Interoperability in Action: Workshop #2

Social Protection Information System Interacting with Payment Platform

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Ralf Radermacher

Head of program, Sector Initiative Social Protection &
Social Protection Innovation and Learning, GIZ

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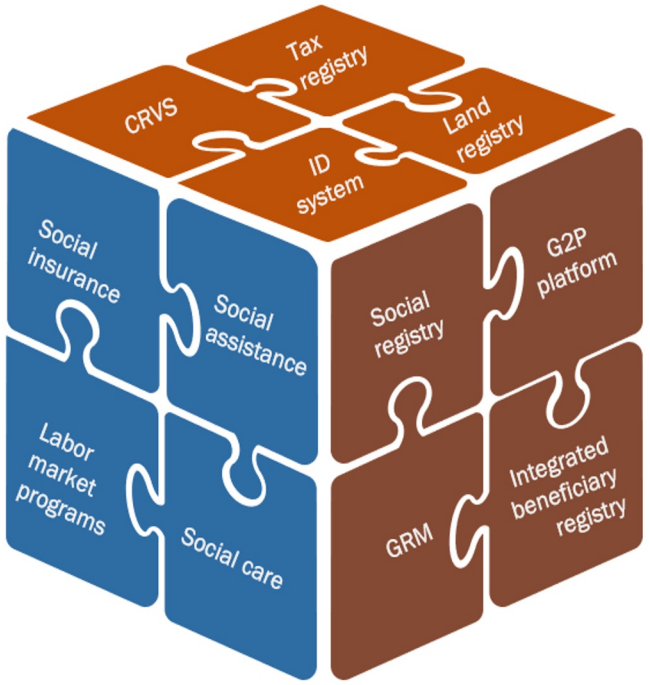
The Digital Convergence Initiative (DCI)

A joint effort by USP2030 members and non-members, governments, development partners and private sector towards creating a harmonized and interoperable digital ecosystem for social protection

Building consensus-based standards for interoperability to

- **foster an ecosystem for innovation** by ICT solution providers to build products that are interoperable, easy to use, integrate, maintain and scale
- **reduce time and costs** of developing solutions at the country/program level
- enable programs and countries to **mix and match different components** from different suppliers
- **ensure that systems are future-proof by design**, regardless of current levels of policy and information systems maturity



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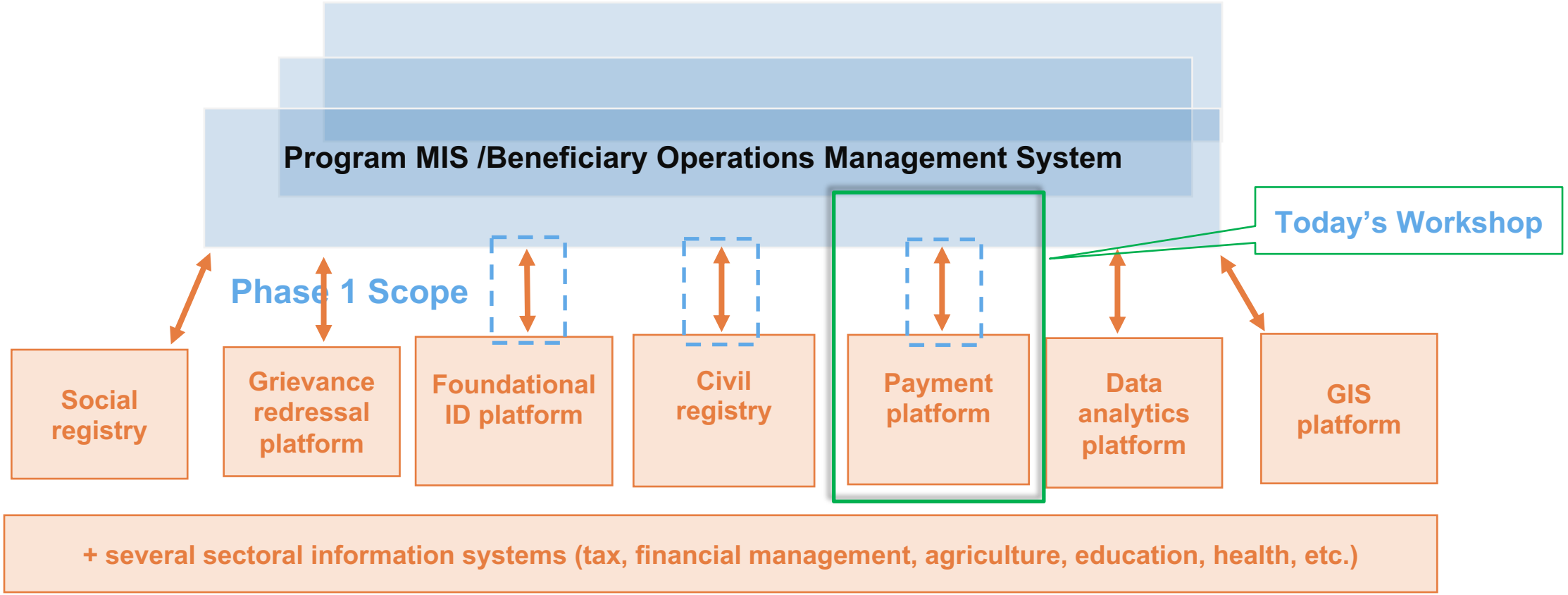
Systems at Play for SP Program Delivery



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Anita Mittal

Senior Advisor, Digital Convergence Initiative, GIZ

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Agenda

Duration	Session plan	Presenter
15 minutes	Welcome & Context Setting	DCI
35 minutes	Integration of SP-MIS and Payment System (Presentation & Demonstration)	DCI
Brief Interventions from Country, International Organisations, Solution Providers		
10 minutes	Global Perspective	G2PX, CGAP, BMGF
10 minutes	Country Inputs	India (Kutumba)
10 minutes	Payment Solutions	NPCI, MojaLoop Foundation
10 minutes	Private Sector Inputs	SwissTPH, Microsave Consulting (MSC)
20 minutes	Open Discussion	All Attendees
10 minutes	Summary, Next Steps	DCI

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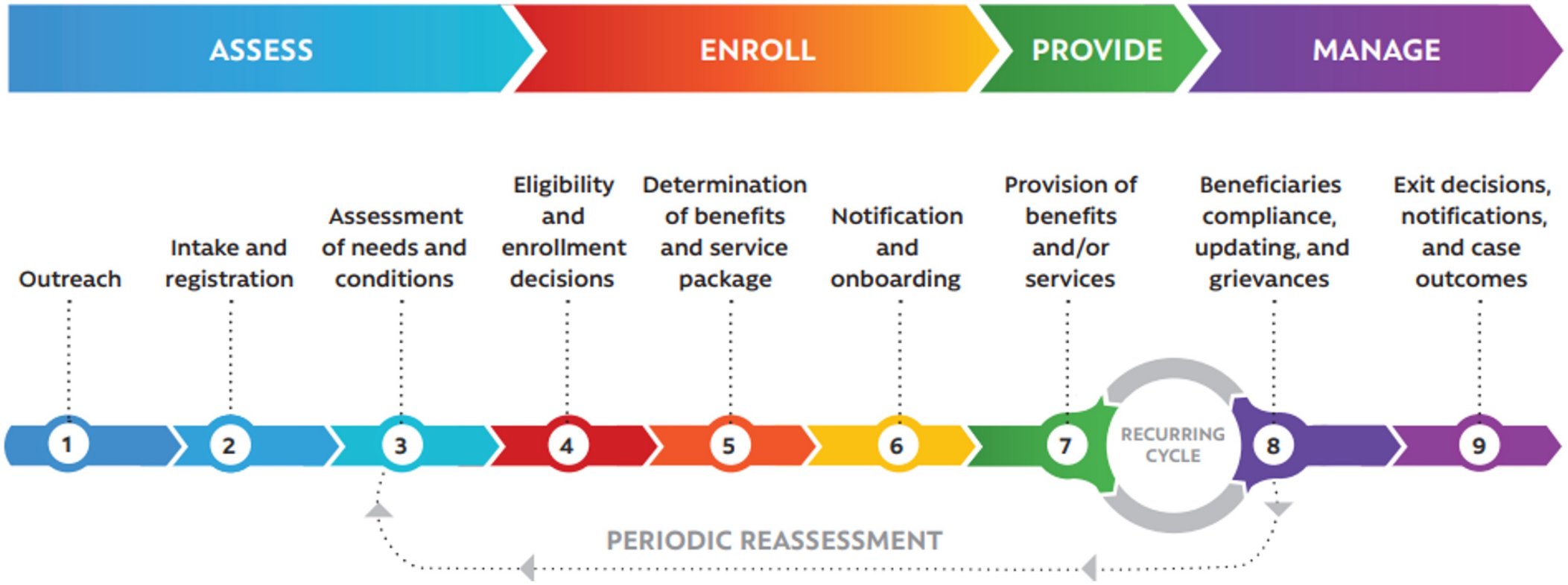
Why Interoperability with Payment Systems?

Delivery Chain for SP programs



Source :World Bank source book

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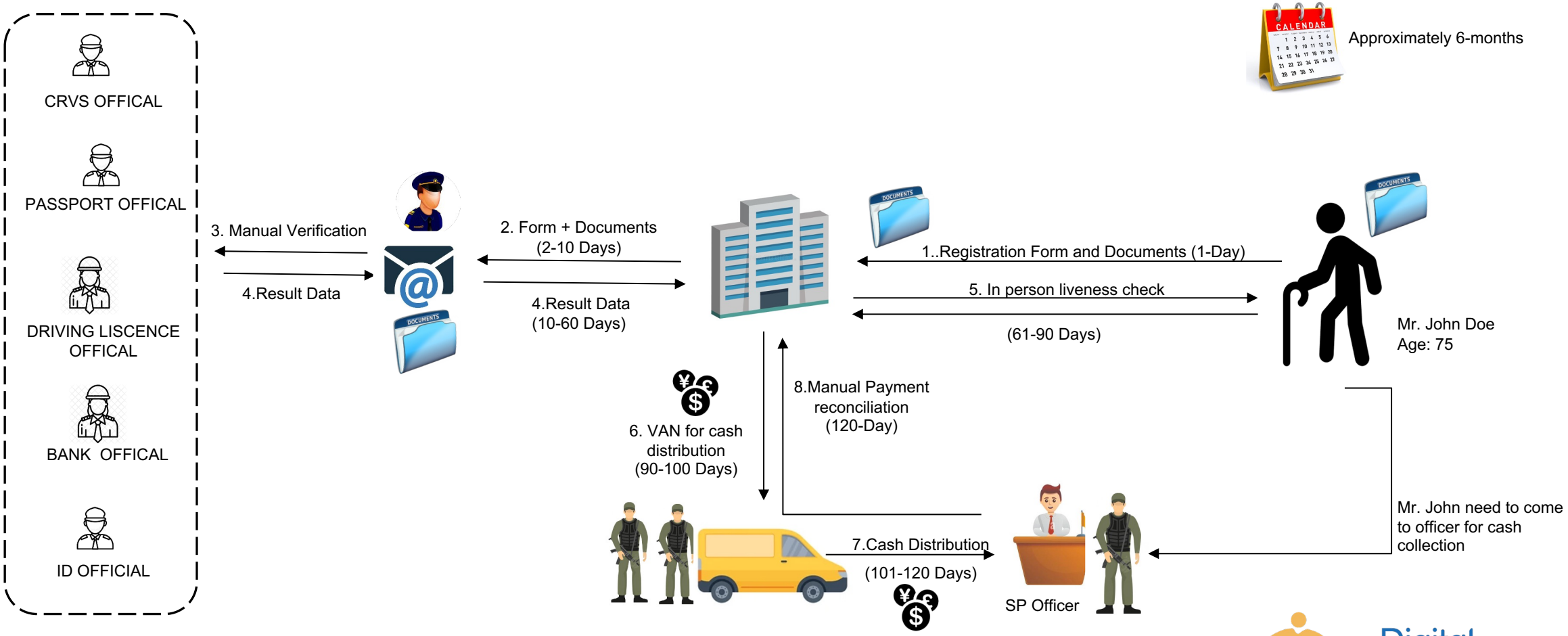
Scenario – 1 : No Digital Systems

Old Age Allowance Scheme



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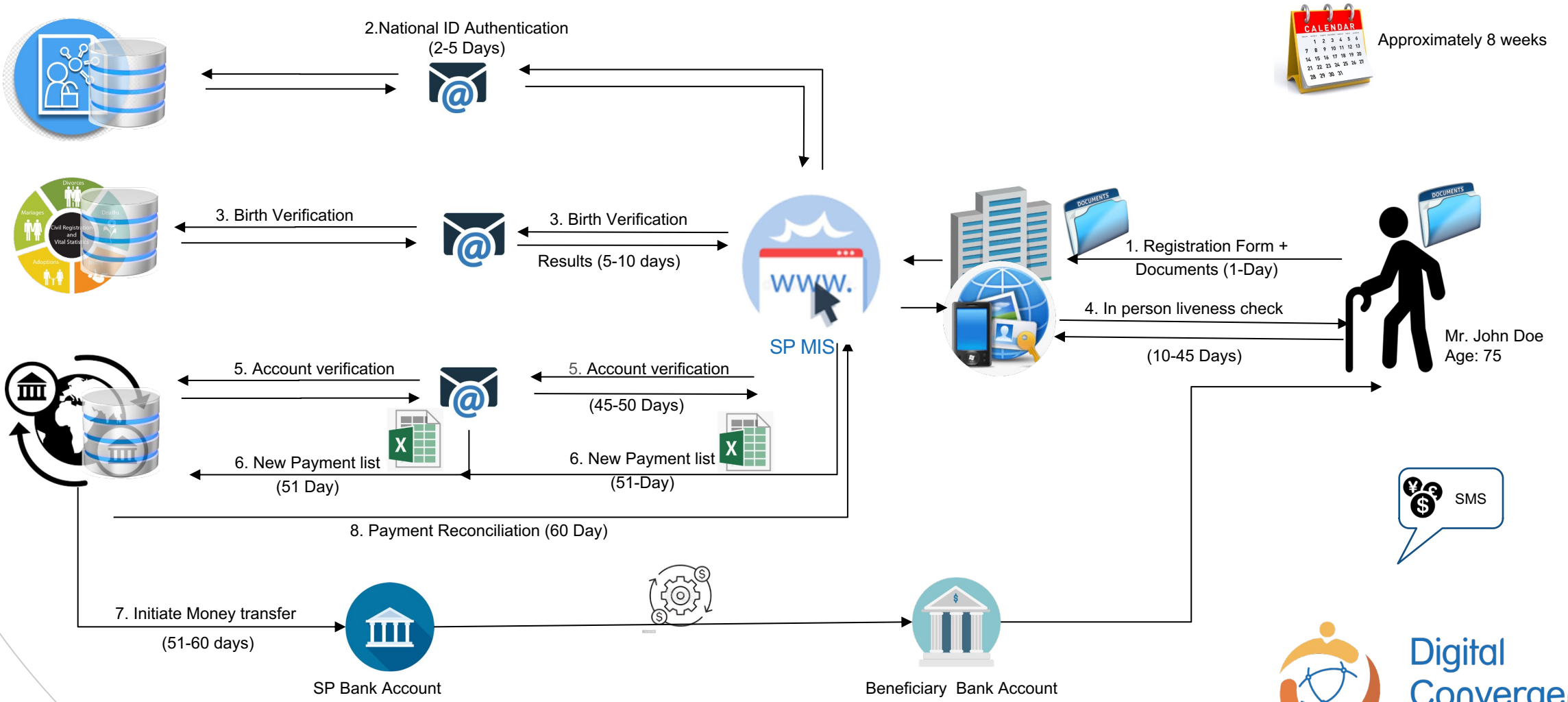
Scenario – 2 : Without Interoperability but with Digital Systems

Old Age Allowance Scheme



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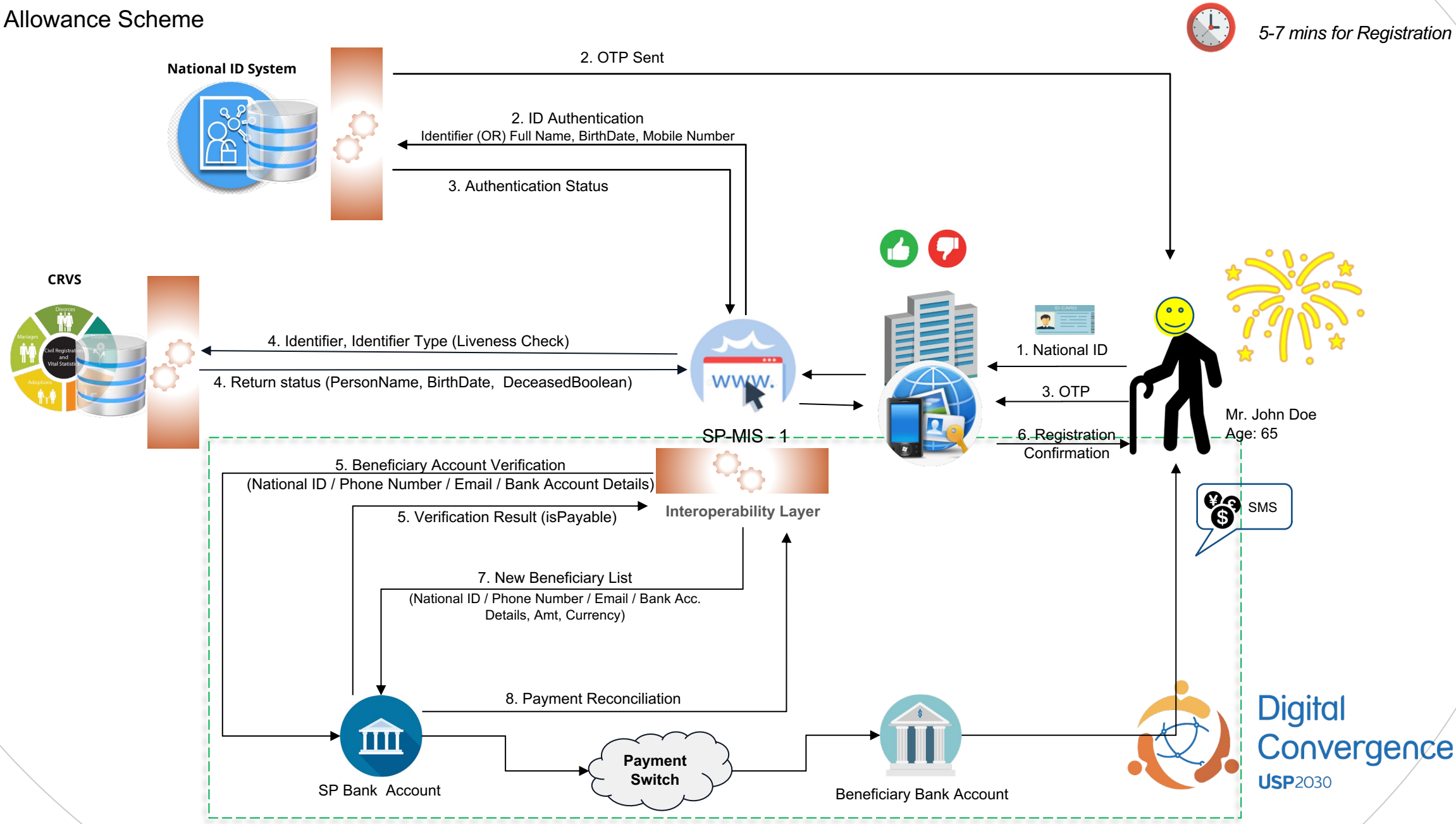
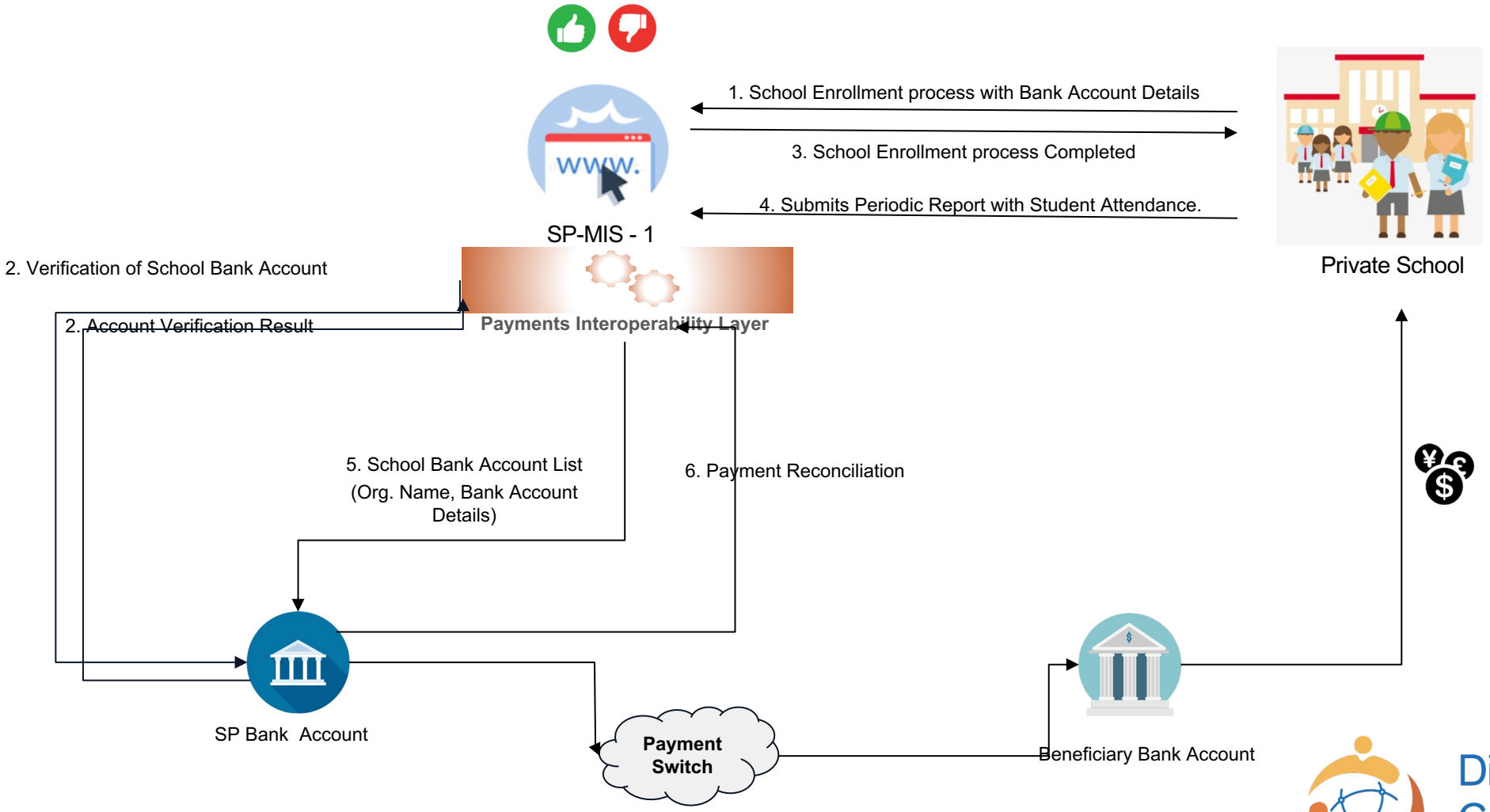
Scenario – 3 : G2P: Interoperability with Payment Systems

Old Age Allowance Scheme



Scenario – 3 : G2P: Interoperability with Payment Systems

Child Education Scheme



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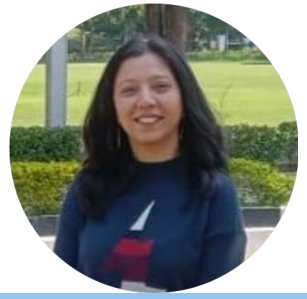
How Payment System Interoperability Happens

Presenters

Michael Richards
Financial Services Principal

Vijay Kumar Guthi
Solution Architect



Komal Malhotra
Project Head

Other Members

Krishan Bhardwaj
Technical Head

Jane Stroucken
Program Manager

Apoorva Sharma
Technical Business Analyst

Parth Dandavate
Lead Business Analyst

Dhaval Shukla
Solution Architect

Rajdeep
Technical Member

Pranav Vichare
Technical Member

Shiffali Singla
Jr. Business Analyst

API Standardization

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What is an API?

- It's a kind of language you use to communicate with other systems.
  - You can use it to say *what you want to do*…
  - … without needing to know *how to do it*.
- A successful API allows you to *be the baby*.

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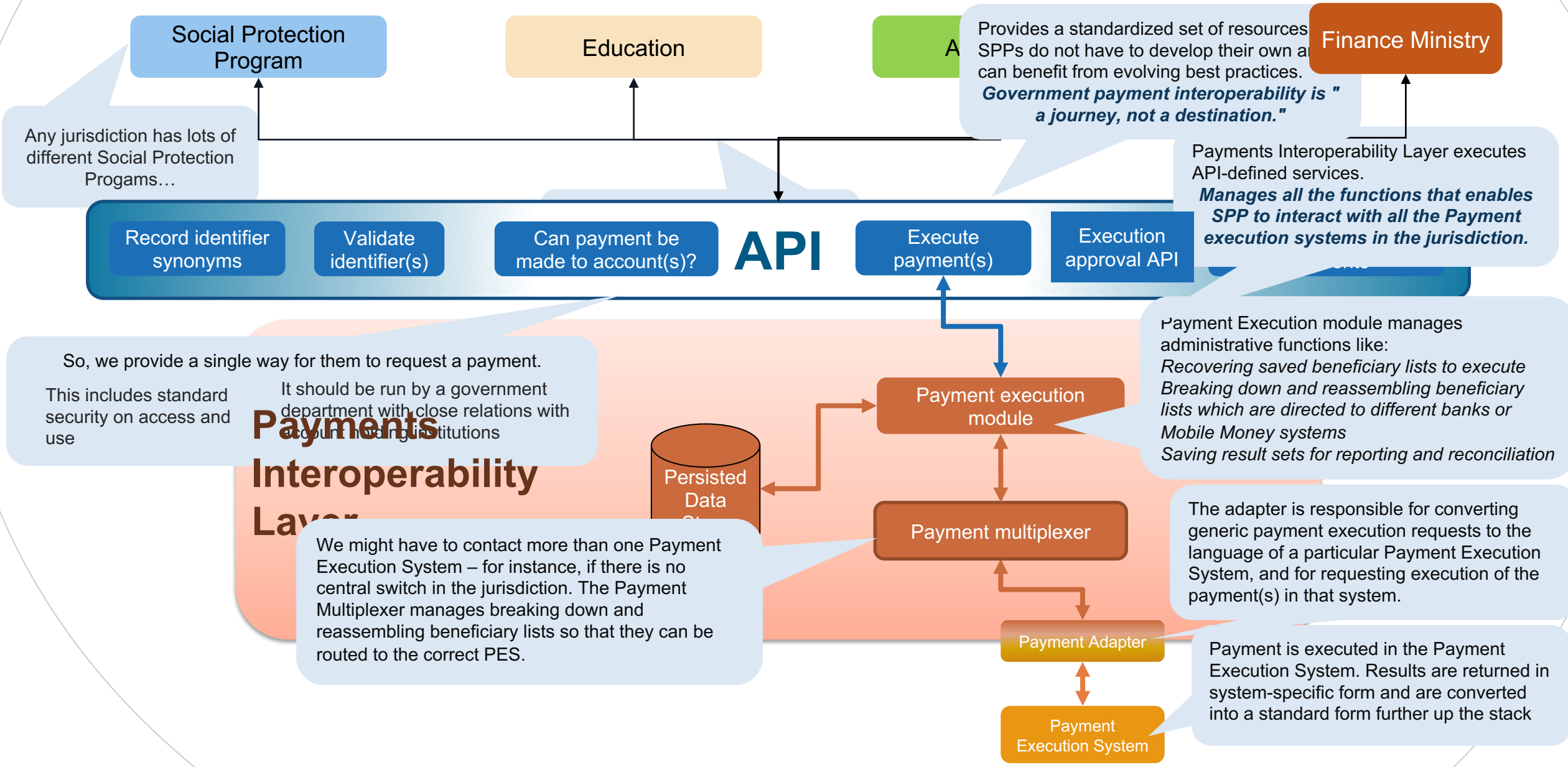
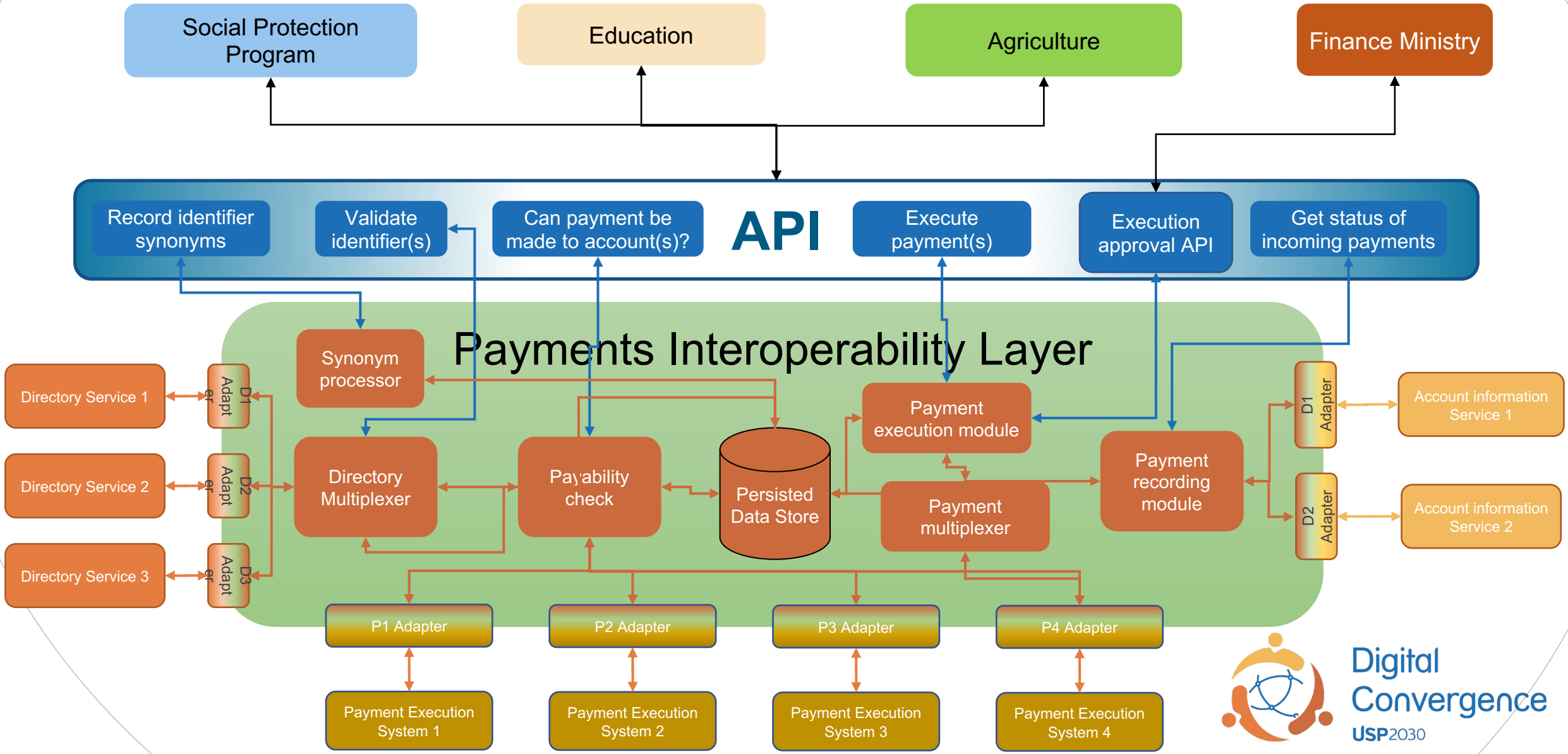
Anatomy of a generic payments interoperability layer

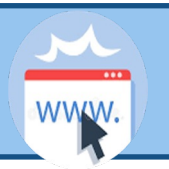


The proposed ecosystem



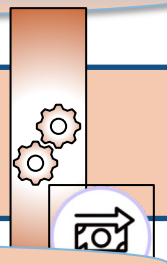
Adapters provide a form of insulation

Social Protection Programs



Payments Interoperability API

Payments interoperability layer



Payment Bank API

Payment bank

Payment Switch API

Beneficiary mobile money system

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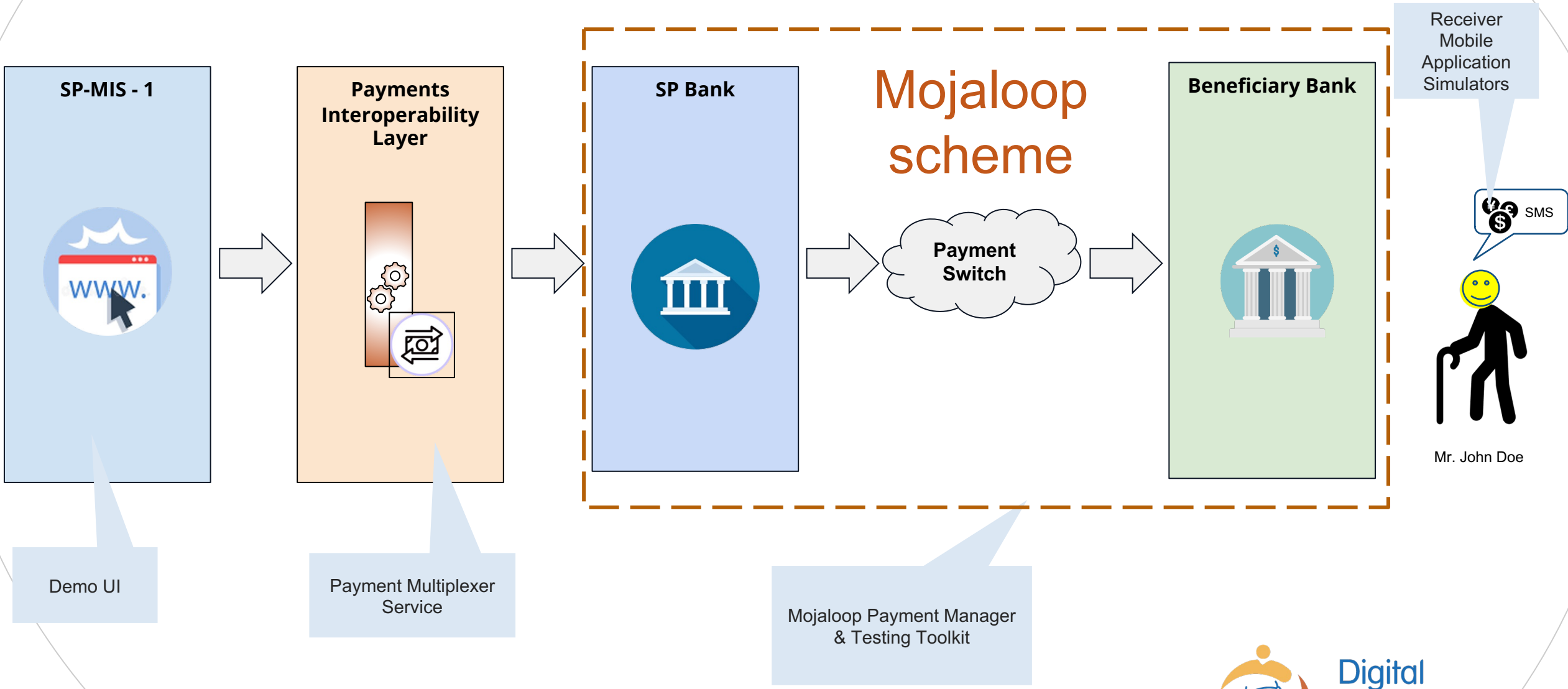
G2P Scenario 1: SP-MIS calling FSP API



GSM - Global System for Mobile communication
GSMA - GSM Association

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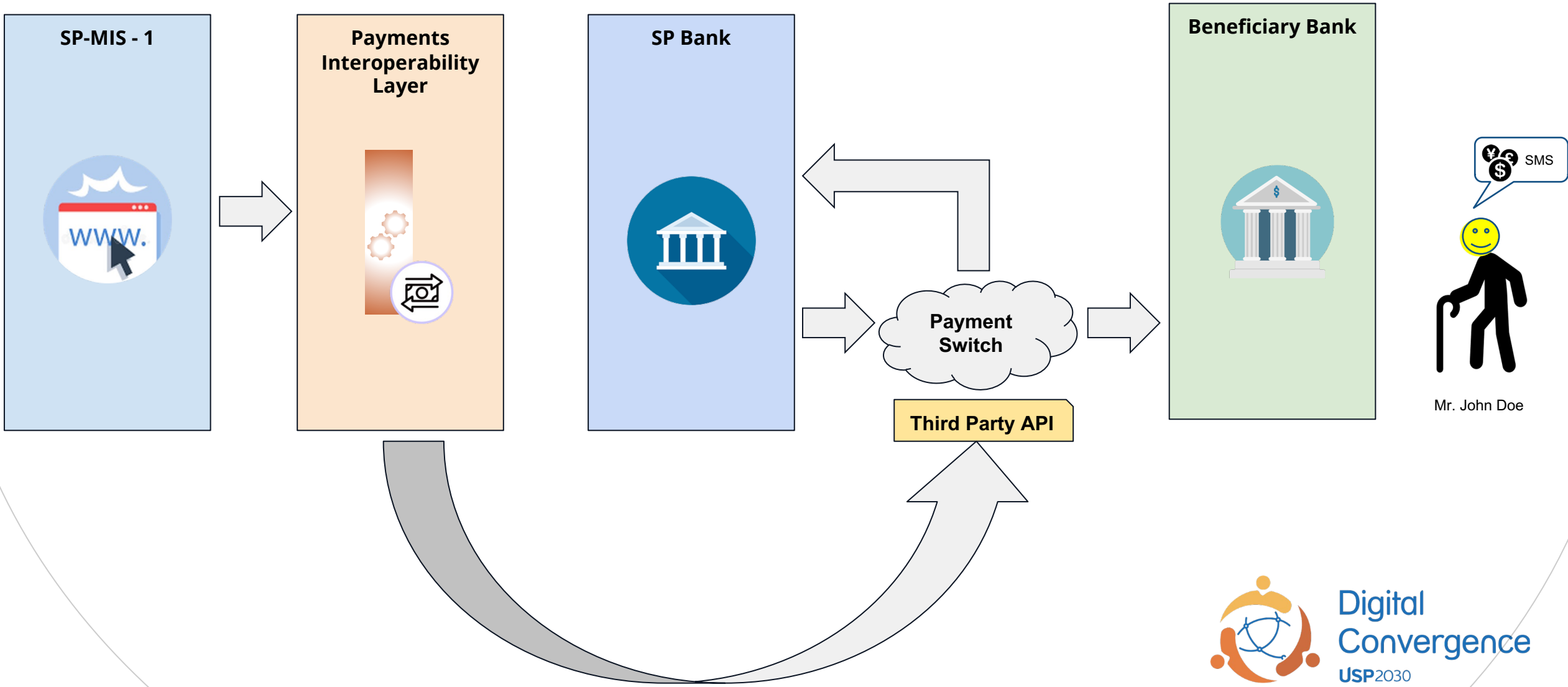
G2P Scenario 2: SP-MIS calling Payment switch via a Third Party API



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Live Demonstration - PoC for G2P payments

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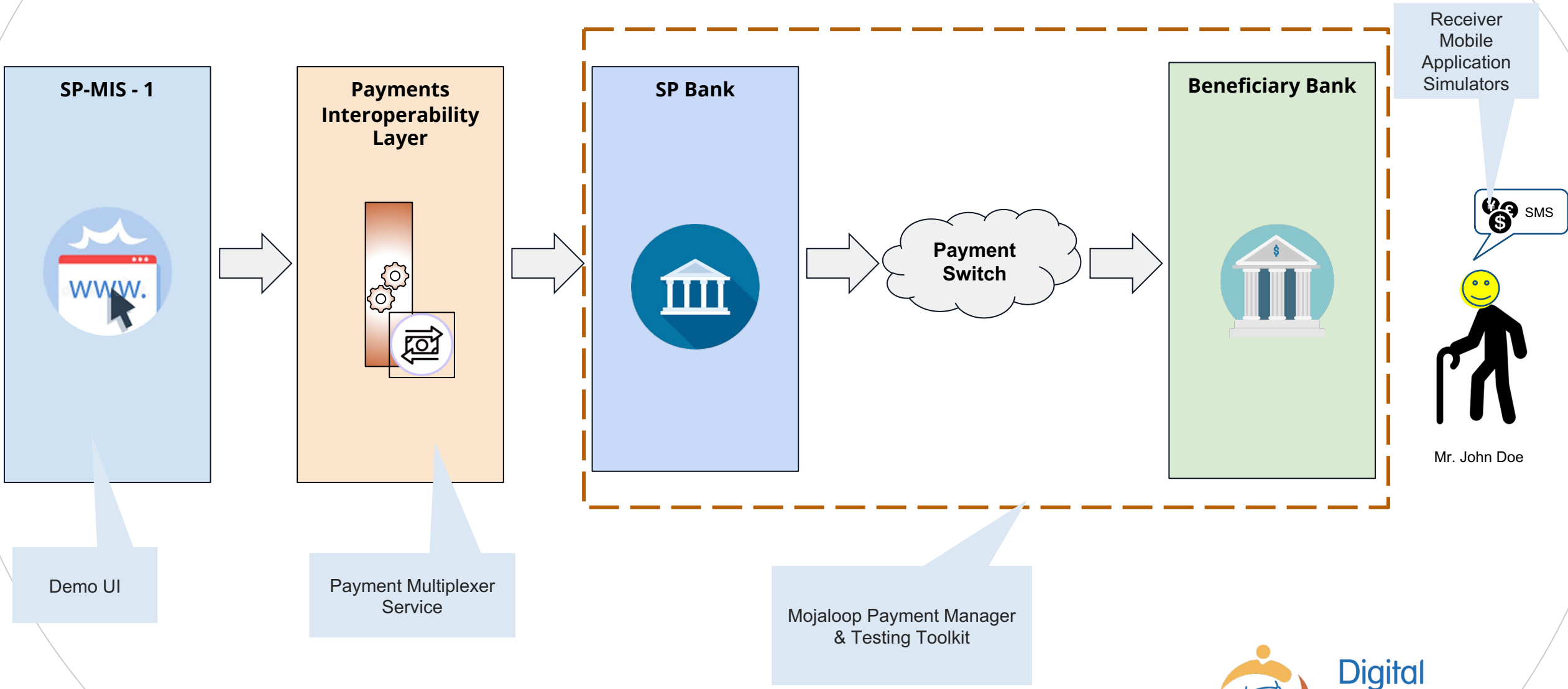
G2P Scenario 1: SP-MIS calling Payer Bank API



GSM - Global System for Mobile communication
GSMA - GSM Association

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Standards

Data Standards, Code directory, Sample API

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Sample Data Standards and Code Directories - Payment Request

Name	Cardinality	Type	Code Directory
Disbursement Identifier	0..*	Identifier	
DisbursementRequestTimestamp	0..1	Date Time	
PayeeList(Data Object)		Array	
PayeeResult_Status	0..1	Code	
Payee Results	0..*	Array	
…… More to the list			

Individual Payee Details (Data Object)

Name	Description	Cardinality	Type	Value
payeeIdType	Beneficiary ID type like NATIONAL_ID, MOBILE …etc	0..1	Code	CD15
payeeIdValue	Identifier value of the beneficiary	0..*	String	
amount	Amount to send	0..*	String	
currency	Currency ISO Code	0..*	Code	

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Sample Data Standards and Code Directories - Payment Response

Name	Cardinality	Type	Code Directory	Is Searchable
Disbursement Identifier	0..*	Identifier		Yes
PayeeResults		Individual Payee Payment Results (Data Object)		
…… More to the list				

Name	Description	Cardinality	Type	Value
payeeIdType	Beneficiary ID type like NATIONAL_ID, MOBILE …etc	0..1	string	CD15
payeeIdValue	Identifier value of the beneficiary	0..*	String	
amount	Amount to send	0..*	String	
currency	Currency ISO Code	0..1	Code	
timestamp	Request execution time	0..*	String	
isSuccess	Result of the transfer		Boolean	
status	Status of the payment		Code	Cd18
errors	Errors if there are any system		Code	

CODE DIRECTORY CD18 : Status

- OK
- Bad Request
- Unauthorized
- Forbidden
- Not Found
- Method Not Allowed
- Not Acceptable
- Not Implemented
- Service Unavailable

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Sample API payload - POST /disbursement

Request


```
{
  "disbursementId": "f2957f7a-34c3-11ed-a261-
0242ac120002",
  "note": "Old Age Allowance",
  "payeeList": [
    {
      "payeeIdType": "NATIONAL_ID",
      "payeeIdValue": "345678912",
      "amount": 100,
      "currency": "INR"
    },
    {
      "payeeIdType": "MOBILE",
      "payeeIdValue": "9848123871",
      "amount": 100,
      "currency": "INR"
    }
  ]
}
```


Response


```
{
  "disbursementId": "f2957f7a-34c3-11ed-a261-0242ac120002",
  "results": [
    {
      "payeeIdType": "NATIONAL_ID",
      "payeeIdValue": "345678912",
      "amount": 100,
      "currency": "INR",
      "isSuccess": true,
      "timestamp": "2012-04-23T18:25:43.511Z",
      "status": "COMPLETED"
    }
 {
      "payeeIdType": "MOBILE",
      "payeeIdValue": "9848123871",
      "amount": 100,
      "currency": "INR",
      "isSuccess": true,
      "timestamp": "2012-04-23T18:25:45.511Z",
      "status": "COMPLETED"
    }
]
```

Global Perspective: G2PX

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Georgina Marin

G2Px Initiative Program Officer

World Bank

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Why do we advocate for digitalizing G2P payments?

Digital government-to-person (G2P) payments have the potential to

improve recipients' welfare

+ **enable government-wide fiscal savings**

+ **spur financial market development**

Financial inclusion

- **Accounts as a gateway to other financial products and services** (savings, remittances, digital payments, insurance, credit)

Recipient convenience

- **Timely payments**
- **Lower collection time and cost**

Women's Economic Empowerment

- **Control over resources**
- **Bargaining power**
- **Higher mobility + employment**

- **Lower disbursement costs**
- **Cutting incorrect payments**
- **Reduced leakages + corruption**

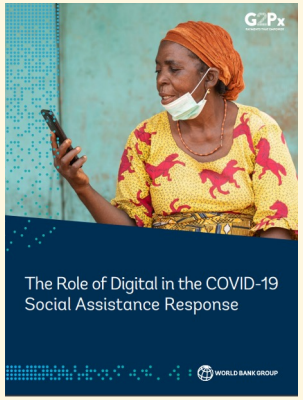
- **Access point & market size expansion**
- **Catalyzes infrastructure development and reforms**

G2Px

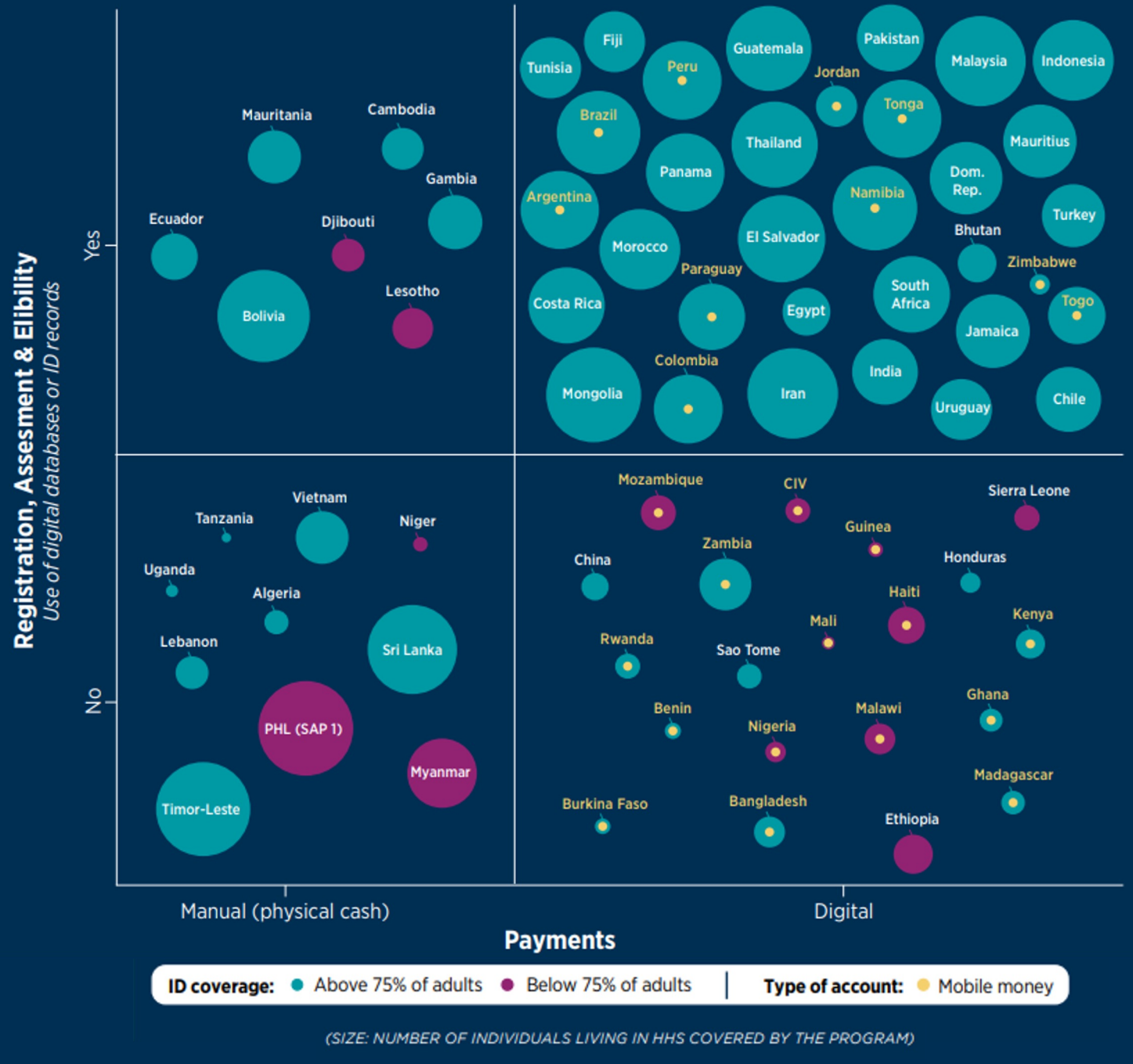
PAYMENTS THAT EMPOWER

G2Px is a World Bank initiative that provides a **platform** for **cross-sectoral collaboration** and **guidance** to shape approaches to G2P payment delivery globally that can advance financial inclusion, WEE and government-wide benefits.

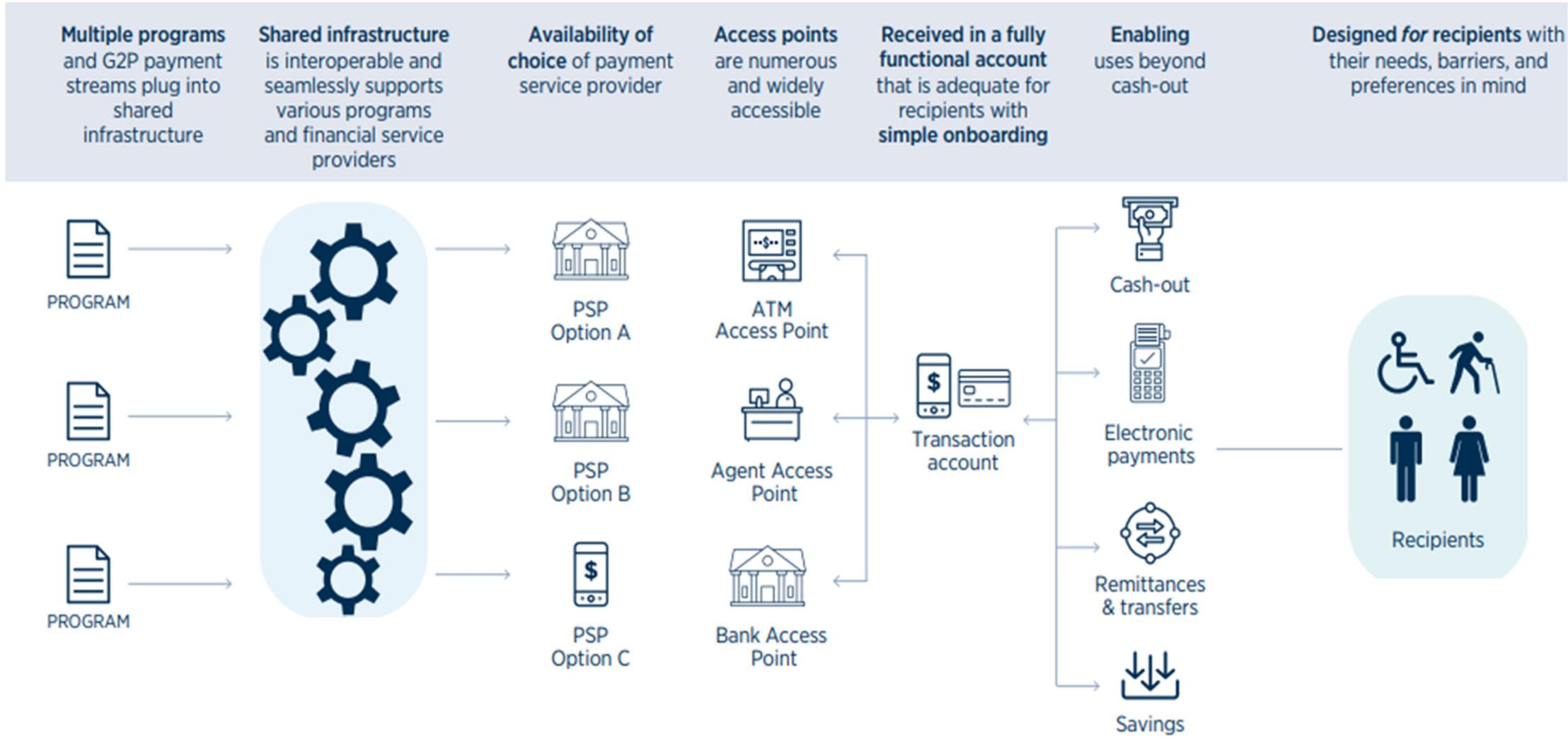
Countries that leveraged digital public infrastructure in their social protection response to COVID-19 were better able to tackle the challenges of reaching new beneficiaries and making payments quickly and safely.



www.worldbank.org/g2px



Designing digital G2P payments that can accelerate long term development outcomes



Modern G2P Architecture: Building Blocks

www.worldbank.org/g2px

Multiple programs and G2P payment streams plug into shared infrastructure

Shared infrastructure is interoperable and seamlessly supports various programs and financial service providers

Availability of choice of payment service provider

Access points are numerous and widely accessible

Received in a fully functional account that is adequate for recipients with **simple onboarding**

Enabling uses beyond cash-out

Designed *for* recipients with their needs, barriers, and preferences in mind

PROGRAM

PROGRAM

PROGRAM

PSP Option A

PSP Option B

PSP Option C

ATM Access Point

Agent Access Point

Bank Access Point

Transaction account

Cash-out

Electronic payments

Remittances & transfers

Savings

Recipients

To enable government-wide fiscal savings

To improve recipients' welfare

Recipient convenience

Financial inclusion

Women's economic empowerment

To spur innovation and private sector development

BUILDING BLOCKS

Central Treasury System

Sectoral Databases & Systems

Account Directory

ID System

National Payments System

Trusted Data Sharing

DIGITAL STACK

Connectivity

Infrastructure

Bank & Non-Bank PSPs

PSP Participation Model

Distribution Networks & Access Points

Accounts & Payment Instruments

Payment Acceptance Networks

Product and Market Design

Communication & Literacy

Recipient Protection & Grievance Redressal

Data Protection & Cybersecurity

Gender Lens

CROSS-CUTTING BUILDING BLOCKS

Inclusion and Empowerment

Global Perspective: CGAP

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Johan Hubert Roest

Senior Financial Sector Specialist

CGAP

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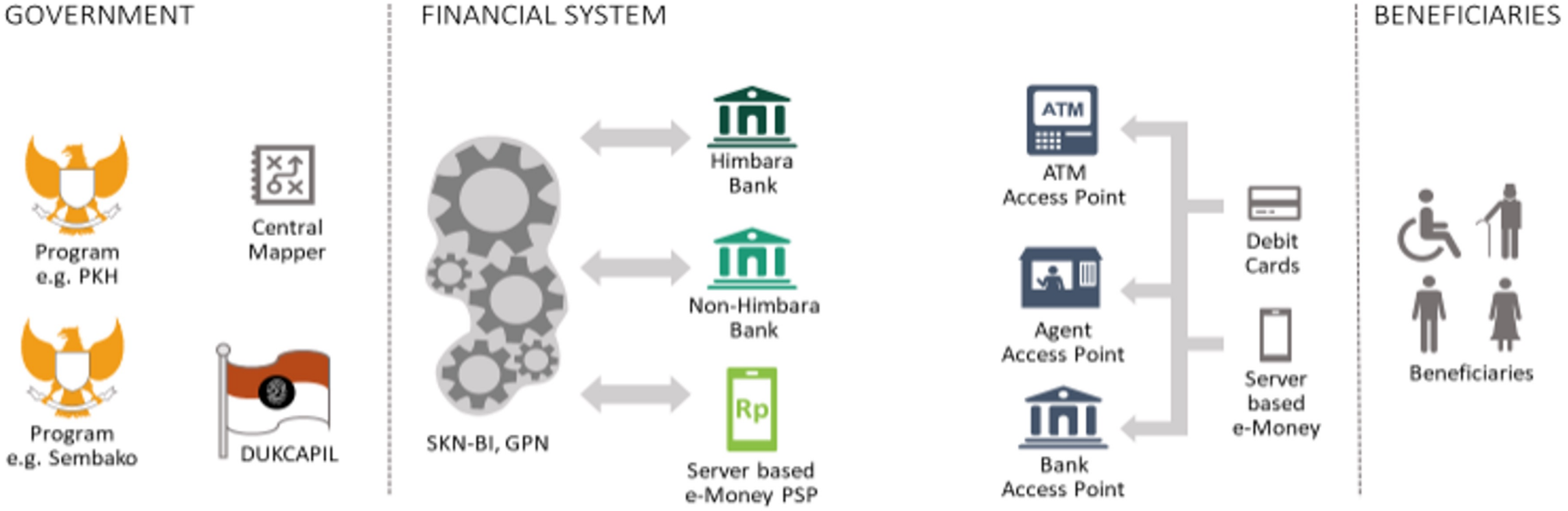
Interoperability key to unlocking G2P choice



Social assistance distribution through utilization of (shared infrastructure) for every program

Payment system interoperability that support various G2P program management by different stakeholders

Availability of choice to choose payment service provider

Availability of access points (ATM, Agent, Bank Branch), dependent on interoperability, in sufficient amount and widely accessible

Combination of various payment instruments for various programs

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Global Perspective: BMGF

BILL & MELINDA GATES foundation

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Miller Abel

Principal Technologist

Bill and Melinda Gates Foundation

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Country Inputs: India

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Annapurna K
Karnataka
Administrative Services
Officer

Srivatsa M.N
Karnataka Secretariat
Service Officer

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Karnataka

- Located in Southern part of India
- 61.1 million population/13.5 million Households
  - 13.2% of the population multi-dimensionally poor
- 41 departments implements 1800+ welfare schen
  - Multiple IT systems - cash/kind benefits
  - Payments through state IFMS (Khajane 2) or Banks
  - Challenges
    - Validation of Beneficiary Identity
    - Verification of Financial Address
    - Deduplication of Beneficiary
- Kutumba – Integrated Social Protection System

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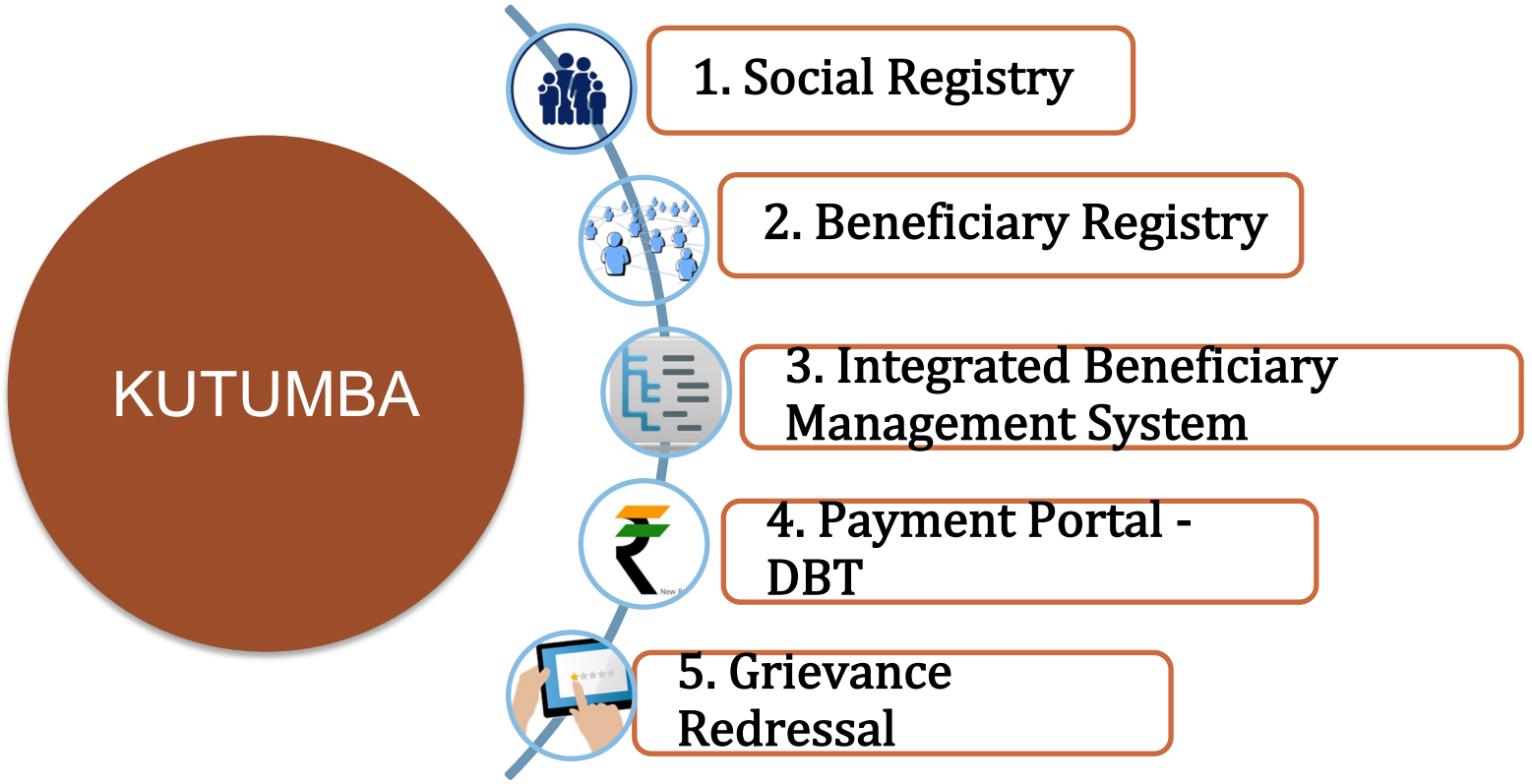
Kutumba

A Social Protection & Entitlement System

Created under sec 4(4)(b)(ii) of Aadhaar Act



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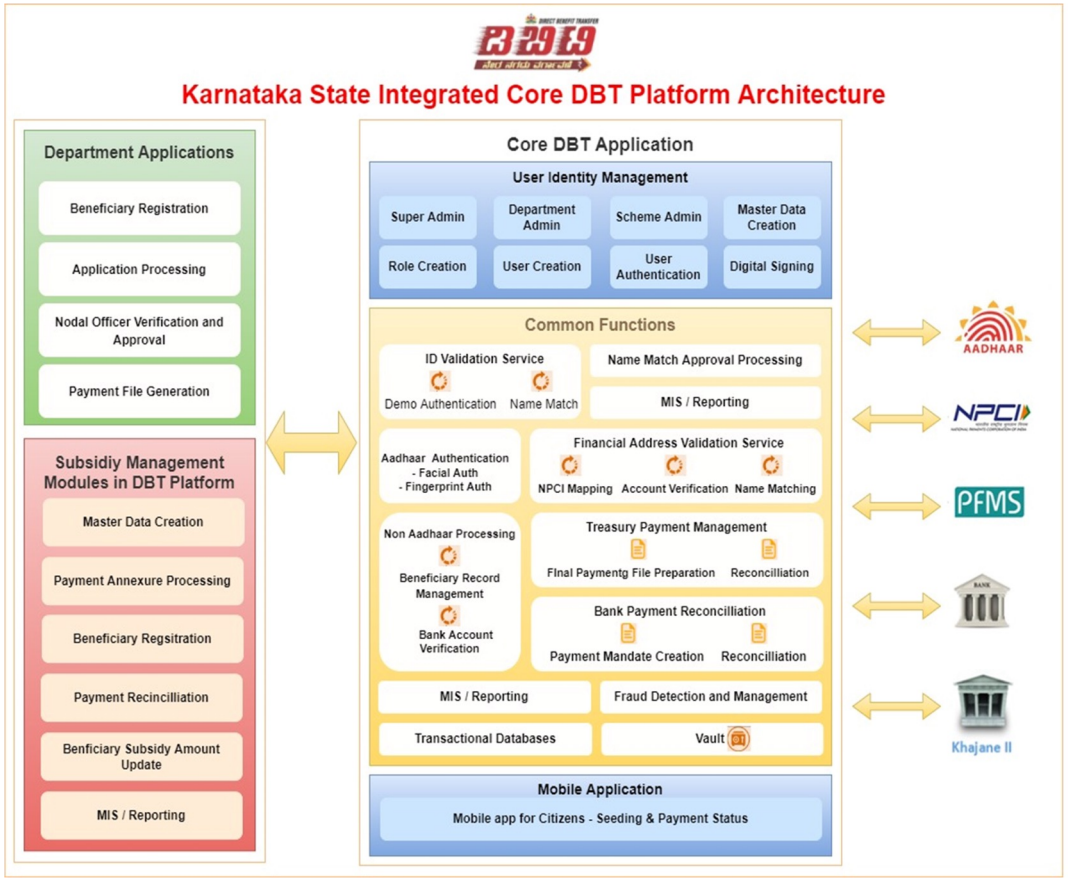
State DBT Platform



- Aadhaar for all welfare benefits – cash/kind
- State DBT Portal for all payments – Khajane/Banks
  - One Global AUA for Aadhaar in the state
    - Extends Aadhaar as a Service through API
    - Enables departments to store Aadhaar in Data Vault using HSM.
  - Beneficiary identification, financial address validation and de-duplication enabled.
- Benefits
  - Simplified Processes
  - Single API Call to push payments –need for Bank integrations removed.
  - End to End tracking made possible.
- 200+ schemes, 101 million + transactions, Rs.290,000 million + payments

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Payment Solutions: NPCI

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Mr. Gaurish Korgaonkar

Head Fintech Solutions

National Payments Corporation of India

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National Payments Corporation of India

Social Protections Systems interacting with Payments Systems in India

National Payments Corporation of India (NPCI), is an umbrella organization for operating retail payments and settlement systems in India. Its an initiative of Reserve Bank of India and Indian Bankers Association for creating robust Payment & Settlement Infrastructure in India.
Ever since the inception of NPCI in 2008, NPCI has been devoted to built innovative payments products like – **RuPay, IMPS, NACH, UPI, AePS** etc. to promote India as a cashless economy and drive digital payments in the country.

In 2016, NPCI had launched **Unified Payments Interface Solution,** as an architecture framework with a set of standard Application Programming Interface to facilitate the online payments.
UPI is revolutionary, user friendly , open source, real time payment solution that facilitates inter-bank transactions and enables digital adoption in the country. UPI is currently processing over 6 Bn transactions monthly and international acceptance in **UAE, Bhutan, Nepal, Singapore, France.**

Direct Benefit Transfers in India are distributed using payments products developed by NPCI – NACH, IMPS and e-RUPI (using UPI rails)

*NPCI website for information on payments products- **National Payments Corporation of India (NPCI) - Enabling digital payments in India**

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e-RUPI is a digital payment solution developed with support of Department of Financial Services, National Health Authority & National Payments Corporation of India, for cashless & contactless payment for services sponsored by Government and Private organizations

e-RUP is a voucher without a card, digital payments app or internet banking access, e-RUPI is shared with the beneficiaries for a specific purpose or activity by organizations via SMS or QR code.

e-RUPI was widely used to provide COVID-19 Vaccination voucher to the Indian Citizens and had use cases across – Education, Agriculture, Health etc.

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CREATION PROCESS

STEP 1:
Government Organization/Corporates share details of the beneficiary (Name, Contact number, Amount & Purpose of voucher & expiry) with the bank

STEP 2:
Banks reaches out to NPCI and generates e-RUPI

STEP 3:
The Bank/Government Organization/Corporate sends e-RUPI digitally to the beneficiary

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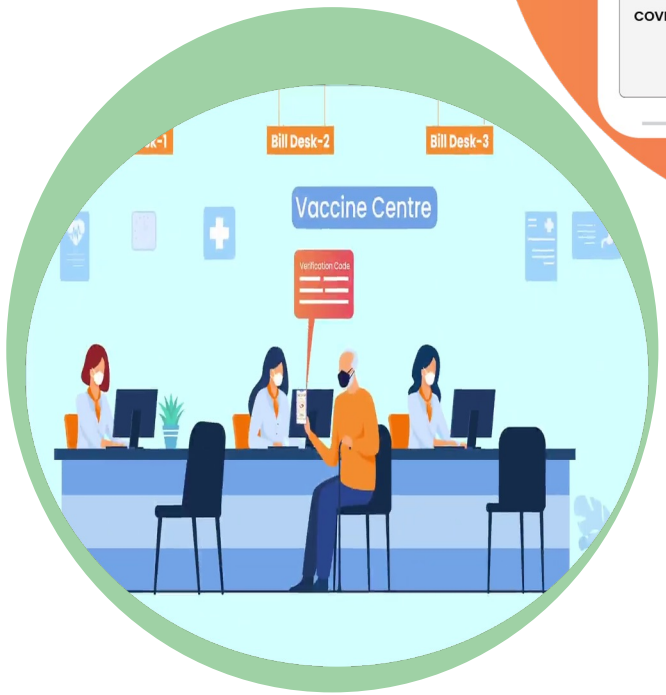
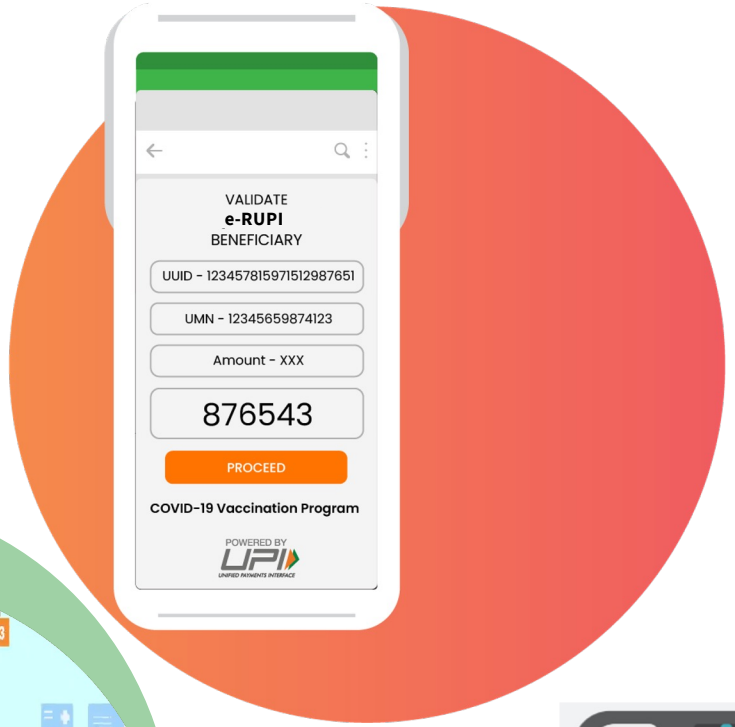
REDEMPTION PROCESS

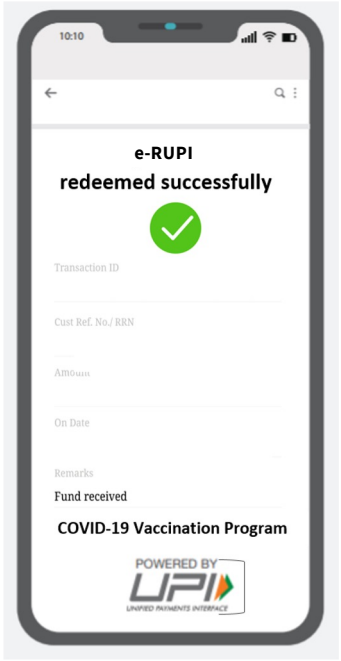
STEP 1:
Visit the redemption center which is enabled for e-RUPI acceptance



STEP 2:
Acquirer will scan the QR/SMS string and will send the verification code to the customers mobile



STEP 3:
Verification code to be shared by the beneficiary to be validated by the redemption center staff



STEP 4:
Redemption center staff validates the voucher and the beneficiary. Merchant will deliver the services to the beneficiary.

Use Cases of E-Rupi

Ration
Daily tracking of ration allocation state wise

LPG
Improve last mile delivery of national programs

Fertiliser
Improve impact of the Ministry program with direct customer benefits

Medical
Providing drugs & diagnostics services under health assurance schemes

USE CASES

Electricity

Real-time benefits to users to avail subsidy from the government

Textile

Enable Self help groups with vouchers for pre defined purpose- buying yarn from merchant, etc

Woman & Child welfare

Ensure direct and transparent utilization of funds for various programs

Vaccine

Payment for COVID vaccination at Private CVC by Corporates

Payment Solutions: MojaLoop Foundation

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Paul Makin

Product Manager

Mojaloop Foundation

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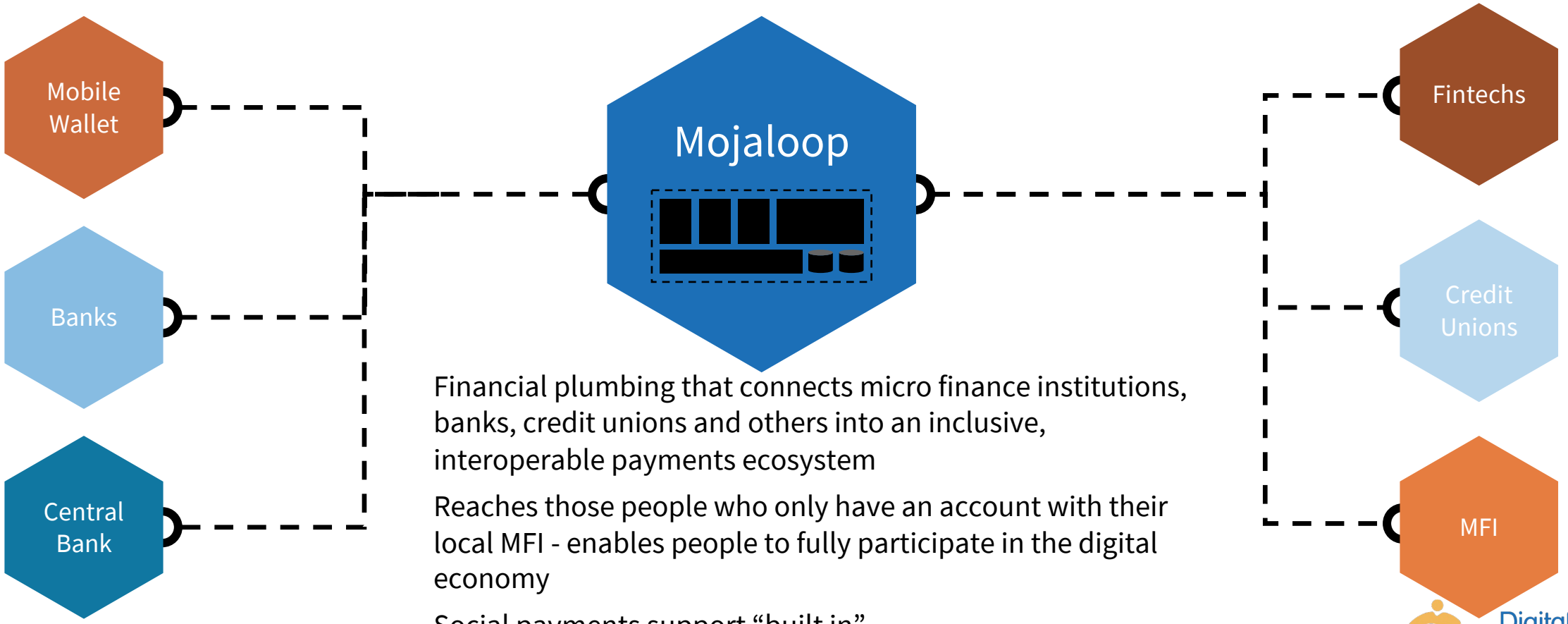
Mojaloop Is Open Source Software For Instant Payments Clearing

Developed “ground up” with inclusive payments enablement at its core, ready to connect people – no matter what type of wallet they have.



Financial plumbing that connects micro finance institutions, banks, credit unions and others into an inclusive, interoperable payments ecosystem

Reaches those people who only have an account with their local MFI - enables people to fully participate in the digital economy

Social payments support “built in”

Standardisation around interconnection between institutions

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Mojaloop Deployments and Pilots

Current State of the Mojaloop Ecosystem

- **Deployments**

  Mojaloop is reaching maturity, with live, fully functional deployments, and more in preparation

- **Community Building**

  WynePay arose out of the MFI sector, where we brought people across the community together to identify a common need. Similar approach taken in Rwanda, which gave rise to the SIs joining the community.

- **Systems Integrators**

In addition to our established international SIs (ModusBox, Sybrin and others), as part of relatively new initiative we have built a community of local SIs including 3 in Rwanda and multiple in Singapore and Myanmar. Also supporting multiple fintechs.

- **Payments Standardization**

Mojaloop is collaborating with ISO to standardize instant payment protocols for financial inclusion. Also working with Nexus to integrate the world of FI with mainstream financial services, and with Visa to enable international services.

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Private Sector: SwissTPH

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Dr. Dragos Dobre

IT Systems Architect

Swiss Tropical and Public Health Institute

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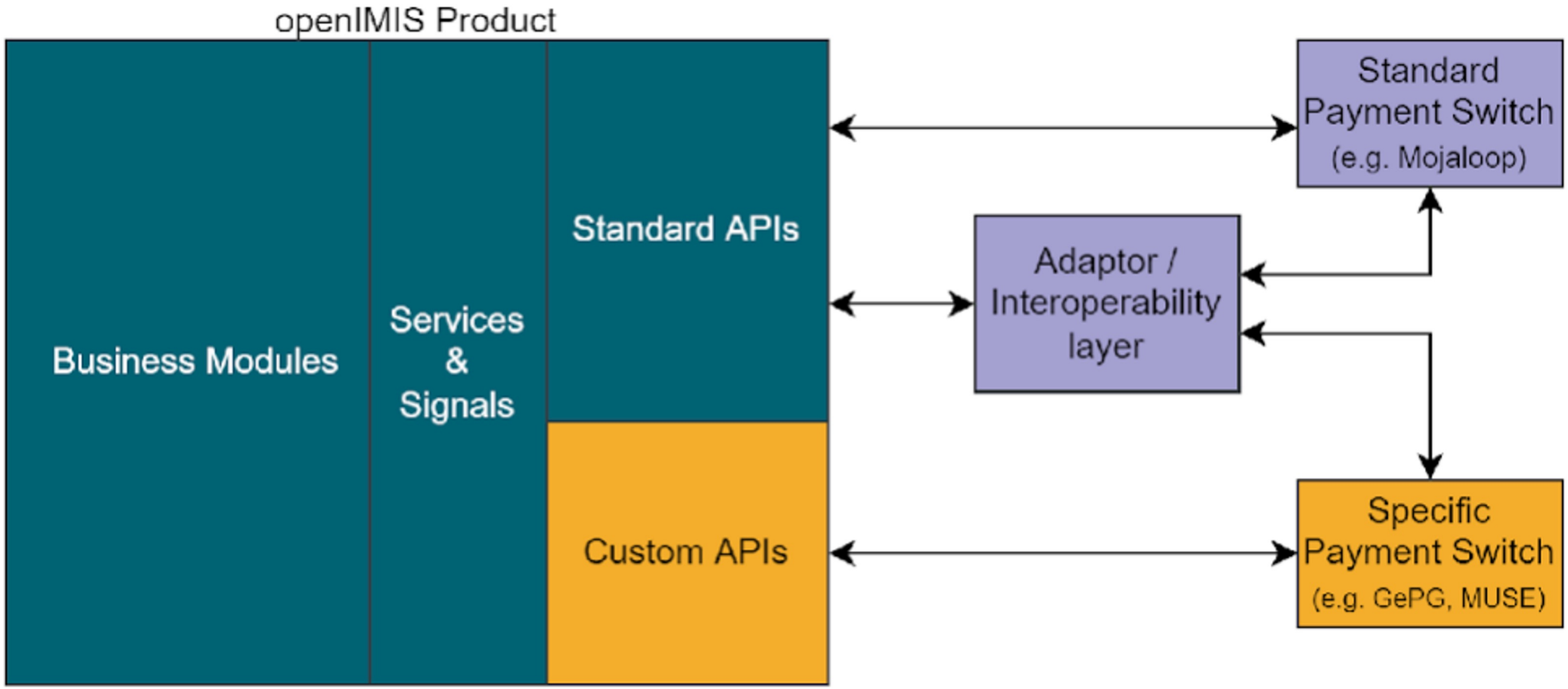
openIMIS Payment Layer - Concept



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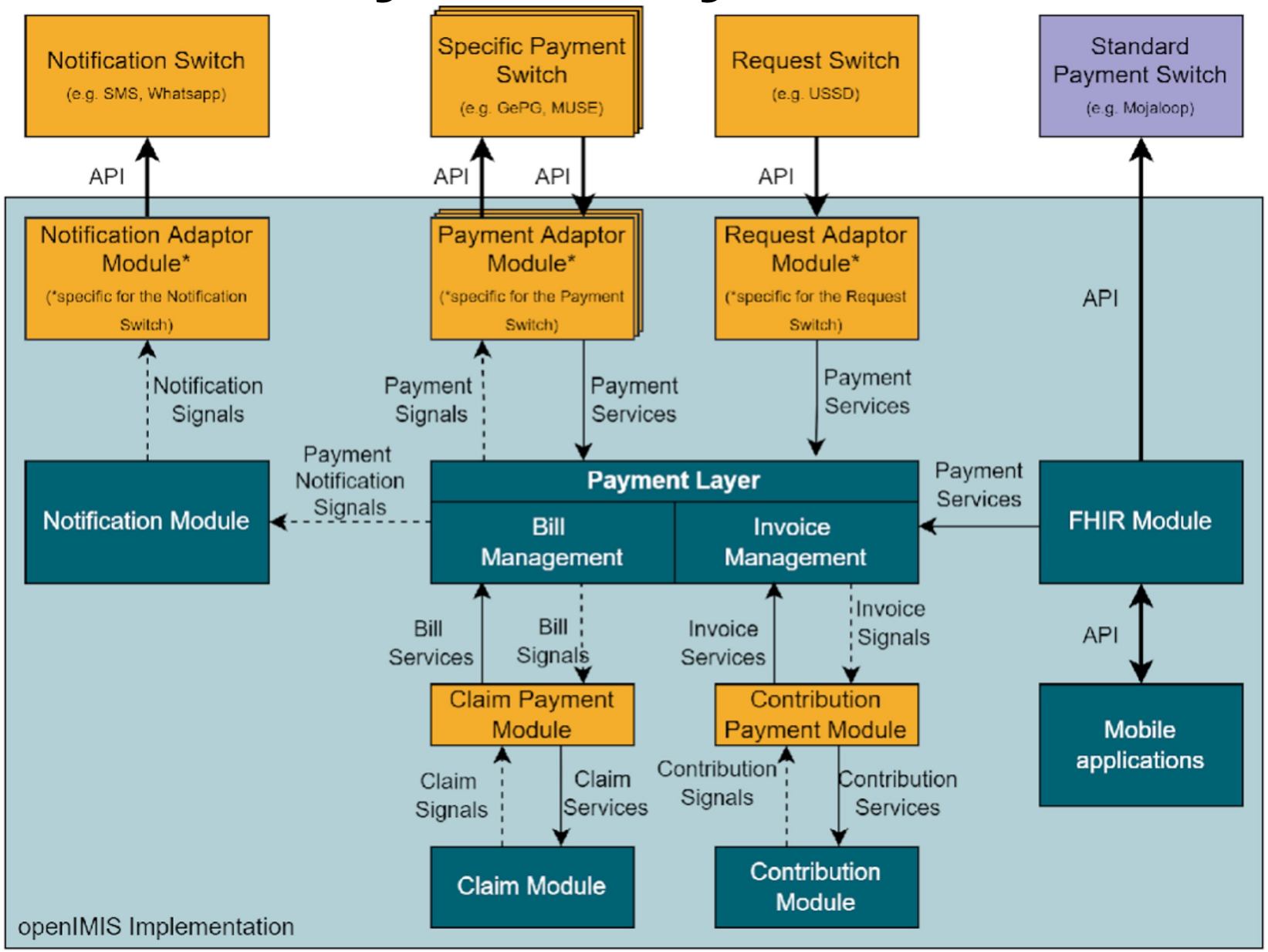
openIMIS Payment Layer - Generic Architecture



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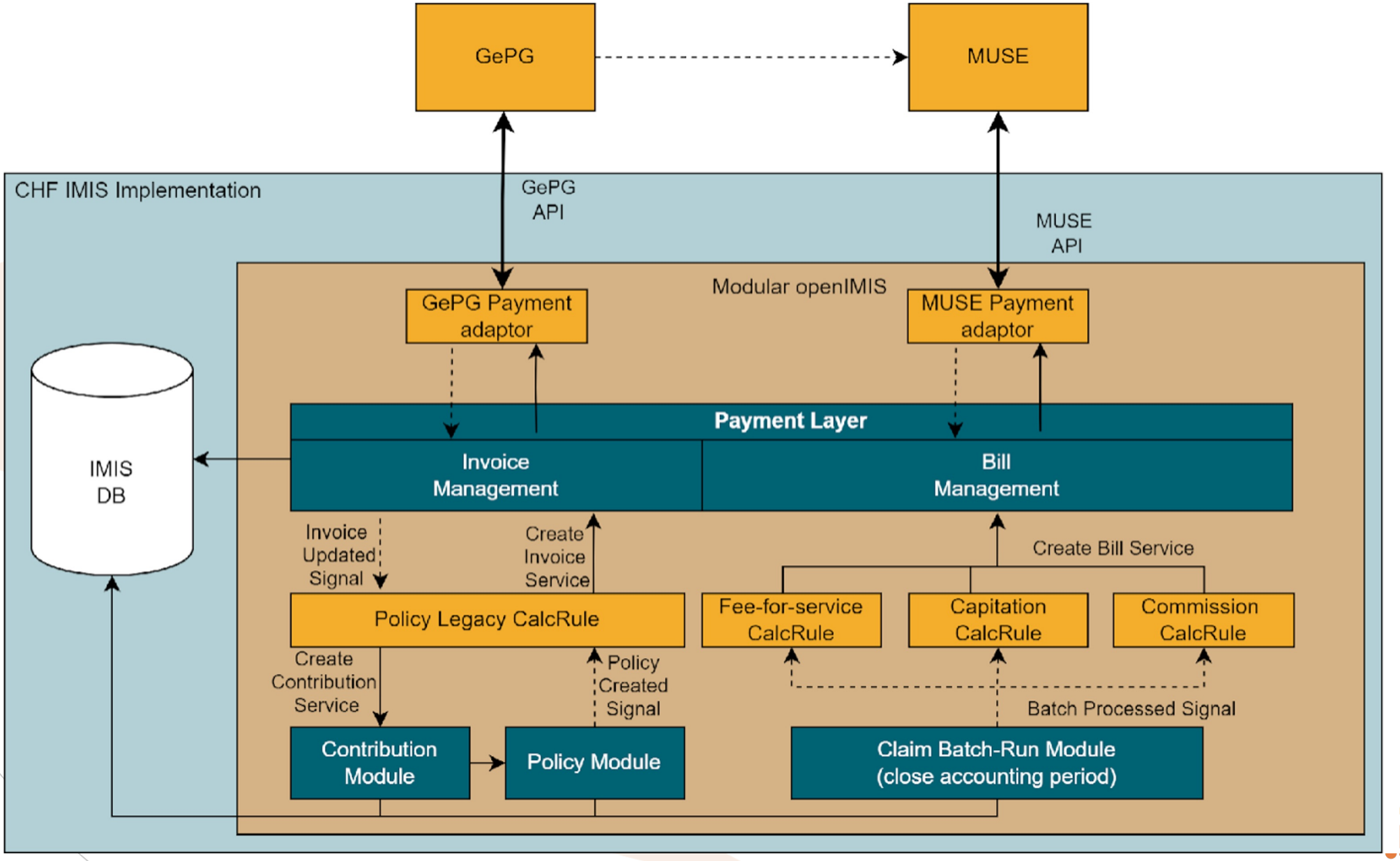
openIMIS Payment Layer - Tanzania Architecture



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Private Sector: Microsave Consulting (MSC)

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Mitul Thapliyal

Partner

MicroSave Consulting (MSC)

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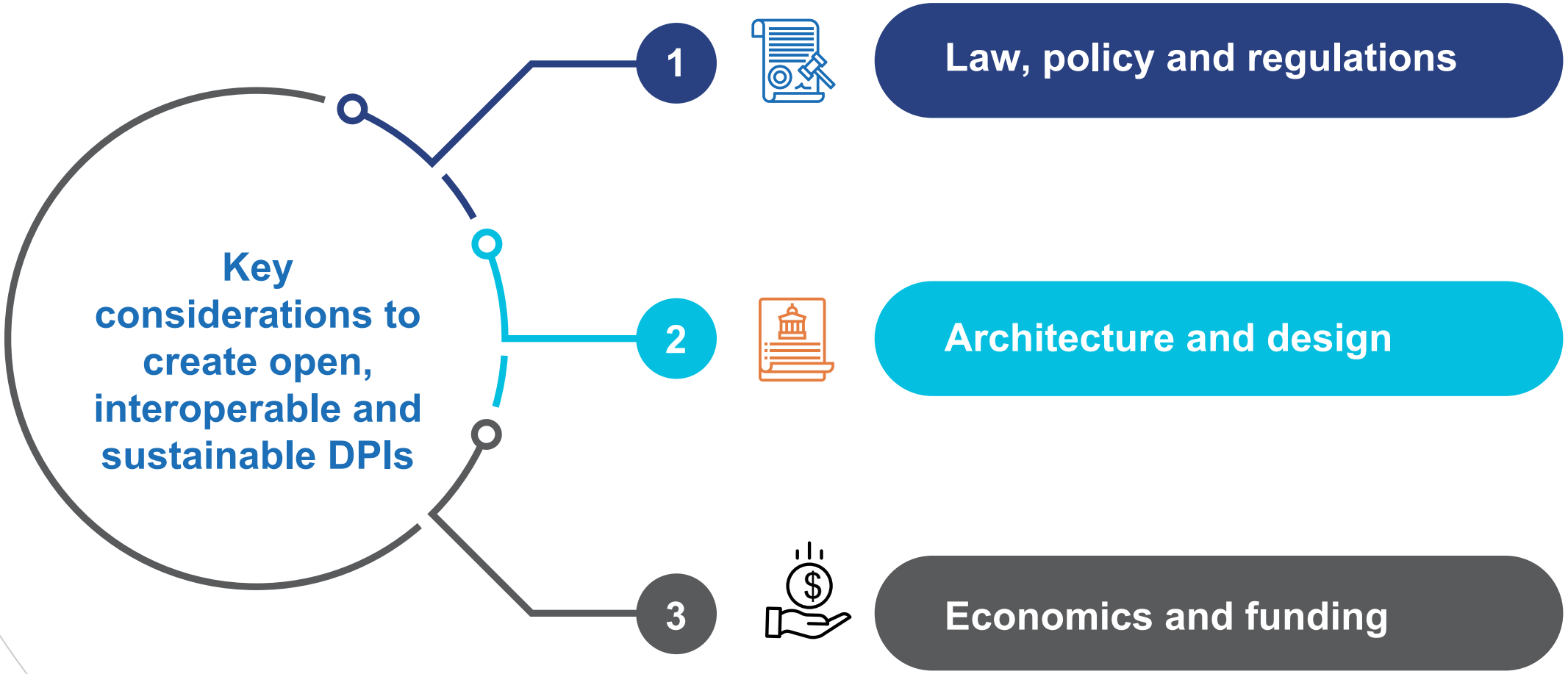
Ecosystem approach is critical to create an open, interoperable and sustainable Digital Public Infrastructure (DPI)



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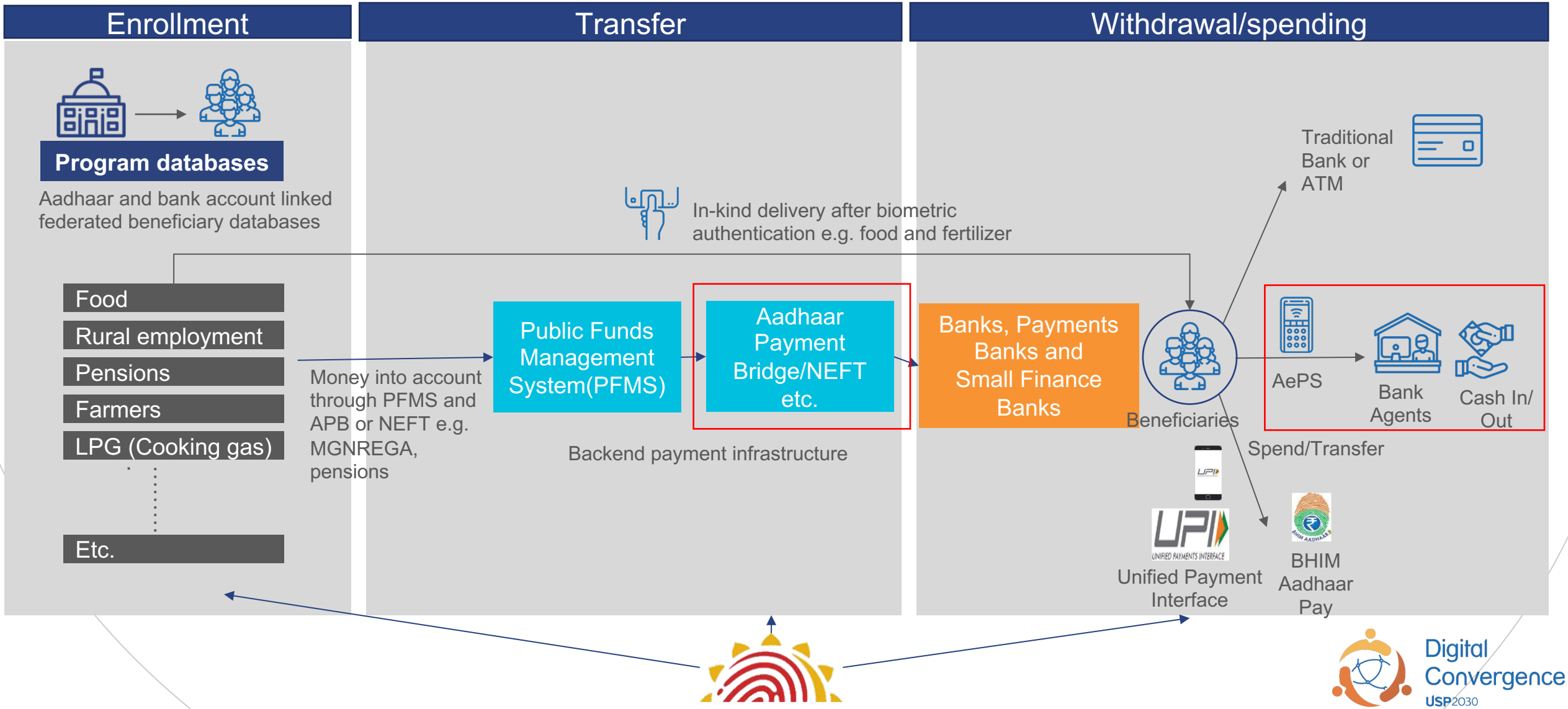
India created an interoperable social protection, payment and ID system that allows real-time fund transfer to the beneficiaries



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Direct benefits from this ecosystem far outweigh the cost. Societal benefits are even higher

Benefits

1. **USD 350+ billion** - Estimated money flow through the system since 2015
2. **USD 30 billion** - Estimated direct gains for the Indian government by removing duplicate/fake beneficiaries from the social protection databases
3. **USD 44 billion** - Service providers (financial services providers, telecom operators and others)
4. **400 million** accounts received instant cash transfer during Covid induced lockdown
5. Efficiency gains for government and private sector and societal benefits are very high

Cost - USD 1.8 billion - Cost of *Aadhaar* from inception in 2009 till 2021

Cost and revenue numbers from UIDA's Annual Report 2020-21
Indian government's savings from DBT portal
Savings for service providers calculated using total eKYC numbers. KYC cost reduced from the average of USD 5 to USD 0.1 - 0.2. Source: MSC's KYC harmonization study
Exchange rate used 1 USD – INR 70

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Open Discussion

Way Forward

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Veronika Wodsak

Social Protection Policy Specialist,
International Labour Organization

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Way Forward

Interoperability in Action : Workshops

- National ID and SP MIS Interoperability, Architecture and Data Standards Workshop :

  December – To be Confirmed

Standard Settings : Formation of Working Groups

Process, data and API standards for:

- SP MIS and CRVS interoperability
- SP MIS and Payment interoperability
- SP MIS and National ID interoperability

More Interoperability interfaces

- Social Registry with SP-MIS
- Social Registry with Farmer registry
- Social Registry with Disability registry

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Support the Initiative

- **Support** the process of **consensus building and harmonization of standards**.
- **Spread awareness** about the initiative
- **Promote** adoption of **standards and other outputs**
- **Adopt the standards and other outputs** in your SP projects and share **feedback**

Participate in working groups

Group 1 : Payment layer interoperability
Group 2 : CRVS layer interoperability
Group 3 : identification layer interoperability

Levels of participation

Level 1: Share existing materials

Level 2: Review outputs

Level 3: Join group discussions and validation workshops

Level 4: Drafting standards and guidelines alongside facilitators

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Connect with Convergence Initiative

www.sp-convergence.org

socialprotection-convergence.discourse.group

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Thank You

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