



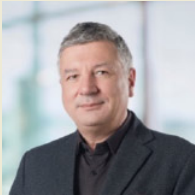
THE  
LEVEL ONE  
PROJECT

# LEVEL ONE PROJECT GUIDE 2019

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The Level One Project is an initiative of The Bill & Melinda Gates Foundation



# Welcome to the 2019 Guide



**Kosta Peric**  
*Deputy Director, Financial Services for the Poor*  
Global Growth and Opportunity  
Bill & Melinda Gates Foundation

“Payments are the connective tissue of any financial system. The Level One Project Guide shows how to build and scale a real-time digital payment platform within a country or region, to serve low income consumers and merchants and bring them into the formal financial economy.

This 2019 version builds off of the previous Level One Project Guides from 2015 and 2017 and incorporates the learnings from country and regional deployments.

We look forward to your feedback and appreciate your ongoing partnership. Together, we can accelerate financial inclusion.”

A handwritten signature in black ink, appearing to read 'Kosta Peric', written in a cursive style.

## 2019 Guide: What's New

### This updated Guide aims to:

Articulate intentions, progress, and barriers to achieving financial inclusion with lessons learned from a global community.

Describes the imperative of reaching scale and approaches for achieving L1P aligned success.

Recognize L1P aligned progress, enablers, and implementations around the world.

Provide key considerations on important ecosystem catalysts.

### For More Information:

Please visit [leveloneproject.org](http://leveloneproject.org) where other Level One Project references, including the 2015 and 2017 Guides, are available.

# Table of Contents

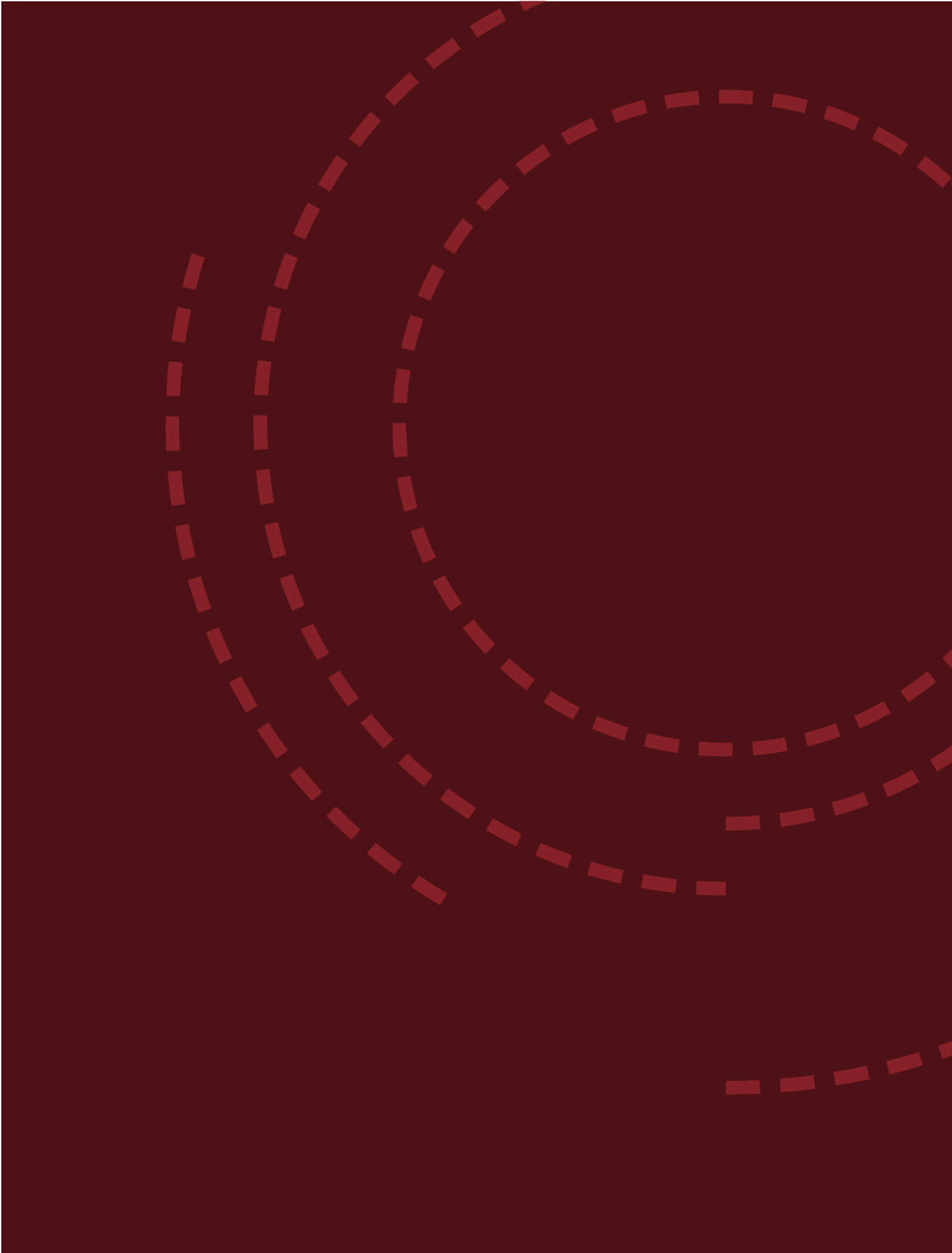
<b>01</b>	<b>Setting the Stage</b>	The Level One Project	7		
		Meeting the Needs of Low-Income Consumers and Providers	8		
		Level One Design Principles	9		
		The Level One Core Components	10		
		Level One Project Evolution	11		
		Desired Outcomes	12		
		Aligning Around Global Goals	13		
		An Ecosystem Approach to Financial Inclusion	14		
		Recognizing the PAFI Principles	15		
		More than the Sum of Its Parts	16		
		Progress Toward Financial Inclusion	17		
		<b>02</b>	<b>The Imperative of Scale</b>	Reaching Scale Is Essential	21
				Are Digital Payments as Useful as Cash?	22
Are Volumes High Enough?	23				
Are Multiple Use Cases Supported?	24				
Is there a Competitive Ecosystem?	25				
Is the Right Technology Chosen to Support Real-Time Retail Payments?	26				
What Regulatory Support is Critical for a Thriving Digital Ecosystem?	27				
What Else is Necessary to Reach Scale?	28				
<b>03</b>	<b>Around the World</b>	Understanding Approaches to Digital Payments	31		
		Southern African Development Community (SADC)	32		
		China	34		
		Commerce Platforms	36		
		India	37		
		Tanzania	39		
		Mowali	40		
		QR Code Approaches	41		
<b>04</b>	<b>A Closer Look</b>	Mexico SPEI + CoDi	42		
		Open Loop and Interoperability	45		
		Push Payments	46		
		Transaction Irrevocability	47		
		Enabling Regulatory Environment	48		
		Government Support of System	49		
		Payment Scheme Governance	50		
		Gender Equality	52		
		Enabling Multinational Payments Systems	54		
		Expanding and Connecting Markets: A Pan-Africa Payment Network	55		
		Bridging Technical Market Gaps for RTRP Systems	56		
		Mojaloop Open Source Project	57		
		The Mojaloop FSP Interoperability API	58		
Mojaloop Community Business Documents	59				
<b>05</b>	<b>Glossary</b>	L1P Education Opportunities	60		
		Glossary	62		

Section 1

# Setting the Stage



1



# The Level One Project

## Bill and Melinda Gates Foundation

The Level One Project is an initiative of the Bill and Melinda Gates Foundation's Financial Services for the Poor (FSP) program, which is part of the Global Growth and Opportunity division.

### Financial Services for the Poor

#### *FSP's Objectives*

Increasing poor people's capacity to weather financial shocks and capture income-generating opportunities.

Generating economy-wide efficiencies by digitally connecting large numbers of low income consumers and those that they transact with.

#### Level One Project

The Level One Project enables these objectives by working to support inclusive, interconnected digital economies to bring the poor into the global financial system, and ultimately to help promote global growth and opportunity.

Working across the public, private and nonprofit sectors in coordination with a wide variety of institutions, the Level One Project is a multi-year effort to address digital payment system infrastructure at a national and regional level, and do so in a way that's both sustainable and compelling for providers of financial services.

##### **A Vision**

A vision for real-time retail payments systems that supports inclusive, interoperable digital economies, and the design principles to achieve this.

##### **A Blueprint**

A blueprint for how such a system could be configured within a country or region.

##### **A Set of Resources**

A set of tools and resources to enable the implementation of a real-time retail payments system that is Level One aligned.

# Meeting the Needs of Low-Income Users

The Level One Project remains focused on enabling financial inclusion by meeting the needs of low income users—both individuals and merchants—as well as the DFSPs that serve them.

These goals guide the Level One Project thinking, including the origination of the Level One Project

Design Principles—a set of principles to guide countries, regions, or commercial organizations working to create real-time retail payments systems that are designed to meet the needs of low income consumers.

## Accessible

*Users can easily acquire and use DFS services*

## Reliable

*Users' money and information are secure and available for use; systems help deter usage for money laundering and terrorist financing*


## Valuable

*Increase the value proposition for low-income consumers to use DFS rather than cash or other traditional services*

## Affordable

*End users are willing and able to pay for the cost of preferred product and receive value in excess of cost*

## Profitable

*DFSPs that support low income consumers earn sustainable margins through product and service innovations *

 More Information: [Competitive Ecosystem](#)



# Level One Project Design Principles

*A set of principles to guide countries, regions, or commercial organizations working to create digital financial services system designed to meet the needs of low income consumers*



An *open-loop system*, available to any licensed DFSP in the country. This includes banks and licensed non-banks. [↗](#) The system leverages *open, international standards*.

Payments that are *real-time* and “*push*” only. This removes many of the risks and costs inherent in batch processed and “*pull*” payments systems. Payments that are *irrevocable*. A system that allows *same-day settlement* among participants.



A system that has *pro-poor governance* practices including equal ownership opportunities and DFSP engagement. A system that is *supported and regulated by a government* financial authority, and leverages *tiered ‘know your customer’ KYC requirements*. [↗](#)

A system that operates on a “*not-for-loss*” or “*cost-recovery-plus-investment*” basis where payments are a utility, and take into account the needs of women, the poor, and other disadvantaged groups. This does not preclude DFSPs—or other service providers in the ecosystem—from earning profits.



A *shared investment in fraud detection* and other scheme and platform services. The compliance burden remains with the DFSP, but they share in a less costly, more efficient fraud service.

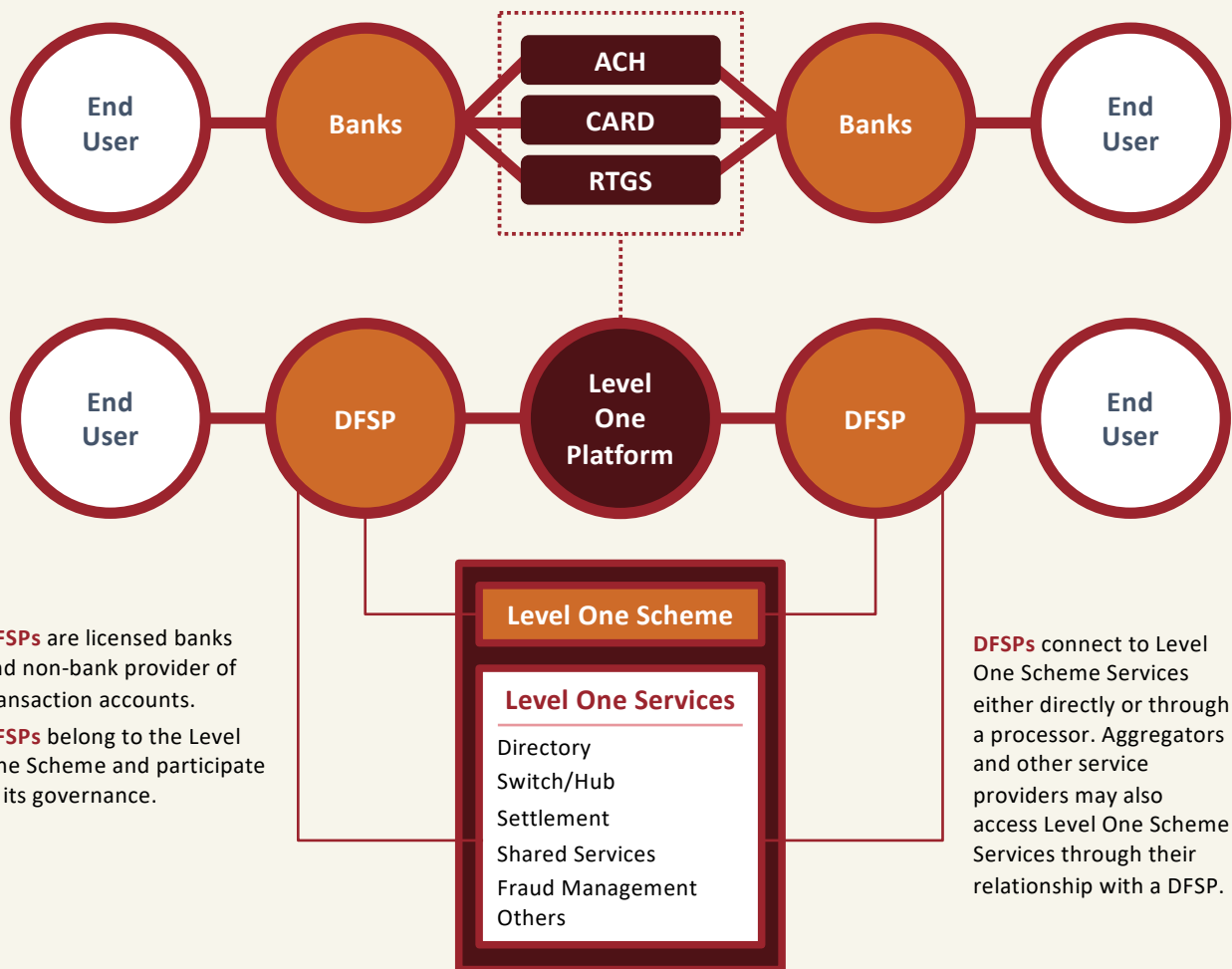
[↗](#) More Information: [Open Loop & Interoperability](#), [Transaction Irrevocability](#), [Payment Scheme Governance](#)

# The Level One Core Components

## A Modern Digital System to Reach and Serve the Excluded

A Level One aligned system is a digital system to facilitate immediate and real-time digital payments. It enables users—individuals and merchants—excluded to be reached and served in the formal financial ecosystem. The system exists along with—and among—other payments systems in the country or region.

A **Level One Platform** is payment platform that reflects the design principles of the Level One Project. Many are being referred to as “RTRP” (real-time retail payments) or as “Faster Payments” platforms in some countries.



**DFSPs** are licensed banks and non-bank provider of transaction accounts.  
**DFSPs** belong to the Level One Scheme and participate in its governance.

**DFSPs** connect to Level One Scheme Services either directly or through a processor. Aggregators and other service providers may also access Level One Scheme Services through their relationship with a DFSP.

[More Information: \*Scaling the system\*](#)

# Level One Project Evolution

**2014**

## **Research**

The Level One Project evolved from a wide-reaching set of inquiries and lessons learned from traditional and emerging payment systems, and from engaging with several hundred stakeholders in more than 25 countries over three years.

**2015**

## **Introduction**

Introduced in 2015, the Level One Project is the Bill & Melinda Gates Foundation's adaptation of real-time retail payments system best practices to increase financial inclusion by ecosystem stakeholders.

**2016**

## **Advocacy**

The Level One Project created [leveloneproject.org](http://leveloneproject.org), a workshop series, and numerous assets, including a reference implementation of the Level One Project principles, to help scale and sustain access to low-cost digital financial services.

**2017**

## **Market Testing**

The Level One Project worked with stakeholders to kick off implementations of low-cost payments systems that are designed to meet the needs of the world's poor. The Level One Project also created open source software assets for the good of the industry, including open APIs and Mojaloop.

**2018**

## **Implementation**

The Level One Project supported multinational and in-country, in-region stakeholders to build and expand real-time retail payments initiatives that leverage global best practices.

**2019**

## **Scale**

As the Level One Project looks forward, it intends to continue to support opportunities to scale low-cost real-time retail payments systems at a national and regional level.

# Desired Outcomes

*Efforts towards financial inclusion and real-time retail payments systems are a means to support digital economies and poverty alleviation. The Level One Project works to help support the following outcomes:*

## Usage Outcomes

**Usage of DFS is ubiquitous by the poor:** By 2030, 80% of adults worldwide and 60% of sub \$2/day adults have and actively use a digital account to make payments and to access additional products beyond P2P.

**Usage of DFS is ubiquitous by women and girls:** By 2030, men and women equally have access to and actively use DFS.

**Diversification of usage:** Households use an effective range of financial tools.

## Impact Outcomes

**The Level One Project, with its global partners, is working to promote financial health and poverty alleviation, as recognized by:**

Fewer people sliding into poverty

More people moving out of poverty

Daily consumption is increased because of their use of digital financial products and services.



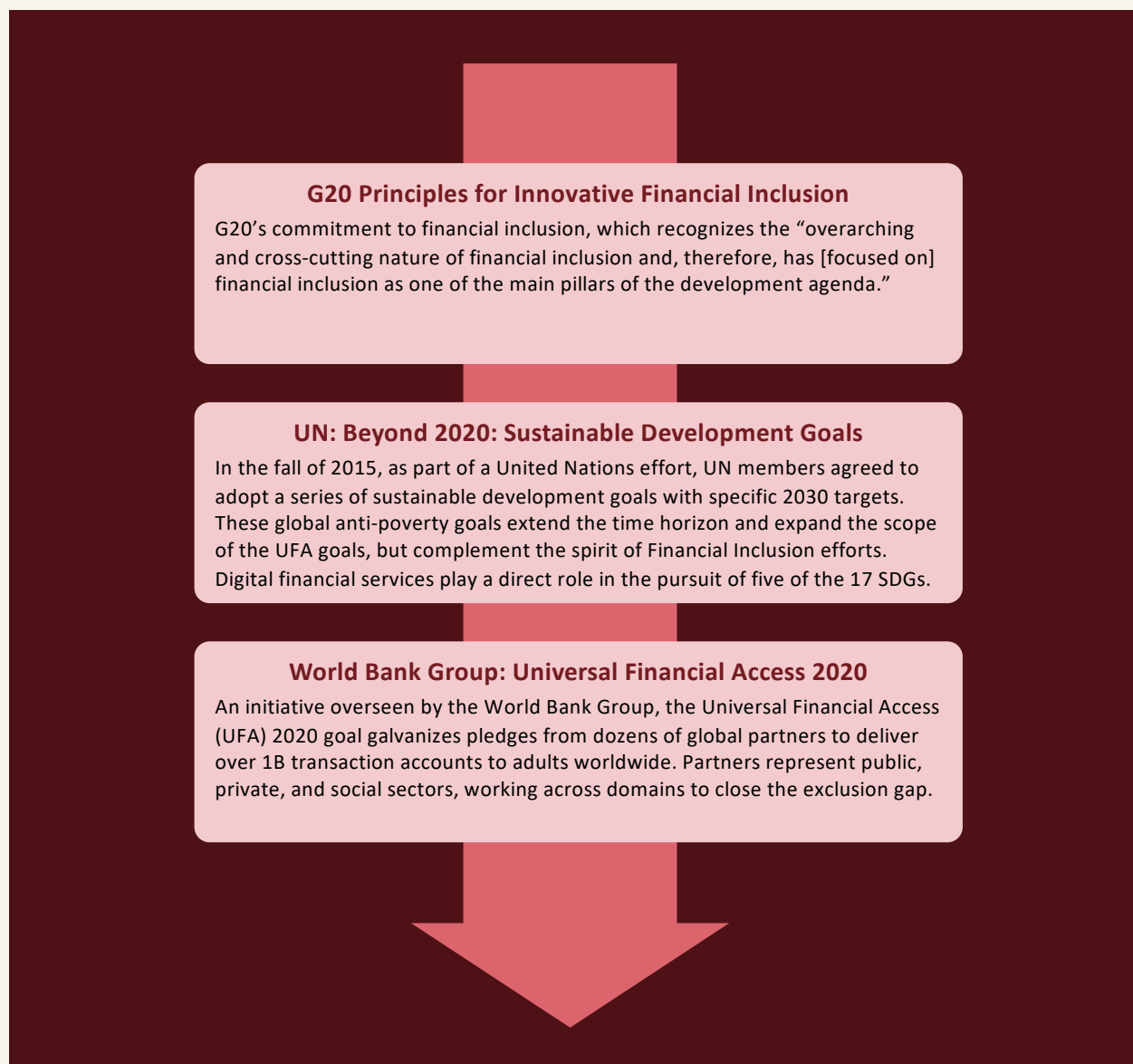
*“Financial inclusion is a mechanism to support a broader set of goals—to alleviate poverty, to empower women, and to create thriving digital economies.”*

Greta Bull  
CEO, CGAP

# Aligning Around Global Goals

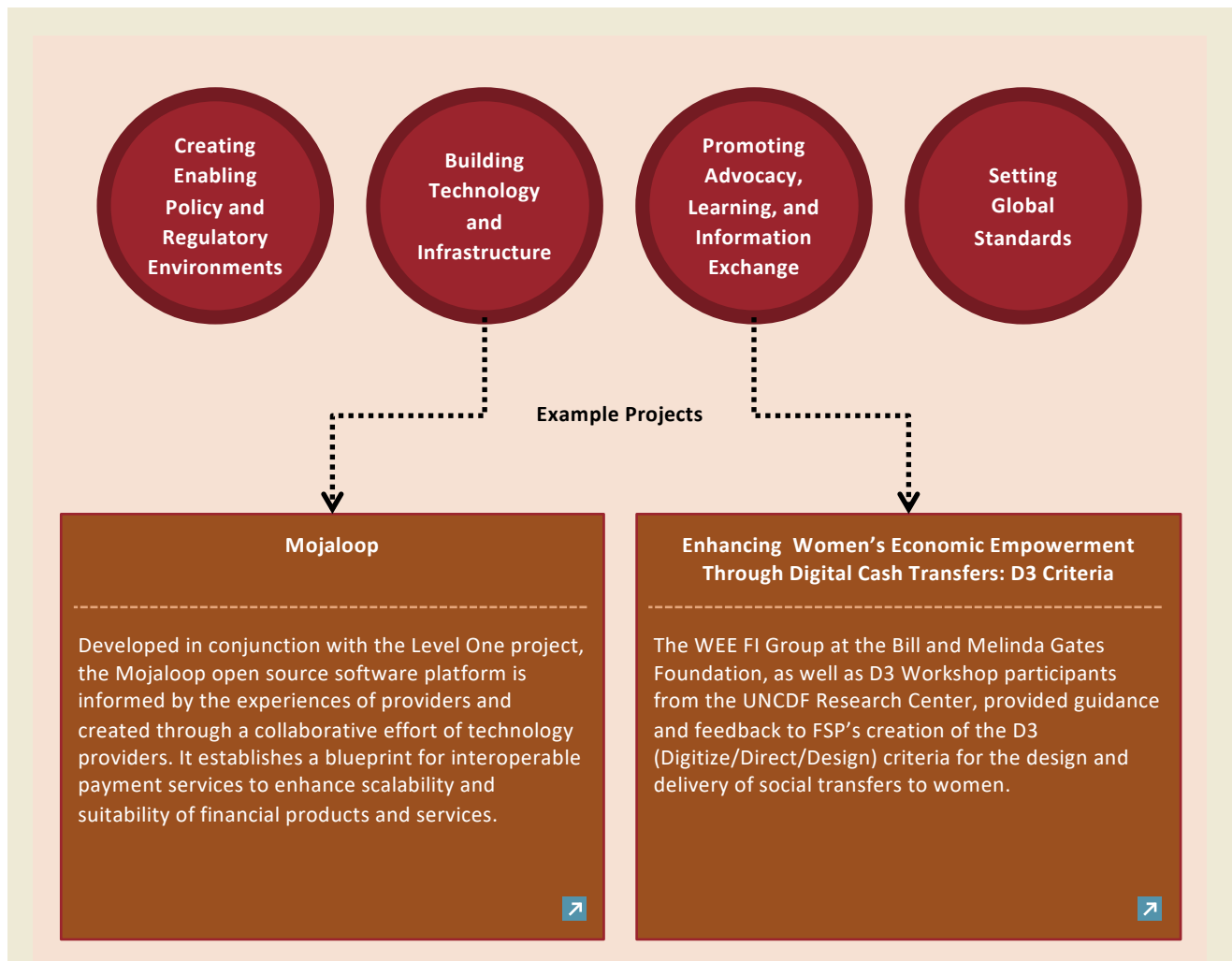
The Level One Project joins a host of global and local partners, including NGOs, providers, regulators, and others, to enhance the utility and ubiquity of low cost digital financial services to enable financial inclusion, and *ultimately alleviate poverty*.

In pursuit of ambitious targets, the Level One Project joins peers, colleagues, and communities around a set of global financial inclusion goals. These shared priorities are articulated by a number of agencies including the UN, the World Bank’s Universal Financial Access, and the G20.



# An Ecosystem Approach to Financial Inclusion

*Together, a group of diverse and global stakeholders have come together as a community at practice, working at local and international levels to advance digital services, of which financial services are one, for the benefit of low-income consumers. Activities are wide-ranging and in many cases require cross-sector collaborations.*



For more information: [Gender Equality](#); [Mojaloop](#)

# Recognizing the PAFI Principles

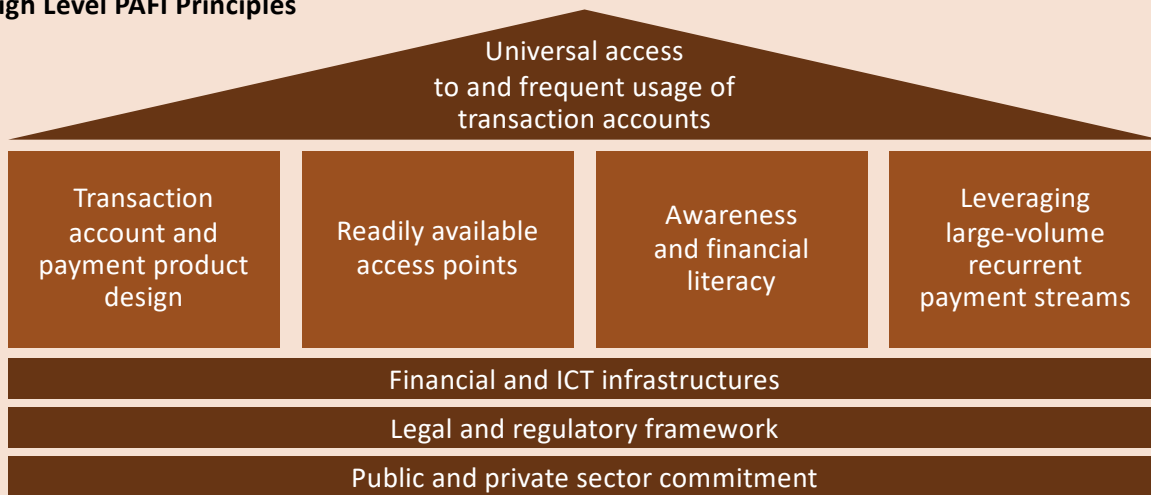
## The PAFI Principles

The Payments Aspects of Financial Inclusion (PAFI) principles are a set of principles created through a joint effort by the World Bank and CPMI that aim to advance the provision of transaction accounts and inclusive payment infrastructures.

The PAFI Framework and L1P Principles demonstrate two efforts arriving at similar best practices, independently of one another. Together, they provide a basis for delivering low cost, inclusive payments systems. They point to the catalytic power of systems-level infrastructure for the provision of affordable digital financial services for all.

*The PAFI definition of a 'transaction account' is a key enabler of success for an L1P program. A transaction account is any account that holds customer funds and is used for making and receiving payments. The provider can be either a bank or a licensed non-bank, such as an eMoney issuer.*

## High Level PAFI Principles



*“The PAFI guiding principles provide a framework for countries to design initiatives to achieve universal access to, and frequent usage of, transaction accounts for adults and businesses. We are excited to continue using this framework in our work with country authorities.”*

**Harish Natarajan**  
Lead Financial Sector Specialist – Finance, Competitiveness, and Innovation  
The World Bank Group

# More than the Sum of Its Parts





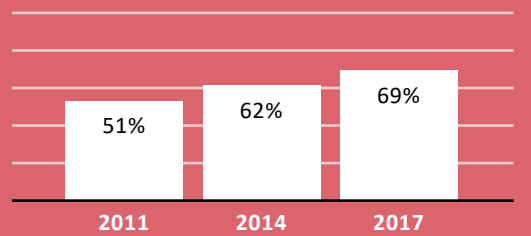
# Progress Toward Financial Inclusion

## Progress

The global community made substantial progress toward financial inclusion in the past decade.

2017 Findex data shows 69% of adults now hold transaction accounts—a significant improvement. However challenges to meaningful inclusion remain.

Adults with a Transaction Account



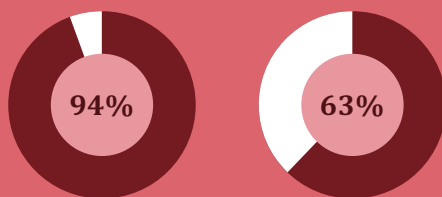
## Persistent Problems

### Transaction Accounts

Despite marked gains in the provision of accounts, 1.7 billion adults still lack access to a basic transaction account.

Exclusion is higher than average among women and rural communities and in poorer countries (*Findex*).

Adults with Accounts



Higher Income Countries

Source: Findex

Middle and Lower Income Countries

### Meaningful Use and Scale

Transaction accounts opened by the previously excluded still suffer from problems of dormancy and infrequent use.

25% of account holders in developing economies have fully dormant accounts, not having used their account for a single transaction in the past year (*Findex*).

Active Accounts (Used in the Past 30 Days)



Of 690M total worldwide mobile money accounts, just 168M or 24% are considered active

Source: GSMA

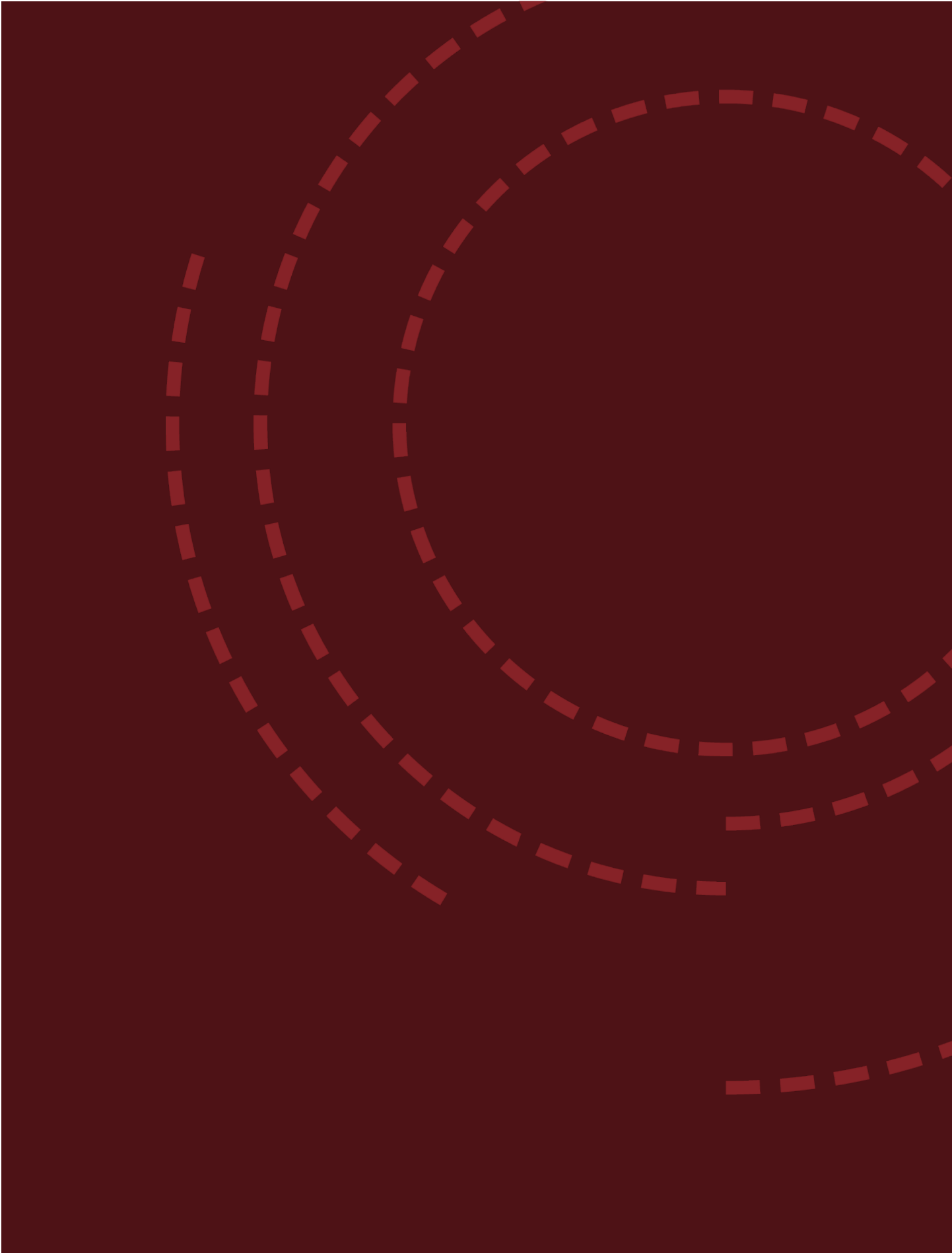


Section 2

# The Imperative of Scale



2



# Reaching Scale is Essential

Although great progress has been made towards reaching financial inclusion, and many real-time retail payments systems have been established worldwide, low volumes lead to systems that may depend on subsidies or high costs to survive.

Reaching scale can be measured by penetration of transaction accounts and volume of payments. Scale is

critical both to achieve the low costs that come with volume, and to provide ubiquity – “pay anyone, get paid by anyone”. As a result, scale is a requirement to reach low costs, digital liquidity, and reduce the use of cash.

In this section, we look at a series of questions that a country or a region could consider when working to achieve scale with a Level One aligned payment system.

- Are Digital Payments as Useful as Cash?
- Are There High Enough Potential Volumes?
- Is There a Competitive Ecosystem?
- Are Multiple Use Cases Supported?
- What Regulatory Support is Critical?
- Is the Right Technology Chosen to Support Real-Time Retail Payments?
- What Else is Necessary ?



*“A scalable, accessible, low-cost infrastructure is achievable—we’ve seen success in other domains. We can achieve it with real-time retail payments as well.”*

**Miller Abel**  
Deputy Director, Principal Technologist: Financial Services for the Poor  
Global Growth and Opportunity  
Bill & Melinda Gates Foundation

# Are Digital Payments as Useful as Cash?

*Can digital payments be used, as cash is, to pay anyone and be paid by anyone? There are two factors that define this: transaction account penetration and interoperability.*

## Are There Enough Accounts?

How many people in the country or region hold a transaction account and can be reached by a digital payment?

At what point does the penetration of accounts create cash-like ubiquity?

Account penetration by adults in emerging markets ranges from as low as 20% to 30% to about 80% .

## Is Interoperability in Place?

Is interoperability among DFSPs in place?

Can a person easily make a payment to another person—or a business—with an account at another financial institution? What if that person or business holds an account at a non-bank?

Note that in some countries (China, Kenya) market dominance or near-market-dominance by one or two DFSPs results in a similar effect. Level One prefers the interoperable model in order to stimulate competition and innovation among DFSPs.

## Is the Perceived Cost Appropriate?

Is the cost of using digital payments perceived to be equal to or lower than the cost of using cash? This question needs to be looked at from both the payer and the payee's perspective.

The answer will vary by use case. Domestic Person-to-Person (P2P), for example, is successful when priced to the sender, as cash alternatives can be costly. Government-to-Person (G2P) and Business-to-Person (B2P) payments are important for a Level One implementation—here, the cost to receive needs to be zero for the consumer, but the payer agency or business may be willing to pay a small transaction cost.

In G2P/B2P payments, the consumer's cost of cashing-out needs to be factored in as well.

## Are the Perceived Risks Acceptable?

Consumers need to trust that their money will not be stolen through, for example, account take-over, and that they have some type of protection if errors occur.

Protection from merchant fraud is an issue still actively debated; card networks normally provide this protection to consumers, but at a cost which is embedded in a merchant discount fee. Providing protection in the system may make payment unacceptably costly to the merchant.

# Are Volumes High Enough?

**Previous research into payment systems worldwide has established a firm relationship between payment system volumes and unit costs at the hub or switch. Keeping these unit costs ultra-low is a core precept of the Level One Project. Without these low costs, DFSPs will not be able to provide payment services to their customers at prices low enough to enable usage and scale.**

Research indicates that a transaction volume of approximately 1 billion per year may be a critical cut-off point to reach low unit costs. The Level One Project team believes this is feasible: if the system operator

charges the participating DFSPs a processing cost in the range of US\$ 0.005 per transaction, this would provide roughly US\$5MM per year to cover the “hub” costs of operating the system.

**A key question is whether or not a given country or market has the potential to reach volumes sufficient to drive unit costs down to desired levels.**

In considering this question, a market would want to consider:

- The total adult population
- The percentage of the population that has a transaction account
- The use cases supported by the payment system, and the approximate number of total

payments (cash and digital) made by adults for each of these use cases – this represents the potential transactions for the payment system

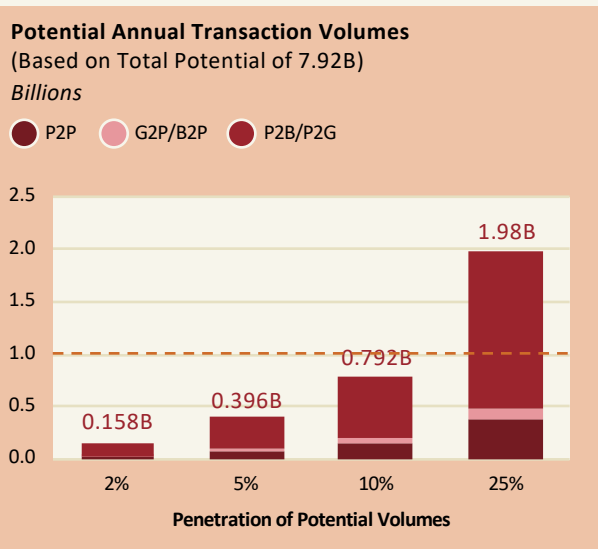
- Estimate proportion of the transactions that will be digital vs cash, by use case

An example of such a calculation is shown below. Although each market may be different, most analyses show that enabling P2B (merchant and biller) payments is critical to achieve volume.

*Note: In some situations, it may be easier to reach target volumes with a regional approach. This can either be a regional payment system, or regional processing of separate national systems. [↗](#)*

Example: Calculating Potential Annual Transaction Volumes	
Reachable Population	Variable
Adult Population	50M
Percent with Accounts	60%
<b>Total Reachable Population</b>	<b>30M</b>

Potential Annual Transactions (Annual)		
	Per Adult	Total Reachable Pop.
P2P	52	1.56B
G2P/B2P	12	0.36B
P2B/P2G	200	6.00B
<b>Total Potential Transactions</b>	<b>264</b>	<b>7.92B</b>



Source: Glenbrook analysis

[↗](#) For more information: [Enabling Multinational Payment Systems](#)

# Are Multiple Use Cases Supported?

*An RTRP system can—and should—support multiple use cases*

## A Common Core: The Payment Itself

The actual payment order and the settlement of that order among the DFSPs involved can be exactly the same, regardless of use case. This creates the desired efficiencies.

## Support for Additional Technical Protocols

Some use cases require additional information exchanges. Merchant and biller payments, for example, may require “request to pay” communications and a standardized approach to generating and scanning QR codes.

## Use-Case Specific Pricing, Rules, and Identification

Business rules and scheme pricing may be different by use case. The scheme hub needs to “know” what use case a transaction is, so that the appropriate rules can be applied.

## Shared Services

Some markets may find that expanding the scheme’s core services to include other shared capabilities may be the best way to rapidly implement new use cases. Shared merchant or biller directories are one example of this; a shared merchant self-provisioning capability may be another. Shared services decrease the overall economic burden as DFSPs are not required to create redundant capabilities, instead DFSPs share the costs, and capabilities, offered by the scheme.

## Enabling Third Party Connection

Specialty aggregators, processors, and other entities operate today in many markets and facilitate use-case specific payments. The role of these entities may change as an L1P-aligned, interoperable system is put in place, but many of their value-added services in the sector may endure. Schemes should think creatively about how to partner with these entities to achieve success in target use cases.

### Representative Use Cases Include

#### Source of Funds

Income: G2P and B2P

Cash-In

#### Use of Funds

P2P

POS Purchases

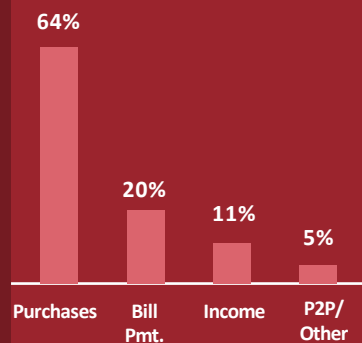
Remote Purchases

Bill Payment P2B and P2G

Cash-Out

### Distribution of Payment Volume by Transaction Count in a Mature Market

*United States, 2018*



Source: Glenbrook analysis

[More Information: QR Code Approaches](#)



# Is there a Competitive Ecosystem?

**A healthy financial services ecosystem that enables financial inclusion requires multiple providers and includes both incumbents and new entrants.**

Key to the Level One Project vision is that all providers have access to the platform, to make and receive payments.

Providers (banks and licensed eMoney issuers) who hold customer’s “transaction accounts” are called “DFSPs” (digital financial services providers) and have direct access to a Level One system. Others, including processors, aggregators, payments services providers and marketplace operators may access the system (“ride the rails”) through relationships with DFSPs.

Providers need to collaborate on some aspects of the system, but compete on others. The Level One Project team considers the “rails” and the “rules” of the payments system to be a collaborative space, and the “accounts” and “apps” to be competitive. Rails include the basic value transfer function of a Level One aligned system, but may also include various shared services attached to that.

## Business Models

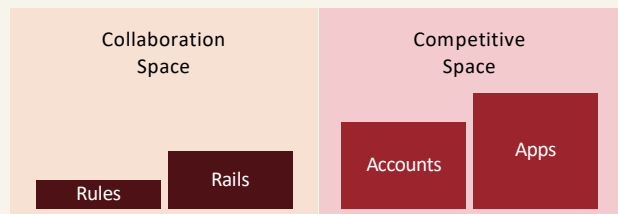
All DFSPs need to find a sustainable business model to provide payments services to their customers. This is challenging, particularly when one of the objectives of providers (and regulators) is to serve “bottom-of-the-pyramid” customers. It is well understood that traditional banking models are unlikely to succeed in serving poor populations. These models rely on a combination of revenue sources, which is detailed in the

[ACTA framework published previously by the Gates Foundation.](#)

How will business models work when there is a greatly expanded set of DFSPs? The Level One Project team recognizes different models will exist for different categories. Business models will rely on a mixture of revenue from direct charges related to payments services and from a broader definition of “adjacencies.” In fact, in ongoing research at the Gates Foundation, it is becoming increasingly clear that most successful business models will rely primarily on adjacencies rather than transaction or account fees.

### What Are Adjacencies?

Adjacencies are sources of revenue from customers using payments services that are separate from direct fees for those services. Adjacencies may be financial—such as lending to a customer—or non-financial. An example of a non-financial adjacency is a “commerce adjacency,” where the primary business objective of a provider of a payments service is to enable the sale of their core products or services (e.g., a ride hailing service). The provider makes money on the sale of those products or services, and views payments as a cost of doing business.




*“There are substantial opportunities for commercial organizations to earn a meaningful, sustainable profit without charging for transactions.”*

**Matt Bohan**  
Senior Program Officer: Financial Services for the Poor  
Global Growth and Opportunity  
Bill & Melinda Gates Foundation

# Is the Right Technology Chosen to Support Real-Time Retail Payments?

*Legacy electronic payments systems, including ATM, card, ACH and RTGS, use a variety of technical approaches and standards. These are not appropriate—or sufficient—to support high volume, real-time retail payments. As a result, new technologies and protocols are being used in RTRP systems worldwide*

<p>The Level One Project believes that new payments systems should be architected to include the capabilities listed below. These capabilities are in addition to the core L1P Design Principles (for example, real-time clearing, push payment, and near real-time settlement). Together, these capabilities drive and enable low cost payments.</p> <ol style="list-style-type: none"> <li>1. “API native” protocols to enable DFSPs and other financial services providers to easily connect to and transact with the system. This is an alternative to message-based protocols. Access can be enabled for both bank and non-bank DFSPs, depending on the regulatory environment in a given country or region.</li> <li>2. Robust asynchronous interaction patterns to make communication resilient in situations where DFSPs network connectivity is unreliable.</li> <li>3. Guarantees DFSPs identity in exchanges by using digital</li> </ol>	<p>signatures on all financial communications between parties.</p> <ol style="list-style-type: none"> <li>4. The use of a validation exchange prior to the transmittal of a payment order: the validation gives the receiving DFSP the opportunity to say “yes, this account is valid, and is ready to receive the amount of funds proposed”.</li> <li>5. The ability to exchange other data between the sending and receiving DFSP prior to transmittal of the payment order: this may include fee information and/or counterparty name or other identity information.</li> <li>6. The ability for a receiving institution to accept or reject a transmitted payment order.</li> <li>7. A flexible addressing protocol, which allows a scheme to adopt multiple types of payee identifiers, including mobile phone numbers, bank account numbers, merchant ID’s, QR codes, and aliases. This supports</li> </ol>	<p>the requirements of different use cases, while preserving the integrity of the relationship between a given identifier and the transaction account which is receiving funds.</p> <ol style="list-style-type: none"> <li>8. The ability of the end-user to move their identifier between DFSP, similar to mobile phone number portability.</li> <li>9. The use of “request to pay” communications to allow a recipient of funds to request payment without needing to effect a “pull” payment order.</li> <li>10. The use of low-risk, automated settlement mechanisms.</li> <li>11. The ability to support the automation of costly manual processes, particularly with respect to exception management and dispute resolution.</li> <li>12. The ability to interconnect with other RTRP schemes and hubs; the ability to exchange transactions cross-currency if the scheme supports this.</li> </ol>
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 [More Information: \*Mojaloop and the Open API Definitions\*](#)

# What Regulatory Support is Critical for a Thriving Digital Ecosystem?

**Support for the financial ecosystem by regulators is necessary at many levels. Three aspects are of particular importance in ensuring scale.**

## 1. Enabling DFSPs that Can Reach the Poor

It is well understood that traditional banking models don't work economically to serve the poor. This is a problem that has to be solved to reach financial inclusion goals. Several regulatory licensing approaches are relevant and worth consideration:

**eMoney Issuance:** Regulators give permissions for new categories of providers to offer transaction accounts. Often, but not always, eMoney Issuance licenses are given to MNO's, which have extensive customer relationships and agent networks. In some countries, banks are also asked to become eMoney Issuers if they want to participate in eMoney interoperability schemes.

**Special Purpose Banks:** In some countries, new types of bank charters are issued, intended to allow non-bank entities to provide transaction accounts.

### Role-Based Regulation

Countries are moving towards a functional approach to payments regulation. This means that a non-bank provider of payment services would have payments activities regulated by the central bank, even if the primary regulator of the entity is a different government agency.

## 2. Supporting DFSP Interoperability

A core design principle of Level One is interoperability among DFSPs. In many markets, this has been resisted by some DFSPs, who like the economic models of closed-loop wallets. In other markets, interoperability has been enabled among banks alone or among eMoney Issuers alone, but not among DFSPs of all categories.

Regulators have taken a variety of approaches to encourage interoperability, from mandating participation to encouraging it. Two trends are of particular interest:

In markets such as Mexico, the central bank ensures interoperability by both operating the real-time retail payments switch, and by enabling it to be used (by QR codes) for merchant payments. Central banks express interest in this model because it can also provide regulatory visibility into payments transactions.

Centralized national directories play an important role in making interoperability work, with the potential to reduce fraud. Australia's PayID and Tanzania's Financial Services Registry are interesting examples.

In some countries or regions, it appears that there will be multiple RTRP systems: in this case, cross-system interoperability will be necessary to achieve ubiquity.

### The Closed-Loop Illusion

Countering persistent biases in favor of closed-loop systems on the part of non-bank providers is an ongoing challenge for regulators.

A growing understanding of the importance of interoperability in unlocking potential high volume use cases, such as merchant payments, is key.

## 3. Enabling Third Party Connections

As mentioned, specialty aggregators, processors, and other entities operate today in many markets and serve an important role in facilitating access and use-case specific payments. Regulators have taken various approaches to ensure that third parties can participate in the ecosystem without adding substantial risk.

**PSPs as Payment Initiators:** In India, a new class of non-bank players, called PSPs (or Payment Service Providers), have been given a role in the UPI payment system. The PSP can, on behalf of a customer, create a payment order that moves money from their customer's bank account to another bank account. This unique structure separates the transaction authentication and authorization processes into two components, which are shared between the PSP and the bank. This approach is in Europe with PSD2.

 [More Information: \*Enabling Regulatory Environment\*](#)

# What Else Is Necessary to Reach Scale?

## A Focus on the User Experience

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Is the payment interface simple and intuitive for the consumer to use?

## Access Points are Readily Available

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Are there enough billers, merchants, agents, branches, and ATMs to support consumer need to transact, cash-in, cash-out?

## Network and Service Availability is High Enough

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Is network coverage available, is it consistent, and is it reliably “on” when it needs to be?

## System Governance is in Place


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Is a pro-poor governance scheme in place for the payment system? Are licensed bank and non-bank providers treated equitably?

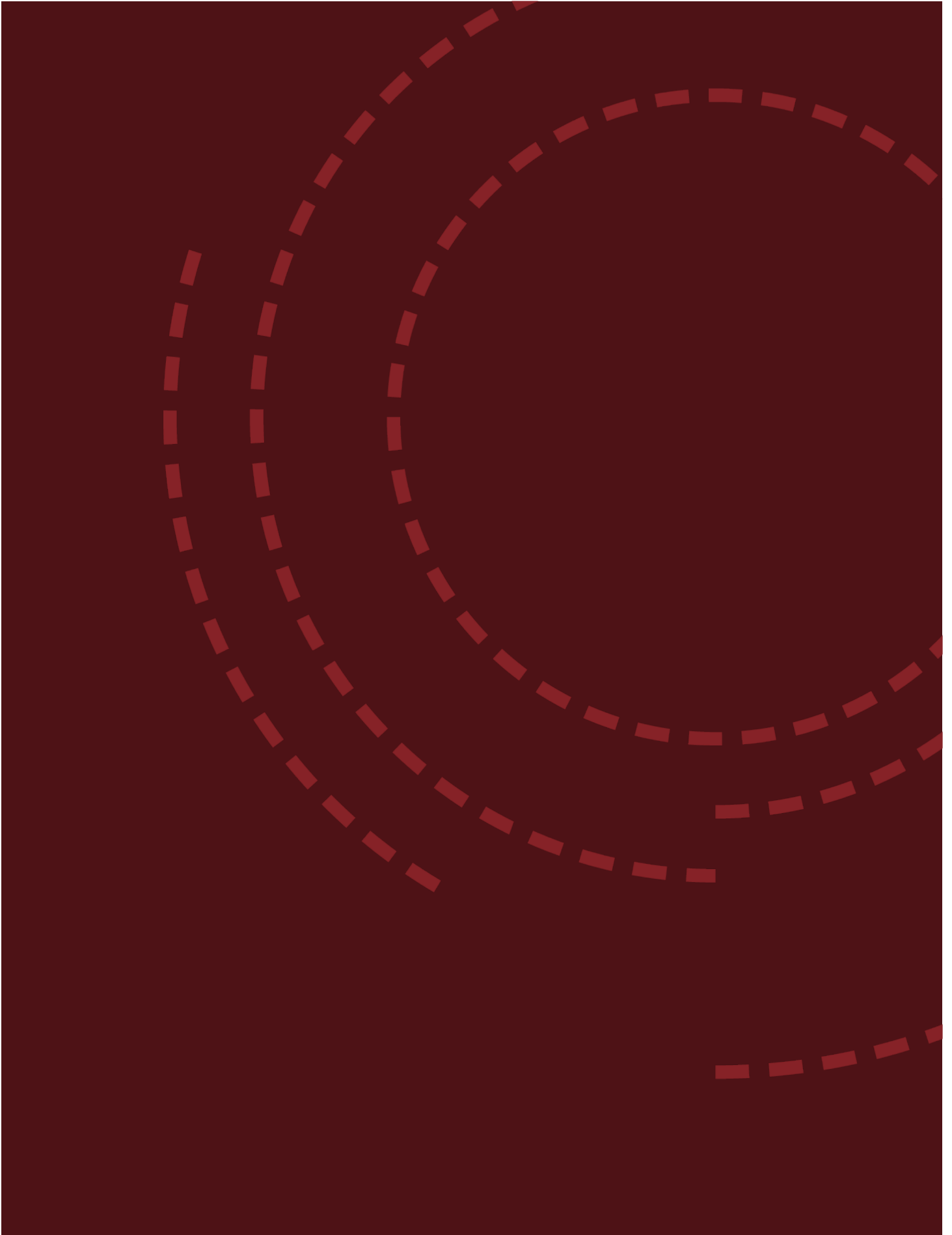
 [More Information: Payment Scheme Governance](#)

Section 3

# Around the World



3



# Understanding Approaches to Digital Payments

Approaches to digital payments are actively and rapidly evolving around the world.

Each implementation, be it a scheme or a solution, provides a rich set of lessons learned, essential for the development of an inclusive digital financial services system.

In this section, we highlight eight noteworthy activities. Implementations were selected as each has one or many characteristics that align with the Level One Project. Moreover, collectively the activities underscore the variation that can exist, while still aligning with aspects of the Level One Project.

Southern African Development Community (SADC)	China	Commerce Platforms	India
Tanzania	Mowali	QR Code Approaches	Mexico SPEI + CoDi



*“It’s critical that we stay abreast of innovations, progress, and approaches that are happening globally.”*

John Ndunguru  
Program Officer, Financial Services for the Poor  
Global Growth and Opportunity  
Bill & Melinda Gates Foundation

# Southern African Development Community (SADC)

*Working towards regional payments integration and low cost, cross-border, retail payments*

## What is SADC?

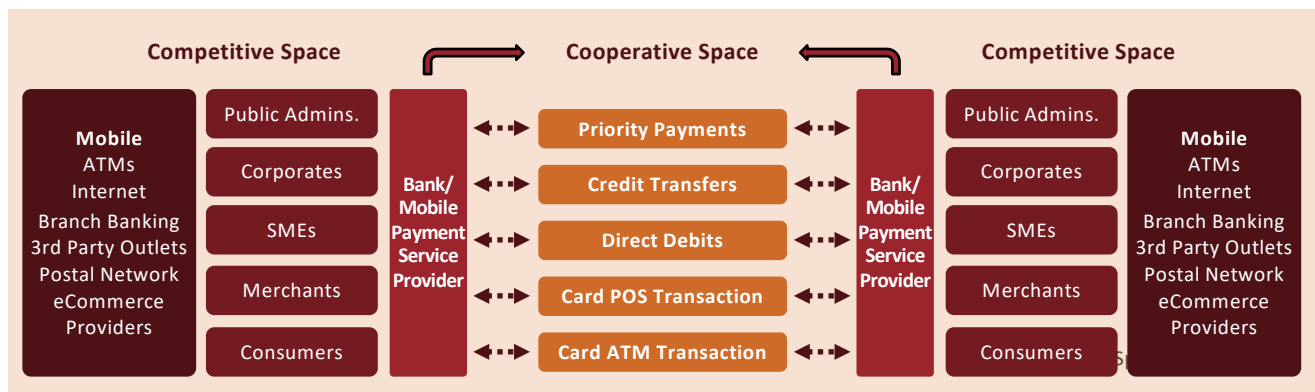
The Southern African Development Community is a sixteen country regional cooperative. The SADC Treaty is the basis for a range of efforts to bring about sustainable, collaborative development in important areas, including financial services, with the ultimate goal of poverty eradication.

## SADC's Role in Payments?

The SADC treaty provides the opportunity to inform the development of financial market infrastructure to support inter and intra-regional trade. Current interventions focused only in the cooperative (non-competitive) space and are working across multiple payments streams, including:

1. Priority Payments
2. Credit Transfers
3. Direct Debits
4. Card POS Transactions
5. Card ATM Transactions.

This very ambitious scope provides challenges recognizing the vast differences in payments systems among participating countries, punctuated by a top-down mandate that requires implementation support by the private sector. However, the SADC community has had robust stakeholder engagement over the last 10 years, first to enable wholesale cross-border transfers and, more recently, to enable low-value, credit push, cross-border transfers. This low-value cross-border payments scheme is now branded as the 'Transfers Cleared on an Immediate Basis' (TCIB) scheme.





SADC (Continued)

**Scaling the TCIB Scheme**

The SADC TCIB scheme aims to leverage global best practices to drive high volume, low cost transactions, including:

- Banks and non-bank participation
- Interoperability
- International standards
- Supporting multiple use cases.

First efforts are focused on onboarding banks and non-banks across participating countries using these best practices to drive scale. After the TCIB scheme proves it’s success regionally, there is an opportunity for countries in SADC to leverage the TCIB scheme for domestic as well as cross border transactions. This could be particularly appealing to countries that may have smaller populations and fewer domestic payment transfers.

**TCIB Scheme Approach to Governance**

The TCIB scheme development is currently led by the SADC Banking Association (BA). While the SADC BA has a robust governance structure, it is bank-centric, as the name implies. As a result, recognizing the TCIB

scheme has both banks and non-banks as direct participants, the TCIB scheme is creating the TCIB Participant Association (TPA). The TPA will be an organization that can represent all stakeholders in the scheme. It will engage with regulatory structures when necessary, serve as a super user group guiding the direction of the scheme beyond go-live, and ensure the success of the TCIB scheme.

**The Potential Impact**

The success of the SADC effort provides the opportunity to support low-value remittances currently transferred through informal channels or through formal channels at very high costs. Moreover, the TCIB scheme serves as a model for other regions working to enable cross-border payment schemes.

**What to Watch?**

The TCIB scheme is set up for success. Moving forward, it will be worth paying attention to:

- How should the region work to harmonize regulation across the participating countries?
- How should SADC manage the variation in technical capabilities of participants?
- How will the SIRESS settlement system evolve to include multiple currencies?



*“Regional approaches to real-time retail payments, like what is taking place in SADC, promote scale and present an opportunity to drive costs down through shared utility infrastructure.”*

**Maxine Hlaba**  
General Manager  
SADC Banking Association

# China

*Two closed-loop schemes dominate the mobile wallet market*

## Dominance of WeChat Pay and Alipay

Tencent's WeChat Pay and Ant Financial's Alipay dominate the mobile payments market in China. According to CGAP, together they account for 92% of market share. The two closed-loop schemes have successfully disintermediated cash and card payments in China.

## Strengths and Opportunities of Dominant Models

**Strengths:** Both WeChat Pay and Alipay likely benefit from their parent companies' 'super-app' model where purchases are made within the ecosystem of the platforms, which have gained massive user bases. Born from Tencent's social media products and Ant Financial's eCommerce marketplace, the two platforms now support payments and work in the same way. Payments are free to consumers and are either free or low cost for merchants. Payments are subsidized by other revenue streams enabled by the platforms: which support commerce and financial adjacencies. Both platforms have provided many additional financial services, including wealth management and loan products, to their users.

**Opportunities:** WeChat Pay and Alipay require connections to a bank account and benefit from



smartphone ownership, limiting the value-add for low-income consumers who may not have these prerequisites. However, both bank account and smartphone penetration rates are expected to increase in the coming years.

## Enabling Merchant Payments

An important development from WeChat Pay and Alipay is merchant acceptance of digital payments through QR-based schemes. Both services offer QR code acceptance methods to merchants. The systems are not interoperable, but it is



common for stores to display both a WeChat Pay and an Alipay QR code. The pace at which these two companies added merchants represents a remarkable achievement. In 2016 Alipay claimed 600,000 brick-and-mortar merchants across China. By 2019 the number stands at 40 million brick-and-mortar merchants in China. WeChat Pay followed a similar trajectory.

Both Alipay and WeChat Pay achieved success in enabling

## SECTION 3: AROUND THE WORLD

### China (Continued)

merchant payments for a number of reasons, including low fees, a largely self-service onboarding process for small merchants, and availability of useful value-added services like SMB lending. Also, merchants across the spectrum use the mobile services to accept payments, from high-end restaurants to food carts, designer boutiques to street vendors, further promoting ubiquity.

#### The Role of the Regulators

While initially permissive and implementing little regulation, as Alipay and WeChat Pay grew and became instrumental to the payment system in China, the PBOC exercised more oversight and restraint. The People's Bank of China (PBOC) continues to try to retain supervision and oversight into the exchange of funds in China. Some recent approaches to do so, recognizing the dominance of WeChat Pay and Alipay, include:

- Announced that all third-party payments companies must hold 100% of clients' cash deposits in non-interest-bearing accounts (Bloomberg)
- Forced third-party payment providers to sever direct ties with banks and process transactions via a centralized platform called

NetsUnion Clearing Corporation in order to gain greater insight into payment data. The platforms use this to fund wallet balances and in some cases individual transactions

- Set rules for QR code payments, which set daily transaction limits for users based on their demand and risk prevention capacity; set technical requirements on QR code encryption, transaction verification, and information protection
- Clarified that it is illegal for merchants to refuse cash, in China— a move likely intended to prevent Alipay and WeChat Pay from gaining close to total share of Chinese payment volume

The PBOC also made many interventions to improve financial inclusion including:

- Required state-owned banks to open bank accounts for rural households, enabling G2P subsidy transfers (and use of other non-bank financial services) (CGAP)
- Offered local bank branches incentives to provide rural areas with banking services (World Bank)

#### What to Watch?

Moving forward, it is worth paying attention to the following topics in the China market:

- What additional new services and adjacencies (financial and non-financial) are offered by WeChat Pay and Alipay to end users?
- How the PBOC regulates the two dominant providers to retain oversight, supervision, and economic control? Do the regulations negatively impact the operations of Alipay and WeChat Pay and their ability to digitize more transactions?

#### Meaningful Metrics

**800M+**

Tencent's WeChat Pay mobile payment monthly active user accounts, as of Q3 2018 (Tencent)

**1B+**

Ant Financial's Alipay active users globally (Alibaba)

**92%**

Combined market share of Alipay and WeChat (CGAP)

# Commerce Platforms

*Payments are integrated into the acquisition of goods and services, promoting high transaction volumes and active user accounts*

Commerce platforms are springing up around the globe. Each commerce platform may have a particular focus, be it to:

- Connect individuals or businesses with one another socially
- Connect buyers and sellers of a particular good (e-commerce)
- Connect buyers and sellers of a particular service, for example,

driver or delivery services. Many aspects of these platforms are worth pointing out:

**Approach to payments:** Payments are often embedded into the acquisition of goods and services. Payments enablement is secondary to the primary goal. This is particularly interesting given that many standard wallets struggle

with usage while these platforms often experience overwhelming transaction volumes.

**Expansion of use cases:** To continue driving demand of their payments application, commerce platforms often quickly expand the use cases beyond the platform. Common use cases include P2P transfers and merchant payments at the POS leveraging QR codes.



Grab is a transportation network operating in many Southeast Asian countries offering ride hailing and delivery services.

To support its network, Grab introduced GrabPay, which allows users to pay for Grab services digitally through the Grab wallet.

Implementations vary by country, but in general, users can link an account or card to their GrabPay wallet to fund transactions or load funds into their wallet by 'cashing in' with agents (drivers).

GrabPay has expanded and now serves as a closed-loop payment method, funding other use cases, most notably person to business payments using QR codes.



Rappi is a young, on-demand product and services delivery platform operating in South America.

To support its platform, Rappi launched RappiPay for payment within the Rappi platform but rapidly expanded to support additional use cases, including P2P and in-store merchant payments, leveraging QR codes.

RappiPay currently has 5 million active users making ~12 million P2P transactions per month, and ~7 million in-store payments per month.

# India

*Benefiting from continued investment in technology and innovation*

## Introduction

The India technology stack facilitates digitizing transactions through a set of centralized services, including:

1. Aadhaar Authentication layer
2. A paperless storage layer, including eKYC and Digilocker
3. A suite of digital payment services, including the Unified Payments Interface (UPI), that enable interoperability which also includes payments addressing

## The Value of UPI

In a short amount of time, UPI grew in popularity and transaction volume, encouraged by:

**Free or low cost transactions:** many non-banks offer payments for free. Bank charges are low and merchant payments, at 0.10 + 0.04%, are lower than credit and debit cards

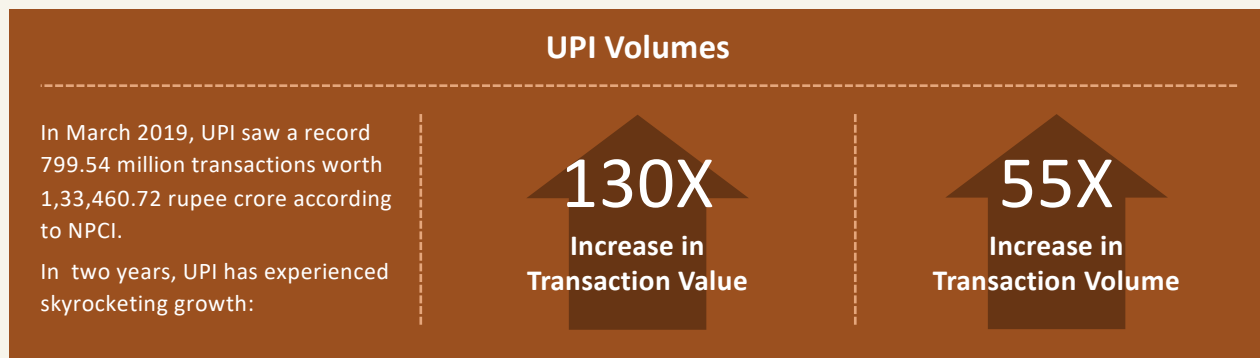
**Interoperability:** At a system design-level, a user of any UPI

application can send money to a user of another application, using his or her alias. Since UPI apps are not locked into bank provider apps, users are able to access transaction accounts offered by both banks and non-banks.

**Enabling non-account holding PSPs to participate in UPI through sponsorship:** Perhaps most notable, is UPI's approach to PSPs. UPI defines a Payments Service Provider (PSP) as a payments initiator that allows both banks and non-account holding PSPs (such as Google or WhatsApp) to act in this role. PSPs offer consumers and merchants the ability to securely pay and be paid from/to their bank accounts. Non-account holding PSPs need to be sponsored by a UPI member bank. This capability has driven transaction scale, often facilitated by the non-bank parties. Moreover, it has promoted new entrants to participate, with low barriers to entry, recognizing many of these

players are not 'touching the money' and can be regulated differently than organizations who are involved in the transaction funds flow.

**The suite of open APIs:** UPI provides a suite of open APIs that further supports non-account holding PSPs' participation and drives transaction volume. The openness of the system allows third-party payment providers to build payment applications on top of UPI, which fosters a dynamic digital ecosystem. Tech-forward, third-party payment providers, led by Paytm, PhonePe, and Google Pay, create a convenient and straight forward sign-up processes and simplify the process of sending digital transactions. The ease with which providers can join the system and create payment applications, paired with growing smartphone and internet penetration rates, will further encourage adoption of UPI.



India (Continued)

### Scaling Merchant Adoption

UPI acts as an important bridge behind merchant adoption of digital payments. The largest third-party payment providers invest heavily in merchant acquisition and achieving impressive early success. Furthermore, the roll-out of UPI 2.0 introduces features directed at merchants, such as authenticating merchants while scanning QR codes and requests to pay from merchants, should further encourage use.

### Beyond UPI, India Shows an Ongoing Orientation towards Innovation

India payments leaders and regulators continue to display an

orientation towards innovation.

A few examples worth noting:

**The National Payments Corporation of India (NPCI)**, which operates the suite of digital payments services and processes around half of all digital payment requests in India, recently released an Expression of Interest (IOE) calling for entities to bid to develop a blockchain solution for the payments space.

**The Reserve Bank of India (RBI)** announced it will develop a fintech regulatory sandbox to support quick, iterative learning on the potential success of new products and services, just one of the many regulatory initiatives from RBI to support digital payments.

### What to Watch

The technology stack in India has promoted many successes. Moving forward, it will be worth paying attention to:

- How will the regulatory sandbox will facilitate new products and services that may help serve the poor?
- How will blockchain be leveraged, if at all, to further the technology stack?
- What other technology and innovation investments are made and how can those be replicated in other countries or regions?

### Merchant Acceptance

#### Paytm

~5 million merchants accepting UPI payments (Fall, 2018)

#### Google

~ 1.2 million merchants accepting UPI payments (Fall, 2018)

#### PhonePe

~ 5 million merchants accepting UPI payments (May, 2019) attributing its rapid growth to interoperable UPI QR code-based solutions



*“India continues to serve as a model for other countries looking to develop Public Goods/utility solutions that drive scale and meet the needs of low-income and rural consumers.”*

**Pawan Bakhshi**  
India Lead: Financial Services for the Poor  
Global Growth and Opportunity  
Bill & Melinda Gates Foundation

# Tanzania

*Launching of Tanzanian Instant Payments System (TIPS) to drive interoperable, low-cost digital financial services*

Tanzania has made great strides towards financial inclusion. The 2017 FinScope report shows significant increases in the uptake of financial services and a decrease in the percent of people who are financially excluded. This is partly due to a strong regulatory approach which has embraced innovation, enabling the issuance of eMoney and, later, the interoperability among eMoney issuers.

Despite this, the use of electronic payments as a replacement of cash is still low. The country's central bank, the Bank of Tanzania, announced plans to launch a new real-time retail payment platform, Tanzania Instant Payments (TIPS) in 2020. TIPS is being developed in-house at the Bank of Tanzania, with

consideration from stakeholder input. It is based on Tanzania Design Principles which stress the importance of the platform to support multiple use cases, deliver ultra-low cost services, and provide appropriate levels of regulatory visibility into transactions.

Notable elements of TIPS include:

- Interoperability among both banks and non-bank licensed eMoney Issuers
- 24x7 Transaction Processing
- Online Account Validation
- Same-day settlement
- Transaction irrevocability
- Support for P2P, P2B/G and B/G2P Use Cases, including QR codes
- Support for multiple payment addresses, including mobile phone number, bank account

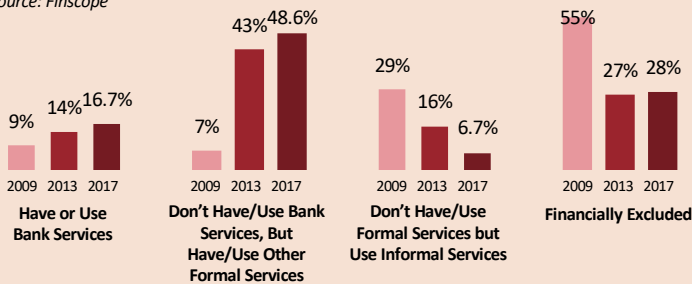
number, national ID number and merchant ID number

## Transitioning to Full Interoperability

Currently, in Tanzania, there is interoperability among digital financial services providers (Banks and Mobile operators) that shows significant growth. However, this interoperability does not accommodate instant payments that involve banks and important use cases. By creating TIPS, the DFSPs can send interoperable instant transfers and increase operational efficiencies. As an example, some operators have today almost a dozen technical connections to other DFSPs.

### Uptake of Financial Services

Source: Finscope



### How Do They Make Payments?

Source: Finscope

	Cash	Bank	Mobile Money	Other
Groceries	99%	0.01%	0.0%	0.0%
School Fees	75%	21.0%	4.0%	0.4%
Medical	99%	0.05%	0.0%	0.2%
Pay Rent	98%	1.0%	1.0%	0.3%
Buy Airtime	97%	0.03%	3.0%	0.1%



*“TIPS will be a key enabler of the new Tanzanian digital economy, bringing safe and efficient payment capabilities for all Tanzanians.”*

**Bernard Dadi**  
Director, NPS  
Bank of Tanzania

# Mowali

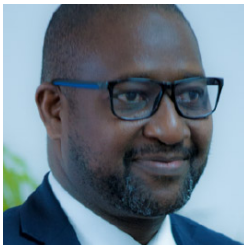
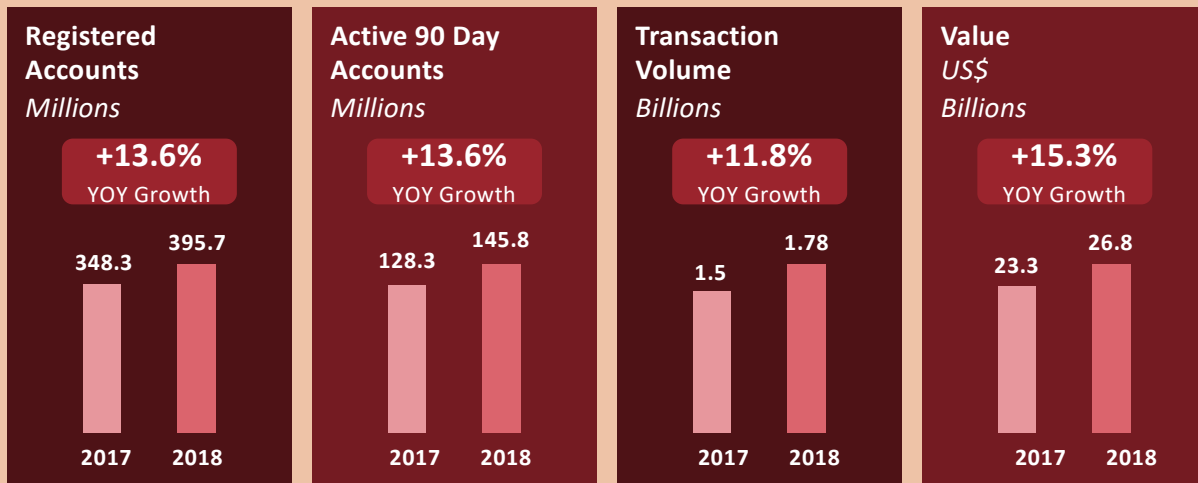
*A joint venture between MTN Mobile Money and Orange Money*

Mowali is a new mobile money interoperable platform with the ambition to serve Africa globally. A joint venture of two of the major mobile payment providers on the continent, Orange and MTN, it targets domestic and cross-border transfers between any two participating service providers. The platform provides interoperability and simplicity of

settlement for multiple providers. Mowali is being developed using components of code from the open-source Mojaloop community. Mowali brings together over 100 million mobile money accounts and mobile money operations in 22 of sub-Saharan Africa’s 46 markets. At launch in 2019, it will serve the customers of MTN Mobile Money and Orange Money, but it plans to

enable interoperability between other digital financial service providers to support the existing 338 million mobile money accounts in Africa. Banks, money transfer operators, and other financial service providers are also encouraged to join the Mowali ecosystem to promote the digitization of payments across the financial services sector.

**An Enormous Market Across Sub-Saharan Africa Alone** (Source: GSMA)



*“Financial inclusion is a major objective of Mowali. Mojaloop is a very good engine to achieve this thanks to its advanced security, openness, and scalability.”*

Sadam Kaba  
CEO, Mowali

[More Information: Mojaloop](#)



# QR Code Approaches

*QR Codes are jump starting merchant payments*

**In developing markets around the world, quick and easy-to-use QR codes drive merchant adoption to a degree not seen before.**

Payments schemes, country payments regulators, and authorities, are launching ambitious efforts to use QR codes to drive merchant payments acceptance. There are many technical and business issues to decide upon with QR code implementations- some of which have ramifications for a pro-poor payments system design.

**QR Code Choices and Decisions**

- Is the QR code presented by the merchant, and scanned by the consumer, or presented by the consumer and scanned by the merchant? Level One has a preference for merchant-presented

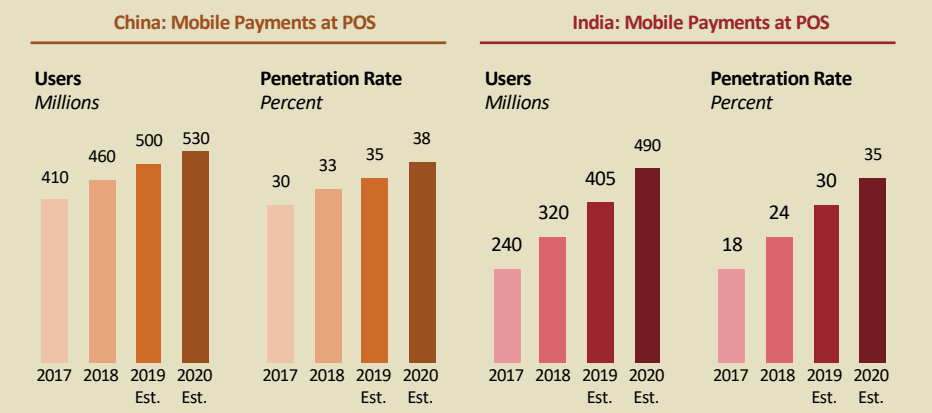
- QR codes, implemented in conjunction with push, not pull payments. A merchant-presented QR code can be combined with a till number to enable consumers with feature phones to easily pay the same merchant.
- Is the QR code static (the same for all purchases), or is it dynamic? Rather than a choice, this is seen as an evolution: most markets are starting with static QR codes, but have plans to move to dynamic codes. Dynamic codes function like a “request to pay” payment message in a push payment system and can contain purchase-specific data.
- Is the QR code shared among multiple payments systems, or is it dedicated to a single payment system? If a single system, is that underlying system interoperable (open-loop), or is it closed-loop?
- Who issues the QR code? The

- payment scheme itself, or DFSPs licensed to do so by the scheme? A national authority? How is the QR code tied to a scheme, or a national, merchant registration database?
- Does the data within the QR code (the “payload”) contain the merchant’s “payment address”, or does it point in some way to a place where this is stored? The latter approach provides more flexibility and supports a merchant’s ability to change providers.
- Is the QR “payload” digitally signed? If so, who and where are the keys controlled?
- How is the consumer (and the merchant) protected from QR code fraud?
- What are the economics of the transaction to the merchant? Level One has a strong preference for zero, or near-zero pricing to the small or poor merchant.

A merchant-presented QR code with an option for entry of a till number by a customer with a feature phone



Dramatic growth in mobile payments in China and India are driven by QR Codes



Source: Statista Digital Market Outlook, FinTech Report 2019: Digital Payments, May 2019 (Based on IMF, World Bank, UN, and Eurostat)

# Mexico SPEI + CoDi

*The SPEI real time payment system operated by the central bank adds an overlay for QR code payment to facilitate digital payment for peer to peer and merchant payments*

## A Pioneer in Digital Financial Services

A few years after Mexico launched the Interbanking Electronic Payment System, a new, real-time gross settlement system (RTGS) for high-value transfers and interbank obligations, the central bank (Banco de Mexico) opened up the platform for payments of any size. Better known as SPEI, its Spanish language acronym, the system began to allow Mexican bank account holders to make instant, electronic transfers to other account holders for any payment need using their online banking portals and later, their mobile banking apps.

## Enhancing Usability

More recently SPEI expanded its operating hours to nearly 24 hours per day and is working to make the platform an ever more relevant tool for payment services providers. While SPEI has been available for regulated non-bank financial services providers to connect directly for many years, actual usage is low. This is expected to change as a result of the 2018 “Fintech Law” which created a new category of electronic payment entities that are chartered to carry out basic digital financial services.

## Financial Inclusion

Mexico is still working to improve financial inclusion in the country – according to the most recent Findex data only 37% of Mexican adults have a bank account and usage of digital payment is much lower with only 13% reporting they use the internet to pay bills or buy something online.



## Cobro Digital (CoDi)

A telling indicator that SPEI is a true retail payment platform, as the number of transfers grew significantly; however the average value of those transfers remains low. The 2019 introduction of CoDi (short for digital charge, or Cobro Digital in Spanish) is an effort to build on this foundation and further extend SPEI’s usability and relevance for retail payment.

A new feature or overlay service that sits on top of the SPEI platform, CoDi leverages QR codes to simplify a merchant’s ability to receive a SPEI transfer for the payment of goods or services. It also makes it easy for individuals to make in-person, peer to peer transfers

whereby the payee simply shows a QR code from their mobile banking app to the payer. The payer types in the amount of the transfer and the payee receives the funds immediately.

CoDi is an interbank payment method – users must have a transaction account at a traditional bank or at one of the new electronic payment entities that is connected to SPEI. The financial service provider makes CoDi available in its app.

## Zero Cost Merchant Payments

Perhaps the most notable feature of the CoDi functionality is that merchants can receive payments (up to approximately US\$ 400 dollars) with no fees for payment acceptance. This is a feature guaranteed by the CoDi rules.

Merchants enroll in CoDi by registering online with the Banco de Mexico, which acts as the scheme Administrator. The CoDi app must be made available to its clients by all banks.

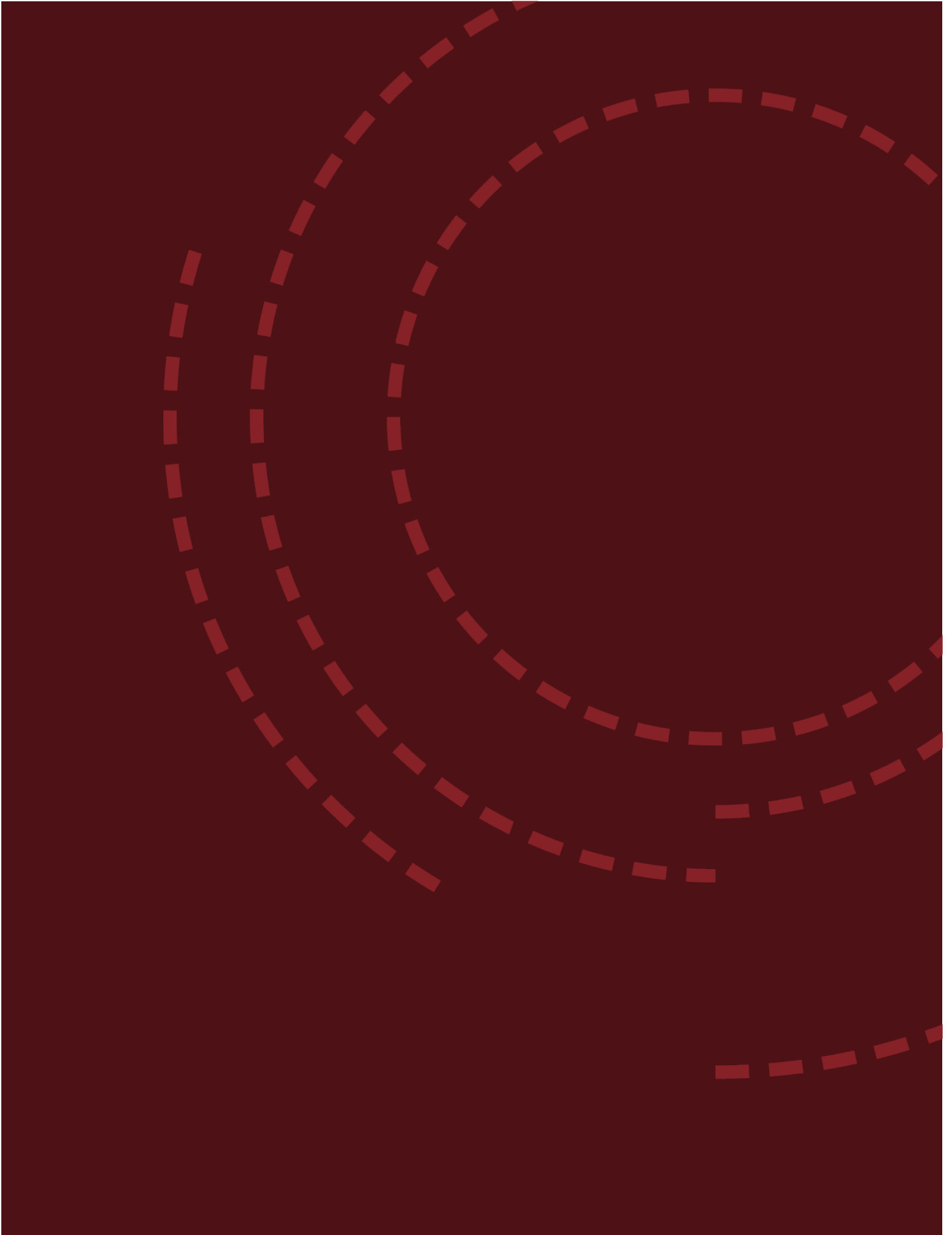
CoDi features both static and dynamic QR codes, can be communicated using NFC, and is also available for online, e-commerce transactions.

Section 4

# A Closer Look



4



# Open Loop and Interoperability

*The ability to pay anyone and be paid by anyone is a necessary condition for a useful payments system. In a Level One aligned system, the ability to reach counterparties is not the basis of competition among service providers. A Level One aligned platform provides a level playing field for all counterparties; service providers should and will compete on other dimensions of their service*

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## What does “open loop” mean in the context of Level One?

- An open-loop payments system is one in which any licensed DFSP provider may participate. Membership conditions are specified in the operating rules of the payment scheme.
- An open-loop system will not discriminate against categories of DFSPs, or protect the interest of one category (e.g., large providers) against others.

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## Does “open loop” mean the same thing as “interoperability?”

- An open-loop system implies interoperability. The system exists to exchange transactions among participating DFSPs. Every open-loop system is interoperable.
- Not all interoperable schemes are open loop. An interoperable scheme might exist among a set of providers, but the rules of that scheme might exclude some classes of DFSPs.

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## What are the challenges in managing an open-loop system?

- Countries may achieve the effect of a single open-loop system by interconnecting two or more systems. Connected schemes need to have the same basic rules for transaction timing and treatment.
- Balancing the needs of differing constituents (e.g., banks vs. non-banks, large providers vs. small) is difficult. That is one reason why Level One advocates for a “skinny” payments platform—with minimal functionality embedded at the platform level. This is a “lowest common denominator” approach to the value transfer function of the platform. Level One further specifies an open API protocol to access the platform. DFSP providers and their partners (e.g., non-DFSP service providers) can compete based on “apps” and “accounts” that use this platform.

# Push Payments

## What are “push” payments?

Push payments are those in which the paying party’s DFSP first enters the payment order into the payment platform. The receiving party’s DFSP then receives the payment order and credits the payee’s account. Wire transfers and ACH payroll transactions are examples of push payments.

Push payments contrast with pull payments. In pull payments, the receiving party’s DFSP enters the payment order into the payment platform, and then the paying party’s DFSP receives the payment order and debits the payer’s account. Checks, debit cards, and direct debit transactions are examples of pull payments.

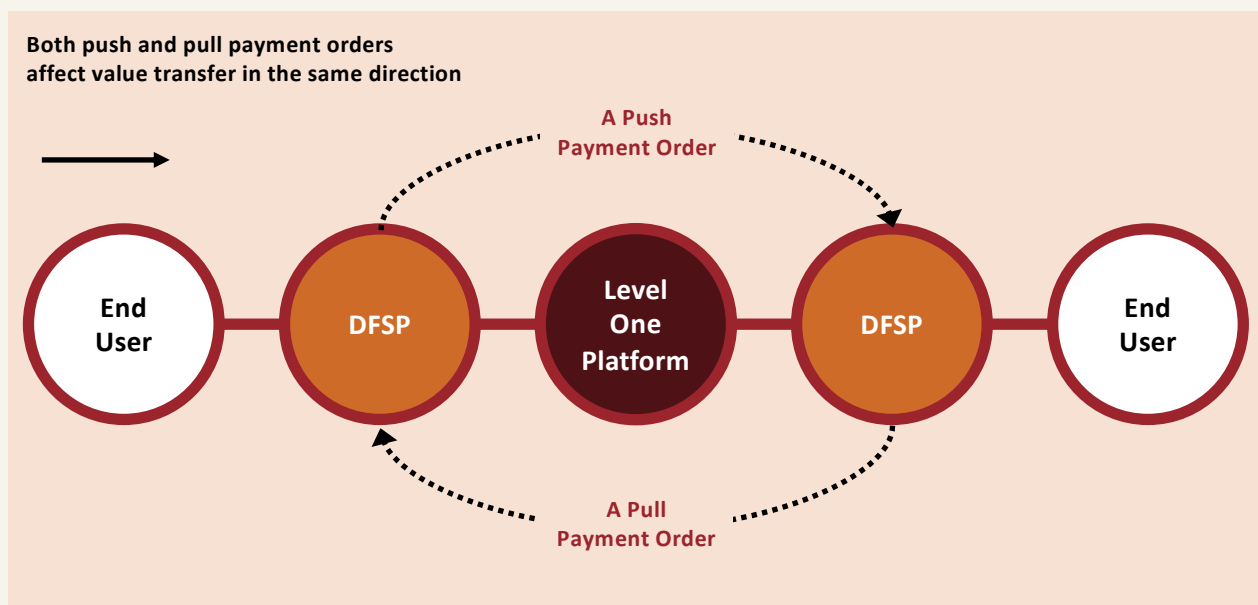
Push payments are superior to pull payments for risk control issues of many kinds. A push transaction can’t bounce and doesn’t need an authorization message; the DFSP who knows the payer’s account balance is sending the payment instruction. Push address credentials, if stolen, can’t be used to fraudulently “pull” money out of a consumer’s account. For these reasons, Level One supports a “push-payments-only” design.

## Are “pull” payments necessary to support merchant and biller payments?

No. The functionality of pull payments, in which the receiver of funds wants to “ask” for the payment, can be fulfilled using “request-to-pay” messaging. This request message is not a financial transaction; the payment transaction is sent to the switch by the consumer’s DFSP so that the risk benefits of push payments are maintained.

Legacy systems developed pull payments because the technology at the time did not permit real-time push payments. Today, enabling technology is in the hands of every user. A Level One platform can handle multiple use cases. There is no reason for modern payments systems to support these higher-risk, higher-cost transaction types.

*Confusion Alert: In some new systems, request-to-pay messaging is referred to as “pull.” The important distinction is which DFSP—the paying or receiving party—is entering the transaction into the system.*



# Transaction Irrevocability

**One of the design principles of the Level One Project is transaction irrevocability. This means that once money has been sent from one party to the other, the sending party can't change their mind and take the money back—without the consent of the receiving party.**

Transaction irrevocability is necessary to keep transaction costs low: handling exceptions and reversals is very expensive, in any payment system. It is also necessary to bolster consumer confidence in the system, and encourage consumers to leave balances in a digital form in their account – where they can be sure the funds are safe.

Implementing an RTRP system with transaction irrevocability can be challenging. The types of challenges – and the best means of handling these – vary by use case.

## P2P Payments

In person-to-person payments, the challenge is managing claimed consumer error. Evidence from many early mobile money programs shows that consumers make errors—lots of them—in addressing payments and entering amounts. It seems logical to allow a customer who has made a mistake to reverse a transaction. However, experience with payments systems in the developed world indicate that false claims of error—a type of fraud—are expected as a system grows.

Recently, mobile money programs have found that implementing a confirmation message dialog with the sending consumer (“do you want to send 500 KES to Kamau?”) significantly reduced the volume of errors. In an interoperable system, this is particularly strong when the confirmation comes from the receiving institution, who validates that the payment address (phone number, bank account number or other alias) is associated with a name, which is then presented to the sending consumer for confirmation.

## Bill Payments

In bill payments, the challenge is both avoiding errors in amount entry, and ensuring that the payment will be credited to the right consumer's account at the biller system. In this case, a confirmation message which matches a consumer's account number at the biller with the proposed payment could ensure proper posting. Over time, as more payments are made in response to “request to pay” messaging (sometimes implemented with QR codes), the likelihood of these errors reduces.

## Merchant Payments

Merchant payments present perhaps the largest challenge. Problems of payments errors – amount errors or payer address errors – can be managed through the techniques described above.

But digital merchant payments will also bring the challenge of commerce fraud: a legitimate payment, in the correct amount, is made to a merchant who defrauds the buyer by providing not-as-described merchandise or, in the case of remote commerce, by not sending goods paid for. There are a variety of potential solutions to these challenges, including escrow services, consumer insurance programs, published “bad actor” lists, or various forms of government or commercial “good actor” designations.

# Enabling Regulatory Environment

*Regulatory support of financial inclusion initiatives remains critical. The Level One Project supports the four key regulatory enablers for digital financial inclusion, as outlined by CGAP in [‘Basic Regulatory Enablers for Digital Financial Services’](#)*

## Non-Bank eMoney Issuance

*Licensing requirements for prepaid or stored value accounts*

### Key Regulatory Issues:

- Regulatory framework for e-money
- Who can issue e-money
- Capital requirements for providers
- E-float requirements
- Services allowed to be offered (accounts, cash-in and cash-out (CICO), provide transfers, provide credit, hold deposits)
- Rules for handling and storage of customer funds for non-banks
- Wallet / Account limits

## Use of Agents

*Permissibility of third-party providers in the DFS value chain*

### Key Regulatory Issues:

- Eligibility requirements for being an agent
- Type of entities that can act as agents
- Services agents are allowed to perform
- Type(s) of training is required
- Agent exclusivity allowed
- Responsibility for actions of the agent

## Risk-Based Customer Due Diligence (CDD)

*Proportionality of regulation with the functionality of the account or service*

### Key Regulatory Issues:

- Application of regulations for customer identification, anti-money laundering, counter financing of terrorism
- Acceptable customer identification
- Remote wallet registration
- Proportional due diligence based on the type of customer and amounts transacted

## Consumer Protection

*Preventing bad practices and ensuring consumer confidence*

### Key Regulatory Issues:

- Ensuring understanding of rights and responsibilities, including for consumers with limited literacy/numeracy
- Requirements for contracts with users, use of simple terms and local languages
- Transparency of fees
- Customer redress and dispute resolution
- Fraud
- Quality of service issues



# Government Support of System

*Government support beyond regulatory support is necessary to ensure alignment with the Level One Project*



# Payment Scheme Governance

*In order to realize the goals of the Level One Project, governance should be a deliberate consideration when creating or transforming a payments scheme*

## What is payment scheme governance?

A **Payment Scheme** is an entity focused on the governance and functions of a payment system and its services. All the major decisions, such as the business model, what services to offer, features and functionality of services, pricing among participants, and which type(s) of digital financial service providers to include – are typically made by the payment scheme.

**Governance** is the collective management approaches, decisions, and oversight functions within the payment scheme. Governance determines or sets the tone for

everything that occurs in the scheme with the scheme Rules being the principal manifestation

Some schemes are also the payment **Operator** while other schemes choose to outsource the operational activity to a third party. Most schemes select the provider that performs the scheme operations or provide guidelines for participants to connect to each other

## What are payment scheme rules?

The scheme rulebook contains all the parameters, standards and controls for the functioning of the payment scheme. Rules can be

powerful instruments as they have the ability to include and exclude activities as well as participants. The core purpose of the Rulebook is to document rules that ensure operational efficiency and a clear understanding of rights and obligations (smooth functioning). Rules can exclude some participants, disadvantage some participants, or create road blocks that impede how system participants can offer their services. Rules can also create a “level playing field” for participants, drive scale (“accept all participant payment instruments” or mandate interoperability), enable multiple use cases and create additional economic efficiencies

## Governance Structure Models

### Association Led

An Association (a group with a shared purpose) serves as the payments scheme rules authority.

### Central Bank Led

A Central Bank, or government entity, serves as the payments scheme rules authority.

### Commercial Led

A Commercial entity serves as the payments scheme rules authority.

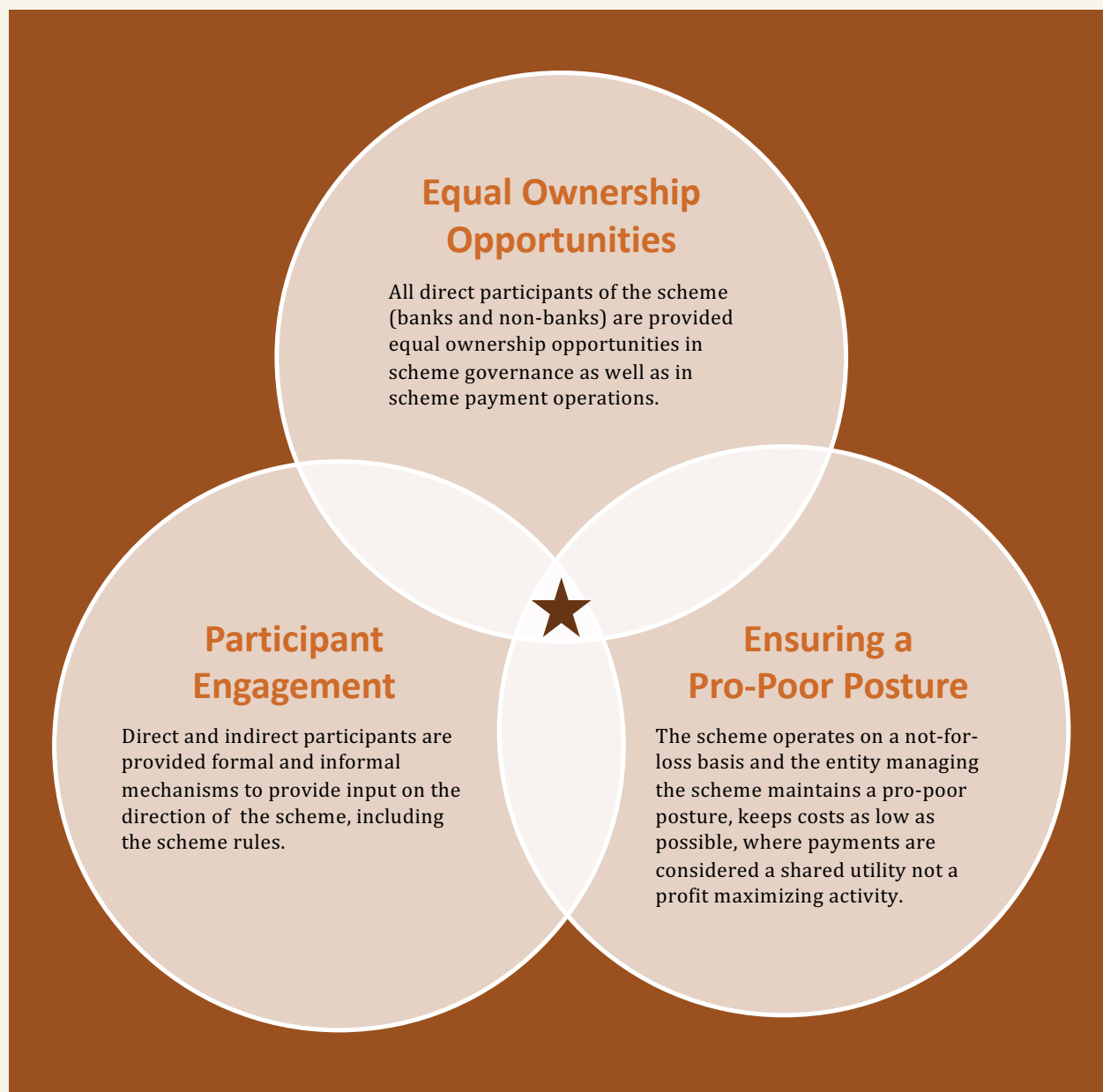
The goal of enabling affordable digital financial services must be cultivated with supporting governance structures and activities. Otherwise, there is a risk that this goal will be marginalized alongside other desired outcomes.

Payment Scheme Governance (Continued)

### Payments Scheme Governance: Best Practices

The Level One Project team recognizes three critical principles of governance that should be maintained, regardless of governance structure type. While an association-led model is most likely to support the critical principles of governance, the most suitable

governance structure may vary, given the country/ regional circumstances and priorities. Entities must evaluate how best to foster all principles that promote financial inclusion (governance and non-governance).



# Gender Equality

*Women overrepresent the world's unbanked. Globally, 1.7B adults are unbanked—about 980M of them are women (56%). As a result, financial inclusion cannot be accomplished without reaching and serving women with products that meet their needs. Moreover, research shows that including women amplifies antipoverty efforts, as women tend to use their funds for the benefit of their families. However, large gender gaps still exist, limiting overall country and regional progress*

## What is perpetuating the gender gap?

Many of the issues that prevent financial inclusion more broadly, impact women to a greater extent. Access to technology, for example, likely plays a role since in the developing world, 71% of unbanked men have a mobile phone while only 61% of unbanked women have a mobile phone (Findex).

Proper identification is another factor that may play a role. For example, fewer women have a National ID- 65% of women and

74% of men have a national ID in sub-Saharan Africa (Findex).

It is important to also recognize the role of other levers that promote or thwart women's economic empowerment. Those include decent work opportunities, property and assets, and platforms.

## How can we improve gender equality?

Digitizing social benefit transfers provides an opportunity to catalyze gender inclusion. Particularly when that social benefit transfer is

supported by an appropriate regulatory and consumer protection framework and the program implements the **D3 criteria**. The D3 criteria are intended to inform assessments of existing and proposed social protection programs. These can be used to flag areas that would be expected to enhance the results for women's economic empowerment, and those that may be barriers to change unless effectively addressed. The criteria are guideposts that need to be adapted to local context as appropriate.

### D3 Criteria

#### Digitize

Digitize payment streams to women. Ensure those payments are reliable, accessible, flexible, secure, and accountable.

#### Direct

'One woman, one account'. Each woman has her own account, with direct access, registered in her name.

#### Design

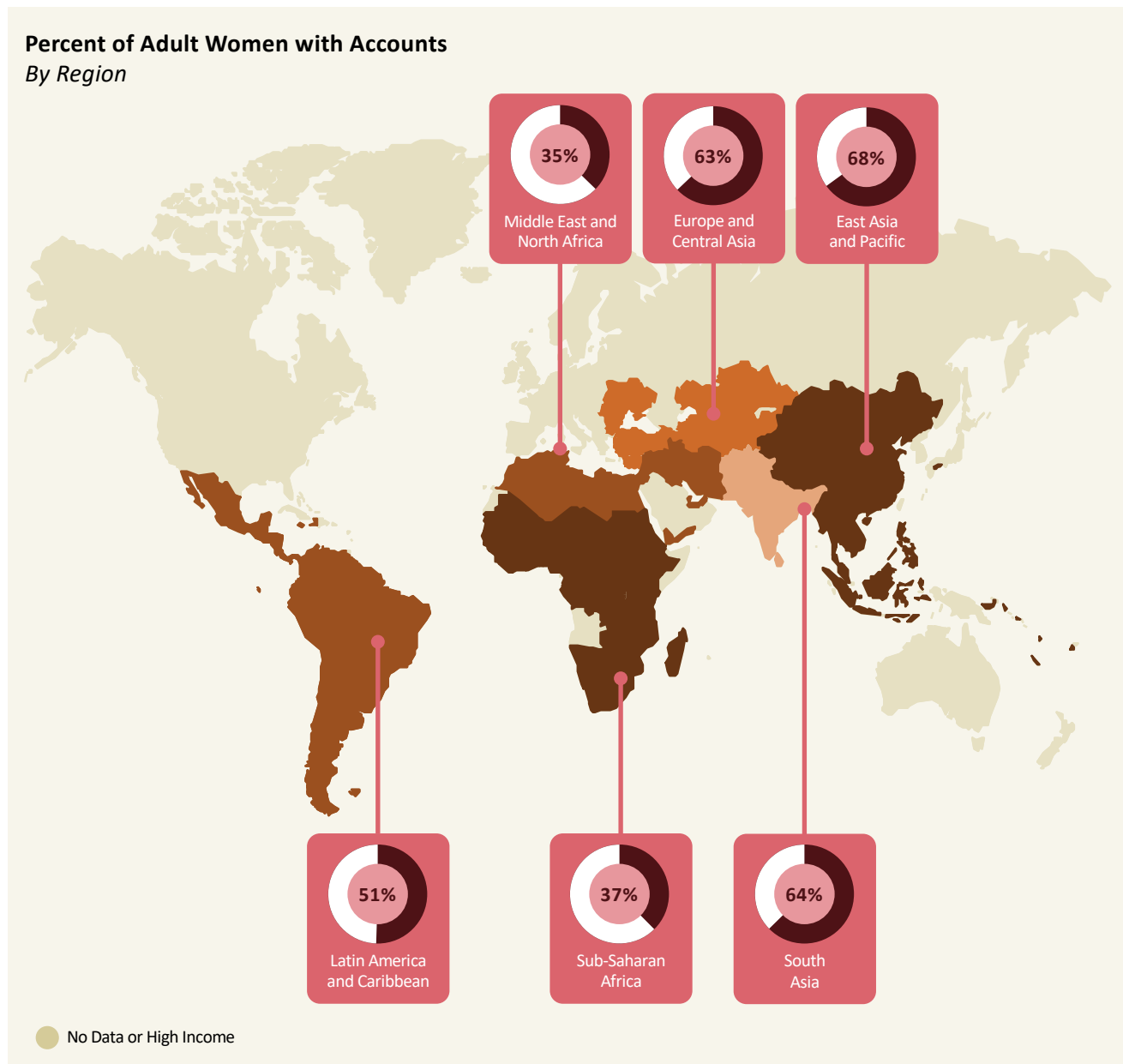
Design programs that enhance prospects of participation amongst women.

### A Positive Feedback Loop

*When women in India received accounts linked to a jobs guarantee program, they increased their private sector labor force participation and earnings compared to women who received such payments into a joint account controlled by their husbands.*

*(Field et al, 2016).*

Gender Equality (Continued)



*“It is essential that we promote gender equality as women’s economic empowerment leads to overall economic growth, improved health outcomes, and other benefits—all of which proliferate across generations.”*

Liz Kellison  
Deputy Director, Financial Services for the Poor  
Global Growth and Opportunity  
Bill & Melinda Gates Foundation

# Enabling Multinational Payments Systems

Should countries trying to achieve financial inclusion consider leveraging a regional approach? Payments systems historically have operated at a country level as there tends to be a sovereign or national orientation towards key characteristics, including:

## Currency

Most countries have a fiat sovereign currency and use it as the only legal tender for transactions.

## Regulation and Oversight

Central Banks have important oversight responsibilities over payments systems and in many cases, operate the platform, or participate in an association that operates the platform.

## Language

Until very recently, most information systems were based in only one language. Moreover, different alphabets also pose certain challenges.

Countries should recognize these national orientations while also considering the benefits of multinational or regional approaches:

## Cross-Border Payments

A regional approach may more easily support cross-border low value payments. This is often a key factor in cross-border trade and economic development.

## Shared Infrastructure

Shared infrastructure can drive costs down. In some cases, multiple country infrastructures can cooperate and provide redundancy services for the regional network as a whole.

## Scale

Regional systems are likely to experience higher volumes of transactions, helping the real-time retail payment system achieve the scale it requires to operate efficiently, and drive down costs while delivering maximum security and fraud management capabilities.

# Expanding and Connecting Markets: *A Pan-Africa Payment Network*

**Payments within and across borders play a vital role in macroeconomic development as well as in poverty alleviation. A number of regional efforts in Africa are underway recognizing an opportunity to catalyze these developments. A pan-African vision may further build on regional successes.**

## Continental Integration Opportunities

A number of countries are working through existing trade agreements to facilitate regional payments integration in Africa, including the West African Economic and Monetary Union (WAEMU), the Southern African Development Community (SADC), the East African Community (EAC), among others.

Pan-African low-value transfers are possible, building off the

success of these regional deployments. Options to do so include:

### Interoperating Regional Hubs.

Interoperating across these regional hubs could be a cost-effective approach that leverages the successes of each regional effort

**Creating a New Scheme.** Creating one Pan-African hub for DFSPs to connect directly to for existing schemes to connect to is another potential alternative.

Regardless of the approach, a number of key questions need to be resolved to achieve pan-continental success

### Sizing the African Opportunity

The European Union with 28 countries and 508M people has an integrated payments market.

Africa, with 54 countries and 1.2B people represents an enormous opportunity.

Payments could be the foundation for a united Africa.

## Key Questions and Challenges for Achieving Pan-African Success

Which factors underpin existing cross-border success? Which of these are most essential when looking to create a pan-African approach?

What assets or conditions are present that may promote integration? In what ways could Africa leap frog to achieve integration?

How realistic is an incremental approach to integration? If so, is there a required sequencing? What is minimum viable participation?

Which enabler(s), such as technology, are most likely to facilitate a pan-African vision?

What is the appropriate model for scheme governance?

What is the appropriate model for integration?

How can we manage sovereignty issues?

How can we harmonize regulations across participating countries?

What other operational difficulties can we expect to face?

# Bridging Technical Market Gaps for RTRP Systems

*Technical and business solutions to support best practices when implementing real-time retail payments systems*

New real-time retail payments systems, particularly in countries and regions trying to improve financial inclusion, are likely to include non-traditional players, such as telecommunication providers or fintech providers, as DFSPs.

The technical protocols and business rules for connecting all parties– both new and traditional players – to these real-time systems requires re-thinking some of the assumptions in traditional, bank-centric payments systems.

Like others, the Level One Project recognized the need for new capabilities and tools to support this rethinking, and to ultimately drive financial inclusion. However, in some cases, market barriers prevented commercial development.

The Level One Project stepped in as a convener, bringing technology providers together, to create the Mojaloop open- source software and the Mojaloop FSP Interoperability API. In addition, the Level One Project created a series of business document templates to accompany these technical developments, the ‘Mojaloop Community Business Documents’.



*“The Mojaloop open-source software and the Mojaloop FSP Interoperability API are low-cost solutions to help transition a market from closed-loop to open-loop.”*

**Matt Bohan**  
Senior Program Officer: Financial Services for the Poor  
Global Growth and Opportunity  
Bill & Melinda Gates Foundation



# Mojaloop Open Source Project

*Today, Mojaloop or Mojaloop components are being used by developers for both in-country and cross-border payments platforms*

Mojaloop is open-source software which uses the Open API Specification for FSP Interoperability. Funded by the Gates Foundation's Level One Project, Mojaloop is now an open community project, with code available to any developer on GitHub.

Mojaloop or components of Mojaloop can be used to create Level One-aligned payment platforms. The software was designed to provide a reference model for payment interoperability between banks and other providers across a country's economy. It is made available for software developers to adapt and banks, financial service providers, and companies to implement."

Mojaloop makes it easy for different kinds of providers to link up their services and deploy low-cost financial services in new markets.

Anyone in financial services is invited to explore and use the code. In particular, it enables central banks, scheme operators, payment processors, and fintech firms to accelerate the creation and deployment of interoperable payment platforms that can reach an entire population, including low-income consumers. It gives existing payment processors and providers a level playing field to connect to.



*"Mojaloop is a tool that can help reduce traditional barriers that banks and financial services providers face to interoperability. It isn't a product or app. It's the code to build a platform for bridging all the financial products and applications in any market."*

Jake Kendall  
DFS Labs

# The Mojaloop FSP Interoperability API

Over the past several years, the use of API's for inter-system access has proliferated. These have been provided as a means for one system to easily access resources in another system: often, the two systems are "legacy" systems, and the API's are layers on top of those systems.

Today, newly written systems are designed to be "API First". The Level One Project, recognizing the importance of this as an enabling factor in allowing

DFSPs to participate in a Level One platform, worked with industry stakeholders to create the "Open API Specification". This specification was written from the perspective of mobile money providers to enable the creation of a Level One-aligned payment platform.

The Mojaloop FSP Interoperability API Specification is publicly available at

<https://mojaloop.io/documentation/api/>

## Use Cases Supported by Mojaloop FSP Interoperability API

Use Case Name	Use Case Description
<b>P2P</b>	An individual End User initiates a transaction to send money to another individual End User who doesn't belong to the same FSP of the sender.
<b>Agent Initiated Cash In</b>	A customer requests an agent of different FSP to cash in his/her mobile money account.
<b>Agent Initiated Cash Out</b>	A customer requests an agent of different FSP to cash out his/her mobile money account.
<b>Agent Initiated Cash Out Authorized on POS</b>	A customer requests an agent of different FSP to cash in his/her mobile money account. In this use case, the agent initiates the transaction through POS or ATM.
<b>Customer Initiated Cash Out</b>	A registered customer initiates a transaction to withdraw cash from an agent who doesn't belong to the same FSP of him/her.
<b>Customer Initiated Merchant Payment</b>	An individual End User initiates a purchase transaction to pay a merchant who doesn't belong to the same FSP of the customer.
<b>Merchant Initiated Merchant Payment</b>	A Merchant initiates a request to pay for the Customer, the Customer reviews the request for transaction amount and confirm the request by providing authentication on own handset.
<b>Merchant Initiated Merchant Payment Authorized on POS</b>	A Merchant initiates a request to pay for the Customer, the Customer review the payment request on Merchant device and authorize the payment by OTP or QR code on Merchant device itself.
<b>ATM Initiated Cash Out</b>	An ATM initiates a cash-out request from a customer account; the customer confirms the request by providing authentication (OTP) on ATM device.
<b>Bulk Payments</b>	An organization or business is able to group individual transactions together into one bulk transaction. The organization can validate individual transactions before the bulk is executed and follow up on the result of the individual transactions.
<b>Refund</b>	The business flow for how to refund a completed interoperability transaction.

# Mojaloop Community Business Documents

New Level One-aligned payment platforms need business rules and other documents as well as software. To accompany the Mojaloop open-source software project, a series of business document templates is available for community use.

The Mojaloop Community Business Document project is intended to support entities (countries, regions, associations of providers or commercial enterprises) implementing new payments systems using Mojaloop code.

The Mojaloop Community Business Document Project provides templates for Business Rules and related documents. There are many choices involved in implementing a new payment system. The templates show some of the choices and, where appropriate, commentary is provided on how the particular choice is related to the goals of a Level One-aligned system.

## The Following Documents are a Part of the Project

- Platform Operating Guideline Template
- Scheme Key Business Choices
- Exception Management Operating Guidelines Template
- Scheme Participation Agreement Template
- Uniform Glossary
- Scheme Business Rules Template



*“Realizing the vision of high-volume real-time retail payments systems requires a combination of appropriate technologies and business rules. Rules plays a critical role in assigning liabilities and determining economics: the right rules can ensure that systems operate on a pro-poor basis.”*

Carol Coye Benson  
Partner; Glenbrook Partners

# L1P Education Opportunities

The Level One Project recognizes the ongoing benefit of collaborating with organizations, countries, and regions working towards financial inclusion. L1P believes that joint education efforts are an essential element to successful collaboration.

## Level One Project Boot Camps and Workshops

The Level One Project Boot Camps are custom, in-person training workshops that aim to discuss key concepts that underpin how ultra-low cost payment systems support and catalyze financial inclusion. After completing the training, participants should be able to better develop, implement, and/or evaluate Level One-aligned systems. Boot camps are highly interactive one to three-day sessions.

## Digital Frontiers Institute's (DFI) Online Training


DFI partnered with the Level One Project to unveil a series of online training modules designed to teach high level and in-depth courses on the intersection of payment systems and financial inclusion. Trainings are a mix of synchronous and self-managed courses.

## Ad Hoc Educational Opportunities

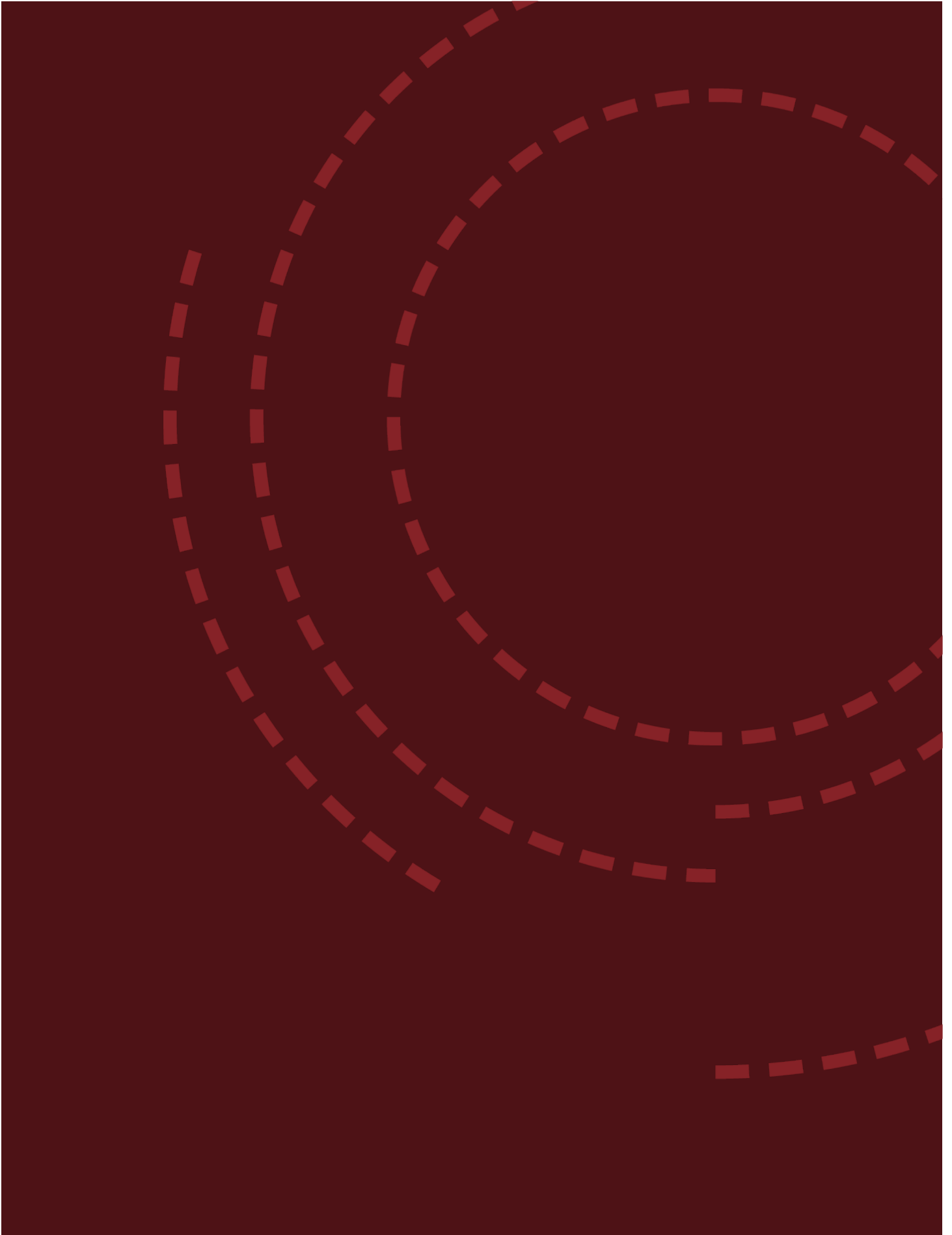
Custom partner education efforts are also regularly pursued by the Level One Project. These sessions allow for both organizations, or sets of organizations, to understand perspectives and actively work towards solutions that aim to catalyze financial inclusion.

Section 5

# Glossary



5



# Glossary (1 of 5)

*This glossary references terms defined by a number of organizations including: the ITU, the World Bank Group, CGAP, GSMA, and UNCDF*

**Adjacencies:** Ways in which entities and/or DFSPs realize revenue from services that are not directly associated with a Payment—for example, loans made to Transaction Account holders.

**Account ID:** A unique identifier associated with a Transaction Account.

**Addressing:** The use of an identifier to direct a Payment from a Payer to a Payee, typically a mobile phone number or email address.

**Agent:** An authorized person or entity that handles Transaction Account opening and/or Payments or Transfers on behalf of another entity. The other entity may be a bank, or a non-bank provider of financial services. Cash-in, Cash-Out is a common service provided by Agents.

**Aggregator:** A specialized form of a merchant services or bill payment provider, that typically handles Transactions for a large number of small merchants. Agent aggregators also exist. Aggregators may connect directly to a Level One Platform or through a relationship with a DFSP. Scheme rules specify how Aggregators may interact with the system.

**Anti-Money Laundering (AML):** Initiatives to prevent individuals or entities from using payment systems to disguise illegally acquired funds as legal.

**Application Program Interface (API):** A methods of communication to allow interaction and sharing of data between different software or Technical Protocols.

**Authentication:** The mechanism whereby systems securely identify their End Users. Authentication systems provide answers to the questions: “Who is the user?” “Is the user really who she represents herself to be?” In payments systems, PINs and biometrics are common methods of Authentication.

**Authorization:** The permission given by the Payer or entity to make a Payment.

**Automated Clearing House (ACH):** An electronic bank transfer system that processes Credit Push and/or Direct Debit Payments in a batch process.

**Biometric Authentication:** The use of a physical characteristic of an individual (e.g., fingerprint, IRIS) to Authenticate that individual.

**Blockchain:** A technology that creates distributed architectures. In payments systems, blockchain is often a reference to a shared ledger that records and validates Transactions.

**Bulk Payment:** A Payment from a single Payer to multiple Payees, for example cash transfer programs from a government or NGO to a set of beneficiaries.

**Cash-In, Cash-Out (CICO):** Receiving eMoney credit in exchange for physical cash (CI) or receiving physical cash in exchange for a debit to an eMoney account (CO), typically done at an Agent.

**Clearing:** The process within a payments system in which a Payer DFSP and a Payee DFSP debit and credit their End User Accounts.

## Level One Terminology

**The Level One Project:** An initiative of the Bill & Melinda Gates Foundation, within the Financial Services for the Poor program, that works to support countries or regions building interoperable, low-cost digital financial services systems to bring low-income persons and merchants into the formal economy.

**A Level One Platform:** The set of operational capabilities, often including a Switch, that implement the exchange of Payments in a Level One aligned interoperable payments system.

**A Level One Scheme:** The Rules and policies which controls aspects of the use, Governance, operations, Participants and participant responsibilities in a given Level One System. The Scheme may be a separate entity, or a set of Rules and policies within an entity that manages multiple Schemes.

**Level One Services:** The suite of services, defined by the Level One Scheme, which provide the core functions of the Platform (such as value transfer) as well as certain Shared Services decided upon by participants in the Scheme.

**A Level One System:** A term used to describe a Scheme, services, Platform, and Participants aligned with a Level One Project.

## SECTION 5: GLOSSARY

**Closed Loop:** A payment system with one provider, who has a direct relationship with both the Payer and the Payee. Closed Loop contrasts with Open Loop.

**Combatting Terrorist Financing (CFT):** Initiatives to prevent individuals or entities from using payment systems to send funds to individuals or entities associated with terrorism.

**Credit Transfer:** A Payment or Transfer of funds initiated by the Payer DFSP to the Payee DFSP. A Credit Transfer is often referred to as a 'credit push transfer' because the funds are 'pushed' from the Payer's Transaction account. Credit Transfer contrasts with Direct Debit.

**Digital:** Electronic communications between two individuals or entities that can occur on various electronic devices (e.g., mobile, tablet).

**Digital Financial Services Providers (DFSPs):** A financial services provider that is licensed by a regulatory authority to provide Transaction Accounts which hold customer funds and are used to make and receive Payments. DFSPs have relationships with consumers, merchants, and other enterprises, and provide digital financial services to End Users.

**Direct Debit:** A Payment or Transfer of funds initiated by the Payee DFSP to the Payer DFSP. A Direct Debit is often referred to as a 'debit pull transfer' because the funds are 'pulled' from the Payer's Transaction Account. Direct Debit contrasts with Credit Transfer.

**Directory:** A centralized or decentralized holding of payment identifiers to be used for Addressing, accessible by the payments system or DFSPs.

**Digital Liquidity:** A practice of keeping value in Digital form, rather than exchanging the Digital value for cash (physical form).

**Dispute Resolution:** A process specified by a DFSP or by the payment scheme to resolve issues between an End User and a DFSP, or between a Payer and a Payee.

**Ecosystem:** A term used to describe the end to end value chain and the interactions of a system. For payments, this term is referred to as a 'payments ecosystem'.

**eMoney:** Digital funds or value owned by a Transaction Account holder on a payment device such as chip, prepaid card, mobile phone, or on a computer system. National regulation specifies what types of DFSPs can issue eMoney.

**Encryption:** The process of encoding a message so that it can be read only by the sender and the intended recipient.

**End User:** The customer of a DFSP. The customer may be a consumer, a merchant, a government, or another form of enterprise.

**Escrow:** A means of holding funds for the benefit of another entity. eMoney issuers are usually required by law to hold the value of End Users' eMoney balances at a bank, typically in what is called a 'trust account'. This practice helps to isolate and safeguard funds.

**Fees:** Fees in payments systems include those sums that are 1) charged by a DFSP to their customer, 2) charged by the system of Scheme to the participating DFSPs and 3) set by the Scheme and paid by one DFSP to the other: this is called Interchange. Fees may either be a fixed fee, a percent-of-value fee, or a mixture.

### A Transaction, Payment, or Transfer?

The terms 'transaction', 'payment', and 'transfer' are often used interchangeably in this document. However, there are nuances embedded into the terms that are important to recognize:

**Transaction:** A reference to the entirety of the exchange, including a Payment but may also include information between the Payer's DFSP and the Payee's DFSP.

**Payment:** An exchange of funds, credentials, and other necessary information to complete an obligation between End Users. A Transfer is a Payment.

**Transfer:** A Payment that is affected over a Digital channel.



## SECTION 5: GLOSSARY

**Fraud:** A deception that results in the loss of funds or other harm to someone in the financial Ecosystem. There are many types of fraud in the Financial Ecosystem.

**Gross Settlement:** A method of settling financial obligations among DFSPs and a scheme. Gross settlement processes each Transaction individually. The details of the Gross Settlement model are specified in scheme rules. Gross Settlement contrasts with Net Settlement.

**Governance:** The collection of management approaches, decisions, and oversight functions within the Scheme. Scheme governance can set the tone for everything that occurs in the Scheme.

**Identity:** A set of unique attributes or traits that collectively define an individual.

**Immediate Funds Transfer (IFT):** A Payment system in which the Clearing of transactions occurs in Real Time. IFTs are usually Push Payments. Settlement may occur at the same time as the transaction (Gross Settlement) or later, on a net basis (Net Settlement).

**Interchange:** A type of Fee in an Open Loop payments system. The Fee is set by the Scheme but paid by one DFSP to another.

**Interoperability:** The ability of DFSPs participating in a payment Scheme to exchange Transactions with each other. The term may also be used when two systems interconnect.

**Irrevocable:** A Transaction that cannot be "called back" by the Payer. An Irrevocable Payment, once received by a Payee, cannot be taken back by the Payer.

**Know Your Customer (KYC):** Regulatory requirements for DFSP to establish the Identity and activities of an End User or entity, both before opening a Transaction Account and over time.

**Marketplace Operators:** Entities that provide Digital services through platforms to End Users, typically providing multiple different services. Examples of Marketplace Operators include eCommerce platforms, social media platforms, and transportation platforms. Marketplace Operators may connect directly to a Level One Platform, through a relationship with a DFSP. Scheme rules specify how Marketplace Transactions may interact with the Platform.

**Legacy System:** A system that has been in place for some time and likely includes dated technologies or processes.

**Low Income:** A term used to refer to End Users, typically individuals or merchants, when the End User has few assets, including funds available for transacting.

**Merchant:** A term used to describe a broad group of entities, including stores, service providers (i.e. 'billers'), not-for-profit enterprises, and governments. Merchants are often receivers of funds, where Payments are made in exchange for goods and services. Merchants are also often Payers for good and services to sustain their business.

**Microfinance Institution (MFI):** An entity that offers financial services to Low Income populations. Almost all MFIs give loans to their members, and many offer insurance, deposit and other services. MFI's are considered DFSPs in a Level One System if they provide Transaction Accounts to their customers. MFI's who are not DFSPs may connect directly to a Level One Platform,

through a relationship with a DFSP. Scheme rules will specify how such MFI's may interact with the Platform.

**Mobile Money Services Provider:** A category of DFSPs that use mobile phones as the access method to provide Transaction Accounts to End Users.

**National Identity Document:** A credential that identifies an End User. National Identity Documents are issued by national governments.

**Near Field Communication (NFC):** A communication technology sometimes used to transmit Payment data from an NFC-equipped mobile phone to a terminal capable of reading the data.

**Net Settlement:** A method of settling financial obligations among DFSPs and a Scheme where Transactions are processed in batches, or windows, and creates Settlement entries for the net (the balance of credits and debits) position of each DFSP for that window. Settlement entries are then posted to the DFSPs account at a common Settlement bank. The details of the Net Settlement model are specified in the Scheme rules. Net Settlement contrasts Gross Settlement.

**Non-Bank:** An entity that is not a chartered bank, but provides financial services to End Users. The requirements of Non-Banks to do this, and the limitations of what they can do, are specified by regulation. Some countries permit Non-Banks to be Digital Financial Service Providers.

**Not-for-Loss:** A cost-recovery model with an additional set of funds available to cover investment requirement to operate the Platform.

## SECTION 5: GLOSSARY

**Open Loop:** A payment Scheme that is open to all participants in given categories—most typically, all banks in a country. Some country Open Loop systems allow licensed Non-Bank Transaction Account providers to belong directly to the system. Open Loop contrasts with Closed Loop.

**Operator:** An entity that provides and/or manages the Platform of a payments system.

**Participants:** DFSPs users of a Scheme. Participants are bound to follow Scheme rules.

**Payee:** An End User that is receiving funds.

**Payer:** An End User that is sending funds.

**Payments Service Provider (PSP):** A term used in two ways: generally, as any company involved in the provision of payments services (including DFSPs); or for a provider that offers branded products or services to End Users, including merchants. PSPs may connect directly to a Level One Platform, through a relationship with a DFSP. Scheme rules will specify how PSPs may interact with the platform.

**Platform:** A term used to describe the software or service used by a provider, a scheme, or a switch to manage accounts and to send and receive transactions.

**Processor:** An enterprise that manages, on an out-sourced basis, various functions for a DFSP. These functions may include transaction management, customer database management, and risk management. Processors may also do functions on behalf of payments systems, schemes, or switches. Processors may connect directly to a Level One Platform, acting on behalf of a DFSP. Scheme rules will specify how Processors may interact with the Platform.

**Pull Payment:** A type of payment originated by the Payee's DFSP. Direct Debits, checks, and card payments are all Pull Payments. Pull Payments can bounce for insufficient funds unless a separate Authorization transaction is done (e.g., cards).

**Push Payment:** A type of payment transaction initiated by the Payer DFSP. This is sometimes called a Credit Transfer.

**Quick-Response (QR) Code:** A method of Encoding and visualization of data, which are machine-readable. There are multiple QR models.

**Real Time Gross Settlement (RTGS):** A term used to describe payments using Gross Settlement, typically a wire transfer system.

**Real Time Processing:** Processing of transactions as they are initiated, rather than processing in a batch.

**Real Time Retail Payments (RTRP):** Retail Payments that are processed in real time (as initiated).

**Remittances:** Payment from one End User to another, either domestically or cross-border.

**Retail Payment:** A Payment of Transfer between End Users, typically a low value denomination. The term is often used to describe P2P, B2B or P2B payments.

**Request to Pay:** A message by which a Payee 'requests' Payment from a Payer. A Request to Pay in a Level One System is often used to describe a merchant that requests a Push Payment from an End User.

**Risk:** An area of weakness that may be exploited. Risks may exist in one or many parts of a payment system. End Users and DFSPs have risks to manage, as do Processors, Platforms, and others in the value chain.

**Risk-based Approach:** A regulatory and/or business management approach that creates different levels of obligation based on the Risk of the underlying Transaction or End User.

**Rules:** The practice and standards necessary for the functioning of payment services defined by the Scheme. Rules are sometimes referred to as 'Scheme Rules'.

**Settlement :** A process by which DFSPs settle financial obligations with each other, as defined by Scheme rules.

**Scheme:** A set of rules, practices, and standards necessary for the functioning of payment services.

**Shared Service:** A common set of services that participating DFSPs collaborate to develop and/or use.

**Special Charter Banks:** Banks in a country which are permitted to do a limited set of functions, as determined by regulation. Special Charter Banks that can only accept deposits and handle payment Transactions are considered DFSPs in a Level One System.

**Switch:** A processing entity in a payments system that routes a Transaction from one DFSP to another DFSP. A system may operate its own Switch, or this function may be done by one or more third parties.

**Technical Protocols:** A set of technical standards in a system, process, or application.

**Third Party Connection:** Users of a Digital financial services system who access the system through relationships with a DFSP. Third Party Connections may provide services to End Users or to DFSPs. The entities are sometimes called non-licensed specialty Aggregators or Processors.

## SECTION 5: GLOSSARY

**Transaction Account:** Broadly defined as an account at a DFSP that holds End User funds and is used to make and receive payments.

**Ubiquity:** A term used to describe the ability to pay anyone and be paid by anyone.

**Use Case:** A term used to describe the purpose of the payment. At the most basic level, use cases are describe by the type of End User acting as the Payer and Payee. For example, when an individual serves as the Payer, these use cases are often identified as Person-to-Person (P2P), Person-to-Business (P2B), Person-to-Government (P2G) Use Cases.

**Value-Added Services:** Services or products provided to End Users that End Users will pay to use or access. Value-Added Services often used in coordination with Adjacencies.

**Women's Economic Empowerment (WEE):** Increasing women's access and rights to economic resources through decent work opportunities, property and assets, financial inclusion, and platforms.







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