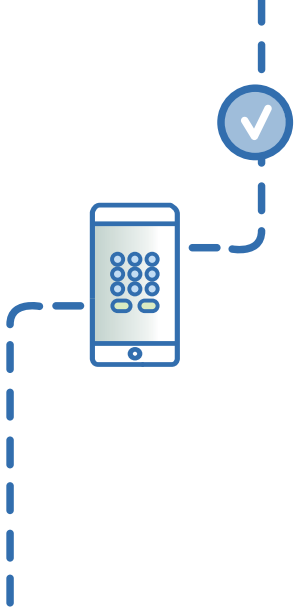
FIGURE 25 **Separation Model of Governance and Scheme Operation Duties**

Payment Scheme Governance Duties

1. Monitor and assess fast payment scheme
2. Manage collaboration between internal and external scheme stakeholders
3. Manage and set overall Strategic vision for the scheme

Payment Scheme Operation Duties

1. Operationalize the vision laid down by the scheme governance board
2. Manage scheme rule writing and day to day operations of FPS
3. Manage various technical and administrative fast payment scheme components

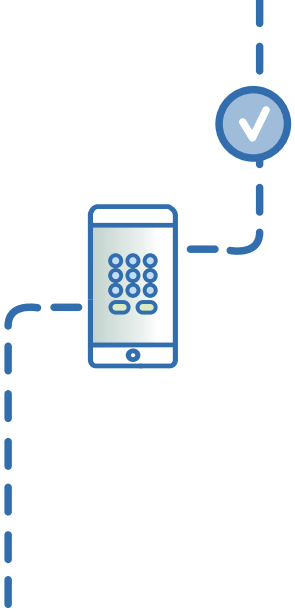


7 CONCLUSION

Fast payment services continue to evolve and integrate with new-age initiatives. FPS scheme rules define the way in which the system will operate and the behaviors and interactions among participants and between participants and the operator. Therefore, clear and well-designed scheme rules are critical for promoting and enabling upcoming and future developments in FPS, including by supporting such aspects as robust risk management, maintaining the integrity of the systems and its operations, and providing a reliable and seamless payment experience to customers.

Beyond the traditional aspects covered by scheme rules, such as participant management, compliance, fees and charges, security, technology, and marketing, among others, the governance arrangements of an FPS are becoming increasingly prominent. One important reason for this is that FPS tend to include a greater number and variety of actors (that is, banks and non-bank PSPs, as well payment initiators and other app developers, billers, and so on) than traditional systems. A well-balanced governance arrangement will continue to be key to ensuring the sustainability and continued business growth of any fast payment arrangement.

In all cases, it is important that FPS operators and regulators promote and eventually undertake a periodic review of scheme rules and procedures to keep the payment ecosystem up to date with the latest laws and official regulations, as well as with technological developments and social change.



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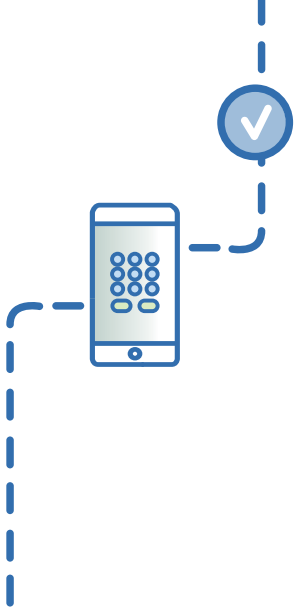

APPENDICES

APPENDIX A: PARTICIPANT MANAGEMENT

TABLE A1 **Comparative Analysis of Participant Management Elements across Global Payment Schemes**

PARTICIPANT MANAGEMENT					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Member onboarding	Type of participation	Fast payment schemes allow for various participation agreements that can be broadly categorized as direct and indirect.	The core of card scheme participation is formed through direct participation agreements. In addition to this, the scheme also allows for tiered participation arrangements known as indirect members.	Broadly, two types of participation agreements are available in direct debit schemes: direct members, who are directly connected to the scheme with the right to settle, create, and manage direct debit mandates and so on; and indirect members, who participate in the system through direct members.	Two broad types of participation arrangement: direct and indirect. Direct members are full members of the scheme, and indirect members gain access to the scheme via direct members.
	Settlement conditions	Payment settlements take place through a settlement/ reserve account that must be opened in the books of the central bank by direct participants.	Scheme members need to open accounts at specified banks anointed by the scheme mandatorily.	Participants are required to open settlement accounts with the central bank at the time of member onboarding.	The scheme is operated by separating clearing and settlement infrastructures from the scheme. Direct members are required to open settlement accounts at one of the designated clearing and settlement mechanisms in the designated economic zone.
	Member application	A prospective member needs to provide an application to the scheme along with the stipulated documents and application fees. The scheme would assess the completeness of the application and decide accordingly. An important precursor to the application process is for the participant to be part of exploratory sessions with the scheme to understand the requirements and their impact on the participant's business. This will help the participant build a business case for participation.	A prospective member applies to the scheme in the required format with all necessary documents for the scheme to assess eligibility of participation.	A prospective member submits its application along with required documents for the scheme to assess the eligibility of the incumbent.	In addition to submitting an application to the scheme for assessing member eligibility, participants can also be mandated to obtain unique participant identifiers along with mandatory industry certifications. In terms of a scheme application, one of the key documents is the adherence agreement, containing detailed information about the participant's financial stability, operations, business plan, and schedule for implementation.

continued

TABLE A1, *continued*

PARTICIPANT MANAGEMENT					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Member onboarding, *continued*	Scheme decision	The scheme assesses the applicant against a predefined list of eligibility criteria and accepts the membership application only if the prospective member meets eligibility requirements. After form acceptance, the implementation project is kicked off from the participant's end, and it would go ahead with testing, dress rehearsals, go-live. In case of rejection, applicants can appeal to the scheme, contesting the decision within a stipulated time frame. This, in turn, would trigger an investigation by the scheme into the applicant's case.	The decision to approve or reject an applicant is at the sole discretion of the scheme. Below are eligibility criteria against which the application is vetted: • Compliance with all local rules and regulations. • Completeness of documents submitted along with joining application.	Based on successfully meeting the application criteria, the scheme will communicate to the incumbent its decision to approve or reject.	Upon receipt of an application, the scheme must communicate to the participant within a specified time period its decision to accept or reject.
	Jurisdiction	Local, but there are payment schemes that have extended the value proposition to cross-border.	Local and global.	Local.	Cross-border within member states.
Rights and duties of scheme participants		Compliance with such international regulatory requirements as FATF and sanctions screening. Participants are obligated to meet a reasonable information request from various regulatory bodies. Follow settlement rules and guidelines laid out by the scheme. Immediately report to the scheme incidents that pose a major risk to the overall functioning of the scheme. Two-way review of membership (to continue or terminate scheme membership)—that is, by the scheme and the participants themselves.	Timely payment of all scheme-related fees for continued scheme participation. Provision of timely and accurate reports to the scheme as and when mandated in the operational guidelines. Follow scheme guidelines and rules as laid out in the scheme rule book. Compliance with anti-money-laundering and FATF guidelines. Immediately report to the scheme incidents that pose a major risk to the overall functioning of the scheme.	Contribution to the settlement guarantee fund. Ensure adherence to anti-money-laundering-related validations. Ensure effective fraud check and reporting. Payment of all relevant scheme fees within the stipulated time frame. Maintenance of data records with the scheme. Immediately report to the scheme incidents that pose a major risk to the overall functioning of the scheme.	Be active in the banking services or payment services business. Continue holding a valid banking license within the economic zone. Be solvent, liquid, and in compliance with capital requirements. Ability to meet rating or other ad hoc criteria as mandated by the scheme. Compliance with applicable regulations on anti-money-laundering/countering the financing of terrorism. Immediately report to the scheme incidents that pose a major risk to the overall functioning of the scheme.

continued

TABLE A1, *continued*

PARTICIPANT MANAGEMENT					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Suspension and termination		The decision to suspend and terminate scheme members is made by the relevant function within the scheme based on such factors as compliance with and breach of scheme rules, nonpayment of dues. In most cases, the scheme will provide enough notice to the participant to remedy the situation. From a policy standpoint, the fast payment scheme will have multiple escalation levels that can be triggered based on how much time has elapsed or predefined actions that need to be taken by the concerned participant.	The scheme at its sole discretion can terminate the licensing agreement of a member without prior notice due to the following scenarios: • The government or any regulatory body decides to revoke and suspend the operations of the participant • Refusal to pay accrued fees and charges to the scheme • Failure to comply with scheme guidelines and rules on anti-money-laundering, sanctions requirement, and so on • Inactivity for a specified time period as mentioned in the scheme rules • The member fails at any point of time to fulfill the eligibility criteria satisfied during member onboarding • Member fails to operate at a scale as mentioned and agreed to in the business plan with the scheme	The scheme is entitled to terminate the membership agreement of a participant. This is intimated to the concerned parties in advance. Below are some of the triggers for initiating termination/suspension procedures: • The member has failed to comply with or violated any of the provisions of the scheme procedural guidelines. • Member commits material breach of scheme operating procedures. • The current account with the central bank is closed or frozen.	If the scheme considers that a participant should be sanctioned, the scheme shall send a written notice to the participant setting out details of the compliance breach and the sanction proposed, along with the report and any material that is believed to be relevant to the matter. Based on the presentation of facts provided by the participant in response, the scheme can terminate the member from the scheme or provide a warning (this can also involve sending a letter to the concerned central bank as well) or absolve the participant from the case.

APPENDIX B: COMPLIANCE AND GUIDELINES

TABLE B1 **Comparative Analysis of Compliance and Guidelines Adherence across Global Payment Scheme**

COMPLIANCE AND GUIDELINES					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Regulatory compliance and industry certifications	Mandatory compliance framework	To assess adherence to mandatory compliance frameworks by the scheme and participants, heat maps and various tools are employed by the scheme to help track and remediate compliance gaps and follow a risk-based approach to compliance frameworks. The basis of most regulatory frameworks is collaboration with central banks, regulatory bodies, and participants. The various mandatory compliance guidelines can be categorized under integrity, operations, security, and eligibility guidelines.	To ensure compliance with the mandatory compliances, the scheme's compliance framework is reviewed as needed on a risk-prioritized basis. The scheme, at its discretion, may require that members contract with a scheme-approved vendor to adhere to compliance frameworks. Members are supplied with a checklist within the scheme rules that will help in participant self-assessment.	All participating institutions need to adhere to guidelines issued by the central bank and have an overriding effect on the guidelines mentioned in the scheme. In addition to this, participant need to ensure minimum compliance with international standards, such as FATF requirements, sanctions screening, anti-money-laundering guidelines.	From a local compliance perspective, members need to comply with the frameworks mandated by the respective central banks, given that members in the scheme are under various central banks in different local jurisdictions. The compliance rules from a scheme perspective are formed in such a way that they represent a multilateral agreement between the scheme regulator and participants, and between peers in the scheme, and need to be adhered to by participants.
	Noncompliance framework	Payment schemes communicate in writing to the applicable participant intimating noncompliance. Payment schemes may levy a dispute-resolution fee on participants on the day a dispute is first referred to the dispute-resolution committee.	Payment schemes communicate in writing to the applicable participant intimating noncompliance.	Payment schemes communicate in writing to the applicable participant intimating noncompliance. Payment schemes levy the processing fee for referring disputes to arbitration.	Payment schemes communicate in writing to the applicable participant intimating noncompliance. Payment schemes handle noncompliance-related disputes for addressing disputes related to the admission process of applicant scheme participants and cases of claimed noncompliance by scheme participants with the rules of the schemes.
	Industry certifications	In addition to mandatory regulatory requirements, fast payment schemes can require participants to gain industry certifications that will help in meeting scheme requirements. Certifications are categorized as operational, technical, security, business-continuity. Schemes can mandate that participants get certain processes ratified by either the scheme or an identified third-party service provider. Mandatory scheme certifications are not static, and participants might be required to get recertified based on certain triggers, such as service enhancements, maintenance, standard operating procedures, new service additions. Popular industry certification required by the scheme are application certification, information security, network service providers, compliance-based certifications.	Technical certifications to ensure that operational guidelines are being met by scheme members. Certification and compliance with various industry standards around data security. Scheme-level validation to ensure that participants can avail various services offered as part of the scheme.	Certifications are mandated by the scheme, validating the participant's ability to meet testing and technical standards and operational guidelines set forth by the scheme.	The scheme mandates the usage of certain certifications issued by third parties that would help the scheme validate the participant's ability to meet the rules mandated in the scheme rule book.

continued

TABLE B1, *continued*

COMPLIANCE AND GUIDELINES					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Risk management and mitigation	Internal controls	The scheme undertakes a comprehensive review of the risk posed to the integrity and resilience of the overall payment framework while reviewing a new applicant and during participation within the scheme. The two key functions that support the establishment and review of internal controls are the operations and the dedicated risk function within the scheme structure. To ensure continued adherence to the scheme's risk-management framework, periodic assessments are carried out that may require on-site visits to operational and data centers. From a scheme policy perspective, a periodic assessment of the framework is carried out based on such indicative parameters as risk-tolerance policy, risk-management tools, risk-reporting requirements. Internal controls are erected to ensure that areas within the scheme take proactive steps to manage risks and take action to manage them to an acceptable level based on the scheme's risk-toleration policy. For the purposes of compliance enforcement, policy controls are put in place to ensure that members are in line with the various frameworks defined in the scheme rules.	Based on the risk profile of its participants, the scheme places control mechanisms on scheme participants related to the following: • Anti-money-laundering/know-your-customer requirements for scheme members to comply with while engaging in customer interactions—that is, card issuance. • Ensure that sufficient operational controls are implemented by participants. • Payment risk controls that would help provide the first line of defense. • Scheme also undertakes a periodic review of internal controls to ensure its relevance to the scheme and its participants.	Based on the risk profile of its participants, the scheme places control mechanisms on scheme participants related to the following: • Anti-money-laundering/know-your-customer requirements for scheme members to comply with while engaging in customer interactions—that is, card issuance. • Ensure that sufficient operational controls are implemented by participants. • Payment risk controls that would help provide the first line of defense. • Scheme also undertakes a periodic review of internal controls to ensure its relevance to the scheme and its participants.	The scheme undertakes a comprehensive review of the risk posed to the integrity and resilience of the overall payment framework while reviewing a new applicant and during participation within the scheme. The two key functions that support the establishment and review of internal controls are the operations and the dedicated risk function within the scheme structure. To ensure continued adherence to the scheme's risk-management framework, periodic assessments are carried out that may require on-site visits to operational and data centers. From a scheme policy perspective, a periodic assessment of the framework is carried out based on such indicative parameters as risk-tolerance policy, risk-management tools, risk-reporting requirements. Internal controls are placed to ensure that areas within the schemes take proactive steps to manage risks and take action to manage them to an acceptable level based on the scheme's risk-toleration policy. For the purposes of compliance enforcement, policy controls are in place to ensure that members are in line with the various frameworks defined in the scheme rules.
	Member restrictions	When joining the scheme, participants are required to self-declare that any of the internal controls implemented on the participant's end related to the scheme will not have any negative impact on other participants based on a checklist provided by the scheme at the time of member onboarding. The scheme maintains a risk register related to its scheme participants and applies any changes to the participant's risk profile. Based on any adverse changes in the risk profile, restrictions might be placed on the concerned participant, such as reducing the payment limits.	Based on the member restriction policy in the scheme rule book, the scheme can require participants to use various scheme services for a period decided by the scheme based on procedures laid out in the member agreement document between the scheme and the participant. Such restrictions are placed until the scheme is happy with the remediation procedures implemented by the participant.	The scheme can impose restrictions on the value limits to which participants need to adhere based on communication from the scheme and predefined and mutually agreed rules.	The scheme can modify value limits for originators and beneficiary institutions based on risk-assessment and policies laid down in the participation agreement.

continued

TABLE B1, *continued*

COMPLIANCE AND GUIDELINES					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Risk management and mitigation, *continued*	Fraud-risk-management policy	*Objective:* The scheme's key objective from a fraud policy perspective is to establish institutional processes that will supplement the broader scheme strategy on fraud policy and procedures. *Mitigation:* Provide and update specific rules around remediation procedures arising from a fraud event, with an emphasis on placing liability, responsibility, first points of contact, and accountability between the relevant parties in the value chain. *Service rails:* Establish new service rails to complement fraud events taking place within the core payment rail. *Fraud strategy:* Formulate consumer protection rules based on collaboration with the industry and seek buy-in from scheme stakeholders.	*Objective:* Establish and assess liability guidelines for fraud management that will help in placing accountability on the correct party. *Mitigation:* Set monitoring rules for participants for detecting fraud. *Reporting:* Set a common communication standard for reporting frauds. *Risk profile:* Create and maintain risk registers for stakeholders to provide an appropriate reflection of the risk posed by scheme participants. *Fraud strategy:* Create strategic fraud-prevention programs for participants and create a strategy for effective proliferation among participants.	*Objective:* The scheme's key objective is to implement a fraud-management policy that will be a shared responsibility between the scheme and its participants. *Fraud reporting:* Prompt and clearly defined reporting framework for fraud occurrences. *Fraud mitigation:* The scheme has clearly called out in the scheme rules that all fraud-mitigation frameworks sit with the participants to implement and maintain but governed by the broader scheme strategy on fraud prevention and remediation. *Fraud strategy:* The scheme has a wider fraud-management strategy to identify, measure, and mitigate frauds.	*Communication:* Create a common code for participants for promptly recalling transactions that arise due to fraud. *Fraud risk profile:* Enhance and regularly update fraud rules and communicate them to the participants. *Fraud strategy:* Entertain change requests from participants with respect to fraud policies and procedures. The scheme will fully evaluate the impact of such change requests and engage in meaningful dialogue with participants before deciding.

APPENDIX C: OPERATIONS

TABLE C1 **Comparative Analysis of Operational Aspects across Global Payment Scheme**

OPERATIONS					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Reconciliation and settlement	Settlement agency	Payment schemes regulate the settlement agency that performs end-to-end settlement operations on behalf of the fast payment scheme.	Cards schemes the regulate the settlement agency that performs end-to-end settlement operations on behalf of the card scheme.	Debit-transfer schemes regulate that settlement agency that performs end-to-end settlement operations on behalf of the direct debit scheme.	Obligation to perform clearing and settlement does not lie on payment scheme. Instead, the payment scheme lays down rules for clearing and settlement mechanisms to operate. The mechanisms are chosen by individual participants as per their requirements, resulting in the promotion of cross-border payments.
	Settlement account	Payment schemes and par-ticipants maintain settlement accounts with the central bank of the country. (The FPS implemented so far set-tle in central bank money.)	To participate in settlement systems, member banks are required to open an account with the bank specified by the payment scheme. In case the settlement account is maintained with the central bank, the participants would need to have an account with the central bank.	Payment schemes and participants maintain settlement accounts with the central bank of the country.	For transactions to settle through the credit scheme, it is up to the specific credit scheme either to open settlement accounts within the credit scheme or to maintain a settlement account with another clearing and settlement mechanism. For example, the settlement of NACH credit takes place in the current account of participating banks maintained with the Reserve Bank of India.
	Settlement model	The following two approaches are followed for account settlement: • *Deferred net settlement:* Transactions are settled in batches, after netting with the net adjustment amount. • *Individual settlement:* Individual transactions are settled with finality by simultaneously crediting and debiting participants' accounts.	Transactions are settled in batches after netting with the net adjustment amount. The approach adopted is deferred net settlement.	Transactions are settled in batches after netting with the net adjustment amount. The approach adopted is deferred net settlement.	The settlement model is as per the scheme rule book—that is, it can be file based or real-time gross settlement.
	Settlement cycle	Depending on the settlement model, payment schemes settle the transactions. In case of deferred net settle-ment, payment schemes can opt for a multiple settlement cycle, based on the infrastructure available.	Participants present a successful transaction to the payment schemes for settlement, as per the defined settlement cycle, usually one settle-ment cycle per day.	The payment system usu-ally undertakes one presentation settlement session and one corresponding return settlement session per day.	The settlement cycle is as per the scheme rule book. For example, for NACH based on the input file, the settlement can take place on either a T+7 or a T+0 basis.
	Settlement turnaround time	The settlement model has a direct impact on the turna-round time. Payment schemes that adopt deferred net settlement usually settle funds on the transaction date. Payment schemes that adopt individual settlement settle funds almost instantly.	The settlement normally is on a T+1 basis—that is, after successfully processing the transaction on T day, the settlement of funds between the participants is on the subsequent day.	As per the payment scheme guidelines, the sponsor bank is to credit the beneficiary account the same day it receives funds in its settlement account.	The obligation of defining a settlement turnaround time is out of the purview of the payment scheme.
	Settlement file presentment type	The settlement model has a direct impact on the way files are presented for settlement. The following are the two methodologies for file presentment: • *Bulk/batch upload:* Transactions are collated and presented in batches in the upcoming settlement cycle. • *Individual upload:* Individual transactions are presented irrespective of the settlement cycle.	Participants adopt the scheme-specified present-ment method for presenting successful transactions. Based on the transaction type, participants collate and present transactions to the payment schemes in batches in the upcoming settlement cycle.	Payment schemes adopt a traditional presentment method for debit man-dates—that is, collating and presenting debit mandates in batches in the upcoming settlement cycle.	The selection of a pre-sentment file type is out of the purview of the payment scheme.

continued

TABLE C1, *continued*

OPERATIONS					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Reconciliation and settlement	Settlement currency	Payment schemes support local currency for settlement.	While domestic transactions are settled in local currency, the overall payment scheme supports settlement in multiple currencies.	Payment schemes support local currency for settlement.	The choice of settlement currency is out of the purview of the payment scheme.
	Reporting	Reports as may be relevant are generated by payment schemes for the participants.	Reports as may be relevant are generated by payment schemes for the participants.	Reports as may be relevant are generated by payment schemes for the participants.	Reports as may be relevant are generated by payment schemes for the participants.
Dispute management	Dispute-resolution committee	Payment schemes either form a separate dispute-resolution committee or resolve dispute via the payment scheme's operating committee.	The payment scheme resolves disputes between participants via an arbitration and compliance committee.	A panel for resolution handles disputes related to transactions.	The compliance function of the schemes is the respon-sibility of the operator.
	Dispute life cycle	If supported by the payment scheme, the dispute resolution life cycle is as follows: • The end customer disputes a transaction. • The issuing participant conducts an inquiry. • The card network extends the inquiry to the merchant. • Charge-back stage. • Pre-arbitration. • Arbitration.	The dispute-resolution life cycle for a payment scheme is as follows: • The end customer disputes a transaction. • The issuing participant conducts an Inquiry. • The card network extends the inquiry to the merchant. • Charge-back stage. • Pre-arbitration. • Arbitration.	The dispute resolution life cycle for a debit scheme is as follows: • The end customer disputes a transaction. • The destination participant conducts an inquiry. • A panel for resolution of disputes/arbitration. • Central bank of the country.	Not applicable.
	Dispute-resolution channels	Participants utilize a settle-ment portal, provided by the payment scheme, to raise disputes.	Participants utilize a settlement portal, provided by the payment scheme, to raise disputes.	Participants utilize a set-tlement portal, provided by the payment scheme, to raise disputes.	Not applicable.
	Dispute-resolution fee	Participants are bound to pay a fixed fee at the pre-arbitration and arbitration stages.	Participants are bound to pay a fixed fee at the pre-arbitration and arbitration stages.	Participants are bound to pay a fixed fee at the pre-arbitration and arbitration stages.	Not applicable.
	Provision for end customers to raise disputes on transactions	Payment schemes provide end customers with an optional functionality to raise disputes on transactions directly to the scheme.	End customers dispute the transaction by contacting the card issuer.	On behalf of the end customer, the participant raises the dispute to the dispute-resolution agency.	Payment schemes do not provide dispute-raising channels to end customers.
	Customer support for end customers	Payment schemes might provide a customer-support channel to end customers.	Payment schemes do not provide customer-support channels for end customers.	Payment schemes might provide cardholder inquiry services that connect with the end customer's participants for account-specific inquiries, card block, and support. Additionally, the payment scheme can arrange for cash to be available to the end customer in emergency situations on the participant's approval.	Payment schemes do not provide customer-support channels for end customers.

continued

TABLE C1, *continued*

OPERATIONS					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Monitoring	Transaction monitoring	Payment schemes do real-time transaction monitoring to detect any possible fraud and provide an early remedy.	Payment schemes do real-time transaction monitoring to detect any possible fraud and provide an early remedy.	Payment schemes do not do real-time transaction monitoring.	Payment schemes do not do real-time transaction monitoring.
	Fraud checks and related monitoring	Payment schemes define high-level fraud checks to be followed by participants for end-customer and merchant onboarding. The payment scheme adopts fraud-check mechanisms, such as multiple authentications, and additional confirmation steps designed to reduce the likelihood of mistaken payments to minimize fraud.	Payment schemes define high-level fraud checks to be followed by participants for end-customer and merchant onboarding. Payment schemes adopt fraud-check mechanisms, such as multiple authentications, and the latest technology, such as EMV, to minimize fraud.	Payment schemes define high-level fraud checks to be followed by participants for end-customer and merchant onboarding.	Payment schemes define high-level fraud checks to be followed by participants for end-customer and merchant onboarding. A request to cancel a credit transfer transaction can be initiated only by the bank in case of a fraudulently originated credit transfer instruction.

APPENDIX D: FEES AND CHARGES

TABLE D1 **Comparative Analysis of Fees and Charges across Global Payment Scheme**

FEES AND CHARGES					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Scheme participation fee	Onboarding fee	A fee payable by the member to the scheme operator for participating in the fast payment system. This may be in the following forms: • Fixed amount specified by the scheme operator payable by individual members • Shares of the scheme	Constitutes the fee fixed by the network providers that is payable by the financial institutions. Through this fee, the network binds the financial institutions to: • Membership • Compliance and adherence to the card scheme rules	Through this fee, the scheme operator will validate the membership of the institution as a member and its capability to process financial and non-financial transactions.	A fixed fee is set by the manager to recover costs and manage the operations. The fees may be levied on an individual or a group level.
	Support and maintenance fee	Fees paid to the infrastructure provider for timely maintenance and assistance provided. It can be a one-time or recurring fee. *One-time:* • Migration support *Recurring:* • Telecommunication set-up fee, recertification fees • Helpdesk/service desk assistance fee	The network operator may charge this fee for the connectivity provided or a service fee, which may depend on the volume or value of transactions.	Recertification fee, charges for support on messaging standards, testing, and training may be constituted as a support fee.	No fixed fee exists, decided by the operator from time to time.
	Administration fee	May include a fee for administrative components.	Administration fee may be charged for overlay services.	The operator charges no specific fee for administration.	The operator charges no specific fee for administration.
	Switching fee	Paid by the participants to the infrastructure provider (switch provider) on a pertransaction basis. May be fixed or variable or both, depending on the transaction volume and value.	The switching fee is received whenever the issuer bank receives approval and clears the payment. It is levied by the card-issuing institution on the issuing bank.	Fixed fee per transaction paid by the participants to the switch creator.	No specific charges exist.
	Interparty fee	Mostly to recover costs for each stakeholder and safeguard against risks. This fee is usually paid by the participants of the scheme to the other participants or the scheme operator. The following fees may be levied for transactions: • *Interchange fee:* Fees that the issuing bank/institution levies on the acquiring bank/institution or vice versa. • *PSP fee:* Fee charged by the PSP to the merchant to process the payment. • *Merchant discount rate:* Rate the merchants are charged by their banks or service providers for accepting payments. May be retail or wholesale; can vary by transaction value, volume, or channel.	In the form of a network-connectivity fee (transaction routing fee) or interchange-reimbursement fee to the network provider. Acquirer banks charge merchants a merchant discount rate and, in turn, are charged an interchange fee. End users may also be charged a user fee/ATM withdrawal fee.	Interchange and switching fee, which is dependent on transaction volume.	Dependent on transaction volume.

continued

TABLE D1, *continued*

FEES AND CHARGES					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Miscel-laneous fee	Non-compliance fee	Members are levied a penalty as prescribed by the scheme rules in case of nonadherence.	Noncompliance with scheme rules results in penalties on the participant or participants.	Penalty for noncompliance is as per severity of non-compliance.	Interparticipant penalties are liable in case of non-compliance with the rules.
	Offboarding fee	Lump-sum fee to be paid to the scheme operator at the time of offboarding.	No such fees are charged for offboarding	No such fees exist for participants to offboard.	No specific offboarding fee exists, but members may voluntarily terminate membership. However, they will be bound by scheme rules for the time when they were members.
	Other fee	No such charges exist.	In case of a dispute investigation, other fees are payable.	Taxes and statutory payments.	No specific charges exist for a miscellaneous fee.

APPENDIX E: TECHNOLOGY

TABLE E1 **Comparative Analysis of Technological Elements across Global Payment Scheme**

TECHNOLOGY					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Messaging mode and communi-cation standard	Mode of communi-cation/ Messaging protocol	Fast payment schemes use APIs as the messaging proto-col, which either are defined end to end by the schemes or the API framework contains the key technical approach and mandatory data attributes for APIs.	Transmission Control Pro-tocol and Internet Protocol are used in transmitting transaction data between participants and payment schemes.	Participants and payment schemes communicate via the following channels: • *File based:* for bulk mandates • *UI based:* for individual mandates	Participants and payment schemes communicate via an electronic file in the for-mat specified by the payment scheme.
	Message standards	The following are the three approaches widely adopted by schemes: • ISO 20022 messaging standard • ISO 8583 standard mapping to and from ISO 20022 messages • Proprietary messaging	ISO 8583 is widely adopted and used as the messaging protocol in the card industry. Gradually, the card scheme is moving toward ISO 20022 using the XML/ JSON format, which is self-documented and uses tags to make the contents of the message easily decipherable and accessible without technical expertise.	Functions on the international messaging standard ISO 20022.	The implementation guide-lines are based on the ISO 20022 XML message standards.
	Transaction limit	Payment schemes could choose any of the following: • Payment schemes define the maximum transaction limit for individual payments. Participating organizations can set their own limits depending on how the payment is sent and the type of account from which their customer is sending. • Define no transaction limits; participating financial institutions can set limits.	Payment schemes define transaction limits against each payment instrument handed over to the end customer.	Maximum debit amount via a single instruction is set by the debit transfer schemes, which are followed by the participants.	The maximum credit amount, if any, via a single instruction is set by the credit transfer schemes, which are followed by the participants.
Technical infra-structure and contingency standards	Technical infra-structure availability	SLAs laid out by payment sys-tems are stricter, and participants are required to adhere to the technology maintenance plan set out by payment scheme.	Payment schemes define SLAs for participants to ensure smooth, uninter-rupted functioning and services to end customers.	In terms of technical infra-structure availability, participants' systems are available for presentment to the payment schemes as per the predefined turnaround time.	Participant's systems are available for presentment to the payment schemes as per the predefined turnaround time.
	Contingency plans	Payment schemes set minimum business-continuity standards, including any upgrade from time to time, with which the participants must always comply.	Payment schemes define contingency plans for the participants under the larger ambit of regulatory contingency guidelines.	Payment schemes define contingency plans for the participants under the larger ambit of regulatory guidelines of a business-continuity plan for the participants.	Payment schemes set min-imum business-continuity standards, including any upgrade from time to time, with which the participants must always comply.
Security protocols	Data encryption	Fast payment schemes man-date the use of encryption methodologies for protecting payment information, along with specific technical standards around data encryption. Indicative technical standards around data encryption include the following: • Encryption protocol must remain intact during end-user interaction • Device/application encryption • Secure encryption algorithms • Point-to-point encryption	Storage of encryption keys in a secure data center, along with defining various levels of key encryption hierarchy for encryption key management.	The scheme specifies the encryption methodology through the adoption of international standards such as SHA 256.	The credit scheme has implemented an internationally accepted encryption framework, such as the public key infrastructure, ensuring secure data transmission along with end-to-end transmission.

continued

TABLE E1, *continued*

TECHNOLOGY					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Security protocols, *continued*	Identity and account validation	Separate rails have been built by fast payment schemes to validate identity and accounts of end users. In addition to this, participant in the value chain have their own authentication mechanisms to validate and verify the user. Also, there are schemes that use third-party validation services that allow the payment players to focus on their core business.	The scheme places specific responsibilities on players in the value chain to validate identity of the end user. For example, for card scheme token services, the issuer has the full responsibility to validate the identity of the cardholder.	The various directly participating banks are given the task of identifying and validating the customers on their end.	Before sending and receiv-ing payments through the credit scheme, the participants in the value chain are required to validate the customer credentials before processing the payment.
	Message security	Mandating digital signatures. A unique identifier for a request-response set. Message transmission over a secure channel, such as HTTPS.	Messages are transmitted across secure channels between participants to protect the sanctity of the payload. A unique identifier for a request-response set.	Messages are transmitted across secure channels bearing the digital signa-ture to maintain the sanctity of the payload, along with a relevant timestamp.	With the help of a globally recognized network service providers, a message is transmitted through secure channels with appropriate identifiers, such digital signatures, timestamps.

APPENDIX F: MARKETING AND BRANDING GUIDELINES

TABLE 4 **Comparative Analysis of Marketing and Branding Elements across Global Payment Scheme**

MARKETING AND BRANDING GUIDELINES					
Scheme Rule	**Subarea**	**Fast Payment Scheme**	**Card Scheme**	**Direct Debit Scheme**	**Credit Scheme**
Payment scheme brand guidelines	Brand guidelines framework	• Payment schemes follow the following approach for branding and marketing: • Payment scheme logo is visible on acceptance channels adhering to the overall marketing and branding guidelines. • In case of overlay services, precedence is given to the overlay service logo, instead of the payment scheme logo.	Payment schemes formulate the branding and marketing guidelines for the participants and the merchant to promote the brand visibility for end customers.	Participants follow the payment scheme guide-lines and payment scheme operator guidelines when using the defined logo.	Inference for the marketing and branding guidelines comes from the regulation that enabled the formation of the payment scheme. Payment schemes circulate marketing and branding guidelines under the larger ambit of guidelines specified by the regulatory body.

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