Department of Information And Communications Technology

INTEROPERABILITY & SECURE DATA EXCHANGE PLATFORM DEVELOPMENT FOR WHOLE OF GOVERNMENT

Digital Delivery Workshop 22-24/11/23

'Transforming PNG: Digital Horizon and Public Service Excellence'

APEC Haus, Port Moresby

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OUTLINE

1. Definitions and functional components

2. Issues and Approaches

3. International Best Practices and SDGs

4. PNG Functional context

5. PNG Technology context

6. Policy, Legal framework, Standards

7. Data Exchange Technology

8. Project Update Nov 2023

9. Challenges / Coordination

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DEFINITION AND FUNCTIONAL COMPONENTS

GOVPNG Interoperability and Secure Data Exchange stack (or Information Media BB)
Collection of digital platforms, interconnected and interworking, that enabling standardized sharing of information and services between ministries, departments, agencies, sectors, government levels and countries through data, information systems, legal arrangements, organizational processes and shared values and customs.

Key functional areas includes;

Standards and Protocols Data Standards	Standards and Protocols Communication Protocols	Application Programming Interfaces (APIs)
Data Formats	Semantic Interoperability	Security and Privacy
Data Mapping and Transformation	Interoperability Technology Platform	Governance and Policy
Training & Certification	Institutions and Operations	Legislations and Regulations

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DEFINITIONS

Standards and Protocols

Data Standards: Common data formats and structures that allow different systems to understand and exchange information. Examples include XML, JSON, and HL7 in healthcare.
Communication Protocols: Defined rules for data exchange between systems, ensuring consistency and reliability. Examples include HTTP/HTTPS, SOAP, and REST.

APIs (Application Programming Interfaces):
APIs enable different software applications and systems to communicate and interact with each other. Well-designed APIs define how software components should interact, allowing for seamless integration.

Data Formats:
Commonly agreed-upon data formats facilitate the exchange of information. For example, using standard date formats, units of measurement, and character encodings ensures that data is interpreted correctly across systems.

DEFINITIONS

Semantic Interoperability:
This involves using standardized vocabularies, ontologies, and metadata to accurately interpret and use the exchanged information.

Security and Privacy:
Implementing security measures to protect data during transit and at rest is critical for interoperability. Privacy considerations, such as compliance with regulations like GDPR, also play a crucial role.

Data Mapping and Transformation:
Systems may use different data models or structures. Data mapping and transformation tools help convert data from one format to another, ensuring compatibility between systems.

Interoperability Technology Platform:
Middleware software and systems acting as an intermediary layer between different systems, facilitating communication and data exchange. It can include message brokers, enterprise service buses (ESBs), and integration platforms.

DEFINITIONS

Governance and Policy:
Establishing governance frameworks and policies helps define how systems should interact. This includes guidelines on data sharing, security practices, and compliance requirements.

Testing and Certification:
Rigorous testing of interoperability between systems is essential. Certification processes ensure that systems adhere to specified standards and can reliably work together.

User Training and Support:
End-users need to understand how to use interoperable systems effectively. Training and support mechanisms play a crucial role in ensuring that users can navigate and leverage integrated systems seamlessly.

ISSUES AND APPROACHES

Challenges faced by government

- No government leadership and management.
- Data not shared.
- Data breached.
- Duplication.
- High Total Cost of ownership.
- Inaccurate data.

Approaches
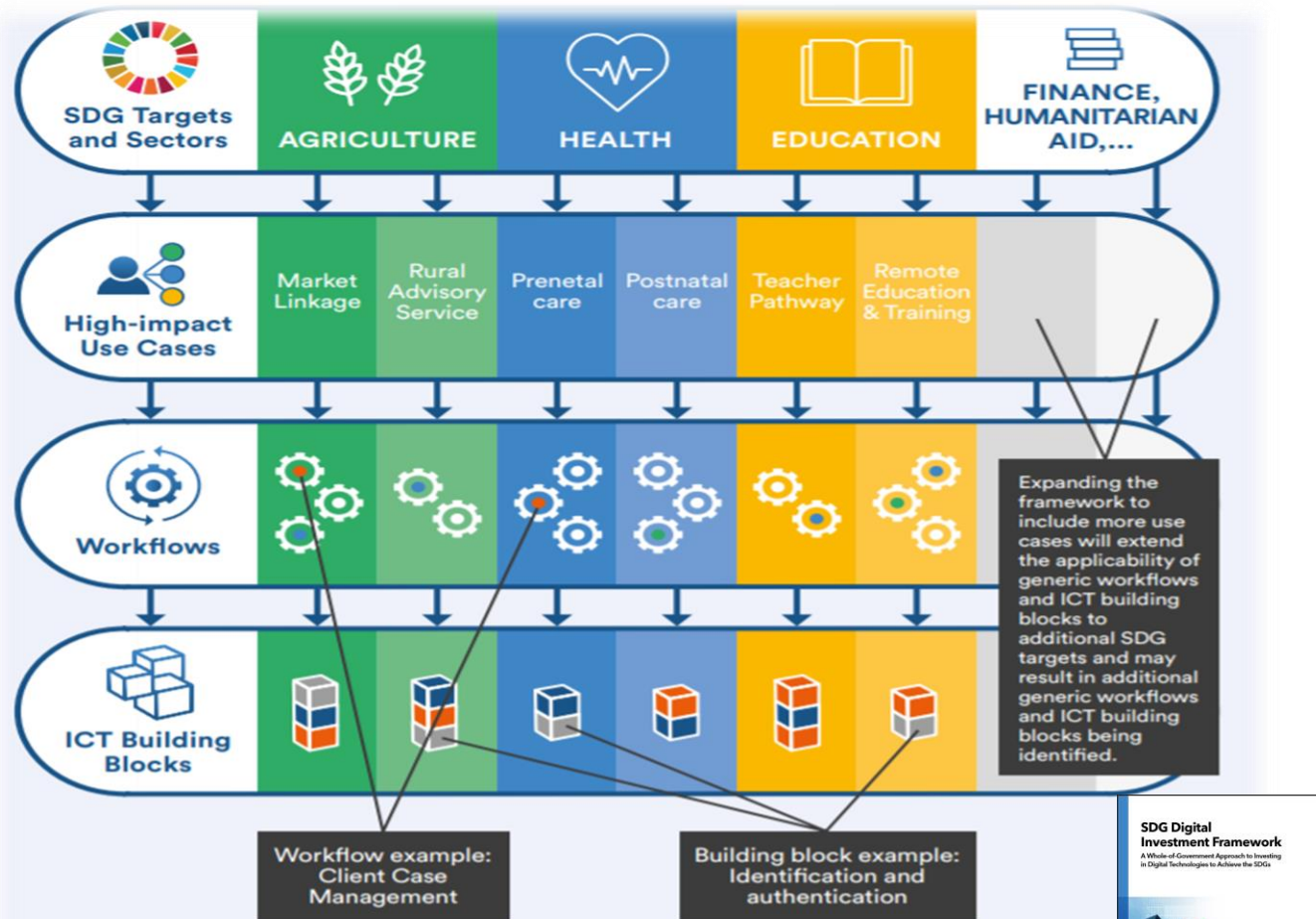
- Policy, legal, standard, operational framework inclusive approach.
- Government leadership
- Whole of Government, integrated approach.
- Data sharing by design
- Data security by design

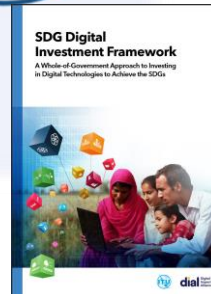Policy, Standards, Legislation

Governance, Management, Operations

Technology Implementation
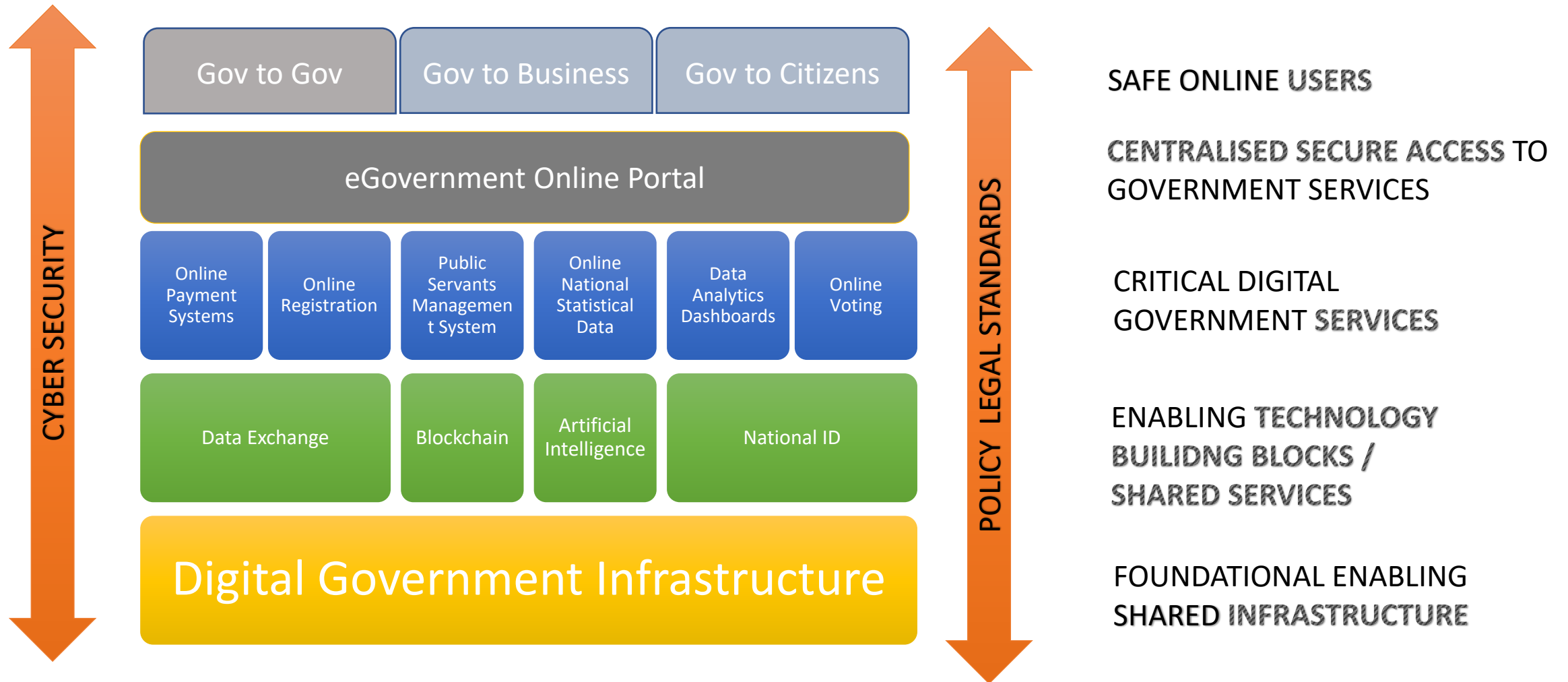
INTERNATIONAL BEST PRACTICES AND SDGs

Ref: ITU DIAL SDG Digital Investment Framework 2019

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- ▶ Whole of Government, integrated approach.

- ▶ Reusable building block, scalable across all sectors, value for money.

- ▶ Open standard roadmap, avoid vendor locking

- ▶ Lower Total Cost of Ownership, Sustainability.

- ▶ Long term capacity building through partners

PNG WoG FUNCTIONAL CONTEXT

CYBER SECURITY

POLICY LEGAL STANDARDS

Gov to Gov	Gov to Business	Gov to Citizens

eGovernment Online Portal

Online Payment Systems	Online Registration	Public Servants Management System	Online National Statistical Data	Data Analytics Dashboards	Online Voting

Data Exchange	Blockchain	Artificial Intelligence	National ID

Digital Government Infrastructure

SAFE ONLINE USERS

CENTRALISED SECURE ACCESS TO GOVERNMENT SERVICES

CRITICAL DIGITAL GOVERNMENT SERVICES

ENABLING TECHNOLOGY BUILIDNG BLOCKS / SHARED SERVICES

FOUNDATIONAL ENABLING SHARED INFRASTRUCTURE

PNG TECHNOLOGY CONTEXT

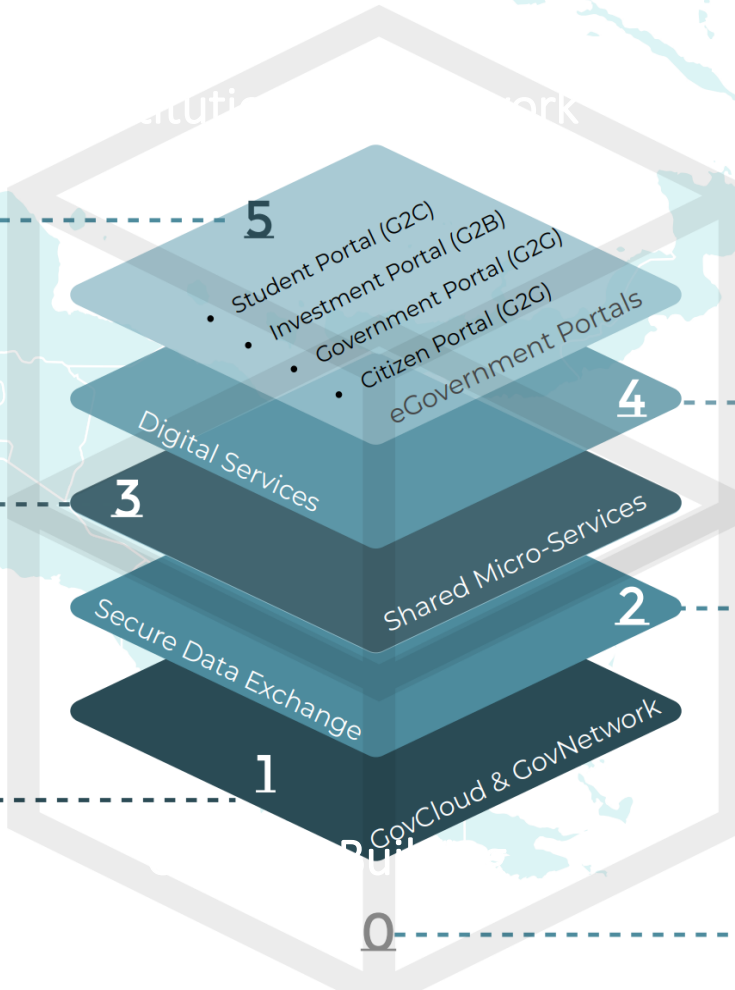CENTRALISED SECURE ACCESS TO GOVERNMENT SERVICES

EGOVERNMENT PORTALS

CRITICAL DIGITAL GOVERNMENT SERVICES

SHARED MICRO SERVICES

HOSTING AND COMMS INFRASTRUCTURE

FOUNDATIONAL ENABLING INFRASTRUCTURE

CRITICAL DIGITAL GOVERNMENT SERVICES

5

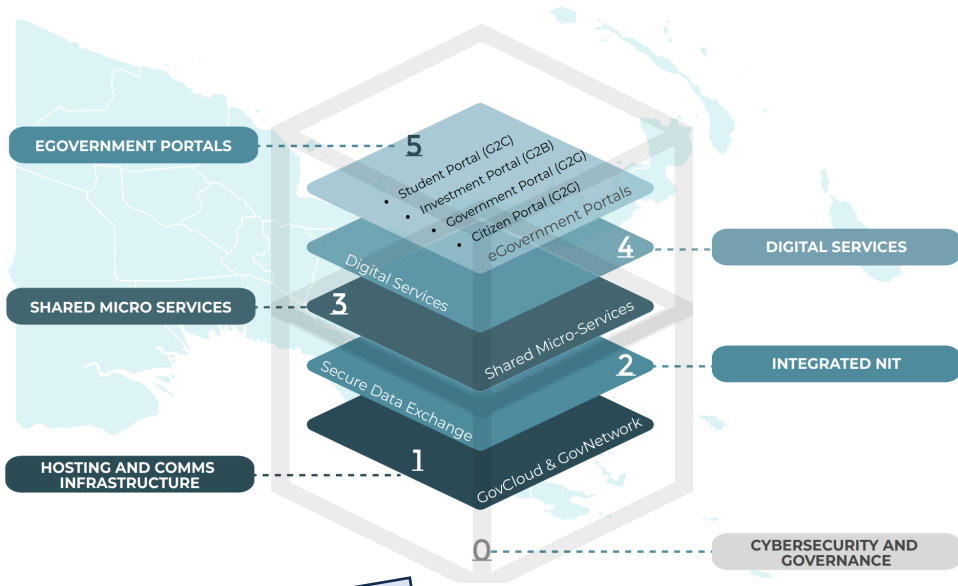- Student Portal (G2C)
- Investment Portal (G2B)
- Government Portal (G2G)
- Citizen Portal (G2G)

eGovernment Portals

Digital Services

DIGITAL SERVICES

4

3

ENABLING TECHNOLOGY BUILIDNG BLOCK

Shared Micro-Services

INTEGRATED NIT

2

Secure Data Exchange

GovCloud & GovNetwork

1

SAFE ONLINE USERS

CYBERSECURITY AND GOVERNANCE

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GOVPNG TECH STACK - ITU GOVSTACK ALIGNMENT

GOVPNG Technology Stack 2023

Layers:
- 5 — EGOVERNMENT PORTALS
  - Student Portal (G2C)
  - Investment Portal (G2B)
  - Government Portal (G2G)
  - Citizen Portal (G2G)
  - eGovernment Portals
- 4 — DIGITAL SERVICES (Digital Services)
- 3 — SHARED MICRO SERVICES (Shared Micro-Services)
- 2 — INTEGRATED NIT (Secure Data Exchange)
- 1 — HOSTING AND COMMS INFRASTRUCTURE (GovCloud & GovNetwork)
- 0 — CYBERSECURITY AND GOVERNANCE

ITU GovStack Specification
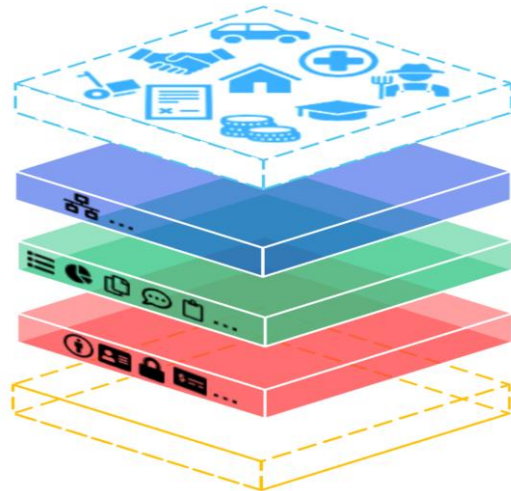
▶ Whole of Government, integrated approach.

▶ Reusable building block, scalable across all sectors, value for money.

▶ Open standard roadmap, avoid vendor lock-in

▶ Lower Total Cost of Ownership to government.

▶ Long term capacity building through partnership

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POLICY, LEGAL FRAMEWORK, STANDARDS

INTEROPERABILITY & DATA SHARING PROVISIONS

▶ **Digital Government Act 2022**, effective 08 August 2023
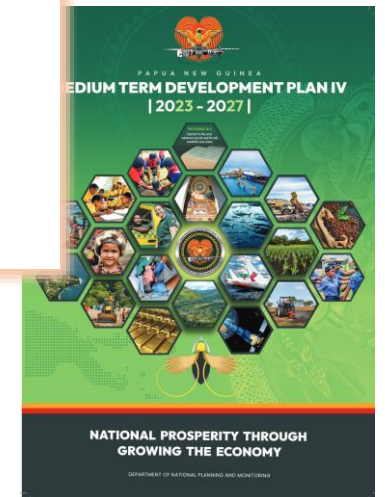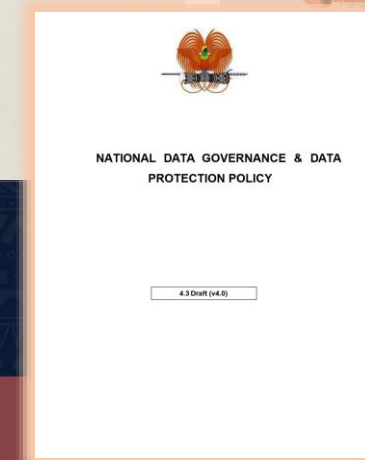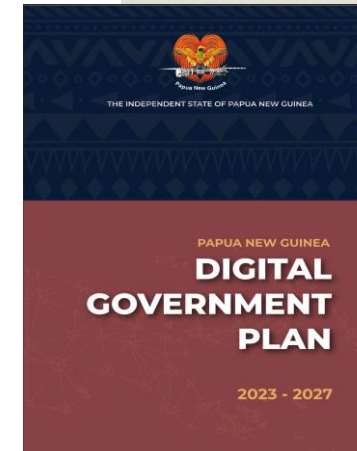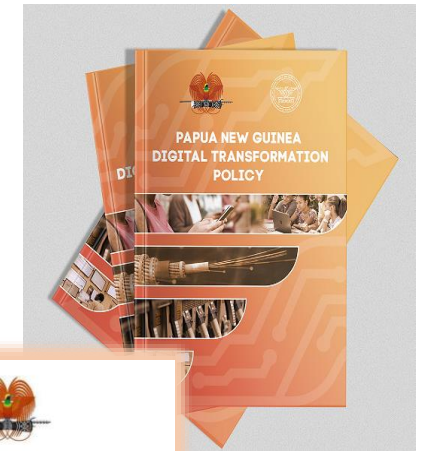
Centralized Electronic Data Repository (Sec 28)

Access to Central Electronic Data Repository (Sec 29)

Secured Data Exchange Platform (Sec 31)

Electronic Data (Sec 44 – Sec 53)

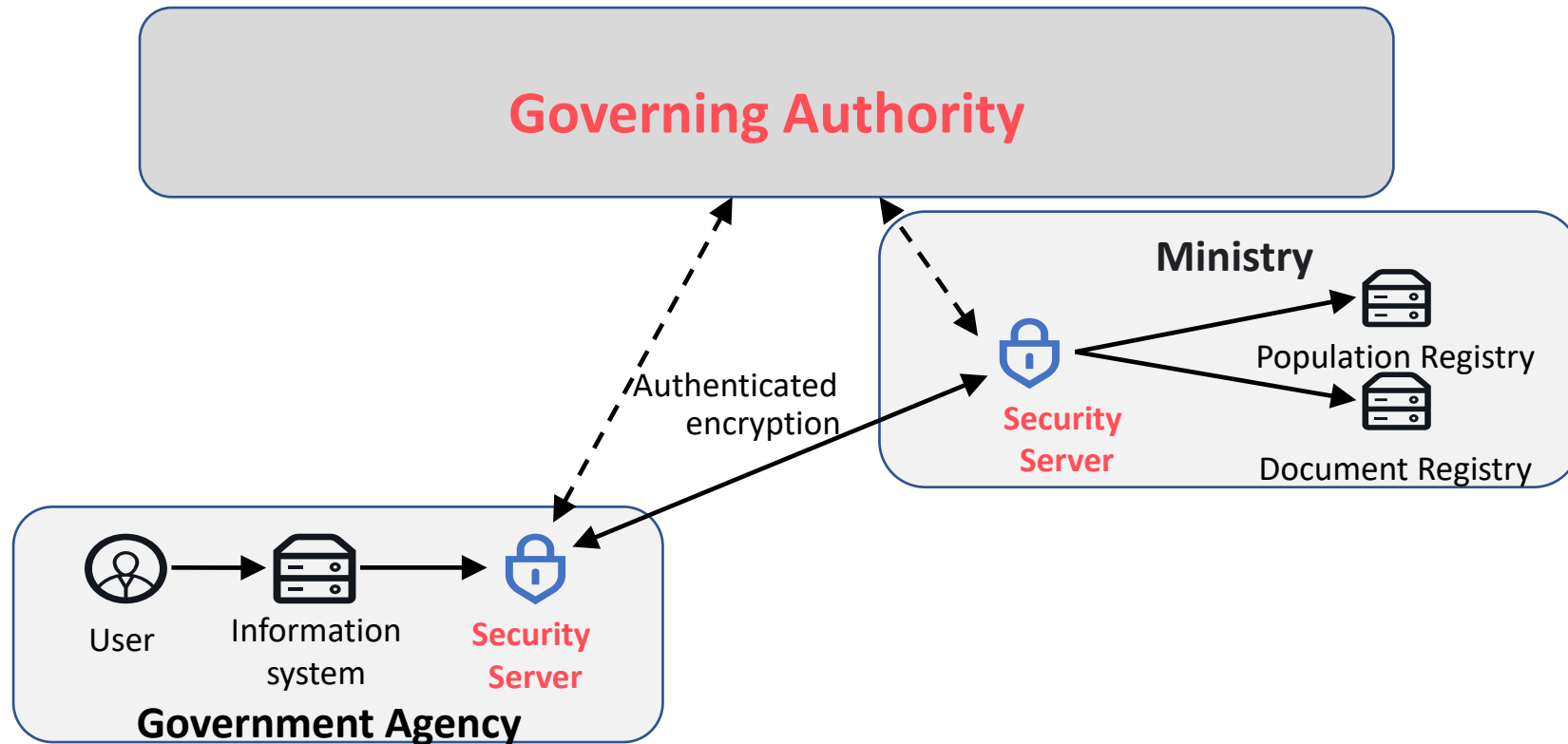▶ **Policy, Standards and Legislation**

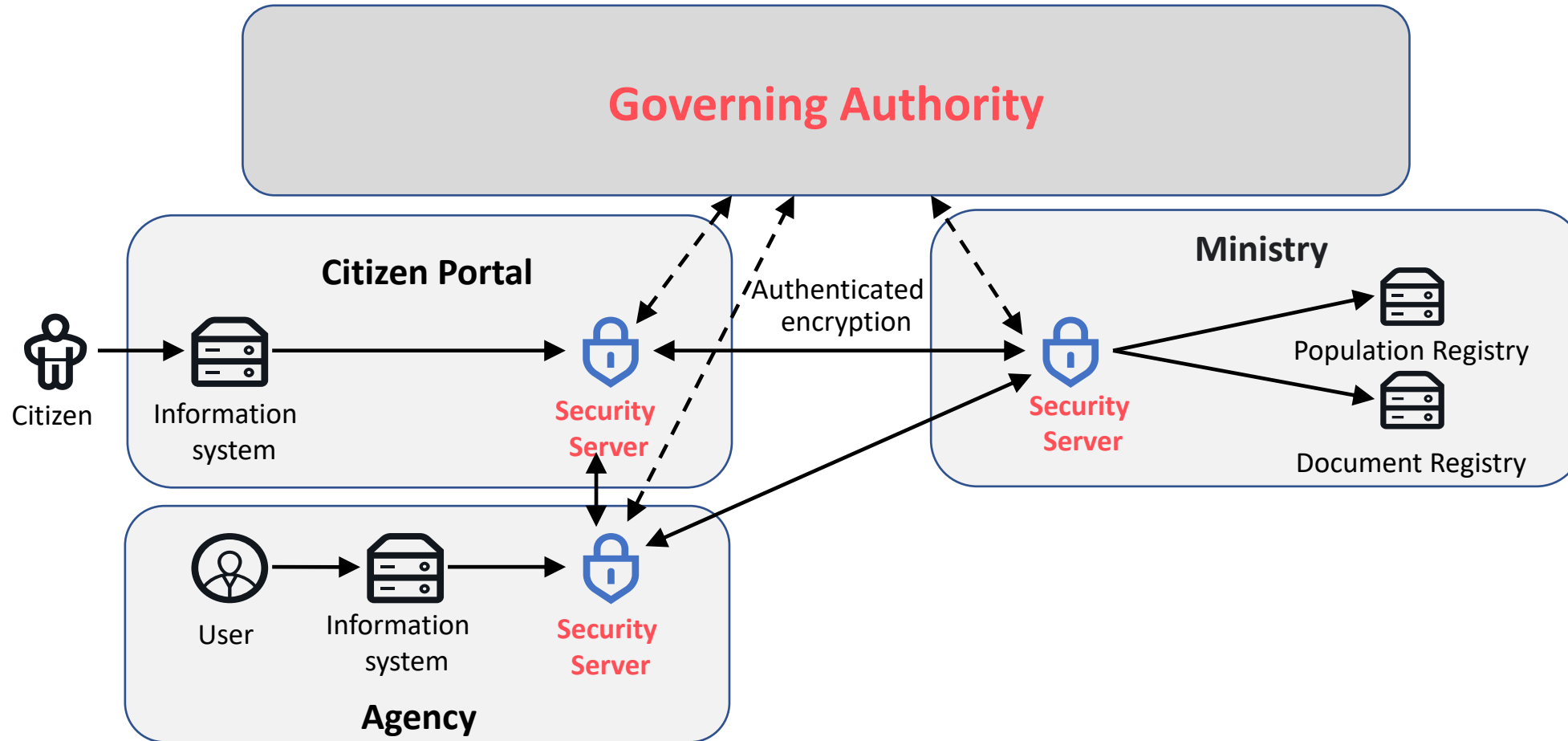▶ **Governance, Management, Operations**

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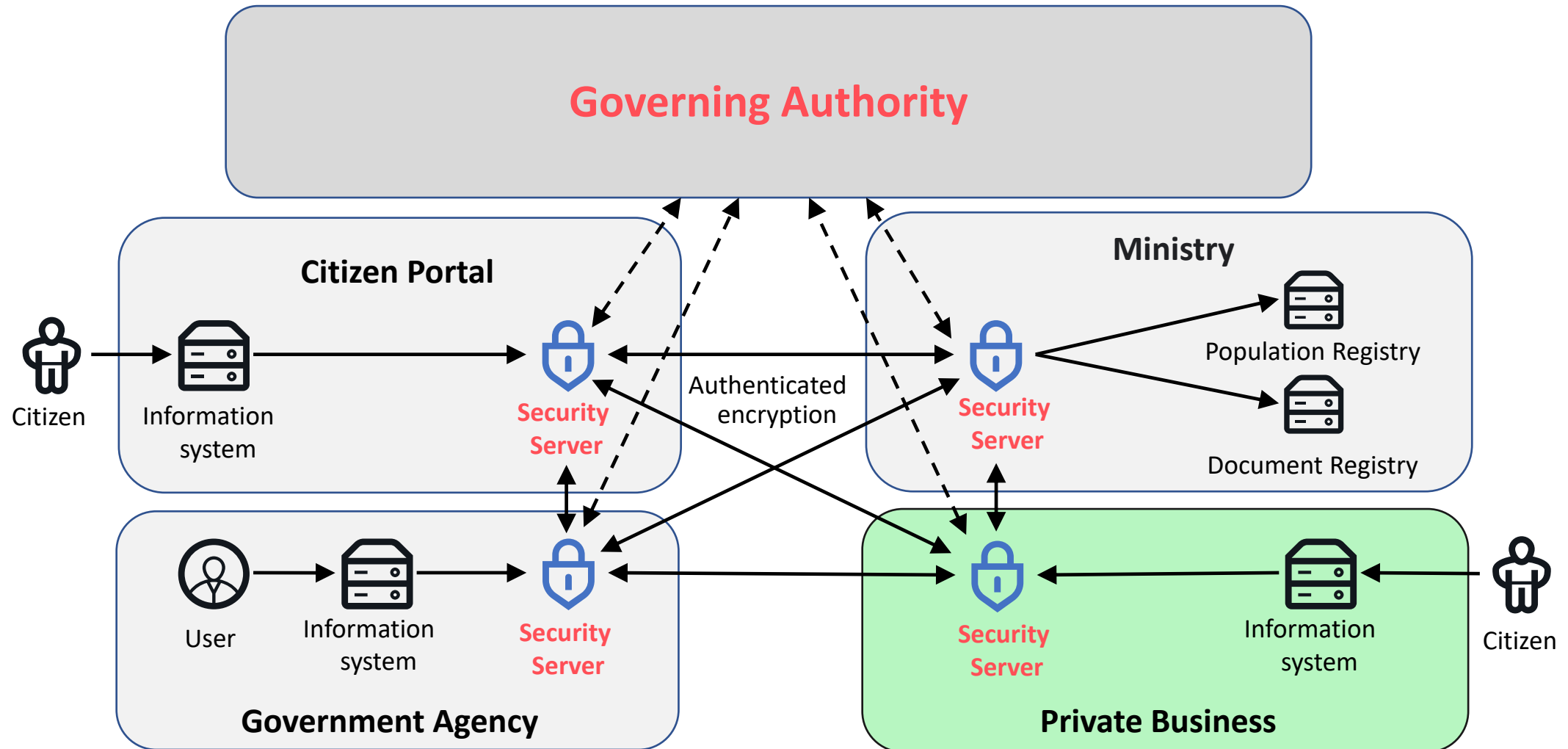
DATA EXCHANGE TECHNOLOGY

Peer-to-peer data exchange over encrypted and mutually authenticated channels. Allows service providers to retain control over their systems and data, while making them a member of an infinitely scalable and decentralised data exchange network

DATA EXCHANGE TECHNOLOGY

Governing Authority

Citizen Portal

Citizen

Information system

Security Server

Authenticated encryption

Ministry

Security Server

Population Registry

Document Registry

User

Information system

Security Server

Agency

DATA EXCHANGE TECHNOLOGY

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Phased approach and context-driven approach

Step 1
Conducting a digital landscape assessment

Step 2
Setup of first working environment / proof-of-concept

Step 3
Creating stakeholder alignment

Step 4
Strategy and phased deployment of full-scale solution

Delivering tangible value and results every step of the way.
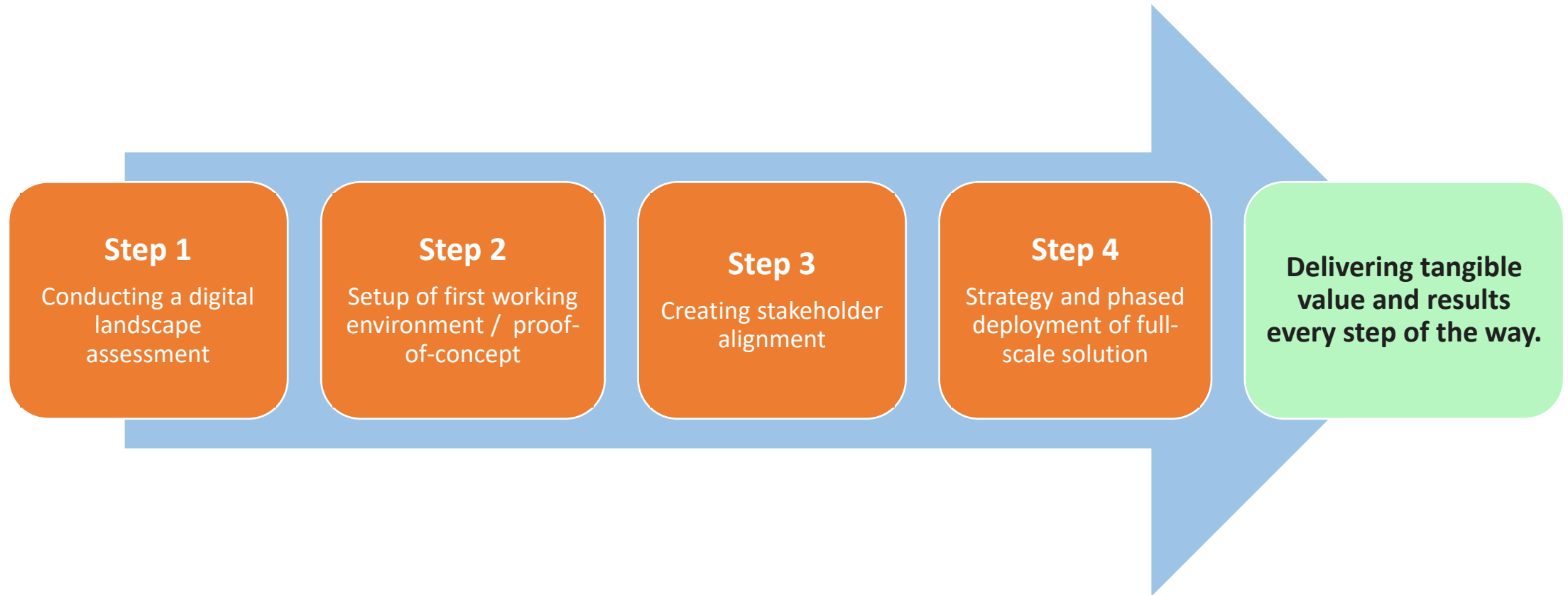
Project Update Nov 23

▶ 2023 Q2: Phase 1 (0 - 6 months) - desktop studies, research, requirements identification, solutions, conceptual designs, planning, scoping definitions, policy formulation[completed]

▶ 2023 Q3-Q4: (7 - 12 months) – awareness, needs alignment, policy workshop & stake holder consultation, project identification, needs analysis and alignment, WoG approach alignment, sequencing, GOVPNG Tech alignment [progressing]

▶ policy finalized/endorsement, MTDP IV aligned, pilot scoping and use case alignment, procurement and delivery planning, resourcing [progressing]

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Project Update Nov 23

▶ 2023 Q4 - 2024 Q1-Q2: Phase 1 (12-18 months) - RFI, RFP Phase 1 - pilot implementation and scoping phase 2+ (phase 1), [progressing]

▶ Data Governance and Data Protection Policy endorse [progressing]

▶ Interagency Technical Working Group formation, consultations, alignment, data sharing agreement, business process mapping '**as it to be**'[progressing]

▶ Institutional Knowledge and Capacity building [started, progressing]

▶ Data Governance and Data Protection legislation drafting [policy, started]

▶ **Data Governance and Protection Authority** establish [policy direction]

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EXPECTATION for this workshop

▶ TWG and Stack Holder Mapping and identification (roles, responsibilities etc).

▶ Draft Terms of Reference for TWGs

▶ Alignment, data sharing agreement, business process mapping '**as it to be**'.

▶ Stock take of current projects, and priorities, WoG solutions mapping.

▶ List of use cases per agencies. Prioritise top 2 for pilot.

▶ Point of contact/members

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CHALLENGES, RISK, MITIGATION

▶ Agile approach. Implementation is broken up into phases to work with resourcing limits, stakeholders capabilities, ensuring engagement and capacity building.

▶ National procurement compliance, procurement impediment, open transparent processes.

▶ Prioritization and alignment of projects to fit immediate requirements of priority service delivery, through focus on solving **actual use cases**.

▶ Restructure to annual budget and resourcing limits, by deliver through agile robust methodology, active M&E and project governance .

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COORDINATION TWG formation

TWG 1: Infrastructure

E-Government Cloud (Shared Services)

TWG 2: Capability

Data Governance and Data Protection

TWG 3: Services

e-Government Portal

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THANKYOU