Results Measurement Toolkit: Interoperable Payment Systems
Acknowledgments

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Under its Interoperable Payment Systems Research Program, IPA is creating evidence and data through research and monitoring and evaluation (M&E) engagements with the objective of enabling stakeholders to adjust design elements of interoperable payment systems implementations and realize their true impact on individuals, businesses, and economies. This toolkit is based on learnings from M&E engagements that Innovations for Poverty Action (IPA) has undertaken with stakeholders of interoperable payment systems in Pakistan and Myanmar.

DISCLAIMER
The authors’ views expressed in this publication do not necessarily reflect those of IPA

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## List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>Application Programing Interface</td>
</tr>
<tr>
<td>CAR</td>
<td>Credible, Actionable, Responsible</td>
</tr>
<tr>
<td>DFSP</td>
<td>Digital Finance Service Provider</td>
</tr>
<tr>
<td>G2P</td>
<td>Government to Person</td>
</tr>
<tr>
<td>IPA</td>
<td>Innovations for Poverty Action</td>
</tr>
<tr>
<td>IPS</td>
<td>Interoperable Payment Systems</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicators</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MFI</td>
<td>Microfinance Institution</td>
</tr>
<tr>
<td>P2P</td>
<td>Peer to Peer (Person to Person)</td>
</tr>
<tr>
<td>RFE</td>
<td>Right Fit Evidence</td>
</tr>
</tbody>
</table>
Introduction

Results Measurement for Interoperable Payment Systems

Interoperable payment systems (IPS) are costly interventions, undertaken to improve the payments ecosystem of a country, with the ultimate aim of advancing financial inclusion and achieving overall financial sector policy goals. Given that there are a variety of objectives attached to the implementation of IPS, it is essential to define these objectives at the onset, create consensus with the stakeholders involved, and then actively track whether the payment system is achieving these objectives. A robust results measurement framework can help stakeholders achieve the above.

The toolkit is based on Innovations for Poverty Action’s (IPA) learnings from past monitoring and evaluation (M&E) engagements with stakeholders who are directly implementing or supporting the implementations of IPS. For ease of use, the toolkit also includes templates for each step of the process, provided in the Appendix.

Who Is this Toolkit for?

This toolkit is intended for use by central banks, private institutions, donors, international development agencies and other stakeholders who are interested in measuring the performance of IPS. It helps implementers track and assess the results of IPS implementations through the use of key performance indicators (KPIs), and use these KPIs to iteratively improve the design process.

Importance of a Results Measurements Framework

IPS are complex implementations that require collaboration and coordination between several stakeholders. These systems also require significant investment and, if inclusive by design, mean that they have the intention of creating utility for the underbanked and poorer segments of society. However, if the performance and impact of the payment system is left unmeasured, implementers may not be able to improve the design of these systems or ensure that the impact is reaching the desired audience.

Developing the results measurement framework involves several steps. As seen in Figure 1, the framework starts with identifying the host institution, mapping stakeholders and their corresponding responsibilities, and gaining buy-in from stakeholders involved. While the implementation of the framework may be led by one stakeholder, it may be necessary to collaborate across different stakeholders who are part of the payment system to ensure appropriate implementation and positive results from the toolkit. Once these processes are completed, stakeholders come together to develop a theory of change, craft a results matrix and KPIs, identify and prioritize data sources, and initiate a baseline research exercise.

The final part of the process involves establishing a regular monitoring process that can provide continuous feedback into the design of the payment system and enable stakeholders to review the extent of hypothesized impacts being achieved. The remainder of this toolkit talks about each step in more detail.
FIGURE 1: STAGES OF A RESULTS MEASUREMENT FRAMEWORK

**Design of IPS**
- Identify host institution, map stakeholders and corresponding responsibilities

**Timeline of Implementation**
- Gain buy-in from all stakeholders/ form M&E working committee with representation from main stakeholders
- Develop theory of change
- Develop results matrix and KPIs
- Define data sources and prioritize indicators
- Conduct baseline and draft monitoring plan
- Adjust design elements IPS if required

**Launch**
- Monitor KPI’s against targets
- Analyze and communicate findings

**Timeline of Implementation**
- IDENTIFY Stakeholders
- DEVELOPMENT
- SYNTHESIS AND DISSEMINATION
Part 1: Identify Stakeholders

Part 1 of this toolkit focuses on identifying the right stakeholder for hosting the results measurement framework, creating a stakeholder matrix to map out the role each stakeholder will play in its implementation, gaining buy-in from identified stakeholders and forming a results measurement working committee.

Stakeholder Mapping

Given that each stakeholder in the payment system has a different function, it is important to map all stakeholders with respect to the role they will play in the implementation of a results measurement framework. This can help define what activity each stakeholder will conduct as part of the framework, including how data will be generated, who will collect data, who will analyze the data, and who will lead the change management process. Table 1 (below) shows how stakeholders can be mapped according to their roles in the results measurement framework. A template for constructing your own stakeholder matrix is provided in the Appendix. Readers are encouraged to populate the template according to their country/situational context and break down the matrix further as required.

**TABLE 1: STAKEHOLDER MATRIX**

<table>
<thead>
<tr>
<th>Role in results measurement framework</th>
<th>Stakeholder</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host / Roll out / Data Collection and analysis / Dissemination</td>
<td>Central Bank or Association</td>
<td>Our learnings from previous M&amp;E engagements suggest that it is essential to identify which stakeholder should “own” the results measurement framework, and describe the hosts’ responsibilities. Hosting the results measurement framework will depend on the design of the payment system, as it will involve taking leadership, collecting and analyzing data, and driving change based on insights developed. For example, if the IPS is a central bank owned and operated system, the central bank itself may host the framework. Alternatively, if the central bank provides oversight but management is with a different entity, the ‘separate entity’ may host the results measurement framework.</td>
</tr>
<tr>
<td>Oversight / Accountability / Learning</td>
<td>Central Bank / Donor / Funder</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The responsibility for oversight, accountability and disseminating learnings can be either with the Central Bank, which is usually the ‘overseer’ or the ‘scheme manager’ or with an external party, which in some cases, will be a donor institution which has provided financial and technical assistance for the IPS implementation. Donor institutions can bring context and ideas from other implementations around the world, while at the same time, learnings from your payment system implementation process can be shared with donor institutions to inform and improve their implementation strategies in other countries.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support in design of results measurement framework / Provide access to data</th>
<th>Digital Financial Service Providers (DFSPs) / Switch Operator / Settlement Agent (if different from Central Bank)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The implementation of a results measurement framework, similar to the implementation of a payment system itself, should not be done in a silo. It is vitally important to consult with other actors in the financial sector who fall within the ambit of the payment system and therefore are affected by it, in order to ensure that all steps in the development of a results measurement framework are contextual, realistic, and accurate. Consulting stakeholders is also important as data for input into the results measurement framework will be provided by these institutions. (see step 2 below)</td>
</tr>
</tbody>
</table>
Part 1: Identify Stakeholders

Gaining Buy-in from Stakeholders

After stakeholders have been mapped with respect to their roles and responsibilities, it is important to gain collective buy-in for measurement of performance and impact of the payment system. This process can ensure that all relevant stakeholders are onboard, agree to sharing the required data, and implement changes as the results measurement framework is developed and generates insights.

IPA’s experience suggests that identifying a champion within each institution can be useful in driving the results measurement framework towards success. Bringing together individual champions from each institution, who can act as stewards of the framework within their institution, can culminate into a results measurement working committee that can lead the implementation of the framework.
Part 2: Development

Part 2 of this toolkit focuses on the process of developing the theory of change, the results matrix, KPIs, and their prioritization.

Designing a Theory of Change

A theory of change is a causal pathway or the logical sequence of steps that need to be undertaken to reach a desired impact. It describes the channels through which the payment system achieves the desired financial, social, and/or economic impacts.

Identifying the problem and defining the key goals:
In the context of a payment system implementation, identified problems can range from low account ownership to the prevalence of consumer risks in a payments ecosystem. It can also be the lack of inclusion of small businesses in the formal financial system or the lack of transparency of government to person (G2P) payments. It is important to attach impact goals to each problem. For example, if the problem is the lack of account ownership, an impact goal can be broader account ownership. Similarly, a goal can be to improve consumer protection by enabling wider access to information and disclosure at the individual level. However, the design of the payment system, its technical capability, and the country context such as the maturity of the market, should all be taken into account when designing realistic impact goals for the payment system.

Defining these impact goals becomes easier if existing evidence is reviewed on what kinds of challenges other payment systems aim to solve. Given that there is a lack of research on IPS, it may be appropriate to consult other countries where a similar system has been implemented to understand what problems existed and how those problems have been solved via a payment system implementation. Primary research may also be conducted to validate a hypothesis; for example, several payment systems are mandating low or zero fee for peer-to-peer (P2P) transactions, which while creating utility for users, can lower revenue for DFSPs. Conducting primary research to understand if users see high cost of transactions as a major impediment to opening and usage of accounts, can be pivotal in validating this problem and defining a realistic impact goal.

Establishing the components of a theory of change:
Once the problem has been defined, an approach to solving that problem is charted out as part of the theory of change. As seen in Figure 2, a typical theory of change maps out the steps from activities to the resulting outcomes and ultimate impact. The theory of change can be a living document, with changes incorporated within it as learning improves during the implementation of the payment system. In this way, it enables flexibility to adjust key elements of the payment system according to new approaches and learnings surfaced during the lifecycle of a payment system. A template for constructing a tailored theory of change is provided in the Appendix.

💡 Developing a theory of change should ideally be a co-creation exercise with involvement of multiple stakeholders —identified in the stakeholder matrix. A theory of change for a payment system implementation created in a silo, without consultation, may not resonate with the wider market and may result in misalignment of output, outcomes, and impact goals.
### Theory of Change

#### Example

<table>
<thead>
<tr>
<th>Activities</th>
<th>Outputs</th>
<th>Outcomes</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumptions (Activities)</td>
<td>Assumptions (Outputs)</td>
<td>Assumptions (Outcomes)</td>
<td>Assumptions (Impacts)</td>
</tr>
</tbody>
</table>

Switch exposes APIs for DFSPs to integrate

DFSPs connect to switch

Individuals open accounts due to possibility of cross net transfers to any network

Wider account ownership leads to general financial inclusion outcomes

DFSPs will be able to directly integrate through APIs, or will upgrade their core banking system to enable integration

DFSPs advertise interoperability and other account features such as Account Alias

Low account ownership exists due to lack of interoperability; introduction of interoperability and other features are an attractive proposition for individuals to open accounts

Individuals regularly use accounts for payments, savings, access to personal finance

- Activities (sometimes called inputs or processes) are either resources that will be invested into the development of a payment system or activities that will be conducted towards achieving tangible results. These can range from generating consensus in the market to launch a payment system, to a payments switch exposing its APIs. The starting point of the theory of change will depend on the lifecycle and maturity of the payment system.

- Outputs (also known as processes) are tangible solutions or direct results that will be a consequence of the investment of resources or activities

- Outcomes are intended changes that will occur as a result of the output; for example, the ability to make off-net payments

- Impacts are the broader effects that will be envisioned due to the overall intervention, such as closing the gender gap in financial inclusion

For each part of the theory of change, it is important to identify the accompanying assumptions, which help contextualize the journey from activities to impact. For example, an assumption at the activity level could be “sufficient technical and financial resources available with the implementation leader to implement the IPS.” Assumptions at the outcome level could be “critical threshold of merchants accepting digital payments.” Building on the above components of a theory of change, Figure 3 provides an example of a theory of change for an IPS. While this theory of change is generalized across different implementations.
### FIGURE 3: THEORY OF CHANGE - IPS

<table>
<thead>
<tr>
<th>Activities</th>
<th>Outputs</th>
<th>Outcomes</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DFSPs</strong></td>
<td>Switch exposes APIs, persuades / mandates DFSPs to connect</td>
<td><strong>Infrastructure:</strong> Back end digitization, front end UI/UX development</td>
<td><strong>Governance:</strong> Payments user group/council operating rules established; pricing rules finalized</td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td>Drive awareness and adoption, persuade government entities to adopt, provide support in building technical capacity of government entities</td>
<td><strong>Demand:</strong> Government agencies understand value of IPS</td>
<td><strong>Government agencies / non government entities make bulk transfer payments (G2P - ECT)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Infrastructure:</strong> Government agencies partner with DFSPs for payments through IPS</td>
<td><strong>Taxes, rates etc (P2G, M2G)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Demand:</strong> Government agencies understand value of IPS</td>
<td><strong>Reduction in time—cost of travel, timely receipt of payments, improved participant experience</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Infrastructure:</strong> Government agencies partner with DFSPs for payments through IPS</td>
<td><strong>Lower cost of processing payments</strong></td>
</tr>
<tr>
<td><strong>Individuals</strong></td>
<td>DFPS: Promotion and marketing, inform user behavior change through financial literacy campaigns, other promotional activities</td>
<td><strong>Demand:</strong> Individuals understand value of IPS</td>
<td><strong>Individuals send money to others (P2P)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Infrastructure:</strong> Individuals connect to IPS (i.e. open wallet, set up alias etc.)</td>
<td><strong>Individuals purchase goods or services (P2M)</strong></td>
</tr>
<tr>
<td><strong>Merchants</strong></td>
<td>DFSPs: Promote adoption and usage by introducing incentives for merchants to adopt</td>
<td><strong>Demand:</strong> Merchants understand value of IPS</td>
<td><strong>Businesses pay suppliers (M2M)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Infrastructure:</strong> Merchants digitize payments; adopt QR as payment instrument</td>
<td><strong>Reduction in price (P2P, cash out)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Lower cost of processing payments</strong></td>
</tr>
</tbody>
</table>
The above figure aims to construct a theory of change for the overall payment system implementation, comprising multiple use cases and therefore a variety of processes and impacts. However, it may be easier to develop a separate theory of change for each use case. This will help avoid complexity in designing the theory of change, especially if the payment system is being launched in a phased manner. Another method to reduce complexity is to develop a theory of change for each actor in the system. For example, a separate theory of change can be developed for individuals to map the chain of events that need to take place for impacting the user, or a theory of change for microfinance institutions (MFIs) can be developed to illustrate what activities MFIs will undertake and how impact can be achieved. Figure 4 (below) is an example of a theory of change for MFIs.

**FIGURE 4: THEORY OF CHANGE FOR MFIs**

- **Activities**
  - Switch exposes APIs, persuades DFSPs to connect
  - MFIs + DFS providers upgrade technological systems (core banking system); connect via APIs; integrate to switch through Payment Manager middleware
  - Inform user and agent behavior change through marketing campaign / sensitization content. Ex....
  - MFIs train staff and inform clients on new process post integration with switch

- **Outputs**
  - **Infrastructure**: Banks and MMPs = DFSPs upgrade front-end UI/UX to enable B2P / P2B use case (User APP and Agent APP development)
  - Individuals connect to switch (i.e.open wallet, set up alias, etc)
  - Individuals access agent network to collect and repay loan instalments
  - Agents provide information on switch - increase user familiarity with switch and personal wallet
  - Clients receive instant loan instalments
  - Network effects and new client out reach

- **Outcomes**
  - **Business outcomes**: Operational efficiencies, security, and cost-savings for MFIs / Increase in MFI operating margins
  - **Social outcomes**: Timely capital injection in micro enterprise
  - **Social outcomes**: Increased reach to rural/underserved client segments; expansion in borrower base
  - **Economic Resilience**
  - **Financial Inclusion**

- **Impact**
  - MFI Sustainability
Part 2: Development

Results Matrix

A results matrix can be considered an extension of the theory of change such that it records KPIs that measure activities, outputs, outcomes and impacts. Developing KPIs that can accurately measure the implementation of a payment system is an integral part of constructing a results matrix.

A robust results matrix will have a combination of both quantitative and qualitative indicators. While quantitative indicators are numerical measures, such as the number of new accounts opened, or percentages, such as the percentage of women opening a mobile money account, qualitative indicators answer questions relating to the extent of an output or outcome, such as perceptions of how instant settlement processes can affect merchant liquidity, or the quality of an output/outcome, such as the user experience of individuals using an IPS.

Constructing a Results Matrix using KPIs

Once KPIs have been defined for each step of the theory of change, these can be collated in a results matrix. The matrix allows organizing the KPIs according to which actor in the payment system they relate to, what level of the theory of change they measure, and whether the KPIs are quantitative or qualitative. Additional descriptions can also be added to include sources of data and methods of data collection.
Part 2: Development

Organizing Data

Organizing data involves identifying the data sources and methods of data collection, and determining the frequency of data collection and data prioritization.

Data sources and methods of data collection are overlapping elements that allow the development of a broader structure for capturing data. While a data source will define where the data can potentially come from or who could be responsible for collecting it, a data collection method defines how this data will be captured. For example, a data source can be the “switch hub,” whereas the data collection method would be “data collation.” Similarly, if the data source is “users,” the data collection method can be “surveys.” See Table 2 (below) for more information. A template for constructing your own data sources and data collection method table is provided in the Appendix.

Think about the type of data that will be collected and how best to characterize the data. We characterize data as Administrative Data and Survey Data in Table 2 (below) but the host institution can break this down further.

### TABLE 2: DATA SOURCES AND DATA COLLECTION METHODS

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Description</th>
<th>Source</th>
<th>Data Collection Method</th>
<th>Feeds into</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Data:</td>
<td>This is transactional and non-transactional data that is generated from the switch hub or by DFSPs. For example, this can be number volume/value of off net payments in a given time period, or more broadly, the number of entities that have integrated with the switch in the defined time period</td>
<td>Switch, DFSP</td>
<td>Data Collation</td>
<td>Quantitative Indicators</td>
</tr>
<tr>
<td>Survey data</td>
<td>This refers to data that does not exist, which would need to be collected via a newly administered survey/other collection mechanism. For example, nationally representative surveys can be administered (on a yearly basis) to capture user perceptions of a new IPS</td>
<td>Users</td>
<td>Surveys</td>
<td>Qualitative / Quantitative Indicators</td>
</tr>
</tbody>
</table>
Frequency of Data Collection

It is also important to determine the frequency with which data has to be collected against the defined indicators. For some indicators, it may make more sense to measure progress quarterly, for example for indicators that are time-sensitive such as the number of DFSP’s joining a switch. Others can be measured on an annual basis, such as the percentage change in off-net transactions from baseline values, as adoption and usage of IPS is usually a gradual process. Ultimately, how you define the frequency of data collection is contextual and will be based on stakeholder objectives, design of the switch, the costs of data collection, and the resources available.

Indicator Prioritization

The final step in constructing the results matrix is to prioritize indicators based on credibility, actionability, and responsibility (CAR). The CAR principles will help choose indicators that are relevant, valid, and attributable, that can truly inform decision making and will be used by stakeholders. The CAR principles also allows identifying indicators based on a measure of responsibility which includes the relative cost of data collection, ability to access personally identifiable information, and the time taken to collect information.

Users of this toolkit are encouraged to ascribe a score of 0-3 to each element of the CAR principles, against each indicator, and prioritize based on multiples. (See Figure 5). It is important to note that scores for each element may change over time as payment system develops and the theory of change is adjusted to reflect an updated design or newer priorities. As a result, previously deprioritized indicators can emerge as a priority moving forward. For example, integration of DFSPs to the IPS would be a priority at the development stage of the payment system, whereas overtime as the system reaches maturity, this priority can be replaced by “the percentage of users making off-net digital merchant payments.” The Appendix contains a template for CAR based prioritization of indicators.

- The CAR rating process is contextual. Users are the best judge of this context and may rate indicators according to existing priorities.

![FIGURE 5: PRIORITIZING USING CAR PRINCIPLES](image)

<table>
<thead>
<tr>
<th>Description (from Theory of Change)</th>
<th>Indicator</th>
<th>Credible (0-3)</th>
<th>Actionable (0-3)</th>
<th>Responsible (0-3)</th>
<th>Overall CAR Rating (0-27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals / clients open mobile wallets (set up alias) / access expanded agent base</td>
<td>User perception of value/ convenience of IPS</td>
<td>3</td>
<td>3</td>
<td>1.5</td>
<td>13.5</td>
</tr>
</tbody>
</table>

- **Credible**
  Indicators should be valid, reliable, and attributable to project activities.
  Rate from 0-3
  (3 is highly credible)

- **Actionable**
  Indicators should inform decision-making and strategy
  Rate from 0.3
  (3 is highly actionable)

- **Responsible**
  Indicators should take into account the costs for both the organization and participants
  Rate from 0.3
  (3 is highly actionable)

Note—the CAR ratings are a product of all three scores.
Based on the steps above, we can construct a complete results matrix which can visually collate all the steps and inform future directions. Table 3 (below) provides a generic set of indicators that can be used to measure the performance of a payment system.

### Table 3: Results Matrix

<table>
<thead>
<tr>
<th>Actor</th>
<th>Activity/Output/Outcome</th>
<th>Description</th>
<th>Suggested Indicator(s)</th>
<th>Quant/Qual</th>
<th>Method of Collection</th>
<th>Suggested Data Sources</th>
<th>Prioritization (CAR) Score</th>
<th>Frequency of Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSPs</td>
<td>Activity</td>
<td>MFIs/Banks/MMPs (participants) complete back-end integration with switch</td>
<td>Number of participant entities who complete technical integration</td>
<td>Quant</td>
<td>Existing/Secondary Data</td>
<td>Scheme Council/Manager</td>
<td>18</td>
<td>Quarterly</td>
</tr>
<tr>
<td>DFSPs</td>
<td>Activity</td>
<td>Banks/ MMPs Upgrade mobile apps</td>
<td>Number of integrated DFSPs with functional UI/UX to make transactions via switch</td>
<td>Quant</td>
<td>Existing/Secondary Data</td>
<td>Scheme Council/Manager</td>
<td>13.5</td>
<td>Quarterly</td>
</tr>
<tr>
<td>DFSPs</td>
<td>Usage</td>
<td>Volume of transactions processed through mobile wallets</td>
<td>Volume of transactions processed through mobile wallets by use case</td>
<td>Quant</td>
<td>Administrative Data</td>
<td>Switch</td>
<td>13.5</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Governance</td>
<td>Activity</td>
<td>Governance: Payments user group/council operating rules established</td>
<td>Governance arrangement established and operating rules finalized (no change)</td>
<td>Quant</td>
<td>Existing/Secondary Data</td>
<td>Scheme Council/Manager</td>
<td>27</td>
<td>Annual</td>
</tr>
<tr>
<td>Governance</td>
<td>Usage</td>
<td>Monitoring and compliance outcomes / level of public trust in system</td>
<td>Percentage of disputed/fraudulent transactions per month</td>
<td>Quant</td>
<td>Admin data</td>
<td>Switch</td>
<td>12</td>
<td>Bi-annual</td>
</tr>
<tr>
<td>Governance</td>
<td>Activity</td>
<td>Governance: Payments user group/council operating rules established</td>
<td>Pricing and other decisions finalized</td>
<td>Quant</td>
<td>Existing/ Secondary Data</td>
<td>Scheme Council/ Manager</td>
<td>27</td>
<td>Annual</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>-------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>--------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>-----</td>
<td>--------</td>
</tr>
<tr>
<td>Users</td>
<td>Outputs</td>
<td>Outreach: New individuals register with IPS</td>
<td>Change in the percentage of individuals with mobile wallet/ bank accounts linked to switch</td>
<td>Quant</td>
<td>Administrative Data</td>
<td>Switch</td>
<td>18</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Users</td>
<td>Outputs</td>
<td>Infrastructure (Direct participants): back-end digitization (i.e. APIs), adjust business / reconciliation processes, front-end UX development and payment channel expansions</td>
<td>Percentage change in the cost to the end user per type of transaction</td>
<td>Quant</td>
<td>Existing/ Secondary Data</td>
<td>Scheme Council/ Manager</td>
<td>8</td>
<td>Annual</td>
</tr>
<tr>
<td>Users</td>
<td>Outputs</td>
<td>Choice: Individuals are aware of their Increased choice / possibility of making off net transactions</td>
<td>User perception of value/convenience of Interoperability</td>
<td>Quant</td>
<td>New Survey</td>
<td>Client Satisfaction surveys</td>
<td>12</td>
<td>Annual</td>
</tr>
<tr>
<td>Merchants</td>
<td>Usage</td>
<td>QR Code usage</td>
<td>Percentage change in the number of individuals making QR payments to merchants</td>
<td>Quant</td>
<td>Administrative data</td>
<td>DFSPs</td>
<td>9</td>
<td>Annual</td>
</tr>
</tbody>
</table>
The KPIs in the table above have been identified through M&E engagements that IPA has undertaken with its partners. This is a generalized set of indicators that can be adapted to respective payment systems or measured according to priorities / maturity of the payment system.

Once the results matrix has been constructed, a regular process of monitoring can be initiated. Different KPIs will be measured at different instances (see Frequency of Data Collection, above), based on priorities of the payment system.

<table>
<thead>
<tr>
<th>Merchants</th>
<th>Usage</th>
<th>QR Code usage</th>
<th>Percentage change in the number of merchants accepting QR payments</th>
<th>Quant</th>
<th>Administrative data</th>
<th>DFSPs</th>
<th>9</th>
<th>Quarterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFIs</td>
<td>Outputs</td>
<td>Business outcomes: Operational efficiencies, security, and cost-savings for MFIs/NGOs/GOs</td>
<td>Cost of processing loan per borrower (overall cost/total borrowers per year)</td>
<td>Quant</td>
<td>Existing/Secondary Data</td>
<td>MFIs</td>
<td>18</td>
<td>Annual</td>
</tr>
<tr>
<td>MFIs</td>
<td>Outputs</td>
<td>Business outcomes: Operational efficiencies, security, and cost-savings for MFIs/NGOs/GOs</td>
<td>Average time to complete a payment from MFI side (loan disbursement)</td>
<td>Quant</td>
<td>Administrative Data</td>
<td>MFIs</td>
<td>18</td>
<td>Annual</td>
</tr>
<tr>
<td>MFIs</td>
<td>Outputs</td>
<td>Transaction completion rates: Increase in timely loan repayment</td>
<td>Change in loan repayment times (measured by number of days that a loan is pending repayment after due date)</td>
<td>Quant</td>
<td>Administrative Data</td>
<td>MFIs</td>
<td>9</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>
Part 3: Synthetization and Dissemination

Monitoring, Learning, and Dissemination

A continuous process of testing and monitoring can generate insights to inform the design and improvements of the payment system. For example, measuring ‘the percentage of individuals making QR merchant payments on an annual basis’ can provide insights into the usage of QR payments as a merchant payment method compared to other payment methods such as card payments. Based on this comparison, implementers can take relevant actions to promote usage of QR payments. Similarly, by measuring the number of off-net P2P transactions processed through mobile money wallets against a specified target can enable broader discussions on how this use case can be promoted further.

Monitoring will help decision makers change design elements of payment systems before the payment system life cycle reaches the impact stage (which can usually take 2-3 years after launch). The first few years are therefore critical in launching, testing, and redesigning elements that can enable achievement of the desired state of impact.

Setting targets: Monitoring on its own, however, will not aid productive decision making, until progress is measured against a target. Identifying targets for each indicator will help make clear if indicators have achieved the desired results in a specified period of time. This time period is usually annual or bi-annual based on time sensitivity of the indicators themselves (see Frequency of Data Collection, above). However, in the context of a payment system it may be difficult to define realistic targets, especially as there is usually one (or two) implementations of a payment system in a country. Therefore, it might be useful to consult results measurement frameworks of other countries, or construct targets based on projections via data from an existing switch.

Evidence-based decision making: While the host institution may lead the monitoring process, the resultant design changes will affect almost all stakeholders of the payment system. This is where the role of the results measurement working committee becomes accentuated. Members of this working committee are not only required to weigh in on translating the results, but also ensure that the results are communicated and incorporated in a timely manner within their respective institutions (through the champions identified at each institution). To follow an evidence based decision making process, it is necessary that results from this exercise continuously influence these design and operational decisions. If the results measurement framework is successfully embedded in the payment system, decisions can be made based on the results measured at different frequencies.
FIGURE 6: EVIDENCE-BASED DECISION MAKING

Results from M&E

Aid decision making

Design and operational elements updated

M&E data collection
Conclusion

As IPS are increasingly deployed across multiple geographies, it is important to ensure that these systems deliver the desired impact. To achieve this impact, embedding results measurement frameworks in payment system implementations is critical. This toolkit is intended to support implementers in ensuring that an evidence-based decision making process is nested within these implementations.

Under its Interoperable Payment Systems Research Initiative, IPA continues to support central banks and partner DFSPs in generating insights on various elements of IPS across different countries. Through its Right-Fit Evidence (RFE) Unit, IPA also aids implementers in developing tailored results measurement frameworks for their respective IPS implementations. We also recognize and appreciate efforts by other institutions in generating data and insights on IPS implementation across emerging markets.

References


Appendix:

**TABLE 4: TEMPLATE - STAKEHOLDER MATRIX**

<table>
<thead>
<tr>
<th>Role in results measurement framework</th>
<th>Stakeholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host / Roll out / Data Collection and analysis/Dissemination</td>
<td></td>
</tr>
<tr>
<td>Oversight / Accountability/ Learning</td>
<td></td>
</tr>
<tr>
<td>Support in design of M&amp;E systems / Provide access to data</td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE 7: TEMPLATE - THEORY OF CHANGE**

**Activity**: Define the key activities that will be undertaken in launching the payment system

**Output**: Define the outputs that are a direct result of the activities

**Outcome**: Define the wider outcome that outputs are intended to contribute towards

**Impact**: Define the broader impact that is envisioned as a result of the outcomes

Assumptions:
### TABLE 5: TEMPLATE - DATA SOURCES AND DATA COLLECTION METHODS

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Description</th>
<th>Source</th>
<th>Data Collection Method</th>
<th>Feeds into</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Data:</td>
<td>This is transactional and non-transactional data that is generated from the switch hub or by DFSPs. For example, this can be number volume/value of off-net payments in a given time period, or more broadly, the number of entities that have integrated with the switch in the defined time period.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey data</td>
<td>This refers to data that does not exist, which would need to be collected via a newly administered survey/other collection mechanism. For example, nationally representative surveys can be administered (on a yearly basis) to capture user perceptions of a new interoperable payment system.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 6: TEMPLATE - CAR PRIORITIZATION

<table>
<thead>
<tr>
<th>Description (from Theory of change)</th>
<th>Indicator</th>
<th>Credible (0-3)</th>
<th>Actionable (0-3)</th>
<th>Responsible (0-3)</th>
<th>Overall CAR Rating (0-27)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actor</td>
<td>Activity/Output/Outcome</td>
<td>Description</td>
<td>Suggested Indicator(s)</td>
<td>Quant/Qual</td>
<td>Method of Collection</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------</td>
<td>-------------</td>
<td>------------------------</td>
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</tbody>
</table>