Blockchain & Public Finance Management

Key issues and emerging trends

Mark MacDonald, Partner EY
2019

The challenge of modern PFM

The “Holy Grail” of public budgeting, service delivery, and accountability

For all of the innovations in public administration, the ability to understand WHAT we spend our money on, HOW we spend it, and RESULTS delivered in an integrated real-time flow of management information has yet to be achieved

Modern public administration systems are characterized by complex interactions and networks of funders, policy and program managers, and delivery agents that each play a role in delivering public outcomes. The unique attributes of blockchain technology stand to make considerable advancements in end-to-end management of resources, integrated financial and non-financial performance information, reduced administrative cost burden, and establishing a single source of truth for managing public resources

Governments consistently face a fundamental challenge integrating the three most important views of public finances

WHAT IS FUNDING BEING SPENT ON?

PFM acts as a conduit between data silos and provides a single view of the truth for all parties, eliminating the need for reconciliations and providing full clarity into public accounts.

Single source of truth to greatly reduce reporting and assurance costs

HOW AND WHEN IS IT BEING SPENT?

Real time tracking of funds distributed on the Blockchain creates the opportunity to predict inflow and outflow funding cycles while ensuring funding is proportionally spent throughout the fiscal year.

Integrated financial & non-financial reporting to support enhanced analytics and decision making

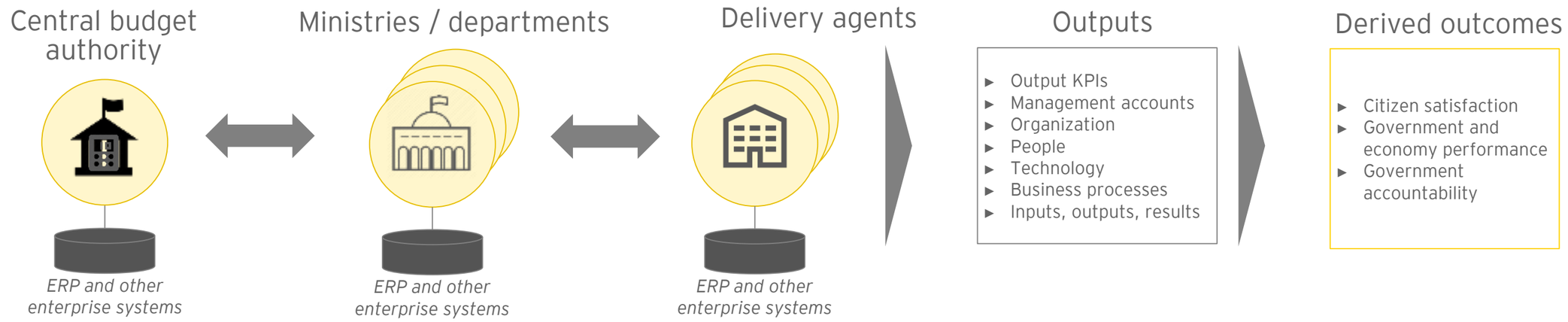
WHAT OUTCOMES ARE BEING ACHIEVED?

Transparency in financial reporting ensures governments are able to accurately gauge expected outcomes of programs and services.

Ability to manage across organizational and system boundaries with low risk and relatively low cost

Blockchain provides an innovative and efficient tool to managing the interface between CBA, program managers and delivery agents by integrating with existing ERP and financial performance management systems

The desire is for information that supports effective decision-making, reduces costs, and improves transparency and accountability …



Suboptimal decision-making

- Currently, there is lack of timely and accurate reporting of outputs and outcomes for effective decision-making
- Aggregated view of outcomes, clients, programs not available to prioritize
- Measure what you can, not what you should

Costly information exchange

- Significant overhead in reconciling and exchanging transactional and reporting information
- Disconnect between public reporting of program performance and management of program performance

Lack of transparency

- Incomplete view of financial and nonfinancial information, of funds allocated against program outputs/outcomes
- Inability to jointly view and reconcile appropriation and management frameworks in near to real-time

The best path forward is one that can:

- Sustain an effective, efficient, secure, and cost-effective solution without the need for costly transformation of core FMIS
- Provide transparency via a single source of truth across the entire chain for real-time decision-making and effective allocation and prioritization of public resources
- Find a mechanism to synchronize and align disparate systems and business processes in driving transparency and accountability

How can we enhance decision-making?

Anything we can do to improve integration provides an opportunity to enhance evidence-based decisions

Allocative efficiency

- Provide elected and non-elected officials (and the public) with ability to assess allocative efficiency based on accurate data and evidence i.e., that the budget accurately reflects and meets citizen demands and provides the desired social outcomes across *all* public services
- Provides decision-makers with evidence to prioritize the optimal allocation of public resources across the major sectors of public service such as Health, Education, Transport, Defense, Human Services, etc.
- "Am I spending the right amount on each priority, given I have many competing priorities?"

Administrative efficiency

- Provide elected and non-elected officials (and the public) with the ability to assess whether organizations and/or programs/services are achieving their intended impact with the optimal consumption of resources (operating and capital)
- Provides decision-makers with evidence to measure resource consumption linked to the provision of outputs and the achievement of outcomes
- "My budget is $x and my objectives are KPI; am I doing the best job possible to maximize KPI given my budget?"

The promise of blockchain

Situations where blockchain is applicable

1. Are you trying to get multiple parties to work together?
2. Do you have trust issues between the parties?
3. Is it important to get a tamper proof record of transactions between the parties?
4. Are we moving something of finite value* around?
5. Does the group benefit from increased transparency & lower cost of information exchange?

* Could be currency, assets, data.

Blockchain is a distributed database and network that maintains a ledger of transactions

Blockchain incorporates a number of key features that make it a powerful, potentially transformative technology.

Secure: Data cannot be changed once it is committed to the system

Efficient: Leverages existing systems and resources

Open: Open sourced and transparent

Scalable: Designed to scale to institutional demands

Synchronized: All activity on a distributed ledger automatically reflected across the network

Smart: Potential for autonomous execution of functions based on predefined conditions

Blockchain can be used to address challenges including:

- Manual processes
- Lack of transparency
- Disorganized data
- Siloed systems
- Operational and security risk

Significant promise for applications of blockchain in government

Blockchain is best suited to situations where we have to deal with interfaces in the exchange of resources and information across organizational boundaries.

- In situations where the exchange of information is important for the discharge of individual and collective responsibility across interfaces between two or more entities
- When the interface boundaries bridge different financial and operational systems under different control
- When attaching nonfinancial objectives and conditions to revenue/expenditure/fixed assets would enhance results
- To enable integrated reporting to the nth level of use in any supply chain or user/delivery chain
- To eliminate or greatly reduce audit-based compliance frameworks
- Secure benefits without having to make costly, risky, major IM/IT system replacements or upgrades

Blockchain won't magically fix a broken business issue, but if your desire is to fix the broken business issue, blockchain can help enable a solution like no other technology that has come before it.

What does this mean for government?

The core function of government is to collect and expend revenue in an efficient, effective manner to deliver public goods.

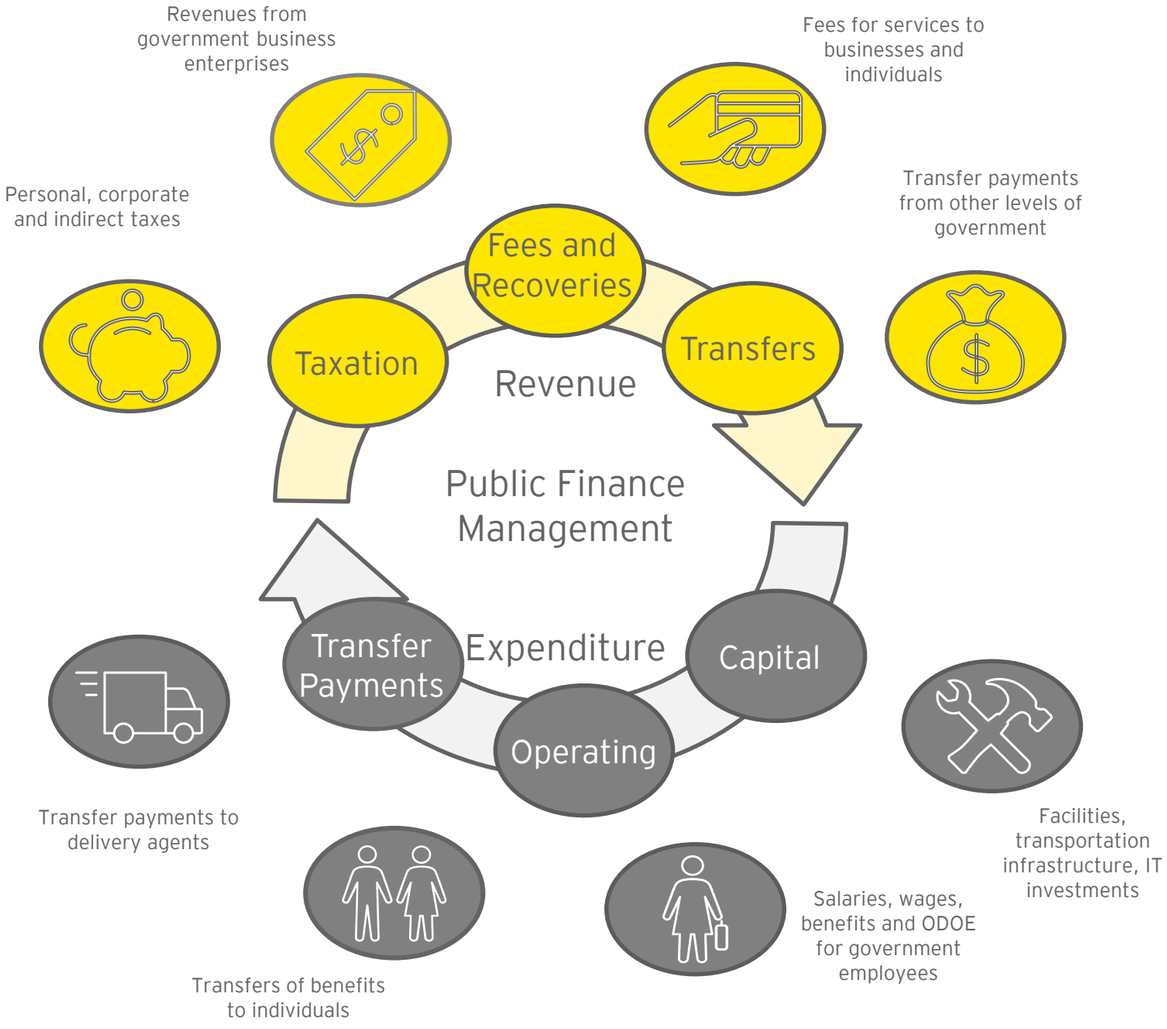
Blockchain can support four key elements of government's core mandate and function:

Expenditure: Granting authority for operating, capital and transfer payment expenditures.
Role of blockchain: Real-time transfer and expenditure of funds, with integrated outcome reporting.

Regulatory: Creating, implementing and enforcing compliance-focused regulation.
Role of blockchain: Automated compliance monitoring and enforcement through smart contracting.

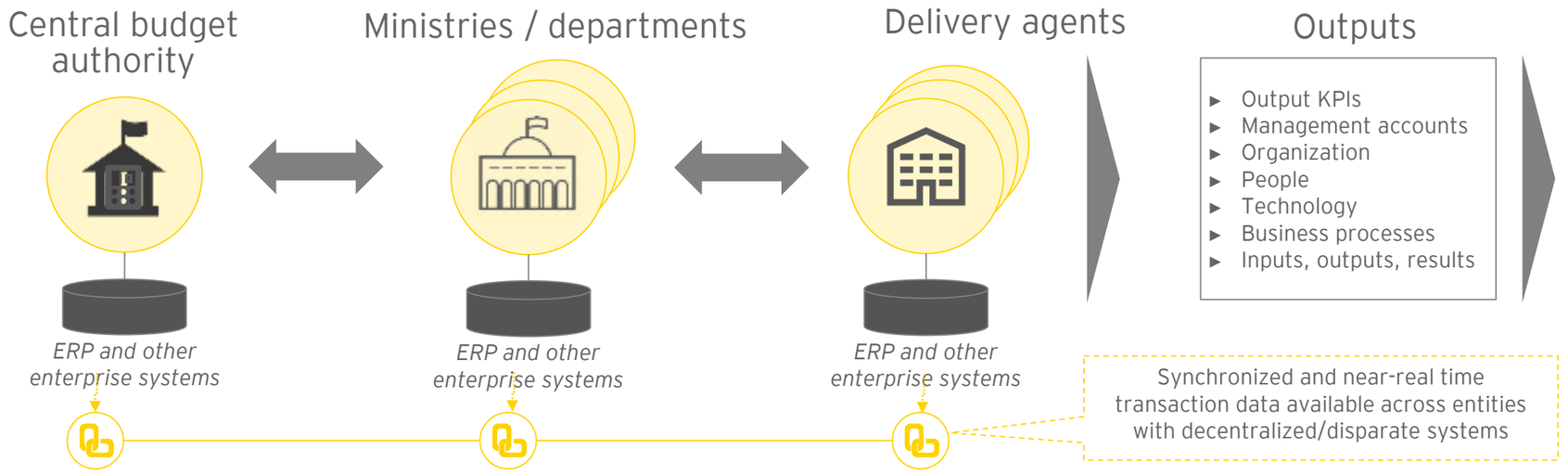
Revenue: Generating revenues through taxation, fees, other non-tax revenues, and transfers from other government entities.
Role of blockchain: Integrated, real-time collection and streamlined revenue administration.

Direct Delivery: Direct delivery of services or funding to individuals, businesses, NGOs, and NFPs.
Role of blockchain: Increased speed, accuracy, and lower compliance costs.



Specific use case

Creating a single source of truth to support more effective day-to-day decisions and lead to better citizen results



Effective decision-making

- Timely and accurate availability of reporting measures for allocative and administrative decision-making
- Ability to integrate strategic budget-level program performance objectives with consumption-level management objectives

Efficient and near-real-time exchange of information

- Transactional and reporting data is synchronized across participants through the blockchain layer
- Reduces direct administrative costs and re-allocation to high-value-add activities

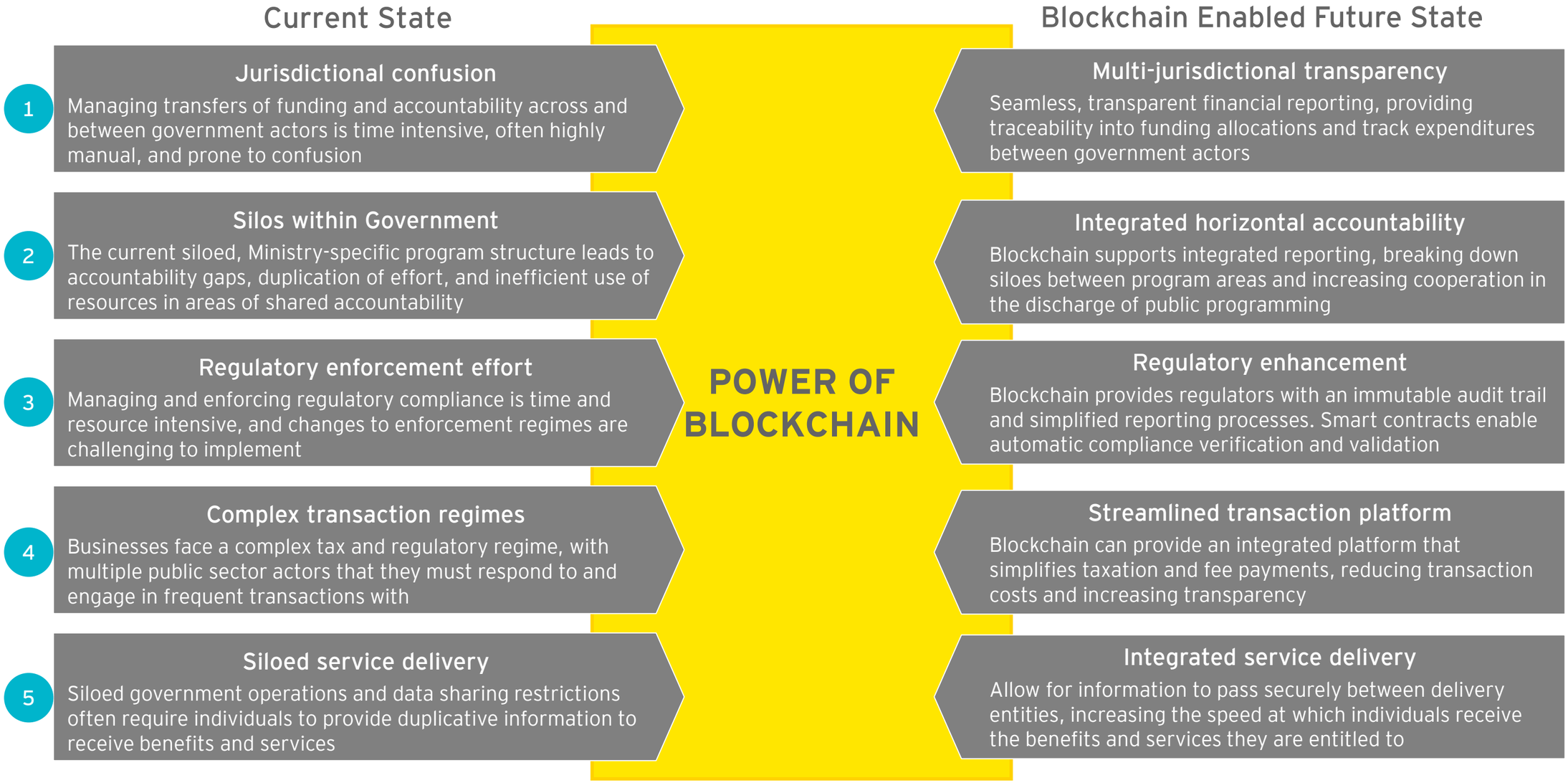
Integrated view of performance along the chain

- Decision-making authority has aggregated view of funds allocated to outputs and outcomes across programs, departments and ministries in a single place and in near real-time

- Reconciliation and consolidation at various interface nodes (e.g., between program authorities and delivery agents)
- Integration of financial and non-financial reporting information
- Improved internal controls including potential use of "smart contracts"
- Opportunity to improve PFM architecture and performance without expensive and risky FMIS transformation

Immediate benefits accrue across the delivery chain

A number of governance and operational challenges in the current state can be solved by blockchain



Discussion