Digital Public Infrastructure for Resilient Economies

Learnings from India

Dr. Pramod Varma
Former Chief Architect **Aadhaar, India Stack**
CTO **EkStep.org**, Co-Founder **FIDE.org**
Co-Chair at the **Center for DPI** (cdpi.dev)

@pramodkvarma

ID4AFRICA 2023
AUGMENTED
GENERAL MEETING

India is large and diverse

1.4 B_{illion} people

22 official languages

1 B_{illion} mobile connections

800 M_{illion} Internet Users

6% pay income tax

As of 2008, India was one of the world's most unbanked
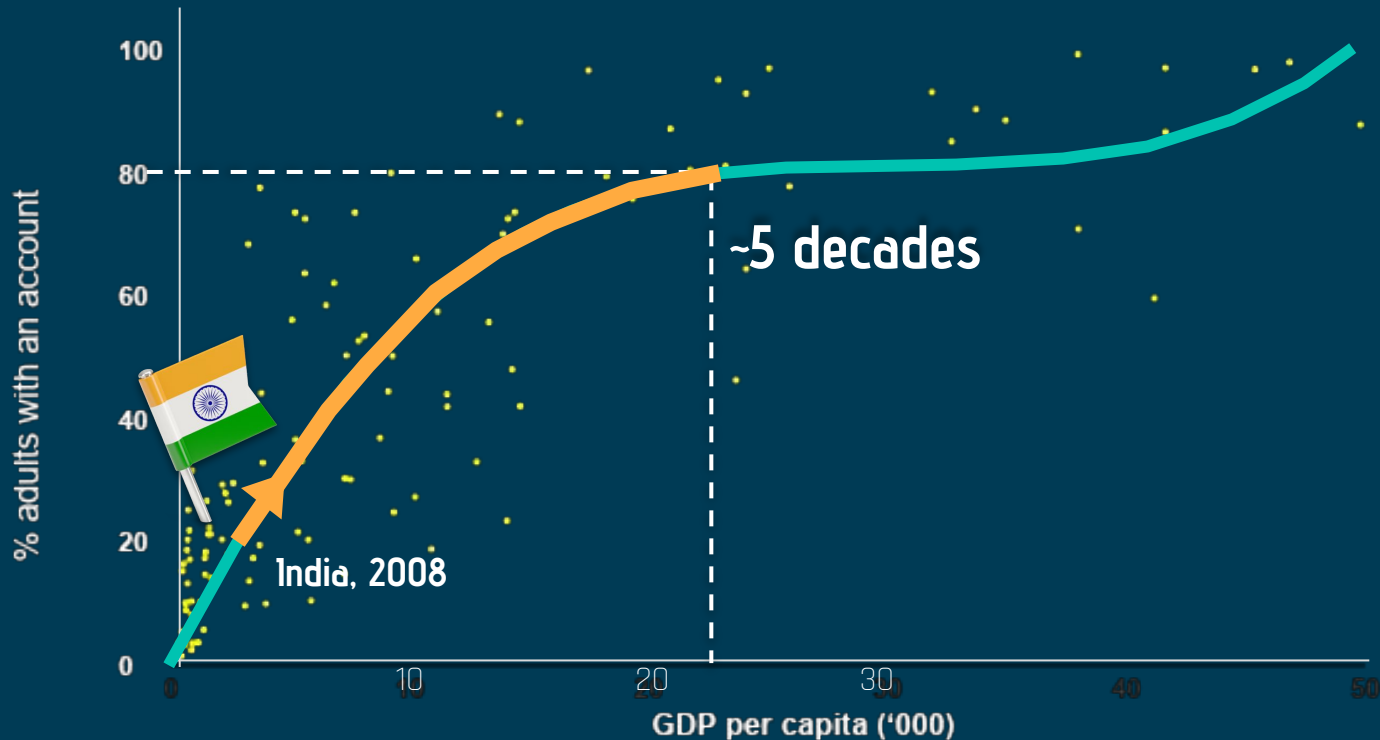

Less than **20%** banking penetration

⊗ Lack of ID

⊗ Cost of KYC & operations

⊗ Bank branches inaccessible

⊗ Lack of connectivity

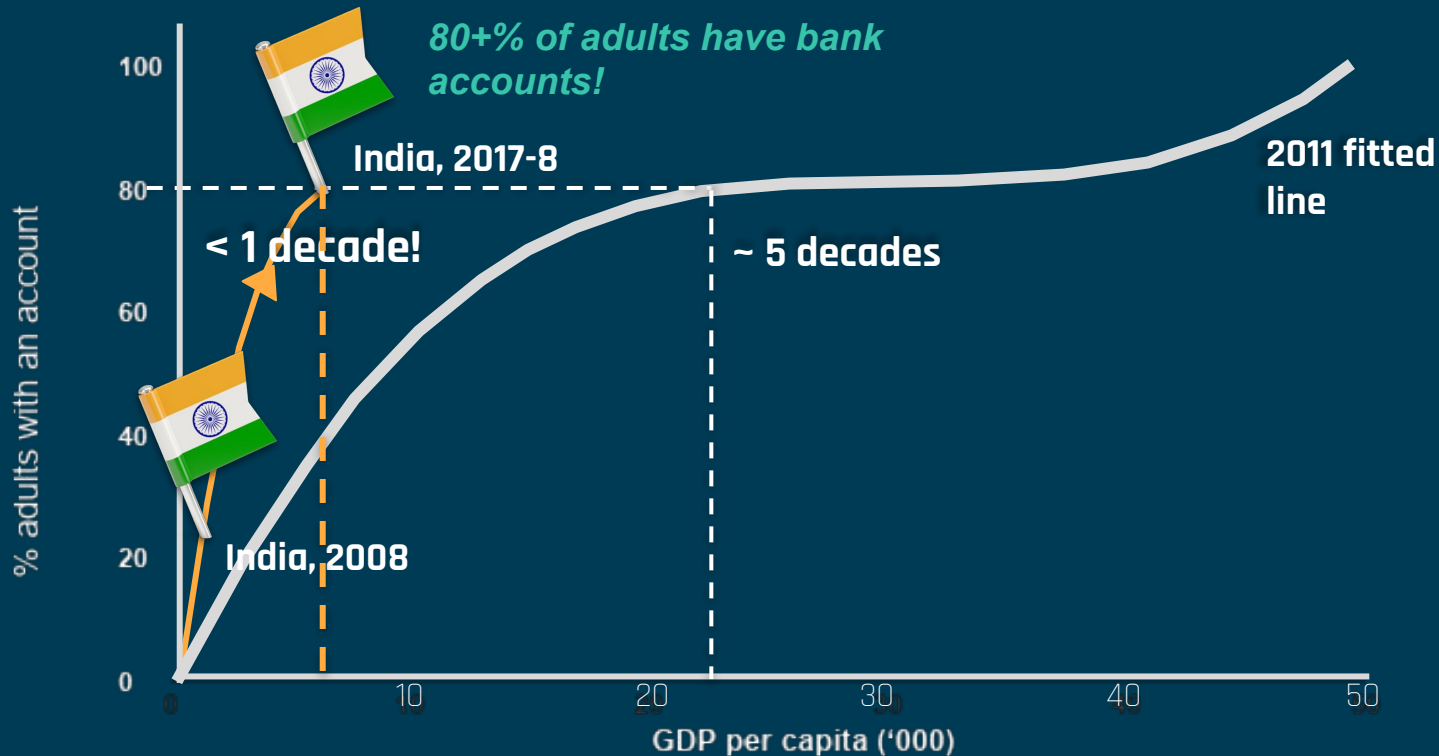**50+B**illion USD / year
20-40% leakages

⊗ Duplicate & Ghost beneficiaries

⊗ Physical cash payments

⊗ Exclusion of beneficiaries

⊗ Delayed /missing reporting

Per 2008 levels, it was estimated it would take India **half a century** to reach banking penetration of 80%

% adults with an account vs GDP per capita ('000)

India, 2008

~5 decades

... but India got there in less than a decade!

80+% of adults have bank accounts!

India, 2017-8

2011 fitted line

< 1 decade!

~ 5 decades

India, 2008

% adults with an account

GDP per capita ('000)

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During last decade
India built the world's largest direct benefit transfer system

310+ federal schemes

600+ state schemes

$322 Bn
transferred directly so far

~860 Mn
people can now receive money digitally

Savings > $27 Bn
Just across key federal schemes

Source: https://dbtbharat.gov.in/ and https://npci.org.in

This acceleration was due to India's Digital Public Infrastructure (DPI)

Physical Infrastructure → **Railways, Roads, Cell Towers, Internet cables**

Digital Infrastructure to catalyse digital services → **Open tech standards & systems** for Identity, Digital Payments, and beyond

Both drive **Private Innovation**

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3 foundational DPI building blocks drove this

Verifiable Identity

Inclusive Payments

Data Sharing & Credentialing
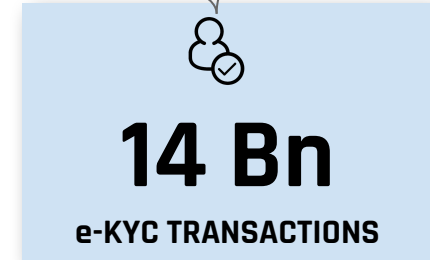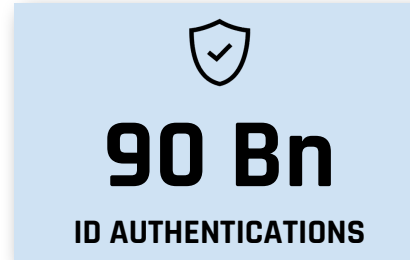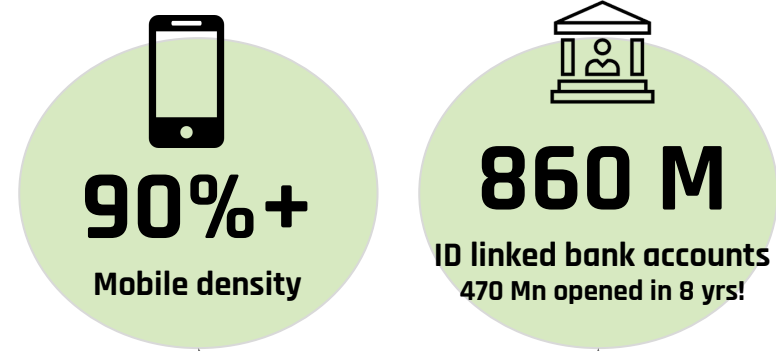
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Identity Infrastructure

Digital ID for both public & private innovation

90%+
Mobile density

860 M
ID linked bank accounts
470 Mn opened in 8 yrs!

90 Bn
ID AUTHENTICATIONS

14 Bn
e-KYC TRANSACTIONS

1.36 Billion
Unique ID Numbers Issued

AADHAAR
Unique digital identity

**Foundational, Designed for innovation
Secure and Privacy Preserving**

Source: https://uidai.gov.in/

Impact of ID for G2P in India

$322 Billion
Transferred

$27 Billion
Savings

1000+
Programs

860 Million
Beneficiaries
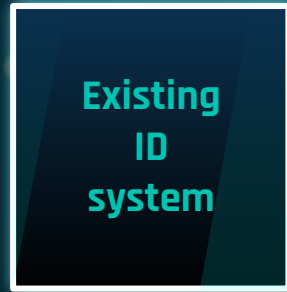
$4.5 B
COVID Disbursals

160+ M
COVID beneficiaries

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Registration in an ID system becomes demand driven if it can be easily used to access services via:

Digital authentication &

Electronic data sharing (eKYC)

Without these, ID is just another database, not DPI that drives public & private innovation!

Existing ID system

>

Verifiable Reusable Identity Building Block

Any Physical ID system
Drivers License
Birth Registry
National ID
Beneficiary Registry

+1 Authentication & eKYC API
Allows an individual to **remotely verify** that they are the holder of the ID *(only with a **mobile**/biometrics)*

+2 eSign API
Allows an individual to sign any document/contract digitally using the ID *(with auth)*
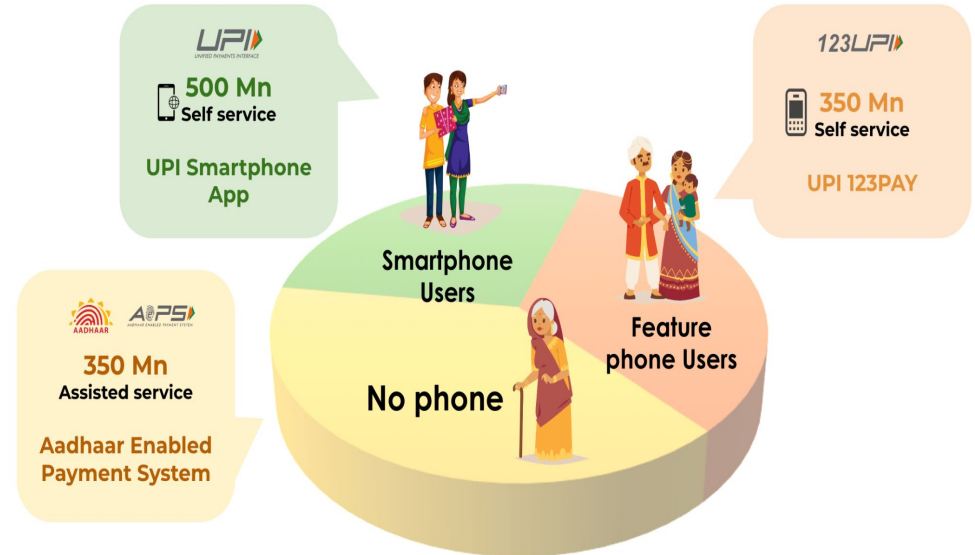
+1 ID Number-Bank ID Mapper
Can allow others to direct G2P funds based on ID

Unified Payment Infrastructure (UPI)

Beyond G2P, a DPI-led transformation, UPI brought

P2P and P2M digital payments to everyone!

UPI
UNIFIED PAYMENTS INTERFACE

500 Mn Self service

UPI Smartphone App

123UPI

350 Mn Self service

UPI 123PAY

Smartphone Users

Feature phone Users

AADHAAR   AePS
AADHAAR ENABLED PAYMENT SYSTEM

350 Mn Assisted service

Aadhaar Enabled Payment System

No phone

UPI growth driven by open ecosystem
~350 banks/wallets, 60+ apps, 22 languages, 50+ million merchants!

WHO LEADS REAL-TIME PAYMENTS

Comparing the **number** of real-time payment transactions of top 10 countries

25.5 Bn — IND
15.7 Bn — CHN
6.0 Bn — KOR
5.2 Bn — THA
2.8 Bn — GBR
1.9 Bn — NGA
1.7 Bn — JPN
1.3 Bn — BRA
1.2 Bn
0.9 Bn

India had more number of real time transactions than that of China, US and UK **combined.**

Location:

FINSHOTS
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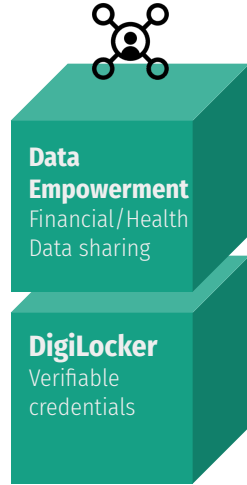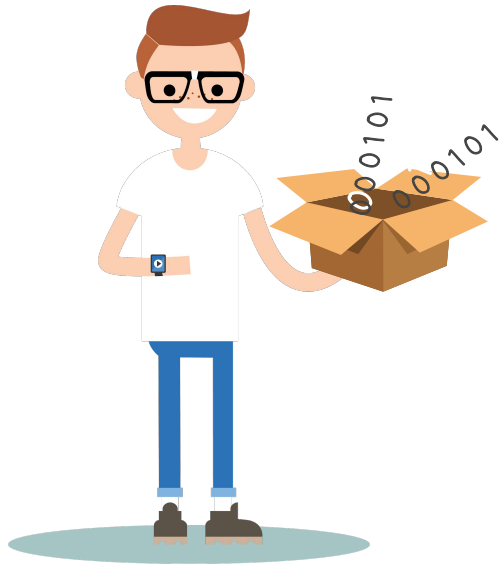**Source:** Economist Intelligence Unit, ACI Worldwide

finshots.in
joinditto.in

BUSINESS

UPI Breaks All Record: Annual Transactions Cross $1 Trillion Mark With 102% Growth In 1 Year!

By Shreva Bose — Last updated **Apr 2, 2022**

Data Empowerment
Financial/Health Data sharing

DigiLocker
Verifiable credentials

Digital Public Infrastructure for
Digital Assets

Let people **use their data** to build trust & **access digital services**

Digilocker allows public/private systems to quickly convert their paper certificates to digitally verifiable credentials

ID Docs

Tax returns

Vaccine Certs

Education/Skill Certificates

Unified Learner Passport

Business Licenses/Reg

155 Mn+

Users showing documents to access services

6 Bn+

Tamper proof digital credentials/docs Accessible by public/private parties with user consent in machine readable form

Existing Certificate system

Verifiable Credential Building Block

Any Paper Certificate

Birth/Death
Marriage
Business registration/license
Health (Vaccine!)
Education (School or Skilling)
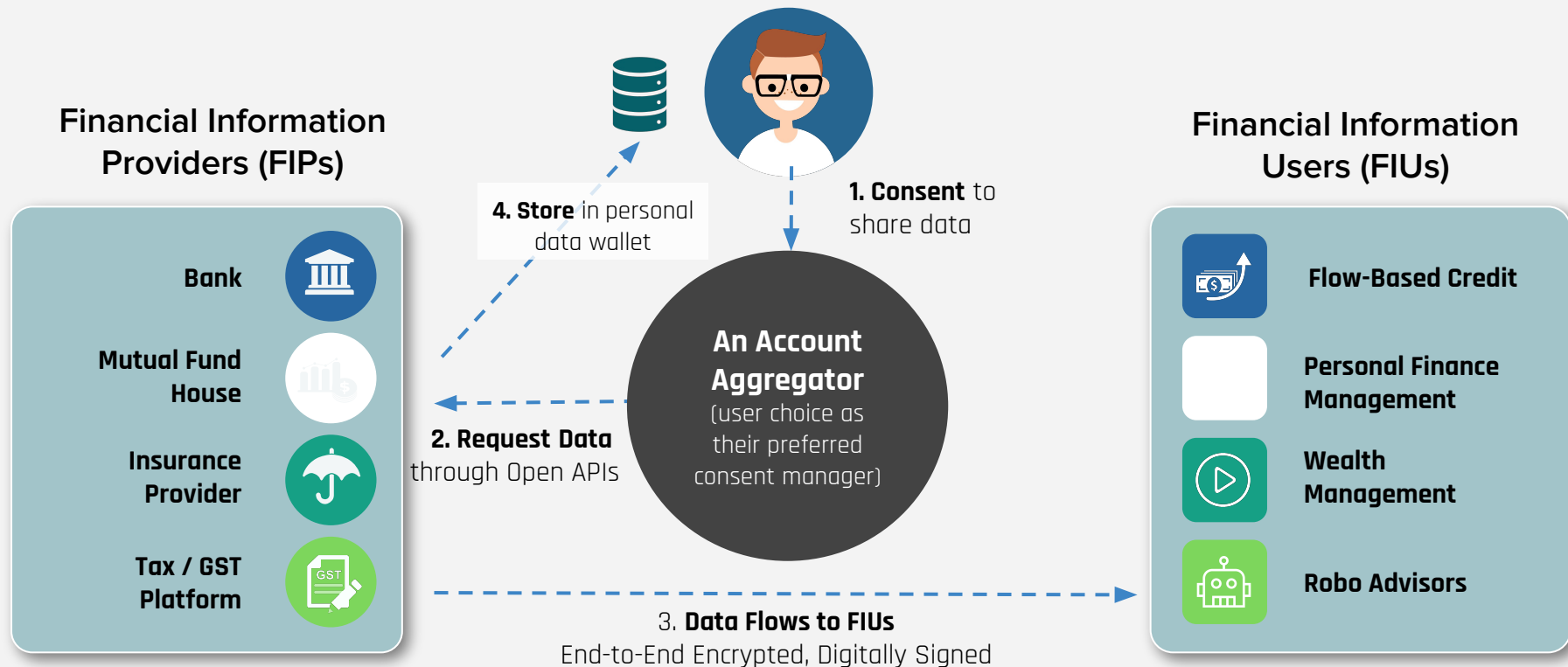Employment/Job

+1 Verifiable QR Code

Allows a **public/private player** to verify ID using a QR code with **machine readable data** + **digital signature**

+1 eLocker

System for managing digital certificates/credentials

India's **Account Aggregator** network is a unified way to let individuals control their financial data, no matter who has it.

Same underlined decentralized, open protocol driven framework is being deployed in healthcare and other domains

Financial Information Providers (FIPs)

- Bank
- Mutual Fund House
- Insurance Provider
- Tax / GST Platform

4. Store in personal data wallet

1. Consent to share data

An Account Aggregator
(user choice as their preferred consent manager)

2. Request Data through Open APIs

3. **Data Flows to FIUs**
End-to-End Encrypted, Digitally Signed

Financial Information Users (FIUs)

- Flow-Based Credit
- Personal Finance Management
- Wealth Management
- Robo Advisors

Combining these DPI 'blocks':

Aadhar eKYC + **UPI** + **AA Data** + **Aadhaar eSign**
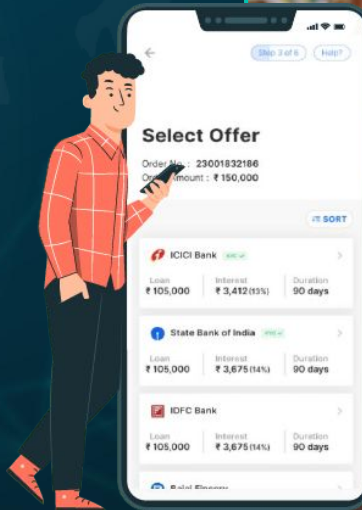
enabled access to a:

₹160 loan ($2)

disbursed within
5-10 mins via mobile
to be repaid in **42 days**

All Govt Approach
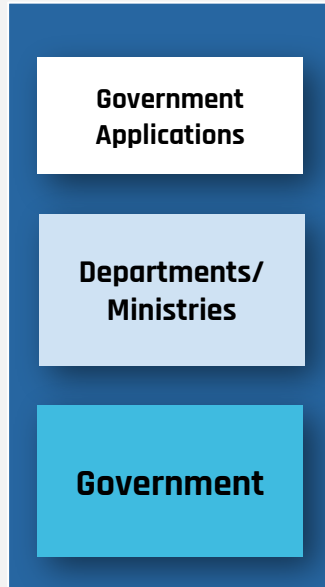
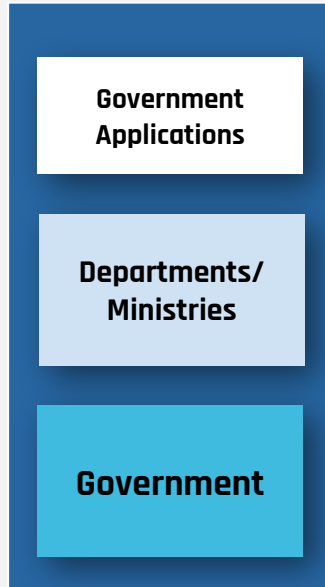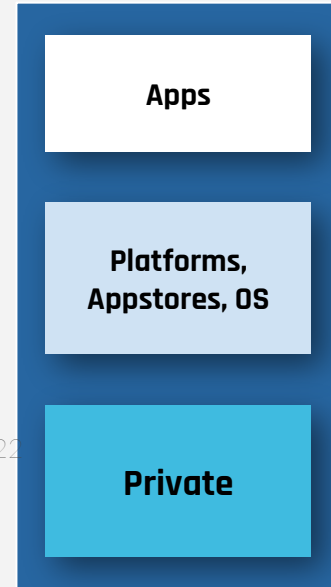*Single Provider*
Slow Innovation

Government
Applications

Departments/
Ministries

Government

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All Govt Approach

Single Provider
Slow Innovation

Government Applications
Departments/ Ministries
Government

All Private Approach

Lack of interoperability
Lack of competition

Apps
Platforms, Appstores, OS
Private

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All Govt Approach

*Single Provider
Slow Innovation*

Government Applications

Departments/ Ministries
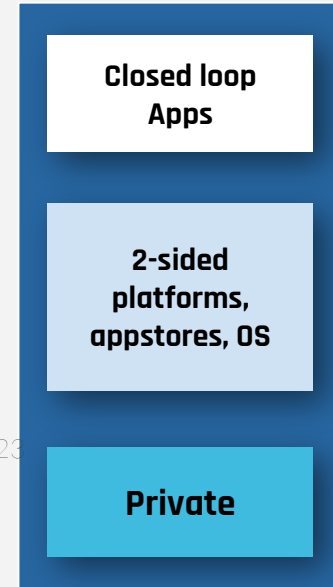
Government
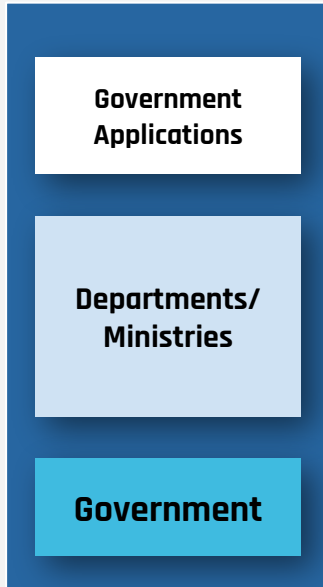
DPI Approach

Addresses diversity & choice
Encourages Innovation & competition,
Ensures openness and sovereignty

Diverse applications and market Innovation

Interoperable DPI
(open APIs/protocols, shared platforms and enabling policies)

Open DPG Communities

Government / Regulators

All Private Approach

*Lack of interoperability
Lack of competition*

Closed loop Apps

2-sided platforms, appstores, OS
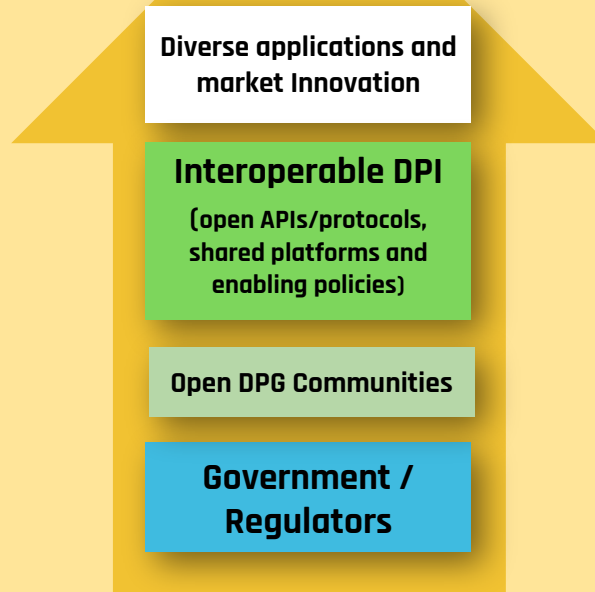
Private

Accelerating formalization via open market innovation
and creating an inclusive and equitable digital economy

Friction Reduction

Reduces cost of doing business, and expands markets

Increased Trust

Digital & portable attestations, verifiable claims

Compliance

Make it easier to comply through automation

Access to learning

Access to healthcare

Access to products & services

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Thank you!

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