Operational guidelines for interoperability:
A customer-centric approach

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Introduction

This publication sets out operational guidelines for mobile money providers to consider when introducing an interoperable service for their customers.

A cross-net person-to-person (P2P) transaction is defined in this document as the transfer of money between the accounts of customers of different mobile money schemes operating in the same country. Such P2P cross-net transactions depend on Account-to-Account (A2A) interoperability between providers—the ability to transact from one wallet in one mobile money scheme to another wallet belonging to another scheme.

Successful A2A interoperability should bring significant benefits for providers and customers alike, but poor implementation could jeopardise adoption and result in inefficient use of financial resources, inequitable risk-sharing among participants, actual financial losses for participants, and a loss of customer confidence in the mobile money service itself.

This publication highlights the key requirements for successful A2A interoperability between mobile money providers, and describes actions that should be taken to realise them. It focuses on:

1. **Working together for long-term success:** This first section covers the level of commitment required from the mobile money providers and the key agreements that need to be in place from the outset between providers so they can work together towards A2A interoperability. It also includes a road map to help guide providers through the process and explores the extent and potential limits of collaboration.

2. **Guaranteeing basic customer needs:** The second section focuses on how different business areas must ensure that customer requirements continue to be met with A2A interoperability. It assumes that basic customers' needs for the overall mobile money service include reliability, safety and security, convenience and transparency. These needs do not change with the introduction of A2A interoperability, and must continue to be met to ensure customers adopt and use mobile money services.

Finally, the Appendix contains a practical checklist to be used as a ready reference by those working to develop A2A interoperability between mobile money providers.[1]

1. This document complements the 'Code of Conduct for Mobile Money Providers' and it is recommended that mobile money providers refer to both documents concurrently when considering interoperability.

Section 1: Working together for long-term success

Working together is both the prize and the challenge of interoperability: A2A interoperability by definition requires mobile money providers to collaborate in order to jointly provide a service.

Developing the required operational systems and processes across different organisations is, therefore, unavoidable. To ensure success when implementing an interoperable service, providers will need to display:

- **Leadership:** All committed organisations have a shared vision, commit resources to develop an on time and high performing solution and invest in its deployment also after launch.
- **Planning:** The process of delivering the new service is executed efficiently.
- **Collaboration:** Core business areas work together effectively and providers consider the potential extent of their collaboration so they capture the full benefits of interoperability.

Leadership

AGREE ON A SHARED VISION FROM THE OUTSET TO ENSURE A SUCCESSFUL DEPLOYMENT.

Mobile money providers who are planning to interoperate should share a common vision with all parties involved,[2] in addition to commitment from senior management during implementation and beyond.

Senior management will therefore need to:

- Agree on a shared ***scope, priority level, budget and approach*** for the project.
  - Define common scope of the project, including the technical model for integration, customer care and processes redesign.
  - Align the project's priority level across different organisations and even within each organisation.
  - Approve project budget and resources that will be required to run the project based on individual budget allocation and resource availability.
  - Confirm escalation process for organisations involved in case the agreed scope, priority and budget is not reached by one of the organisations involved.

2. When integrating bilaterally, only the mobile money providers would be involved, while when making use of a switch, mobile money providers would need to agree on scope, priority, budget and approach, share goals, track market performance and define future investments together with the third party payments switch.

- Agree on shared goals and expectations for ***market performance and future investments.***
  - Document expected mutual benefits of interoperability as well as agreed key market performance indicators and timelines for measurement.
  - Implement an agreed system for tracking, reviewing, and sharing data for measuring performance against targets.
  - Schedule regular meetings for project updates and decision making for prioritising and solving any emerging issues.
  - Identify future investment scenarios (e.g. based on market performance) and agree upfront about required levels of investment.
  - Document joint experiences and lessons to foster continuous improvement in overall customer experience.

SCOPE, PRIORITY LEVEL, BUDGET AND APPROACH:

To achieve interoperability, a common scope of work must be defined by all participating organisations with the requirements for what needs to be done and necessary resources that must be committed to develop an on time, high performing, and comprehensive solution.

There will be an inherent challenge in coordinating teams from different organisations, with potentially different cultures and practices, to work together. This tension will be exacerbated if providers do not share the same level of enthusiasm for the project, especially during the development and piloting phases, when concentrated effort will be required. In such a case, there may be need for a neutral and trusted party to consolidate the interests of the mobile money providers, partner organisations, as well as external influencers, like the regulators and governments, to drive a common agenda.

Additionally, other product launches or different organisational priorities could compete for internal resources and impact the timeframe or success of any launch. Knowing where the A2A interoperability project would fall in the overall roadmap of each organisation is key to set the right expectations with the partners involved from the beginning, to avoid disappointments and potential damage to the trust required to implement A2A interoperability. Transparency by all participants on their level of ability (including time, financial and human resources), as well as priorities, will help give the other participants a position on how and when to engage, and whether any assistance can be provided or timelines modified.

MARKET PERFORMANCE AND FUTURE INVESTMENT:

It is of utmost importance that all parties are aligned on the mutual benefits and market-wide impact of interoperability. It is necessary to define the market key performance indicators (KPIs), such as the uptake in transactions and number of customers, as well as any expected impact on the cash-in/cash-out transactions (please see Appendix for more information). KPIs should be set early in the project and tracked at close intervals in order to see the actual impact made by interoperability. When setting up a tracking system, parties may want to include a review of agreed KPIs and decision making process in case actions need to be taken to reinforce customers' knowledge of A2A interoperability available in their market.

Once the deployment launches, there will need to be continued, coordinated effort to ensure all parties share responsibility and accountability for growth. Investments will be necessary, for example in marketing campaigns, to create customer awareness, or in system capacity improvements to handle the rise in P2P cross-net transactions. These should be understood upfront with enforcement mechanisms agreed in advance to avoid a situation where one provider might experience a shared benefit off the back of another's effort or investment, or might experience a loss as a result of under-delivery from their partner.

Planning

ESTABLISH GOVERNANCE STRUCTURES FOR EFFECTIVE PLANNING AND DELIVERY.

Organising at least two different mobile money providers (independent of the technical model chosen[3]) to deliver A2A interoperability will be a complex process, requiring effective planning and appropriate governance.

In order to provide the necessary oversight, senior management should:

- Set up a cross-organisation interoperability task force, composed of leaders of the initiative. This leadership should:
  - Appoint a project manager and establish sub-teams to work across organisations.
  - Empower sub-teams to clearly define project plan (including key activities and timeframes).
    - In cases where a switch is used, the third party organisation should be a part of the sub-team.

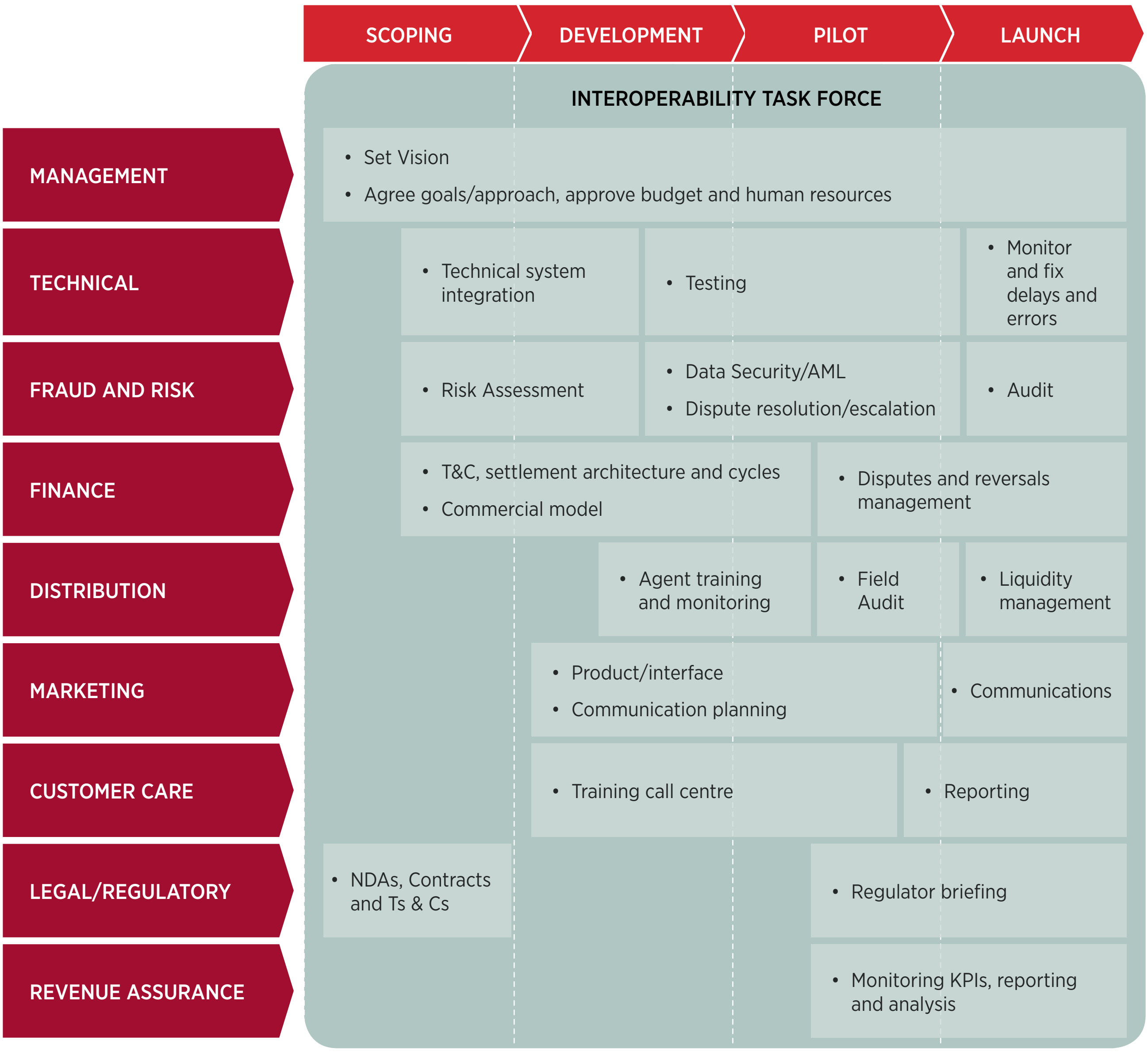
While the systems and processes to develop and implement a new service will vary between different organisations, a pilot phase will be an important step. Prior to a commercial launch, a pilot phase allows parties to stress test the system and minimise the risk of failure that would compromise the customer experience and jeopardise adoption. It is also advised that successful deployments be launched slowly, to allow the task force to identify technical and administrative bottlenecks early and eliminate them before transaction volumes grow.

Figure 1 highlights some key activities undertaken by different business areas at successive project phases, under the management of an interoperability task force.

3. For more details on technical models for A2A interoperability, see GSMA: *A2A Interoperability, Making Mobile Money Schemes Interoperate* (February 2014)

FIGURE 1

KEY PROJECT PHASES, TEAMS AND TASKS TO BE MANAGED BY THE INTEROPERABILITY TASK FORCE



Collaboration

CONSIDER THE FULL POTENTIAL BENEFITS OF WORKING TOGETHER THROUGH COLLABORATION.

In order to implement the planned activities, collaboration will be necessary among organisations. The extent of any collaborative work beyond core requirements will be a matter for agreement between mobile money providers.

When considering how to maximise the impact of a new service, senior management will need to agree on the appropriate extent of cross-organisational collaboration. There are three business areas where mobile money providers must work with each other:

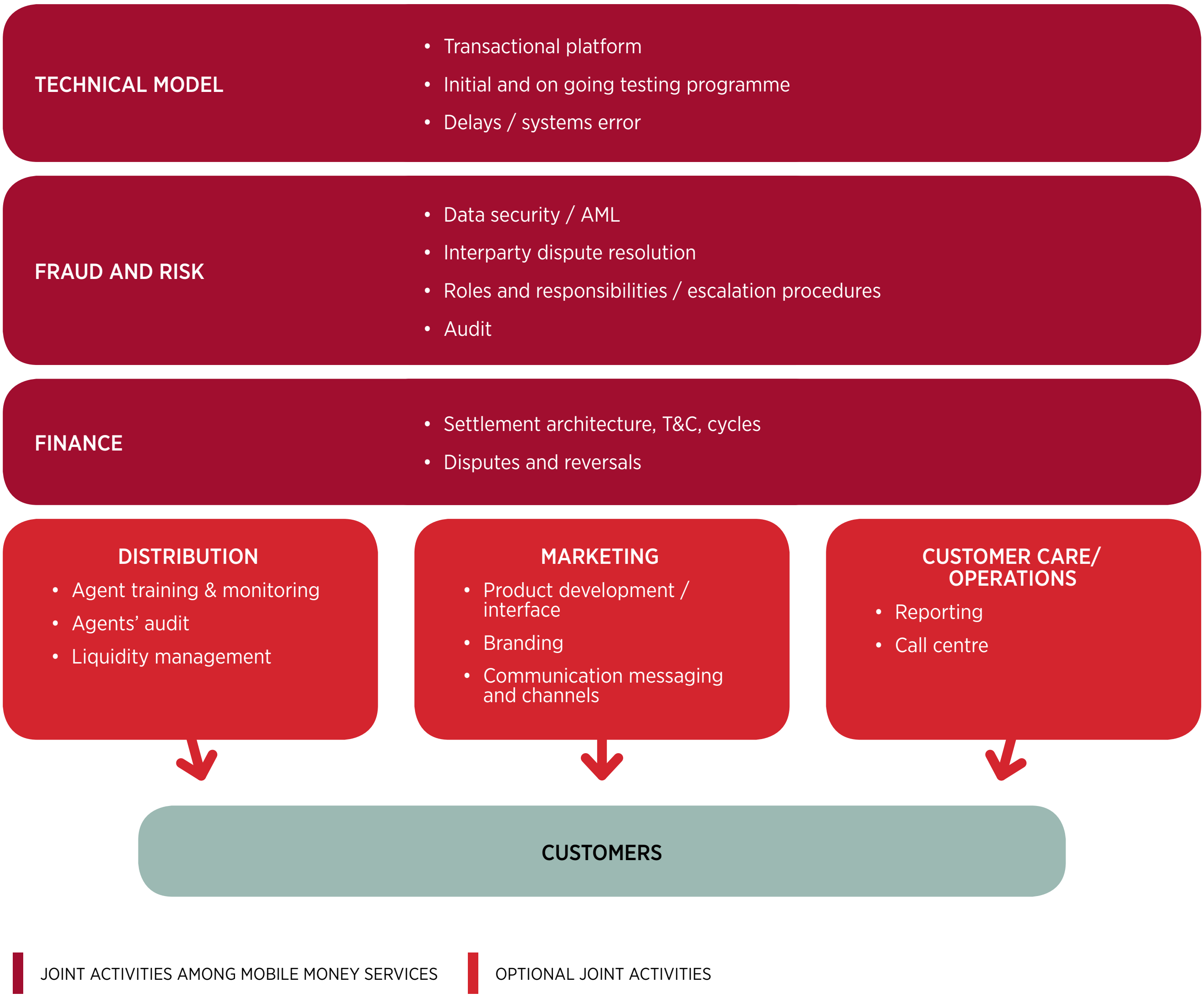
- **Technical teams** will have to jointly implement technical solutions and integrate their platforms.
- **Fraud and risk teams** will need to develop a consistent approach given that transactions are now cross-net, and so exposed to new risks from the integration of systems.
- **Finance teams** will have to ensure the balance and liquidity of transactions is properly managed. Processes for normal operations and escalations need to be defined.

Beyond these core areas, there is still additional potential for collaboration in the areas of **distribution, marketing and customer care** (see Figure 2).

Although these additional areas are not functionally essential to A2A interoperability, they are important for a successful and sustainable launch. For example, providers could choose to co-invest in customer awareness, or co-develop agent training materials to be implemented separately within each mobile money provider's agent network. Section 2 will further highlight necessary decisions about individual or joint approaches to these particular activities.

FIGURE 2

REQUIRED AND OPTIONAL COLLABORATIVE ACTIVITIES WHEN IMPLEMENTING A2A INTEROPERABILITY



Section 2: Guaranteeing basic customer needs

To realise the full potential of an environment where transactions flow across mobile money schemes, providers must avoid creating barriers to customer adoption during the implementation phase. The customer experience should be as consistent to current practice and as seamless as possible, otherwise service providers risk investing in a technical solution that is not adopted by those it is aimed at (its current users, at least in the initial stage).

Foundational customer requirements do not change with the introduction of A2A interoperability: maintaining the same standards of reliability, security, convenience and transparency that users already experience and expect will be crucial to the success of any interoperable service. Therefore, customer adoption of A2A interoperability will depend on an operational strategy that guarantees:

- **Reliability:** The system is robust and P2P cross-net transactions are processed seamlessly.
- **Security:** Transactional and personal data remain safe, even with the involvement of additional players.
- **Convenience:** P2P cross-net transactions do not require any additional effort than required for on-net transactions (or for alternative options for sending money) and the customer experience for both transaction types (on- and cross-net) is as similar as possible.
- **Transparency:** The customer clearly understands their rights and responsibilities when transacting cross-net, and understands what to do in the event of a problem.

By approaching the potential complexities of working together with these core customer requirements firmly in mind, mobile money providers can better understand project deliverables together, to fully realise the benefits of interoperating.

Reliability

TECHNICAL CONSIDERATIONS

ENSURE SERVICE RELIABILITY FOR CUSTOMERS, BY GUARANTEEING THAT TECHNICAL SYSTEMS WORK AS DEFINED BY SERVICE PROVIDERS AND THAT THEY ARE MONITORED ACROSS ORGANISATIONS.

Customers will only trust and adopt an interoperable service if it works and if P2P cross-net transactions happen as they expect them to. Different technical models exist for A2A interoperability solutions, such as bilateral connections or using a central processing entity.[4] The right technical solution depends on particular

4. For more details on technical models for A2A interoperability, see GSMA: *A2A Interoperability, Making Mobile Money Schemes Interoperate* (February 2014)

market conditions, but regardless of the model, the service must deliver a reliable and seamless customer experience and be able to support the expected uptake of transactional volume.

Therefore, technical teams must:

- Agree on the indicators, targets and ***minimum acceptable system performance levels*** for processing transactions by defining the integration formats. Therefore they will need to:
    - Compare system capabilities and agree on most suitable method of integration, making sure that regulations on e.g. transaction limits, KYC, etc. are observed and applied on system integration.
    - Agree on the minimum acceptable system performance levels for processing transaction messages and capacity of platform can adequately handle increases in volume.
    - In cases where a third-party is providing a switch, the switch provider will need to be a part of the service-level agreement (SLA).
- Agree on an approach for ***monitoring and fixing system delays, errors and outages:***
    - Jointly plan a testing approach to identify systems delays, errors and outages to be monitored in order to guarantee that technical bottlenecks are eliminated prior to launch.
    - Jointly define procedures for system monitoring and fixing system delays errors and outages, ensuring flexibility and adjustability to future changes.
    - Define cases and escalation procedures for system failures.
    - Define frequency and reporting mechanisms to be shared with partners.
    - In cases where a third-party is providing a switch, ensure that the same level of agreement exists between service providers and third party service and that it is documented in the SLA. This agreement may already exist, however, it needs to be understood from the operational impact point of view.

Minimum acceptable system performance levels:

A fundamental criteria for success will be to ensure that A2A interoperability does not diminish the existing customer experience. To maintain a seamless service, it will be crucial that the partners involved compare their system capabilities and agree on most suitable method of integration, for example by:

- Analysing the compatibility of existing APIs.
- Understanding alternatives in case existing APIs are not sufficient.
- Deciding to use third party integrators (as a switch) to develop an integration solution among the mobile money providers.

As part of the system integration, the parties involved would need to configure their systems to reflect their commercial agreements and make sure that regulations on e.g. transaction limits, KYC, etc. are observed and applied.

The mobile money operators would also need to agree with the partner organisations from the outset on clearly defined standards of acceptable performance, appropriate indicators, and enforcement mechanisms. This agreement should build on each provider's existing SLAs or key performance indicators (KPIs), and acceptable system performance should meet existing performance targets. Therefore, if a discrepancy on indicators exists between providers, the minimum acceptable performance should match the SLA of the most stringent mobile money service. This ensures that existing customers will not have an inferior service when undertaking a P2P cross-net transaction.

Some examples of joint performance indicators to consider defining include:

- Total transaction time, measured as the time it takes to finalise a payment (taking into consideration that another platform is involved).
- Acceptable percentage of successful transactions.
- Acceptable time delay (in minutes) to receive a confirmation notification (USSD or SMS).
- Acceptable amount (in minutes) of system downtime in the calendar year.
- Acceptable levels of system utilisation throughout the day (e.g. tracking peak, average, and minimum usage levels).

Additionally, each service provider would separately need to:

- Ensure the capacity of their platform and USSD Gateway for a potential growth in transactions.
- Measure and adjust their system if the implementation of A2A interoperability impacts the current number of on-net transactions per second.

In cases where a third party is providing a switch, the switch provider needs to:

- Ensure capacity to process an increased volume of transactions.
- Ensure dispute settlement and resolution processes are in place and are agreed on with service providers.
- Ensure reconciliation and settlement reports are sent to service providers at agreed intervals with agreed level of detail.
- Ensure that SLA between service providers and switch provider includes acceptable response times for different types of failures and issues.
- Ensure that system response times do not exceed USSD Gateway time-outs, and that a minimum level of service is maintained during a transaction.

Monitoring and fixing system delays, errors and outages:

To guarantee that performance of the system integration is achieved as expected, extensive testing will be necessary prior to launch and during a pilot phase before transaction volume increases. It is important that all parties are involved and sign off the results of the testing phase prior to launch.

In Tanzania, the testing phase was divided into sections, to guarantee that every system was exhaustively checked prior to launch. The main phases included: site-to-site VPN connectivity testing, protocol compliance from all parties involved, integration testing, technical user testing (boundary conditions and messaging), commercial testing, revenue assurance and process testing. The testing phase should allow mobile money services to identify and categorise any new cause of delay, error or outage (for example, by generating a unique error ticket or log).

It will be necessary for providers to agree on how to jointly monitor the system and handle these issues when they arise with the launch (e.g. by agreeing on how system alarms will be triggered for failures prompting customer notification, and also monitoring flags to detect any possible failure points prior to any occurrence). By defining the responsibilities, time required to fix outages, and the escalation process in advance, providers strengthen their ability to maintain an acceptable service should technical problems occur. In the case of switch-based interoperable schemes, procedures must be in place to identify issues and assign appropriate responsibility as quickly as possible between parties involved.

During normal operations any customer escalation that is made should be captured and resolved by following procedures for system failures. If any defects are identified, they should be fixed immediately and recorded to avoid future recurrences. Having such reporting processes in place would also provide visibility on whether agreed minimum system performance is being achieved and what recurring issues are plaguing the system. Both parties should ensure flexibility and adjustability of their systems to implement any change required for addressing and fixing reported issues.

For example, in Tanzania, the jointly agreed priorities for monitoring and fixing the system were: to maximise uptime, minimise latency, and notify counterparts in advance of foreseeable risk. Participants also agreed to resolve any technical issues as quickly as reasonably possible, and to allocate resources that would be available 24 hours a day, seven days a week to monitor and resolve any technical issues. Airtel and Tigo have a SLA governing their relationship which defines the exact time when transaction reports are verified by both parties and the reconciliation process occurs to check for gaps and systems failures. The SLA also defines the processes to address them.

The reconciliation process is seen by both providers as key for customer satisfaction, since it is when the providers confirm that transactions are processed as expected by the customers.

LOOKING AHEAD TO FUTURE MARKET EXPANSION

With a view towards future expansion of a market with more players wanting to interoperate, it could be beneficial at the outset to articulate a full set of agreed minimum standards in the form of specific certification criteria, which could be applied to any organisation who may subsequently wish to join the interoperable service. By providing these organisations with minimum standards to be achieved when interoperating, certification could smooth the way for growth, and avoid potentially jeopardising the expected level of service by customers.

FINANCIAL CONSIDERATIONS

ENSURE RELIABLE PROCESSING OF CUSTOMER P2P CROSS-NET TRANSACTIONS BY MAINTAINING SUFFICIENT LIQUIDITY AND DEALING WITH REVERSALS.

The reliability of an interoperable service depends on preventing any disruption to transactions. Besides the technical disruptions outlined above, there are two main financial risks that should be carefully managed by all parties involved. The first is a lack of available service providers' funds in the system, which could prevent customer transactions from happening. The second is delays in handling customer disputes from different service providers, which could hinder satisfactory levels of service.

To mitigate these risks, financial teams should:

- Jointly agree, manage and monitor a ***funding mechanism between the parties*** (e.g. pre-funding or credit swaps) to settle P2P cross-net transactions, which includes:
    - Agree on funding principles and processes for the cross-net transactions.
    - Jointly manage the funding mechanism between the parties (including potential central processors) to settle cross-net transactions.
    - Jointly monitor fund movements and ensure constant liquidity of the various disbursement and collection accounts within the mobile money services platforms.[5]
    - Define roles and allocate responsibilities for the monitoring, reconciling and reporting issues with the funding mechanisms.
    - In cases where a third party is providing a switch, the funding mechanism and requirements must also be fulfilled by the switch provider. The switch provider must have a procedure in place to reliably settle and clear the funds between the parties.
- Agree on policies and escalation procedures for ***handling disputes and reversals.***
    - Jointly identify various known and expected categories / causes of disputes and reversals of P2P cross-net transactions.
    - Identify internal processes and timeframes for dispute resolution and compare for gaps and best practice.
    - Jointly agree on policies and escalation procedures for handling disputes.
    - Jointly define reporting mechanisms (responsibilities, frequency and format) for customer disputes (including information such as the frequency and volume of each dispute type, timeframes for closing cases, etc.).
    - In cases where a third party is providing a switch, the dispute handling, resolution procedures and reversals to customers and service providers must be performed by the switch provider. An acceptable timeframe for addressing customer grievances must be guaranteed in the SLA and inter-party, or scheme, rules.

5. Liquidity here refers to the platform liquidity allowed by the agreed funding mechanism. Agent network's liquidity is covered under the 'convenience' session

Funding mechanism between parties:

A fundamental principle of mobile money is the requirement for real funds to be available to back up and underpin all balances and digital transactions that occur on the platform. This means that there should be a 1:1 ratio at all times between the trust account and the mobile money platform.

With P2P cross-net transactions (just like with banks or other partners), the time delays and/or costs that arise when transferring money between different providers' banks mean that an efficient and robust clearing and settlement strategy is needed. Mobile money providers will jointly need to take a strategic decision on the mechanism for providing necessary liquidity and evaluate their funds to guarantee that the customer experience is not diminished and that transactions are credited or debited as expected.

To guarantee accountability for settlements, the terms and conditions of any pre-funding mechanism should include a requirement that each provider ensures that they adequately prefund their disbursement account to cover all outbound P2P cross-net transactions. If a credit swap mechanism is chosen, providers should hold each other liable for post settlement obligations.

In Tanzania, the mobile money operators agreed by a pre-fund mechanism to support the P2P cross-net transactions. In this system, a disbursement account was created in the other mobile money provider platform with an equal amount of digital value as the real value in the pre-funded corporate account. The value in the disbursement account at the receiving operator decreases as the number of cross-net P2P transactions increase, requiring additional prefunding for the system to continue to work. Each operator needs to ensure that they adequately pre-fund their disbursement account to cover all outbound cross-net transactions. At the same time, each operator creates a collection account in their own platform to capture the e-value sent from their customers to the customers of the other operator. Thus, as cross-net transactions occur, the total balance in each operator's platform represents 1:1 in their trust account.

Providers learned that they can use the e-value captured in their collection account to pre-fund their transactions, reducing the capital requirement for prefunding other platforms. Frequent settlement has also reduced the need for operator capital for prefunding in Tanzania. In Tanzania, settlement of pre-fund accounts is done as D-1, meaning that operators keep one day's worth of transactions prefunded, allowing them to recycle what was captured in their collection accounts.

Additionally, operators believe they can benefit even further by establishing net-settlement post-reconciliation, and that a regular automated setoff (settlement process) could reduce the requirement for funding in a pre-funding scheme[6] by 90%.

Each operator should ensure that there is constant liquidity in the mobile money platforms to avoid transactions failures due to lack of funds. To enable this, each operator should define roles and allocate responsibilities for the monitoring, reconciling and reporting issues with the funding mechanisms. In a switch-based interoperability scheme, the third party switch provider must provide support for fund transfers, settlements and clearing between the parties.

Handling disputes and reversals:

Consistent customer experience will ensure continued trust in the reliability of the service, and having procedures in place to manage reversals or disputes will enhance this. There must be a clearly documented and agreed process for swift and effective resolution of disputed transactions, so that a poor response or conflict between providers does not jeopardise the system or even breach regulatory requirements.

6. In a pre-funding scheme, if the settlement and reconciliation processes of P2P cross-net transactions are manual, and happen only after a certain amount of transfers have occurred, it means that service providers will need to have a larger amount of money available in advance, thereby pre-funding these transactions.

Disputes can arise from a technical issue with either provider's system, or because of errors caused by the sender. For example, a technical issue that causes a network outage that delays delivery of a confirmation message to the sender could lead them to perform the transaction again, and as consequence, to a dispute of the transaction. Or the sender could send money to the wrong mobile phone number or send the wrong amount, leading to other types of disputes. If service providers are unable to resolve a dispute, defined escalation procedures (including identifying independent arbitrators), should be implemented.

In order to track customer issues and escalations, it would be important that each party maintains a record of all the disputes raised. These reports would usually cover the types and categories of escalations, intervals, frequency, and complexity. This is a good practice that would help to adequately resolve the disputes once they occur and minimize future occurrences by predicting them before they occur through trend observation.

In the case of switch-based interoperability, a mechanism must be in place to identify the right source of the issue between all parties involved. The reversals would be provided by the third party switch provider, however, the cause of the issue, such as USSD timeout or SMS delay, must be identified and appropriate action taken to avoid recurrences.

Security

CONTINUE TO PROVIDE THE HIGHEST STANDARDS OF SECURITY TO CUSTOMERS, BY ASSESSING AND MITIGATING OPERATIONAL, PRIVACY AND SYSTEM RISKS INTRODUCED BY INTEROPERABILITY.

Reliability in the system is built up over time, with customer confidence increasing with every successful transaction. For customers, security is arguably a complex issue, because it can be perceived in a binary state: a service is either secure or it is not. Once a "secure" reputation is lost - either by compromising customer data or by losing customer money - it is very difficult to regain. Providers must ensure that the introduction of interoperability does not also inadvertently introduce new operational, privacy or security risks. A significant security breach would damage not only the reputation of mobile money and the service provider, but might also damage their core telephony business too.

To maintain the security and integrity of the service, fraud and risk teams from each service provider (and from the third party switch provider where switch-based interoperability is used) must:

- Conduct a ***full risk assessment*** to identify and evaluate any new operational or technical risks associated with interoperability, including:
    - Agree on a joint policy for fraud and risk management.
    - Jointly identify various known and expected categories of risk and fraud (e.g. reversals, arbitrage, impersonations, etc.).
    - Define the joint approach to the risk assessment.
    - Define joint mitigation plans.
    - Define and document escalation procedures for handling security breaches and human errors.

- Agree on minimum data and system security measurements.
- Distribute audit roles and allocate responsibilities.
- Define sanctions, penalties and remedial actions for risk cases.

- Agree on minimum ***data and system security measurements,*** including:
  - Separately confirm that appropriate data and system risk measures currently in place are applicable (e.g. making sure that loss of data and unauthorised access, use, disclosure, and modification of data is monitored with adequate systems in place for this).
  - Jointly define and document customer information sharing principles between systems and providers.
- Agree on an ***ongoing risk assessment approach:***
  - Jointly define a risk assessment process, frequency, reporting format and roles and responsibilities.

FULL RISK ASSESSMENT:

Preemptively identifying and mitigating risks associated with A2A interoperability will be crucial for ensuring a sustainable service that customers can trust. Interoperability adds a layer of complexity and, like any new product, providers will need to ensure they can rely on a robust risk management framework.[7] Operators should jointly compare existing internal policies to identify where there are risks gaps, best practices from any party and divergent views in order to come up with a single policy for A2A interoperability applicable by all parties involved.

A full risk assessment will be a fundamental requirement, which should focus on additional or heightened risks that arise from collaboration. This assessment should be jointly implemented, or service providers could consider using an external party to provide an objective review. Regardless of the approach, particular areas to consider include:

- Conduct operational risk assessment (process inconsistencies, unauthorised access etc.).
- Conduct financial risk assessment (revenue leakages, unexpected loss).
- Conduct system risk assessment (authorisation, access levels, information and data etc.).
- Conduct customer risk assessment (disclosure, personal information etc.).
- Flag any risk items that may need to be addressed by partner operator for improvement.

7. Gilman, Lara and Michael Joyce, (2012). "Managing the Risk of Fraud in Mobile Money" http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/10/2012_MMU_Managing-the-risk-of-fraud-in-mobile-money.pdf

A scenario analysis on new risks (e.g. reversals, arbitrage, impersonations, etc.) will be needed to understand how the risks could present themselves and to evaluate their likelihood and impact. As a consequence, mobile money providers might decide by implementing key controls to monitor and manage risks, including strong system authorisation and permission restrictions in the system.

Risk mitigation will depend on the findings of the assessment, but defining in advance the agreed escalation procedures to follow in the event of a security breach will be crucial. Sanctions, penalties and remedial actions should be defined in order to address the different categories of security breaches.

DATA AND SYSTEM SECURITY MEASUREMENTS:

While reversals will be one of the more practical risks to address, the full risk assessment should also include a review of the data and system security measurements against loss, system access rights, and risks associated with data disclosure and modification between service providers. Data sharing is another core area where service providers will need to explicitly agree to terms and conditions. For example, in Indonesia, service providers added a confirmation step before e-money is sent cross-net as a way to reduce the frequency of reversals when interoperating. The message in this confirmation step includes not only information supplied by the customer (recipient mobile phone number and transfer amount), but also new data (the name of the recipient, fetched from the recipient operator's platform) so the sender can amend the transaction if needed before confirmation.

ONGOING RISK ASSESSMENT APPROACH:

Ensuring operational, privacy and system security is an ongoing concern. As the number of transactions increase after interoperability is launched, it will remain imperative for service providers to maintain full visibility over any potential vulnerabilities in the service. Following the initial full risk assessment and the agreement of roles and responsiblities between service providers, all parties could agree to conduct an independent risk assessment on an annual basis, or at minimum with the same frequency as any internal audit and risk review. The annual assessment should include components such as a system penetration test and operational audit. A regular ongoing risk assessment would reduce the chance of unnecessary friction between parties, and help ensure that any future risk is appropriately addressed.

To manage this process, there will need to be frequent audits condusted by operators internally or by an independent auditor appointed by participating parties. The parties will:

- Agree on a joint policy for audits (frequency, scope, depth and breadth, etc.).
- Define frequency and scope of audits and continuous improvement policy.
- Define reporting format.
- Conduct full audit.
- Update the risk database based on new risks from risk assessment.

Convenience

ENSURE CONVENIENCE OF SERVICE FOR CUSTOMERS, BY MAINTAINING A FAMILIAR CUSTOMER EXPERIENCE FROM THE SERVICE INTERFACE AND AGENT NETWORK.

The purpose of A2A Interoperability is to offer customers a greater amount of convenience, but the benefit may not immediately be felt at least from the sender perspective. For instance, it should be no more complicated for a sender to send e-value cross-net to an off-net recipient, than providing his recipient with a voucher via SMS (as the current practice most often looks like).

The interface should be built in a way where the steps followed to send money cross-net are similar to the one the senders are already familiar with when transferring money on-net avoid introducing any barriers to uptake.

Mobile money is a relatively new concept and interoperability even more so; aversion to customer adoption can be minimised if the service is easy to use by having an easy to understand customer interface.

A potential convenience is borne for the recipient who will need to cash-out at the agent from his own network. However, if the customers are not aware of it, this can cause confusion and bad customer experience for the customer familiar with the voucher system where he would need to go to the agents from the sender's network.

Any new service must be: easier to use than alternatives (such as switching SIM cards) and build customer confidence by not creating bad experiences from the recipient when cashing-out. This will also be potentially attractive for new customers to join one of the mobile money services.

Therefore, marketing and technical teams must:

- Jointly (or separately) define a ***user interface and product features*** consistent with those familiar (on-net P2P) to customers.
    - Jointly identify the barrier to entry related to the user interface and implement an easy interface or resolve the issues so that the service uptake can be increased.

Distribution teams need to:

- Manage their own ***agent network's liquidity***:[8]
    - Monitor the impact of A2A interoperability in agents' float balance to guarantee system-wide liquidity demands.
    - Jointly (or separately) define minimum management KPIs for agents to guarantee minimum level of customer experience.

8. A2A interoperability does not imply agent sharing – when an agent from one service provider can perform cash-in or cash-out to customers from other service providers. Agent sharing is out of scope of this document.

In addition to this, the distribution teams will:

- Develop a training kit for the new feature, A2A interoperability.
- Identify customer facing personnel for training on A2A interoperability.
- Conduct agent education on A2A interoperability.
- Define minimum management KPIs for agents.
- Monitor the impact of A2A interoperability on agent float liquidity, if any.
- Monitor the impact of A2A interoperability on customer by transactions and new users.

USER INTERFACE AND PRODUCT FEATURES:

As much as possible, A2A interoperability should provide a user experience that is consistent with current customers' experience and expectations, especially where a P2P offering already exists. Assuming that the P2P process in place is as simple as it can be, interoperability should not add additional complexity.

Beyond these parameters, there is flexibility between service providers in the way their particular interface works. It will not be necessary to collaborate to ensure that all interfaces are similar (although for new deployments, this could be taken into consideration) to guarantee a consistent customer experience.

For example, Indosat uses six steps for P2P cross-net transactions and it does not require any additional steps on top of their on-net P2P transfer: (1) access the menu (2) select transfer (3) add recipient number (4) enter the transaction amount (5) enter your pin (6) validate the correct amount, recipient and see total charges. After that, the sender and recipient both receive confirmations via SMS.

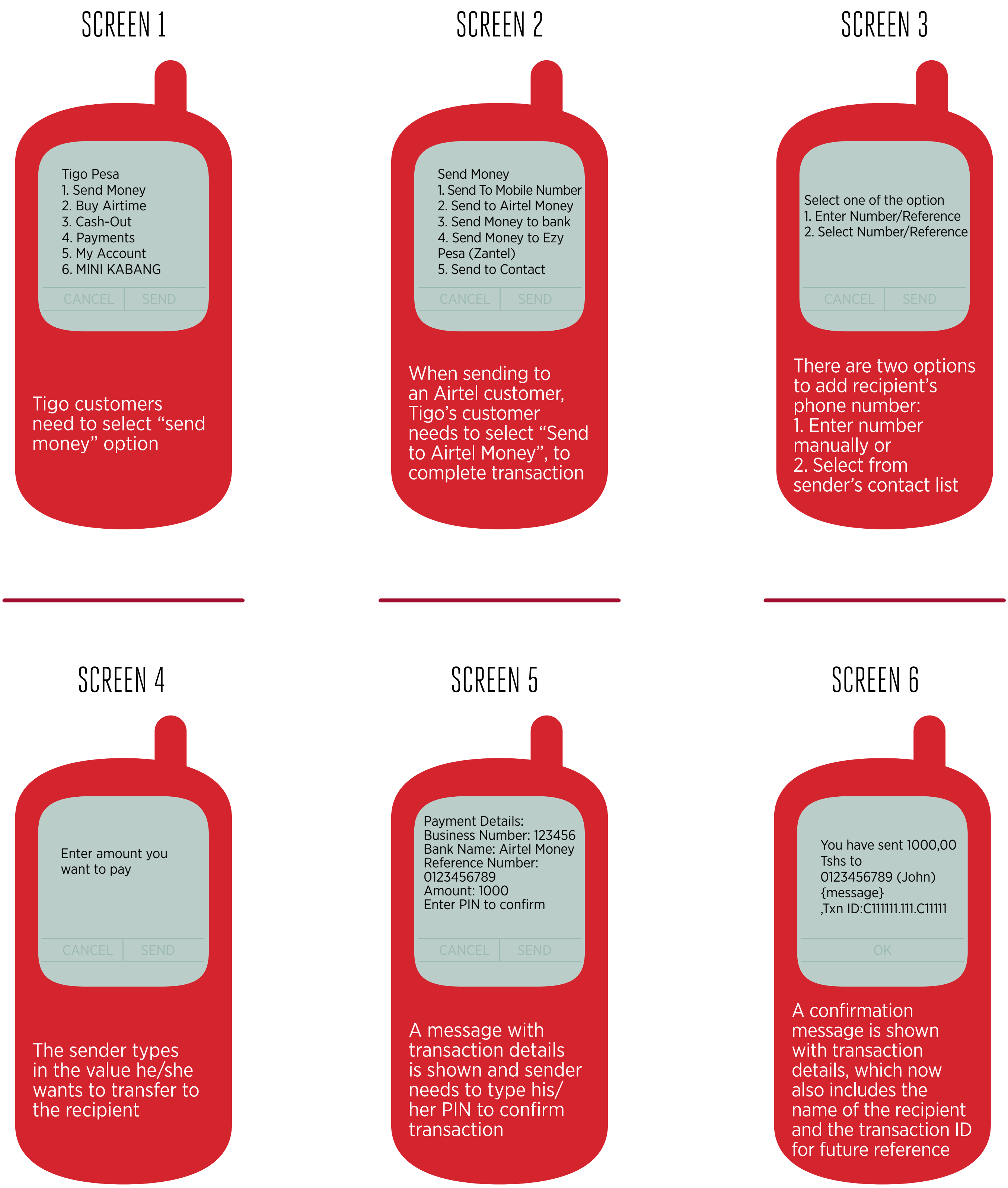
While in Tanzania, since not all mobile money services are interoperable, the P2P cross-net functionality was initially added as an extra item in the bottom of the menu. However, the menu was later updated so it became the second option in the menu (see Figure 3, Screen 2). This small change made it easier for customers to be made aware of this option, helping them to avoid making unnecessary and more costly off-net transactions, and increasing the amount of interoperable transactions.

In the future, having a confirmation message which shows the recipient's name before the customer is asked to enter his/her PIN is a feature the operators in Tanzania want to develop to improve customer experience. Different from Indosat, the current confirmation message in Tanzania only happens post-customer confirmation of transaction (see Screen 6).[9]

9. In Tanzania, part of the service providers' plan is to improve customer experience by changing their messaging process and by sharing the recipient's data before the sender's confirmation of the transaction.

FIGURE 3

CROSS-NET TRANSACTION STEPS FROM TIGO PESA TO AIRTEL MONEY IN TANZANIA



AGENT NETWORK LIQUIDITY:

Once interoperability has launched, agent networks will need to be prepared for any transaction increases (as with any introduced product or feature), including the ability to handle changes to cash-in/cash-out patterns. As per current practice, most agents will regularly need to restock their inventory of electronic value or cash in order to continue serving their customers. Agent liquidity management is something that mobile money providers should already be familiar with: a poorly managed agent network could lead to widespread poor-quality customer experiences, which in turn will erode trust and drive away business.

Therefore, providers should consider jointly aligning on some agent management KPIs, such as:

- Minimum float, reorder and stock levels for agents, so that the minimum e-value and cash requirement for agents is equal.
- Defined extra float requirements, to deal with demand variations over the time (Providers usually require that agents have one and a half times the previous days' outflows (cash or e-money) in stock, to effectively serve customers on the next working day).
- Rebalancing turnaround time, defined as the time required for providers or super agents to rebalance agents' float levels.

Mobile money providers should also consider whether it would be appropriate to:

- Agree on implementing similar online float monitoring process to check agents' float levels.
- Agree on penalties for outlets that are consistently out of float.
- Jointly implement a shared auditing process of agents, possibly making use of an external independent auditing organisation, to ensure high service standards from both agent networks.

Transparency

ENSURE CUSTOMERS HAVE FULL AND CONSISTENT INFORMATION.

The successful launch of any new service depends on the intended customers' awareness of and trust in the service and the benefits that it will provide to them. Transparency can be seen as an enabling function for the other core customer needs considered above, in as much as transparency allows customers to: rely on the system by knowing their money has been sent where they wanted it to, trust that the system is secure, and appreciate the convenience and value of the service.

Close cooperation on how each provider will be transparent with its customers is not a requirement, but providers should consider the benefits of jointly promoting the new service, including having shared minimum standards of information for customers to be provided by all parties, and agreed upon methods to transmit and reinforce this information so that customers adopt and use the service.

Mobile money providers will need to ensure that their customers understand:

- Which providers are part of the scheme (in cases where not all players in a market are interoperable);
- The steps to complete a transaction;

- What they should do if anything goes wrong; and
- How much the service will cost.[10]

To address these requirements, the marketing, distribution and customer care teams should consider whether it is appropriate to:

- Jointly (or separately) define and implement a ***marketing strategy*** with agreed upon minimum standards of information:
    - Identify the target audience for campaigns and the desired reach (e.g. all active users of all mobile money services).
    - Set commitment levels for a marketing budget.
    - Identify procedures and frequency to monitor customer awareness and understanding (e.g. customer surveys with questions on awareness and understanding of P2P cross-net transactions).
- Jointly (or separately) define ***additional communication channels and training strategy*** for sharing relevant information about A2A interoperability:
    - Identify the communication channels and information to be available for customers (e.g. press releases, SMS notifications, corporate website, terms and conditions document, etc.).
    - Identify personnel who require training on interoperability (particularly customer-facing teams, agents and call centres), and plan implementation.
    - Develop and implement a training process with the minimum information needed for call centres/agents and implement training.
- Jointly share ***feedback on customer experience*** with other organisations involved in implementing the solution:
    - Define post launch monitoring procedures, frequency, format and responsibilities for providing feedback.
- Jointly define minimum customer care standards (SLAs) for processing of customer requests for information and queries regarding their transactions.

MARKETING STRATEGY:

Service providers should not assume that customers will educate themselves about interoperability. Providers will need to identify the target audience for the campaigns and inform customers about the new service, making use of a range of channels. Although doing so jointly is not required, some consistency on the information provided could be beneficial for an overall positive customer experience.

In Tanzania for example, a major radio campaign by one of the participants during the A2A interoperability launch was undertaken, and it was observed that this campaign assisted in increasing volumes for all providers involved.

10. Providers can make use of the 'A2A Interoperability Commercial Models Toolkit' to help define appropriate A2A interchange fees among the involved parties, so they can gain flexibility in setting customer prices and avoid surcharging customers in their P2P cross-net transfers.

In Indonesia, providers launched a joint marketing campaign once the service was live to increase customer awareness about the ability to send e-value cross-net to any mobile money service in the market.

ADDITIONAL CHANNELS AND TRAINING STRATEGY:

In Indonesia, one provider decided to share the transaction fee in their confirmation messages in order to guarantee full transparency of the costs involved in the P2P cross-net transaction and to help demonstrate the value proposition of the interoperable service.

In Tanzania, service providers made use of SMS notifications to inform their customers that P2P cross-net transactions were possible, and to explain the change in the service interface (additional functionality was added to the menu) because of the availability of the service's new feature.

In addition, the new service's terms and conditions—including information on pricing and a clear process and timeframes available for any dispute resolution—should be accessible online.

Finally, to be even more proactive in customer education through agent distribution network and call centres, providers should consider implementing additional training programme, developed separately or jointly, to ensure that all customer-facing staff are properly engaged and sufficiently informed to be able to use and promote the new service.

FEEDBACK ON CUSTOMER EXPERIENCE:

As with any other service, feedback on customer experience should be passed to the relevant areas of the organisation, in order to improve performance. In the case of interoperability, relevant feedback could be gathered on information such as: recurrent customer complaints to agents and call centres about P2P cross-net transactions, the ways the service is being used, and the ability for customers to cash-out. Providers should consider implementing a process of gathering feedback from one another's teams in order to gain a full picture of the service. Such a process would need appropriate governance, so that the feedback leads to concrete improvements and an updated service.

Appendix A - Measuring the impact of interoperability

KEY WAYS TO MEASURE THE IMPACT OF INTEROPERABILITY

1. IMPACT ON VOLUME AND VALUE OF INTEROPERABLE TRANSACTIONS

1.1 Growth of volume and value of (sending and receiving) interoperable P2P transactions compared to on-net P2P transactions (by operator) per month

1.2 % of volume of (sending and receiving) interoperable P2P transactions from total on-net P2P transactions per month

2. IMPACT ON CUSTOMER

2.1 Impact on customer adoption of interoperability: **% of customers interoperating (at least one interoperable P2P transaction in the last 30-days) from total customer base per month**

3. IMPACT ON USAGE

3.1 Impact on off-net (voucher) transactions: **% of off-net (voucher) transactions from total P2P transactions per month**

3.2 Impact on number of transactions: **Total number of transactions (volume) done by sending interoperable customers vs. receiving interoperable customers vs. non-interoperable (similar ARPU) customers per month (need of a control group)**

3.3 Impact on ticket size / transaction band: **Average ticket size of interoperable transactions compared to on-net ticket sizes per month**

Appendix B - Operational checklist for interoperability

This checklist is for providers working on an interoperable service, and lists key activities by business area to ensure that due consideration has been given to all aspects of the process.

BUSINESS AREAS AND ACTIVITY
Senior Management
Agree on a shared ***scope, priority level, budget and approach*** for the project
• Define common scope of the project, including the technical model for integration, customer care and processes redesign
• Align the project's priority level across different organisations and even within each organisation
• Approve project budget and resources that will be required to run the project based on individual budget allocation and resource availability
• Confirm escalation process for organisations involved in case the agreed scope, priority and budget is not reached by one of theorganisations involved
Agree on shared goals and expectations for ***market performance and future investments***
• Document expected mutual benefits of interoperability as well as agreed key market performance indicators and timelines for measurement
• Implement an agreed system for tracking, reviewing, and sharing data for measuring performance against targets
• Schedule regular meetings for project updates and decision making for prioritising and solving any emerging issues
• Identify future investment scenarios (e.g. based on market performance) and agree upfront about required levels of investment
• Document joint experiences and lessons to foster continuous improvement in overall customer experience
Set up a cross-organisation interoperability task force, composed of leaders of the initiative (including the third party organisation in the cases where a switch is used). This leadership should:
• Appoint a project manager and establish sub-teams to work across organisations
• Empower sub-teams to clearly define project plan (including key activities and timeframes)
Technical team
Agree on the indicators, targets and ***minimum acceptable system performance levels*** for processing transactions by defining the integration formats (in cases where a third-party is providing a switch, the switch provider will need to be a part of the service-level agreement (SLA)). Therefore they will need to:

- Compare system capabilities and agree on most suitable method of integration (bi-laterally or with the switch), making sure that regulations on e.g. transaction limits, KYC, etc. are observed and applied on system integration
- Agree on the minimum acceptable system performance levels for processing transaction messages and capacity of platform can adequately handle increases in volume

Additionally, each service provider would separately need to:

- Ensure the capacity of their platform and USSD Gateway for a potential growth in transactions
- Measure and adjust their system if the implementation of A2A interoperability impacts the current number of on-net transactions per second

Agree on an approach for ***monitoring and fixing system delays, errors and outages:***

- Jointly plan a testing approach to identify systems delays, errors and outages to be monitored in order to guarantee that technical bottlenecks are eliminated prior to launch
- Jointly define procedures for system monitoring and fixing system delays errors and outages, ensuring flexibility and adjustability to future changes
- Define cases and escalation procedures for system failures
- Define frequency and reporting mechanisms to be shared with partners

In cases where a third party is providing a switch, the switch provider needs to:

- Ensure that the same level of agreement exists between service providers and third party service and that it is documented in the SLA. This agreement may already exist, however, it needs to be understood from the operational impact point of view
- Ensure capacity to process an increased volume of transactions
- Ensure dispute settlement and resolution processes are in place and are agreed on with service providers
- Ensure reconciliation and settlement reports are sent to service providers at agreed intervals with agreed level of detail
- Ensure that SLA between service providers and switch provider includes acceptable response times for different types of failures and issues
- Ensure that system response times do not exceed USSD Gateway time-outs, and that a minimum level of service is maintained during a transaction

Finance team

Jointly agree, manage and monitor a ***funding mechanism between the parties*** (e.g. pre-funding or credit swaps) to settle P2P cross-net transactions, which includes:

- Agree on funding principles and processes for the cross-net transactions
- Jointly manage the funding mechanism between the parties (including potential central processors) to settle cross-net transactions
- Jointly monitor fund movements and ensure constant liquidity of the various disbursement and collection accounts within the mobile money services platforms[11]
- Define roles and allocate responsibilities for the monitoring, reconciling and reporting issues with the funding mechanisms
- In cases where a third party is providing a switch, the funding mechanism and requirements must also be fulfilled by the switch provider. The switch provider must have a procedure in place to reliably settle and clear the funds between the parties

11. Liquidity here refers to the platform liquidity allowed by the agreed funding mechanism. Agent network's liquidity is covered under the 'convenience' session

Agree on policies and escalation procedures for ***handling disputes and reversals.***
• Jointly identify various known and expected categories / causes of disputes and reversals of P2P cross-net transactions
• Identify internal processes and timeframes for dispute resolution and compare for gaps and best practice
• Jointly agree on policies and escalation procedures for handling disputes
Fraud and risk team
Conduct a ***full risk assessment*** to identify and evaluate any new operational or technical risks associated with interoperability, including:
• Agree on a joint policy for fraud and risk management
• Jointly identify various known and expected categories of risk and fraud (e.g. reversals, arbitrage, impersonations, etc.)
• Define the joint approach to the risk assessment
• Define joint mitigation plans
• Define and document escalation procedures for handling security breaches and human errors
• Agree on minimum data and system security measurements
• Distribute audit roles and allocate responsibilities
• Define sanctions, penalties and remedial actions for risk cases
Particular areas to consider include:
• Conduct operational risk assessment (process inconsistencies, unauthorised access etc.)
• Conduct financial risk assessment (revenue leakages, unexpected loss)
• Conduct system risk assessment (authorisation, access levels, information and data etc.)
• Conduct customer risk assessment (disclosure, personal information etc.)
• Flag any risk items that may need to be addressed by partner operator for improvement
Agree on minimum ***data and system security measurements***, including:
• Separately confirm that appropriate data and system risk measures currently in place are applicable (e.g. against loss and unauthorised access, use, disclosure, modification)
• Jointly define and document customer information sharing principles between systems and providers
Agree on an ***ongoing risk assessment approach:***
• Jointly define a risk assessment process, frequency, reporting format and roles and responsibilities

To manage this process, there will need to be frequent audits condusted by operators internally or by an independent aditor appointed by participating parties. The parties will:
• Agree on a joint policy for audits (frequency, scope, depth and breadth etc)
• Define frequency and scope of audits and continuous improvement policy
• Define reporting format
• Conduct full audit
• Update the risk database based on new risks from risk assessment
Customer care team
Define reporting mechanisms on customer complaints.
Share feedback on customer experience with the other organisations: define the process, frequency, reporting format and roles and responsibilities.
Mobile money providers will need to ensure that their customers understand:
• which providers are part of the scheme (in cases where not all players in a market are interoperable)
• the steps to complete a transaction
• what they should do if anything goes wrong; and
• how much the service will cost[12]
Jointly share ***feedback on customer experience*** with other organisations involved in implementing the solution:
• Define post launch monitoring procedures, frequency, format and responsibilities for providing feedback
Jointly define minimum customer care standards (SLAs) for processing of customer requests for information and queries regarding their transactions.
Marketing team
Jointly (or separately) define a ***user interface and product features*** consistent with those familiar (on-net P2P) to customers.
• Jointly identify the barrier to entry related to the user interface and implement an easy interface or resolve the issues so that the service uptake can be increased
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12. Providers can make use of the 'A2A Interoperability Commercial Models Toolkit' to help define appropriate A2A interchange fees among the involved parties, so they can gain flexibility in setting customer prices and avoid surcharging customers in their P2P cross-net transfers.

Jointly (or separately) define ***additional communication channels and training strategy*** for sharing relevant information about A2A interoperability
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• Identify personnel who require training on interoperability (particularly customer-facing teams, agents and call centres), and plan implementation
• Develop and implement a training process with the minimum information needed for call centres/agents and implement training
Distribution networks
• Manage their ***own agent network's liquidity***[13]
• Monitor the impact of A2A interoperability in agents' float balance to guarantee system-wide liquidity demands
• Jointly (or separately) define minimum management KPIs for agents to guarantee minimum level of customer experience
In addition to this, the distribution teams will:
• Develop training kit for the new feature, A2A interoperability
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13. A2A interoperability does not imply agent sharing – when an agent from one service provider can perform cash-in or cash-out to customers from other service providers. Agent sharing is out of scope of this document.

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