A case for interoperability *beyond* digital fiscal operations

Is there a role for Ministries of Finance in DPI?

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How to begin connecting financial data across ministries...

...to articulate what's going on in fiscal operations?

This is not a unique MoF problem
Every department and agency is digitizing in siloes

Image by David Eaves

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We are creating digital monoliths

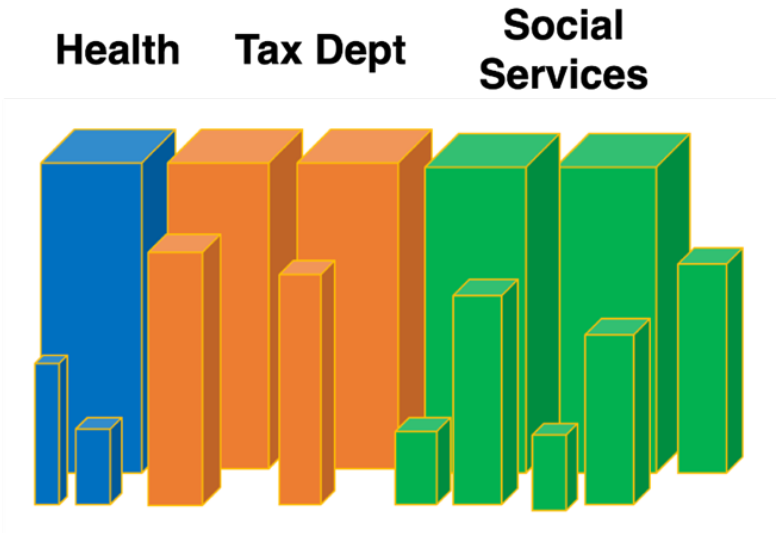

Image by David Eaves

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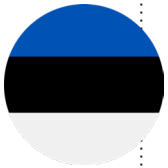
Cash transfers during COVID

In the US, only 23-34% of the $800B Paycheck Protection Program to save jobs went to the target population.

Across 85 developing countries, those that had elements of DPI (Digital databases and trusted data sharing) in place reached **over 3 times more beneficiaries** with COVID response.

Emerging evidence shows that countries that used digital ID and digital databases for delivery of these programs were able to **cover 39 percent more beneficiaries** than those that did not or were unable to.

Reducing human intermediaries and corruption



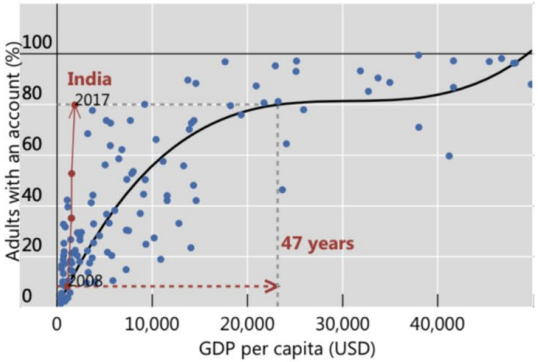
Claimed 40% reduction of human intermediaries associated with Data Exchange

Smartcards in Andhra Pradesh and ABBA/reconciliation in Jharkhand **reduced leakage**. But in the first case, the benefits of reduced leakage were passed on to the beneficiaries in terms of more money received (displaced from corrupt intermediaries), while there were no savings with the government.

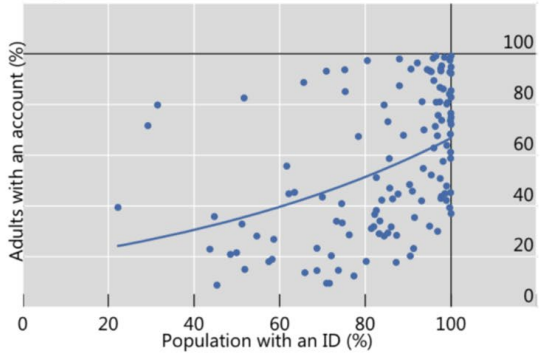
Increase in bank account penetration

Leapfrogging traditional development processes — Graph 1

Positive relation between GDP per capita and adults with a bank account[1] in 2011



Positive relation between having a bank account[1] and having an ID in 2017[2]



[1] Bank account held by people aged 15 and older. Data on adults with an account in 2008 were not available, therefore the graph assumes India to be on the fitted line. GDP per capita restricted to $50,000 to remove outliers and expressed in 2011 USD values. [2] Due to data constraints, data in the right-hand panel are displayed for 2017 instead of 2011.

Sources: A Demirgüç-Kunt, L Klapper, D Singer, S Ansar and J Hess, "The Global Findex Database 2017: measuring financial inclusion and the fintech revolution", World Bank Group, 2018; IMF, *World Economic Outlook*, October 2019; World Bank Group, *Global Findex Database*; World Bank Group, *Identification For Development (ID4D) Global Dataset*.

A 2019 Bank of International Settlements report found that India's Aadhaar ID, combined with e-KYC capabilities and a financial inclusion policy combined enabled an **increase in bank accounts in nine years that would have taken 47 years along a typical development trajectory.**

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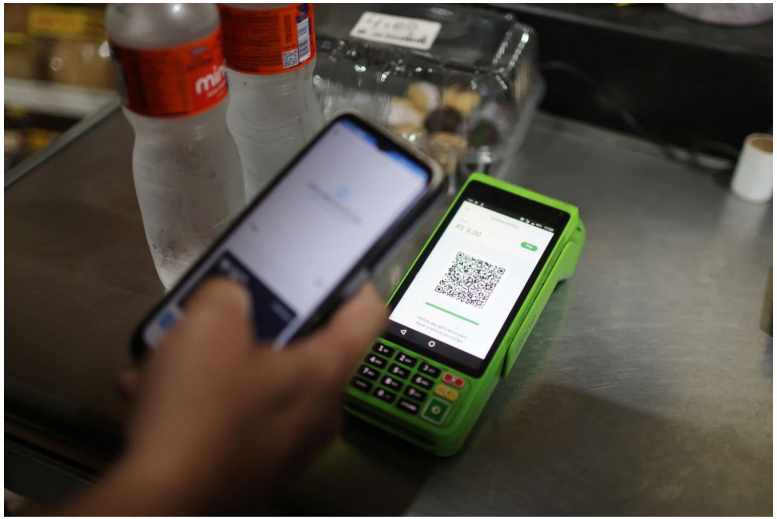
Savings with fast payments



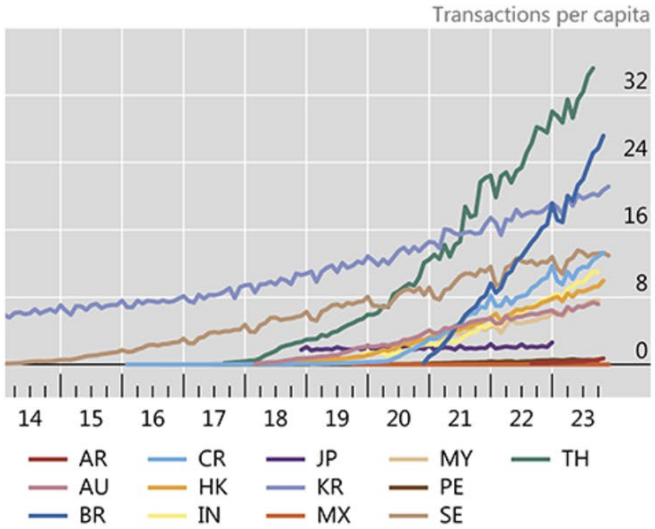
In retail, **in-person cash transactions dropped 26%** between 2018 and 2023, with PIX gaining traction across sectors.

The widespread adoption of real-time payments resulted in estimated cost savings of **$US5.7 billion** for businesses and consumers in 2021, which helped unlock $US5.5 billion of additional economic output (0.34% of the country's GDP).

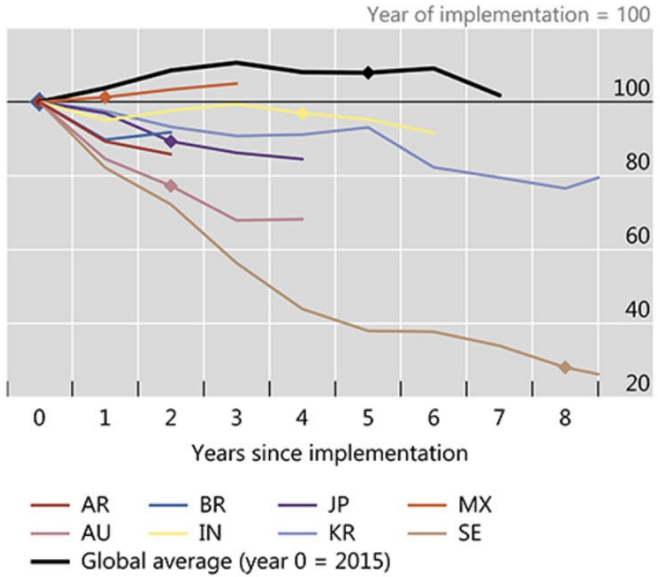
Cash Circulation

Fast payments are rising rapidly, while cash in circulation is falling — Graph 1

A. The volume of fast payment transactions has grown rapidly[1]



B. Cash in circulation has declined in many jurisdictions[2]



Frost, J., Koo Wilkens, P., Kosse, A., Shreeti, V., & Velásquez, C. (2024). *Fast payments: design and adoption.* BIS Quarterly Review.

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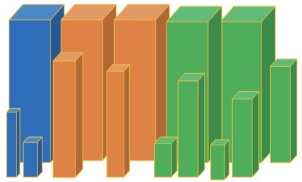
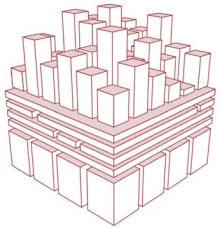
There is a different approach to digital transformation emerging… The Sovereign Stacks

Traditional digitization



- Vertical interoperability
- Modernization and efficiency in each department
- State as a problem solver
- Driver: operational efficiency and public services

Sovereign Stack



- Vertical and horizontal interoperability (DPI-enabled)
- Ecosystem of actors, spillover and market-shaping effects
- State as a problem solver and enabler of a wider ecosystem
- Driver: inclusive economic development, fiscal constraints, reducing rent extraction and sovereignty

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Digital Public Infrastructures are key enablers of the Sovereign Stacks, as "shared means to many ends"

Data Exchange

DigiLocker
Your documents anytime, anywhere

X-ROAD

Authentication

AADHAAR

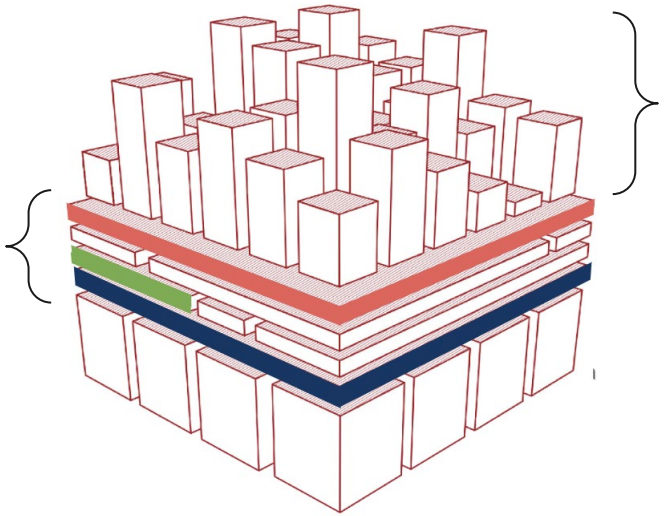
SingPass

Payments

pix
powered by Banco Central

UPI
UNIFIED PAYMENTS INTERFACE

Shared Means...



...To Many Ends

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Horizontal DPI components, as infrastructure, have the potential to amplify economic effects

The DPI's economic properties are associated with potential for amplified economic value

Three Economic Properties of DPI

1. **standardization** can reduce transaction costs, generating efficiencies and helping with information asymmetries.
2. **interoperability** beyond immediate applications can generate spillovers;
3. **high potential for reuse** due to a relatively low marginal cost can enable combinatorial innovation, shaping markets.

Types of effects	*Examples of effects*
Direct **Static efficiency and consumption**	• Fiscal impacts (savings, tax collection, leakage, etc) • Human intermediaries • Administrative burden
Dynamic **Spillovers and externalities**	• Nonlinear fiscal impacts associated with interoperability • Nonlinear savings from building new solutions • Potential effects on formalization, corruption levels, etc
Market-Shaping **Ecosystem-wide transformative effects**	• Effects on competition • Effects on market creation/ dismantling • Changes in capacity to respond to crises

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DPI is not and will not be a panacea

Safeguards are needed

More evidence and comparative studies are needed

Key Takeaways

- Fragmented digital systems and their costs is not just the problem of MoF
- Strengthening the interoperability *beyond fiscal operations* may create spillovers and broader effects on the economy than a traditional digitization approach
- Spillover and market shaping effects might go in undesirable directions - we must unsure right governance, safeguards, and preconditions

MoF, with their budgetary powers, can shape government capacity and amplify economic effects at societal scale.

There is a big opportunity and *a need* for MoF protagonism.

Thank you

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We understand there are a number of constraints

Operational constraints

- **High Initial and Regulatory Costs:** DPI initiatives require substantial initial investment, regulatory compliance costs, and cybersecurity investments, deterring swift adoption.

- **Legislative Hurdles:** Laws may not adapt to accommodate digital transformation, creating gaps in support and security for DPI.

- **Transition Costs from Legacy Systems:** Significant costs associated with updating or replacing legacy systems without clear ROI.

- **Skills and Expertise Gaps:** Limited availability of technical experts.

- **Variation in Digital Maturity:** Different levels of digital readiness across government entities, complicate unified DPI adoption.

- **Unclear Accountability for Shared Services:** Uncertainty around the responsibility for shared DPI services, affecting service quality and continuity.

- **Single-Point Cyber Attack Risk:** DPI systems are susceptible to cyber threats, with concerns about the potential risks of a single-point failure that could compromise extensive data and services.

- **Importance of Business Process Reengineering (BPR) in Digitalization:** Effective DPI requires not just digitalization but also reengineering of business processes.

Relational constraints

- **Political Resistance to DPI Adoption:** Many agencies perceive DPI as a threat to their existing operations.

- **Turf Wars and Ownership Issues:** Lack of clarity around DPI leadership within government, leading to fragmentation.

- **Inadequate Incentives and Accountability:** Current structures may discourage accountability, with negative consequences like hiring ineffective consultants without repercussions.

- **Capacity Disparity Across Agencies:** Varied levels of digital maturity across government departments, causing a lack of synchronization and capacity.

- **Interdepartmental Challenges:** A significant barrier to DPI effectiveness is the lack of interdepartmental coordination.

- **Federal Structures and Decentralization:** Federal systems with distinct agency control over budgets complicate centralized DPI implementation.

- **Trust and Data Privacy Concerns:** Reluctance to share data across agencies due to privacy concerns, distrust, and lack of a unified data usage policy.

- **Political Economy Factors:** The sensitive nature of some DPI efforts, such as data exchange, workforce reduction, and control over budget allocations, presents significant challenges.

Tell us which we have forgotten

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We are now going to have two moments of discussion

30 min: Understanding value proposition and how technology is funded

30 min: Exploring potential roles for Mof

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Part 1: Value proposition and technology funding

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Time to Discuss!

15 Min

1. How big does the economic impact have to be for the Ministry of Finance to care about a shared digital resources approach? (ex: 1% reduction in administrative cost of government, 0.5% increase in GDP?)

2. If you had to fund DPI through public expenditure, which budget line item would it come under? Who is responsible for that budget line?

Part 2: Exploring potential roles for MoF

Time to Discuss!

20 Min

1. Is there any other domain in which MoF are looking for savings across ministries? Which levers are used?

2. Which roles can the MoF play in steering DPI? (We listed three potential roles below as inspiration)

3 potential roles

- Establishing a committee for digital expenditure with special veto powers to block implementation of duplicated services/ IT systems
- Defining standards (and/or protocols) for data sharing (beyond financial data)
- Championing investments in DPI initiatives

3. Which other levers, special powers, or roles could the Ministry of Finance create/use to steer DPI adoption? Who could be the champions?

Final reflections

Thank you

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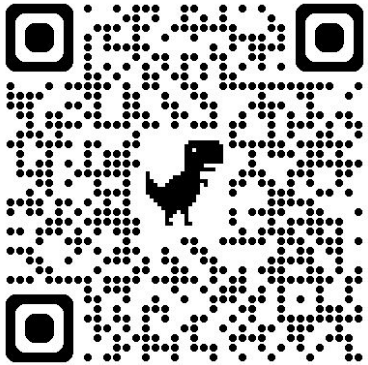

Please reach out if you're interested in learning more or contributing to the project

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Questions on mentimeter

Quiz questions

On a scale of 1-5, how much do you agree with the following sentence: I believe that Ministries of Finance should play a more proactive role in steering DPI adoption (scale strongly disagree - strongly agree)

Q1 - During COVID, what percentage of the cash you sent your citizens do you estimate reached the target beneficiaries? (scale 0-100%)

Q2 - What impact do you believe reduced friction in identity verification could have on bank access? (scale no impact at all - hugely impactful)

Q3 - In your country, how many years do you estimate it would take to get to 80% of banking penetration? (scale 1 year or less - 5 years or more)

Q4 - What percentage of transactions are done in cash in your country? (scale 0-100%)

Q5 - If you could eliminate all MoUs and bespoke software for exchanging data across your government, by what percentage would you reduce your headcount? (scale 0-100%)

Questions on mentimeter

On a scale of 1 to 5, being 5 strongly agree and 1 strongly disagree, please rate the questions below:

- My ministry does not think about technology
- I have an expenditure control specific to technology across departments
- I believe that DPI implementation and adoption have the potential to create a significant economic value for my country

In your opinion, which three of the potential economic impacts of DPI listed below are the most relevant to your country

- Reducing headcount
- Reducing administrative burden for citizens
- Reducing expenditure with IT systems
- Reducing leakage in social programs
- Reducing leakage in social programs
- Improving efficiency in tax collection
- Reducing corruption levels
- Potential increase in financial inclusion
- Improving capacity to respond to crises
- Potential creation of new industries
- Potential effects on competition