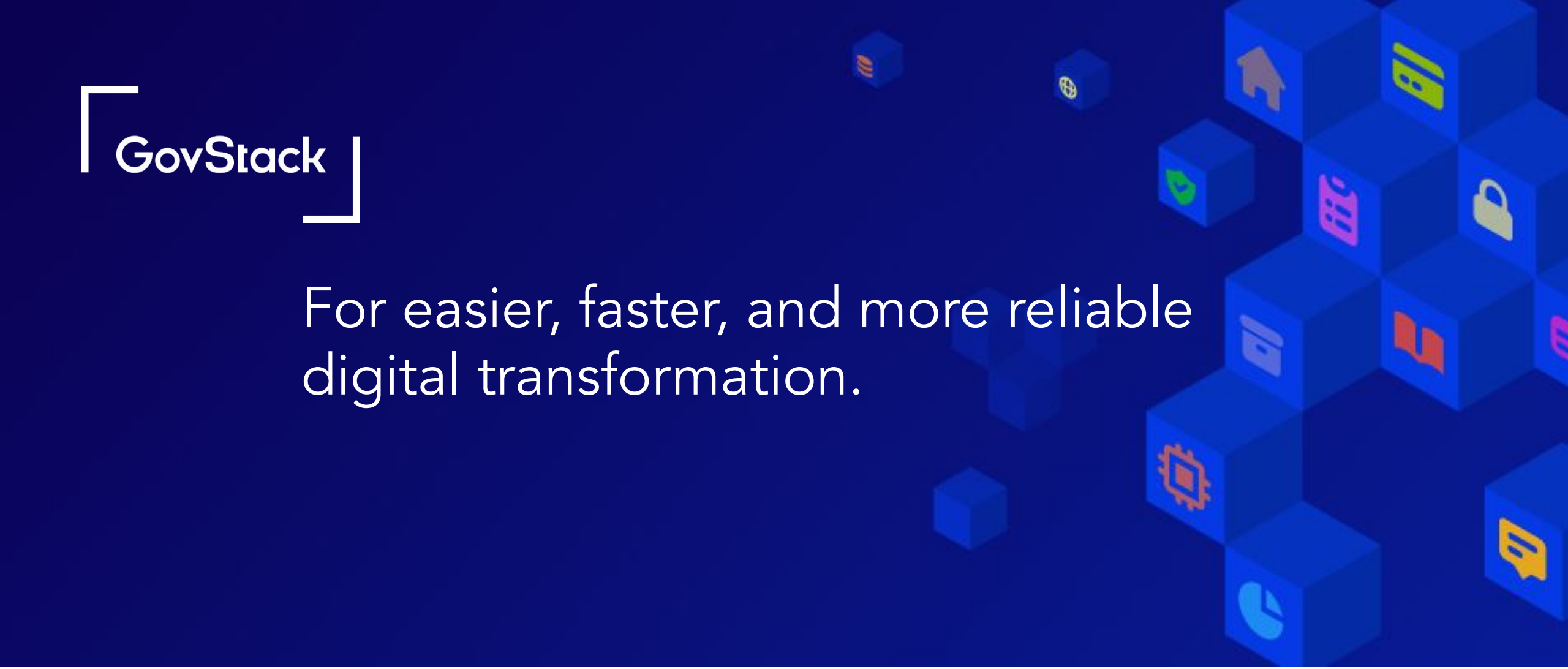
GovStack

For easier, faster, and more reliable digital transformation.



Republic of Estonia
Ministry of Foreign Affairs

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

ITU

digital impact alliance

Objectives of this session

GovStack

- Fully understand GovStack specs and rationale behind them
- Explore GovStack Building Blocks whole of a Government approaches
- Talk about concepts of DPGs/DPIs
- Share the Expected Benefits
- Have a look to GovStack Toolbox for engagement together
- Some countries examples

About Us

CEO and Principal Consultant @id3o.org

- **Expert on National Identity Systems**
- **Advisor on Public Sector Digital Transformation**

Current missions

- **Identity Working Group lead @GovStack**
- **Country awareness: Togo, Egypt, Ethiopia, Bénin, Kenya, Somalia, Sénégal**
- **Senior Technical Advisor for Togo Digital ID Program (ANID)**
- **Digital Advisor to Agence Togo Digital (MENTD)**
- **Senior Technical Advisor for ID program of Madagascar (UGD/MNDPT)**
- **Worldwide Governments awareness on public digital transformation**
- **Senior Consultant Identity and Civil Registration (World Bank ID4D)**

Past Experience

- **SVP Biometrics Products & Marketing à Laxton**
- **Product Line Head Digital ID & Biometrics at Thales**
- **Project Director eID, ePassport, Border Control, eHealth at Gemalto**
- **R&D Manager Telecom at Gemalto**
- **Software Engineer**

About Us

Neil Roy Chowdhury

- **Digital Government Expert and Regional GovStack Coordinator @ ITU, Bangkok**

Current missions

- **GovStack Projects, APAC**

Past Experience

- **Management Consultant, Deloitte Consulting, NYC**
- **CEO Strategy Advisor, eGov Foundation**
- **Platform Strategy Manager, DIGIT DPG**
- **R&D Engineer, Infosys Labs**

Agenda

GovStack

Introduction

Purpose

What is it ?

How does it work

Examples of countries engagement

From checking

GovStack: Who we are

GovStack is a multistakeholder, community-driven initiative, focused on accelerating national digital transformation worldwide, and drawing on expertise from contributors across the private sector, civil society, and governments all over the world.

The initiative was founded by the International Telecommunication Union (ITU), Estonia, Germany, and the Digital Impact Alliance at the United Nations Foundation in 2020.

govstack.global/partnership

GovStack: Mission + Vision

GovStack

Mission: We empower public and private organizations to make the most of the digital world by providing them with the tools and knowledge needed to successfully scale the digitalization of public services.

Vision: Everyone can access government services using trusted digital technologies that fit their lives and needs.

Value proposition: We provide governments with the tools, knowledge, and best practices needed to build digital public services at scale. This helps ensure that their digital infrastructure is cost-effective, efficient, and high-quality. So people everywhere can access the services they need - from health records to identity documents - easily and safely.

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giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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GovStack Advisory Board

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Co-Lead Secretariat, Digital Public Goods Alliace

Thao Hong
Program Officer, Bill & Melinda Gates Foundation

TBA
TBA
Smart Nation and Digital Government Office Singapore

Mei Lin Fung
2020 Chair and Co-founder, People Centered Internet; Cofounder ImpactX; Chair IEEE SSIT Sustainability Tech Cttee

Tim Wood
Senior Advisor, Co-Develop Initiative

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WHY?

GovStack: Why we exist

In 2015, world leaders agreed to 17 Global Goals for Sustainable Development to achieve a better world by 2030.

Many of these goals rely on our ability to deliver services to people, and we know that digital technology can facilitate broader access.

GovStack aims to break down the barriers to building sustainable digital public infrastructure and help governments create human-centered digital services that empower individuals and improve well-being.

Countries struggle with the digitization of their public services for several reasons

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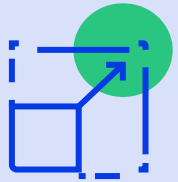
COORDINATION

Siloed investments and duplicative efforts by development partners promote fragmented digital governance and silos in partner countries.

Problems in coordination commonly occur in aligning ICT ministry work with that of other agencies.

RETURN ON INVESTMENT

Challenges in procuring and implementing affordable IT solutions persist, as do challenges in creating the necessary capital to invest in ICT infrastructure projects.



SCALING

Huge challenges exist in adapting and investing in projects at scale, particularly around the rollout of physical ICT infrastructure, the deployment and use of common data platforms.

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Introduction aux Digital Public Goods (DPG) et aux Digital Public Infrastructures (DPI)

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What are Digital Public Goods ?

Digital Public Goods are solutions which are developed in an open way so that they can be reused by others.

There can be open source, but also open standard, specifications, practices, principles, … anything shared without restrictions.

One famous example of Digital Public Good is MOSIP, the Modular Open Source Identity Platform developed by India and now deployed at different stages within about 10 countries.

Another is X-Road developed by Estonia, it allows to connect systems in different siloes.

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What are some Digital Public Goods?

Other examples of well known DPGs are, **MojaLoop** (Payment), **OpenCRVS** (Civil Registration), **OpenG2P** (ID & Payment), **OpenSPP** (Social Protection), **DHS2** (Health), ..

Those open sources generally emerge from a **solution gap** (openSPP, openCRVS) or from a **success story** in a country (MOSIP > India, X-Road > Estonia)

Following the model of MOSIP, and supported by investments from **international donors** (UN, foundations, countries), more and the open source portfolio is growing filling little by little the gaps to a full digital public infrastructure.

DPIs to build interoperability between DPGs

DPG market place is composed of **more than 200 open sources** (examples of *super'*-marketplaces: DIAL, DPG Alliance, ..)

It's **difficult to know which one to use** and even more **difficult to make them work together**, they are often **not compatible between each others**, many of them have **overlaps**.

The principles of common digital public goods should not go with a competition in between solution..

So **initiatives are growing** in a tentative to **couple them together** in **pre-integrated Digital Public Infrastructure** (DPI is same as Government stacks)

Digital Public Infrastructure (DPI)

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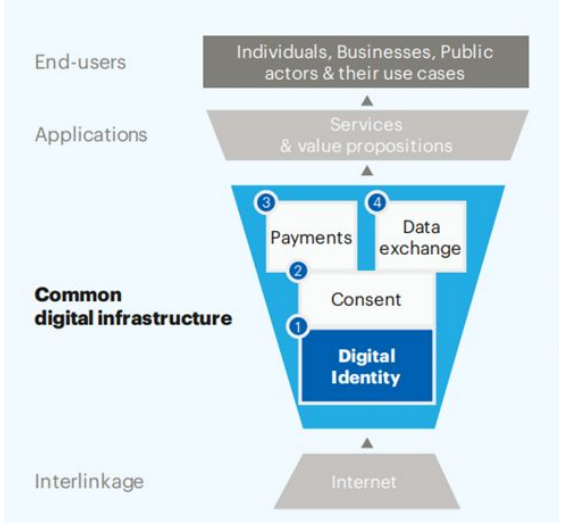
What is it:

- Refers to solutions and systems that enable the effective provision of essential society-wide functions and services in the public and private sectors.
- This includes but is not limited to digital forms of ID and verification and complementary trust services such as e-signature and Verifiable Credentials; registries and registration; payment (digital transactions and money transfers); data exchange; and consent (Foundational Building Blocks of GovStack)
- It is set of building blocks and not bespoke solutions: a solution builder versus an infrastructure builder mindsets
- Allow others to build and innovate on top of it



Source: Monetary Authority of Singapore, Foundational Infrastructure for inclusive digital economies

Source: https://digitalpublicgoods.net/blog/unpacking-concepts-definitions-digital-public-infrastructure-building-blocks-and-their-relation-to-digital-public-goods/

Approaches of DPIs

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REUSE BUILDING BLOCKS

Integrate existing DPGs into an interoperable Stack (ie G2P Connect initiative in which DPGs join their efforts to build a common stack on a specific use case G2P)

STANDARDIZE BUILDING BLOCKS

Defines what should be the building blocks, what should they do and how they should interact (ie GovStack, best experts from different horizons define what the GovStack should be and make it happen)

EXPORT A COUNTRY STACKS

Replicate a successful stack from other countries (ie India, Estonian) or reuse NGOs stacks (UN, WHO, WFP,...)

Pros & Cons of each approach

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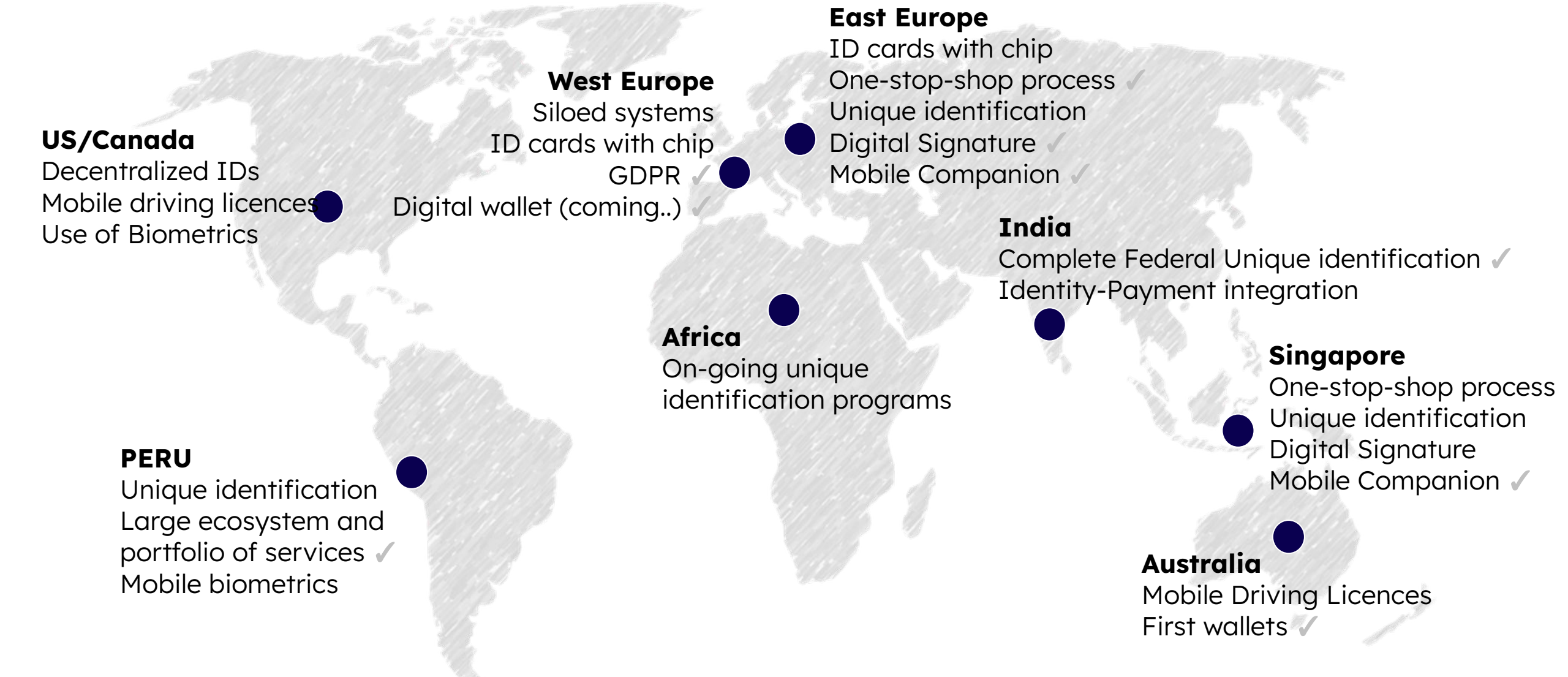
Approach	Opportunities	Risks
Reuse Building Blocks	Can happen **fast** Can **sort out specific objectives** **Field proven** components Good **business knowledge**	**Imposed DPGs** (you like it or you don't like it) **Limited functions to what DPGs have to offer** **Interoperability only for limited cases** **Inconsistencies** in between components on architecture, technologies, duplicate functions, inconsistent transversal functions, ..
Standardize Building Blocks	Lead to **best approaches** and **technologies choices** Leverage **best practices around the world** Anticipate **future needs** Build a **solid Foundation for future**	Can take **time to happen**, **slow delivery**, important investments for **long term ROI** Communities leads to **debates** on approaches can lead to **consensual designs** Lack field experience : can **reinvent the wheel** if too much detached from solutions, can be **detached from functional realities**, notably in term of **UX** and **business rules**.
Export a country stack	Move **fast on implementation** **Save money and time** **Ease political buy in**	**Outcome vary** in between counties, **can lead to failure** - **Different realities** from one countries to others - **Different ICT levels** (infra., networks, smartphones, ..) - **Different cultures** (literacy, religions, history, ..) - **Different political env.** (political regime, liberties, ..)

Digital IDs & Stacks in the world

GovStack



US/Canada
Decentralized IDs
Mobile driving licences
Use of Biometrics

West Europe
Siloed systems
ID cards with chip
GDPR ✓
Digital wallet (coming..) ✓

East Europe
ID cards with chip
One-stop-shop process ✓
Unique identification
Digital Signature ✓
Mobile Companion ✓

India
Complete Federal Unique identification ✓
Identity-Payment integration

Africa
On-going unique
identification programs

Singapore
One-stop-shop process
Unique identification
Digital Signature
Mobile Companion ✓

PERU
Unique identification
Large ecosystem and
portfolio of services ✓
Mobile biometrics

Australia
Mobile Driving Licences
First wallets ✓

Pros & Cons of each the different stacks

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Approach	PROS	CONS
Peru	Centralized Identity Mutualized and monetized identification services Large portfolio of services	Aggregation of data can hurt privacy Have developed their own standards Lack of consent vs GDPR standards
India	Centralized Identity for all Foundations for digital transaction infrastructure Traceability of cash transfers	Access to services depend on network access Digital divide Centralization
Estonia or East Europe	Fast and efficient interactions with administration Agile digital administration No more paper / queue at administration	Unique identifier used everywhere is privacy risks High dependence on digital infrastructures
France or West Europe	Digital Wallets will allow to implement seamless secured processes High level of privacy respect (Native GDPR)	As for now: Siloed and heterogeneous systems within and in between countries, Expensives cards with chip poorly used in day to day.
US	First smartphone based ID documents (mobile driving licences)	No central database allows fraud, biometrics are used in intrusive way for identity verification (fingerprinting)

Digital Public Infrastructure (DPI)

GovStack

Why it is important

- Deliver services with lower cost, higher trust, and more efficient
- Legal obligations can be embedded directly into the architecture of the infrastructure, ensuring that participants comply with the law through the mere act of participation.
- Privacy features are coded into the system.
- Empowering users to take greater control over their data ensuring that they can decide when, how, and with whom their data is shared.
- Obligations between participants can be established automatically

How to build it

- Consider many large use cases and ask what is the common underlying problem that can be solved with 1 or few infrastructure building block(s)
- Choose initial "killer" use cases to build your DPI/GovStack by establishing your first building blocks where high trust, low cost and high volume are required
- Must have very clear understanding about use cases

Source: https://digitalpublicgoods.net/blog/unpacking-concepts-definitions-digital-public-infrastructure-building-blocks-and-their-relation-to-digital-public-goods/

Together, Digital Public Goods and Building Blocks enable Digital Public Infrastructure (DPI)

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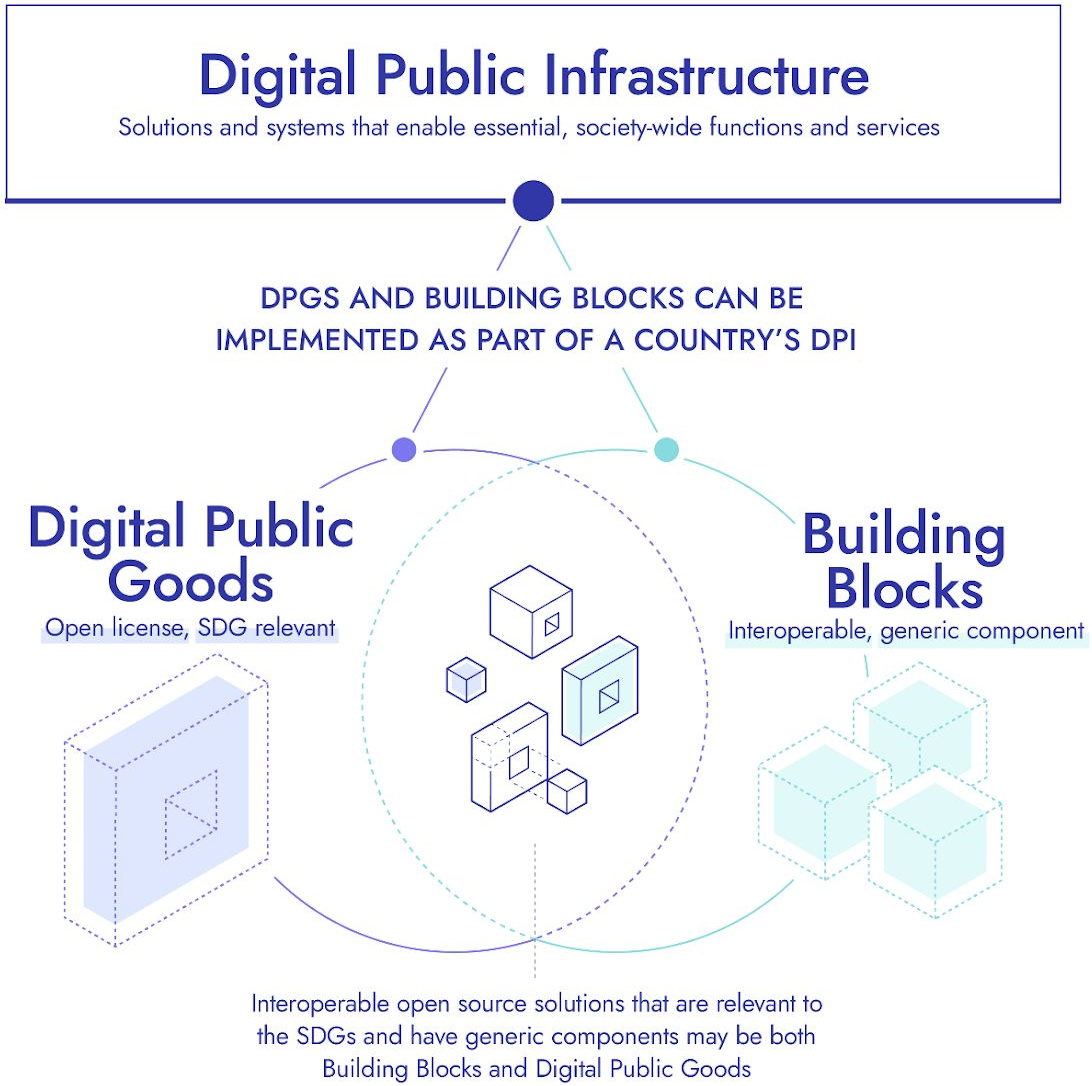
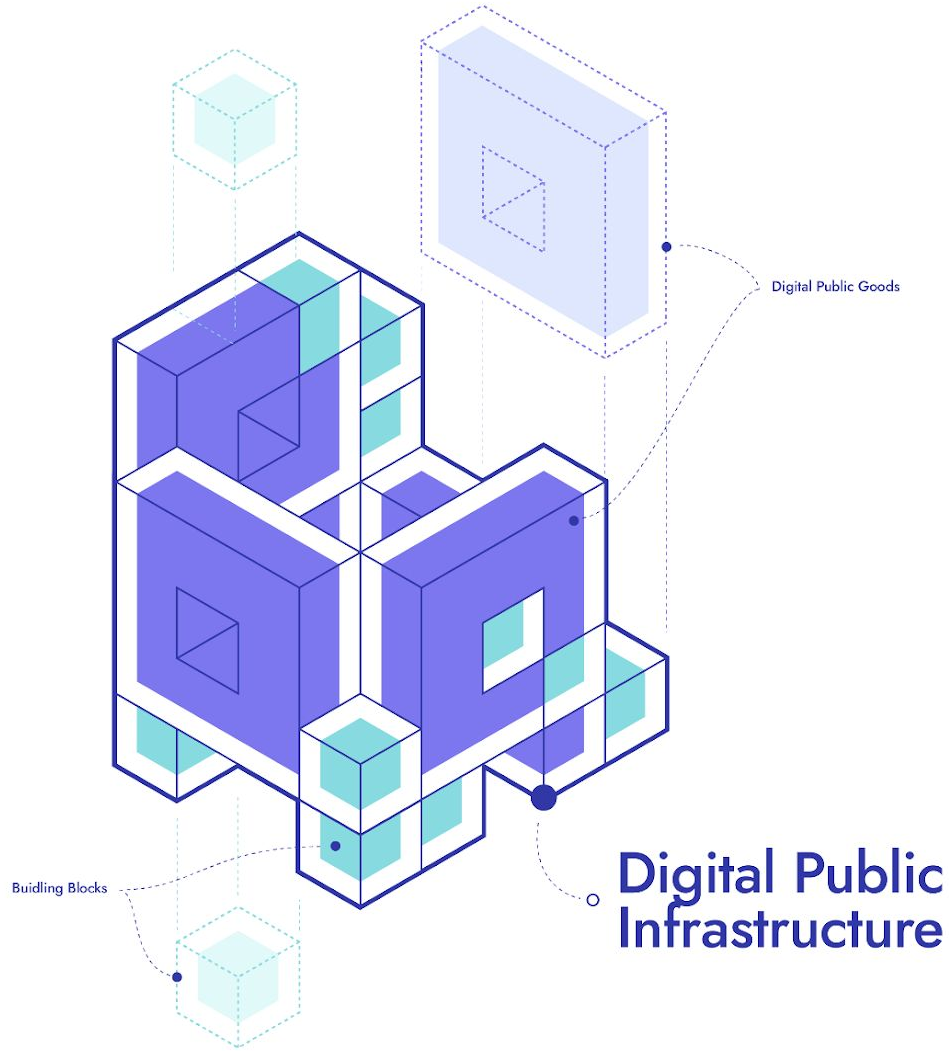
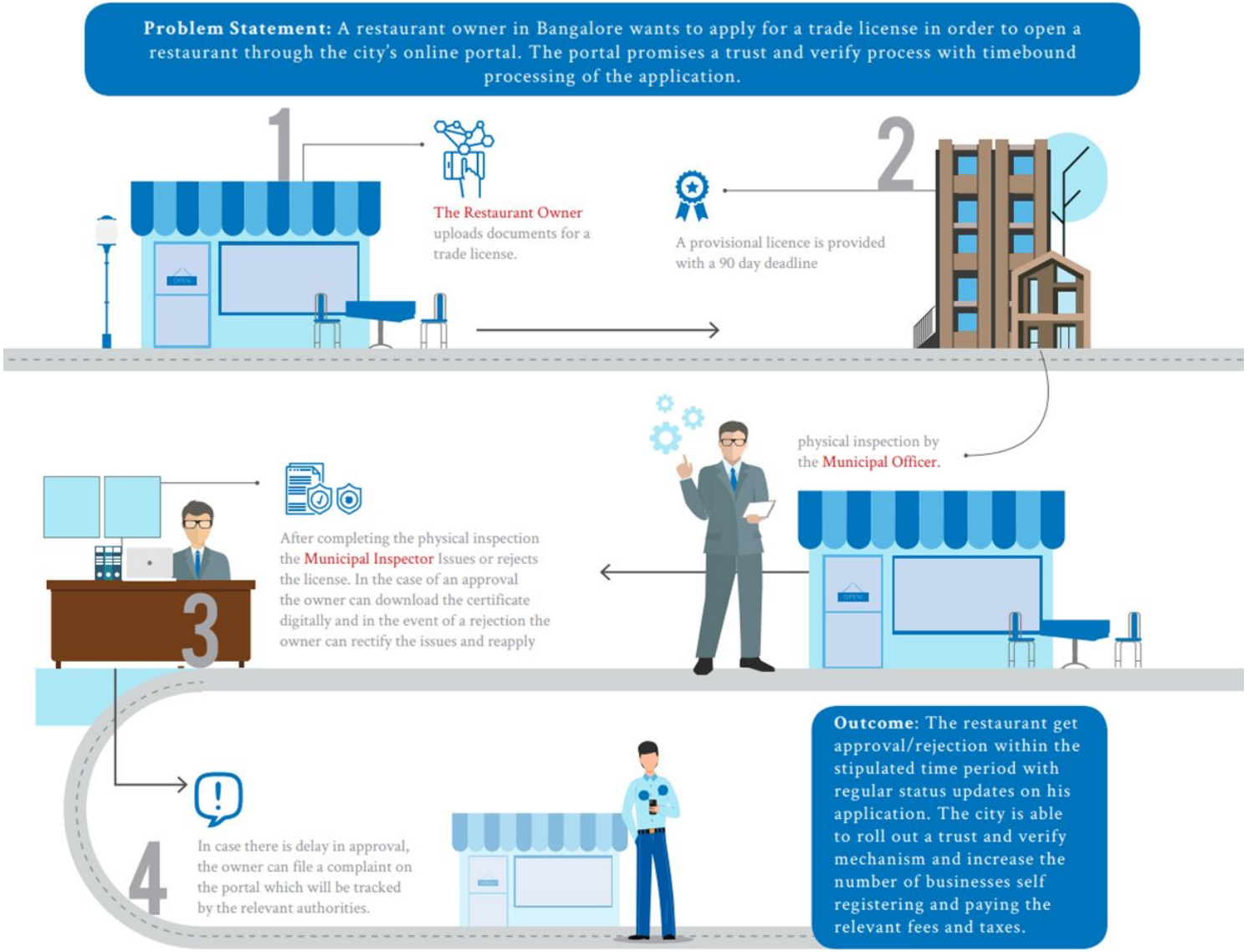




Source: https://digitalpublicgoods.net/blog/unpacking-concepts-definitions-digital-public-infrastructure-building-blocks-and-their-relation-to-digital-public-goods/

Example: Trade License use case



1. Core Data Information	
Registration	Users, Employees, Properties, Certifications, Services etc
Enabling process or documents: RFP templates and vendor certification process.	
2. Core services	
Authentication, authorisation, entity management (Users, employees, vendors.), workflow management, search, localisation service and payments	

Source: National Urban Innovation Stack India, national_urban_innovation_stack_web_version.pdf (niua.org)

The building block approach can be applied across many sectors to support high-impact use cases

GovStack

Health Sector SDG	Sector: Health SDG 3: Good Health and Wellbeing						
SDG Targets	• 3.1: By 2030, reduce maternal mortality rate to less than 100,00 births • 3.2: By 2030, end preventable death of newborns and children under the age of 5 with reduction in neonatal mortality to less than 12 per 1,000 live-births and under 5 mortalities to less than 25 per 1,000 live-births						
High-Impact Service	Government to Citizen (G2C) Services: Care services for mother and child spanning the prenatal and postnatal period resulting in a healthy mother and child						
Use-Case steps	1 **Linkage with a Community Health Worker** Seema an ASHA worker, meets Geeta and her family	2 **Enrolment in mother and child tracking program** Seema registers Geeta into MCTS.	3 **Arranging the first visit to the pediatric clinic** Seema arranges for Geeta's first visit to the pediatric clinic	4 **Healthcare professional (Pediatrician) visits** Geeta visits the pediatrician's clinic with her baby	5 **Procurement of medication & nutrition items** Seema helps Geeta in getting medicines & nutrition supplies	6 **Getting Therapy from the therapist per instructions** Seema takes Geeta for therapy.	7 **Recognition & Incentive for Participation** Seema & Geeta are provided with incentive for participation.
Common workflows / business processes	• Speed awareness • Enrolment in community health program • Content for awareness and promotion	• Generate identification • enable permissions and privileges • Create and activate EHR	• Make appointment • Work planning and coordination • Track attendance	• Manage cases • provide diagnosis • Discussion with patient • Referral notes and prescription	• Send e-prescription to pharmacy • Confirm patient identity • Hand medicines as per prescription	• Receive EHR for mother and child • Interact with child • Perform exercise • Provide advice	• Record visit and participation • Receive compensation for completion of intervention
Reusable Building Blocks	• Scheduler • eLearning • Registration	• Authentification • Registration • Shared Data Repository • Workflow • Digital Identity	• Shared Data Repositories • Messaging • Scheduler • eLearning • Digital Identity	• Shared Data Repositories • Messaging • Scheduler • eLearning • Digital Registries	• eMarketplace • Workflow • Payment • Digital Identity	• Workflow • Scheduler • Data collection • Artificial Intelligence • Collaboration Management	• Workflow • Payment • Feedback

Source:GovStack Ecosystem Reference Architecture (GERA): A Guide for Policymakers, Public Administration Leaders, and Strategic Stakeholders

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Building Blocks Approach

Maternity Support in Department A

GovStack

Objective: Pregnant mothers to receive benefit transfers until child is 5 yrs old

Requirements
Auto Trigger Registration based on Birth Event reporting
Pay into her Mobile Money Wallet for accessibility
Auto Trigger Regular Monthly Transfers
Verify Mother's ID
Allow her to view & manage her benefits on a third party app

Source: G2P workshop, III_B, 2023

Emergency Farmer Relief in Dept B

GovStack

Objective: One time emergency benefit to farmers impacted by natural disaster

Requirements

Fetch Enrollment details based on a National ID

Fetch additional data to evaluate criteria of income, household, etc

Trigger a one time Payment into Farmer's Bank Account

Enable cash withdrawal in a remote disaster-affected area

Allow creation of a reusable 'Emergency Relief Beneficiary' credential

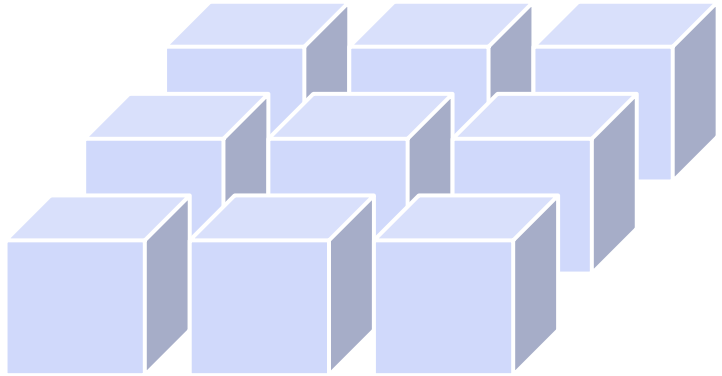
Source: G2P workshop, III_B, 2023

Designing e-government services with generic Building Blocks

GovStack

What are *Building Blocks?*

Generically-defined **software components** that in combination provide key functionalities to facilitate generic workflows common across multiple sectors.



What are their characteristics?

- **Reusable** software components
- **Open-source**, commercial off-the-shelf (COTS), or freely available with open access to data
- Facilitate one or more **generic workflows**
- Applicable to **use cases across multiple sectors**
- **Interoperable** with other Building Blocks

[refer to: Building Blocks section of Govstack.global]

The building block approach can be applied across many sectors to support high-impact use cases

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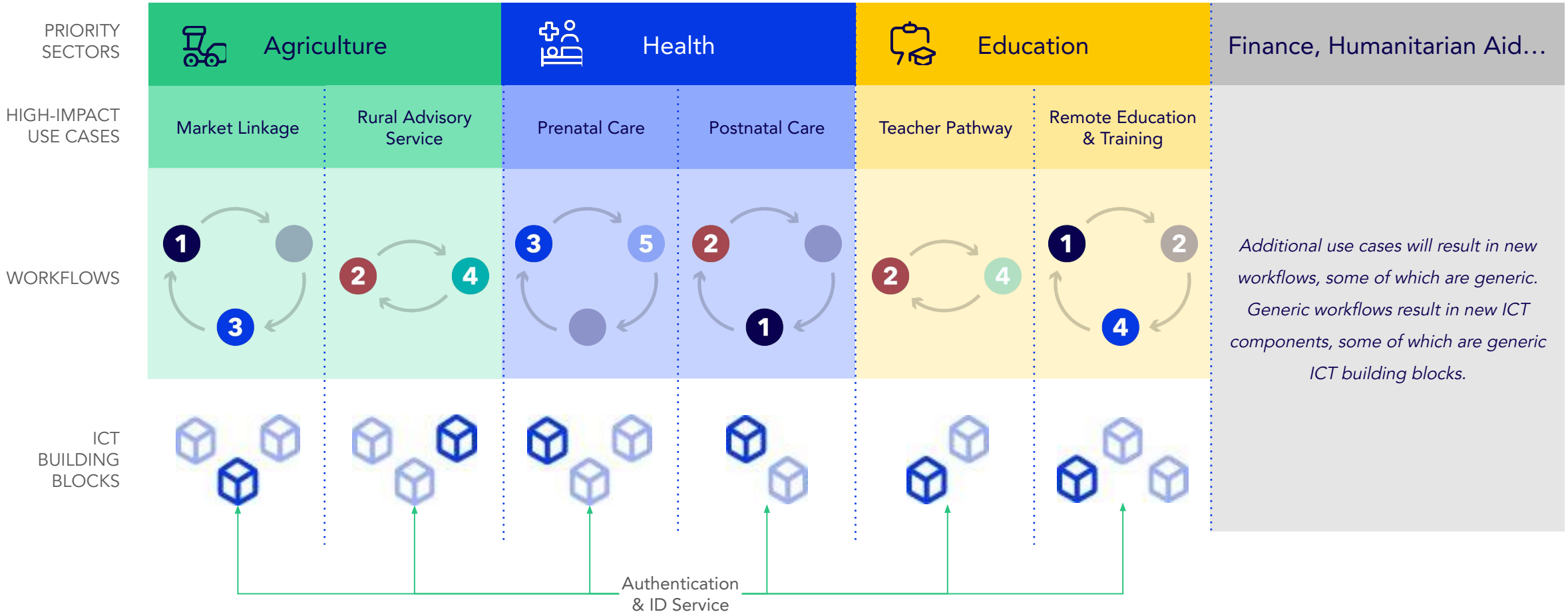


Source: SDG Digital Investment FW, 2019

Designing e-government services with generic Building Blocks

GovStack

Registration	Messaging	Scheduling	Security
Payments	Information Mediator	eMarketplace	GIS
Identification & Authentication	Client Case Management	Collaboration Management	Analytics & Business Intelligence
eLearning	Reporting & Dashboards	Content Management	Data Collection
Shared Data Repositories	Digital Registries	Terminology	Artificial Intelligence
Consent Management	Mobility Management	Workflow and Algorithm	

Source: SDG Digital Investment FW, 2019

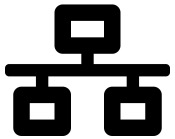
[refer to: Building Blocks section of Govstack.global]

Main Building Blocks 1/1

The **Consent Building Block** enables services for individuals to approve the use of their personal data by defining the principles, functions, and architecture of an information system. For organisations that process personal data, it provides the ability to know the individual's will and legitimately process such personal data. The Consent Building Block is a process-oriented GovStack Building Block facilitating auditable bilateral agreements within a multi-agent environment that integrates with most other Building Blocks.

The **Digital Registries Building Block** provides services to other Building Blocks and to external systems, to store and manage data/claims on any entity (persons, places, and things) in forms of uniquely identifiable records in a database. The Building Block provides the capability to capture, store, search, distribute, and present data with zero or minimal need for software development. It also maintains and reports logs of all operations taking place on database schemas and data. It contains various functional components, and data resources to abstract away all the details and complexity, and to expose capabilities as service-APIs to external Building Blocks/applications.

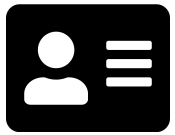
The **Identity Building Block** creates, manages, and uses a digital foundational identity (functional identity is not in the scope of this document). As a part of the overall identity system, it can be interfaced with other Building Blocks in order to realize the complete set of requirements necessary for the delivering identification services and managing lifecycle of Foundational Identities.



The **Information Mediator Building Block** provides a gateway for exchange of data and services among GovStack Building Blocks through open-API rest-based interfaces to ensure interoperability and implementation of standards. The Information Mediator provides mechanisms for applications/Building Blocks to publish and consume services and event notifications among other GovStack Building Blocks.

The **Messaging Building Block** provides a standardized, secure communication channel between GovStack service providers and end customers (in most cases citizens). By using GovStack Messaging Building Block, service providers rely on the building block's central functionalities, logging, back upping, security features, etc. without the need to reproduce and maintain them by themselves.

Identity Building Block



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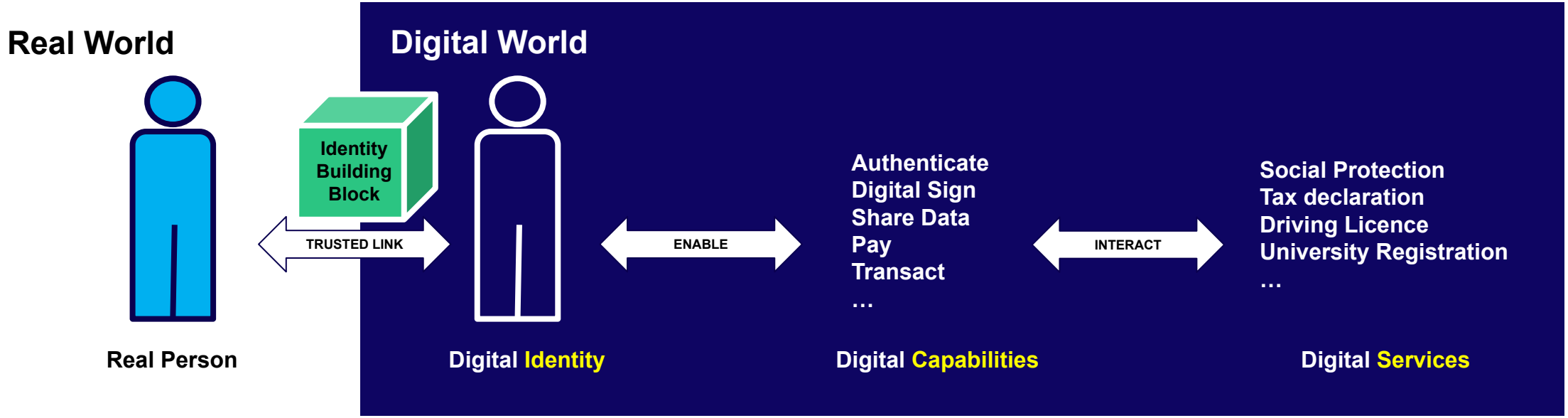
Identity BB purpose

The Identity Building Block creates, manages, and uses a foundational digital identity to be used in GovStack.



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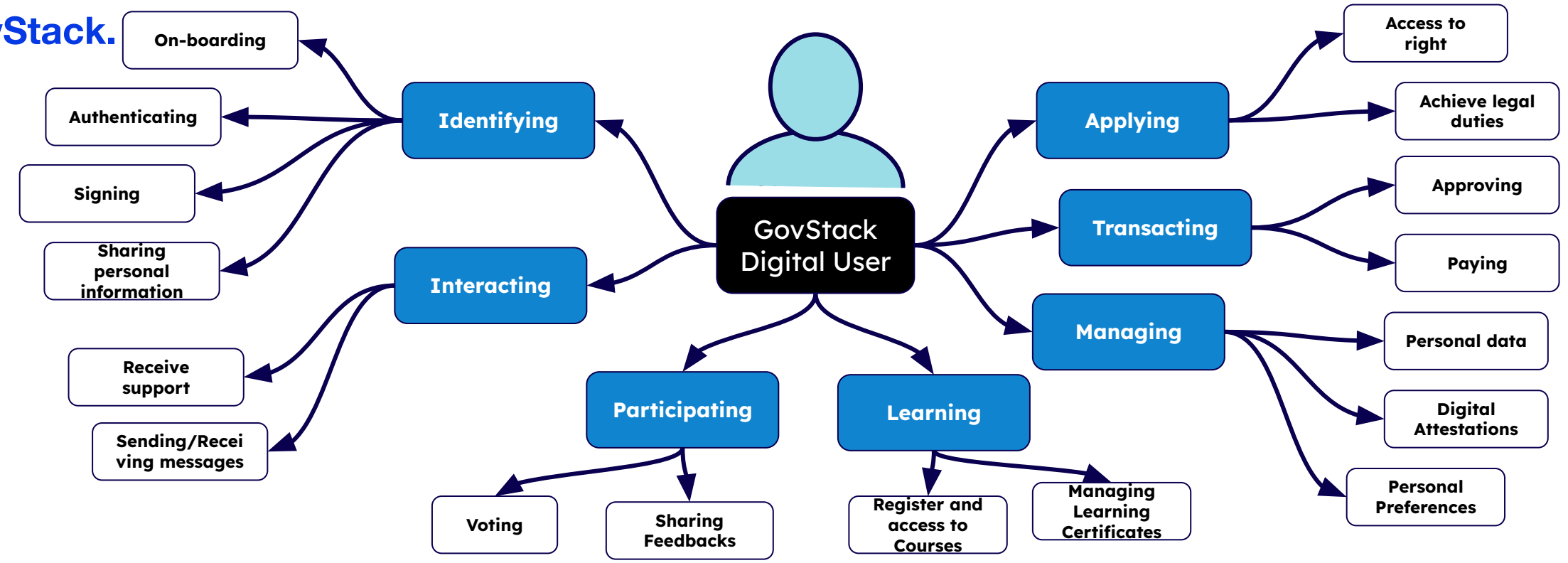
Identity Building Block brings a User centric perspective

GovStack

As Identity building block is creating and managing the digital users of GovStack, it is the enabler for offering super-digital-powers at once to the end user after its on-boarding in the GovStack.



It also is in the ideal perspective to watch user experience by taking care of a smooth integration services offered by the different building blocks, overall

A personal UI for the end user would be required in many context

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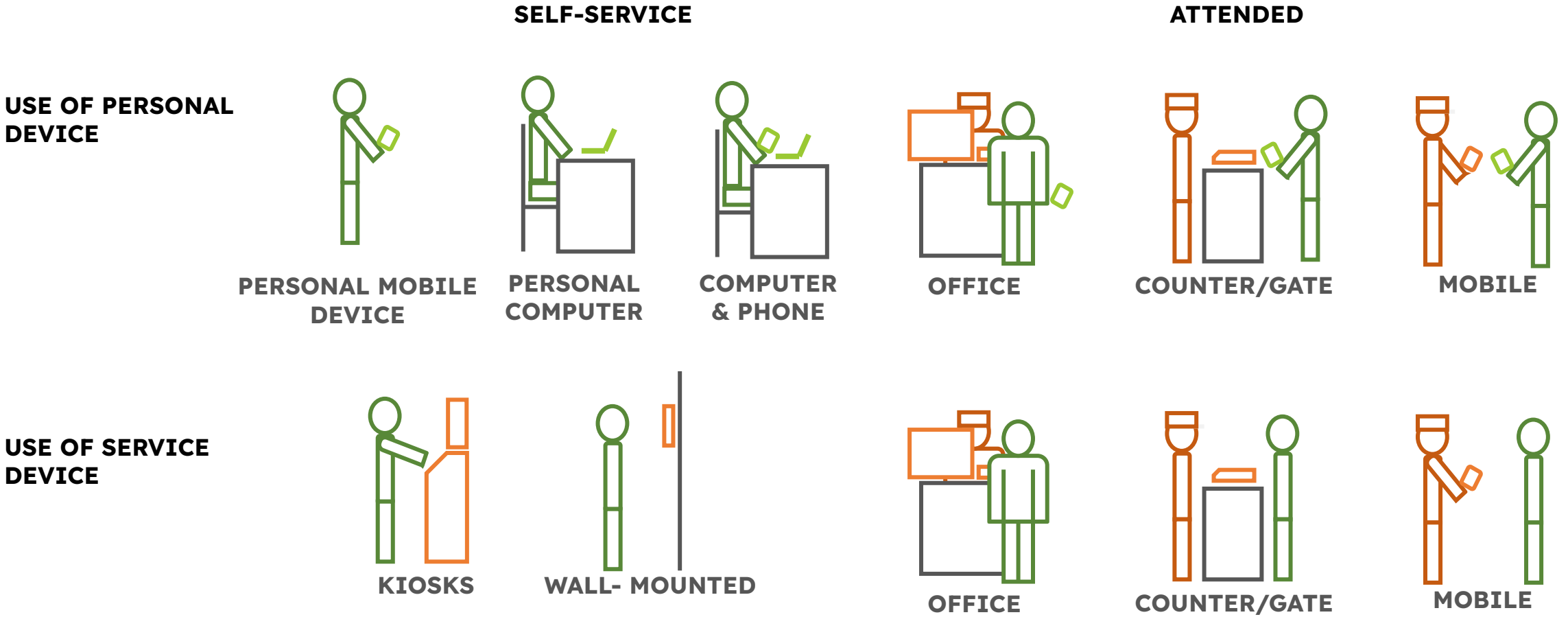
PUBLIC ATTENTION CONTEXTS



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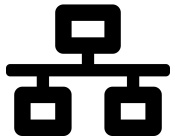

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It also maintains and reports logs of all operations taking place on database schemas and data.

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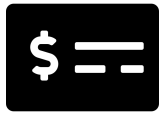
Payment Building Block



The **Payments Building Block** enables digital financial payments to be tracked, evaluated, initiated, validated, processed, logged, compared and verified against budget.

This Building Block also provides interoperability with connections to the various external applications that need payment services in order to trigger transitions in their own workflow.

Registration Building Block

The **Registration Building Block** is a software platform that enables online registration services, their creation, and administration. Registration is a process through which an applicant gets information recorded in a registry and receives a credential as proof of registration, in exchange for providing information, with or without money.

The information provided by the applicant consists of data and/or credentials issued by public or private entities. Money is provided to pay for one or more registration fees/costs.

Workflow Building Block

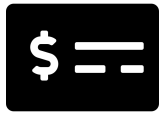
The Workflow Building Block helps to drive efficiency within GovStack by providing automation and orchestration capabilities for specified business processes within and across Building Blocks.

The Workflow Building Block provides design-time mapping & modeling of business processes based on mature open standards like Business Process Model and Notation (BPMN) and facilitates the run-time execution of deployed workflows in order to orchestrate process flows from initiation to completion.

Scheduler Building Block

The **Scheduler Building Block** enables aggregated coordination of time-driven activities within and across Building Blocks by sending appropriate "alert" messages to appropriate Building Blocks according to a predefined schedule.

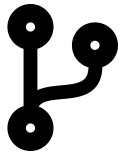
Main Building Blocks 1/2



The **Payments Building Block** enables digital financial payments to be tracked, evaluated, initiated, validated, processed, logged, compared and verified against budget. This Building Block also provides interoperability with connections to the various external applications that need payment services in order to trigger transitions in their own workflow.

The **Registration Building Block** is a software platform that enables online registration services, their creation, and administration. Registration is a process through which an applicant gets information recorded in a registry and receives a credential as proof of registration, in exchange for providing information, with or without money. The information provided by the applicant consists of data and/or credentials issued by public or private entities. Money is provided to pay for one or more registration fees/costs.

The **Scheduler Building Block** enables aggregated coordination of time-driven activities within and across Building Blocks by sending appropriate "alert" messages to appropriate Building Blocks according to a predefined schedule.

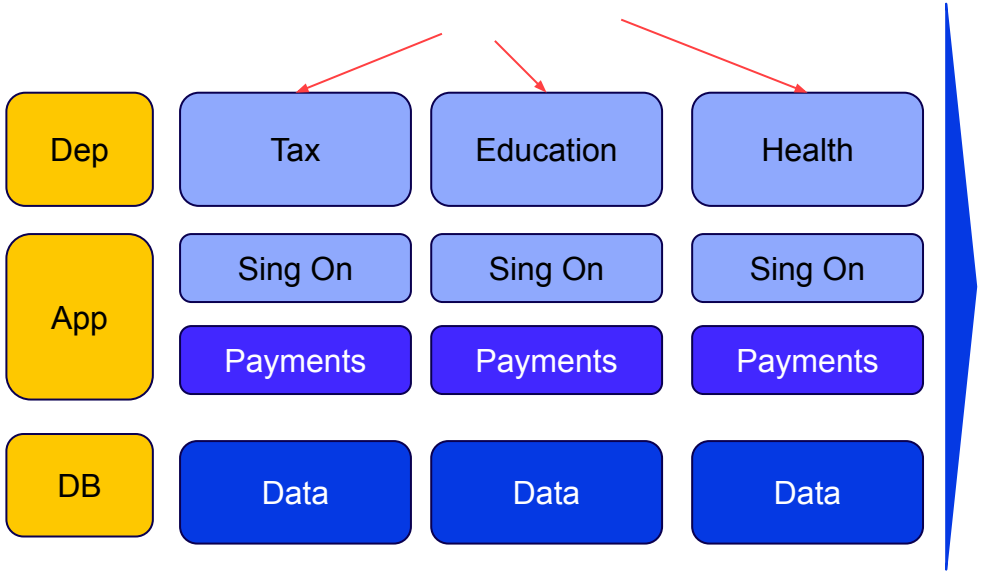


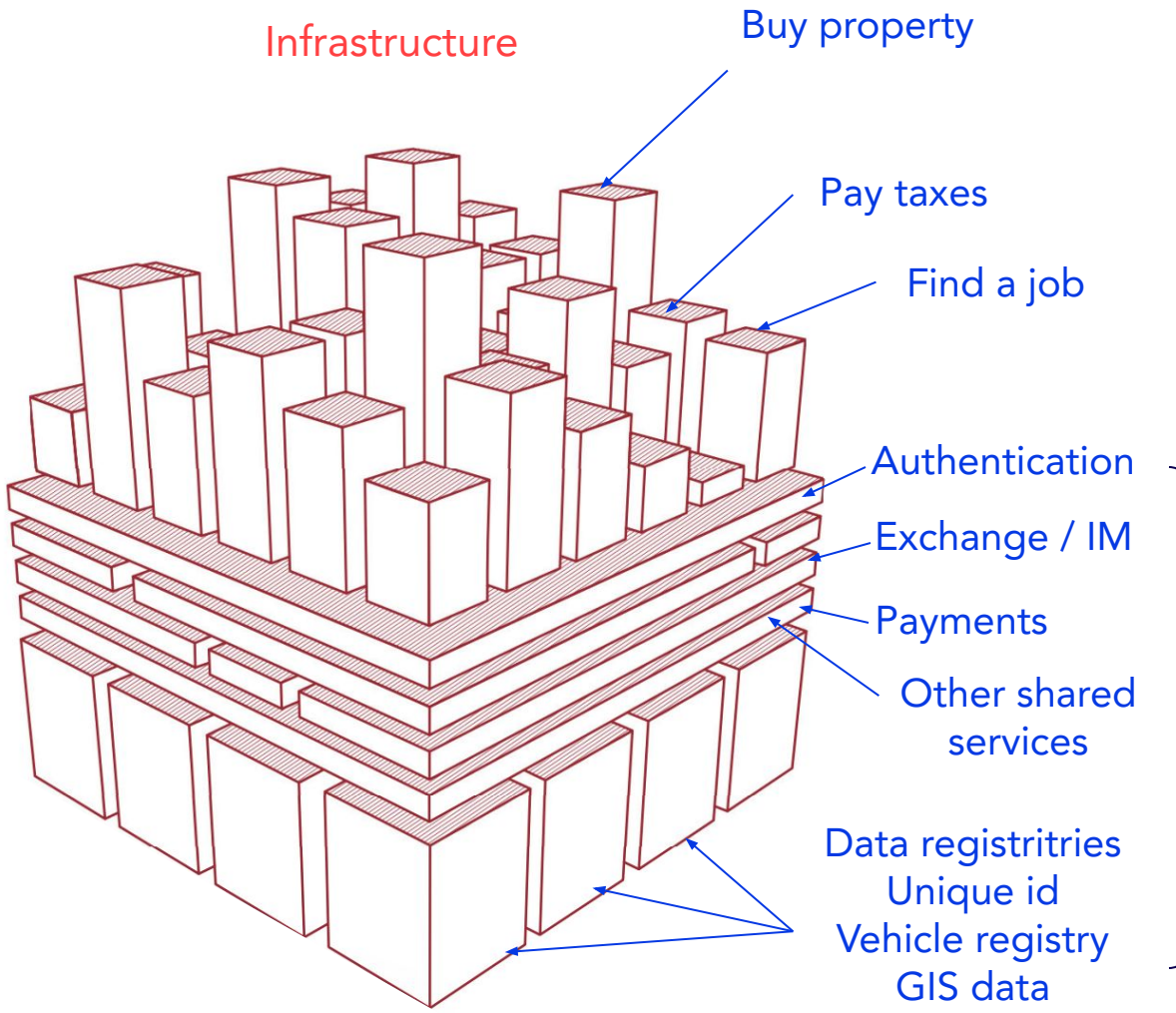
The **Workflow Building Block** helps to drive efficiency within GovStack by providing automation and orchestration capabilities for specified business processes within and across Building Blocks. The Workflow Building Block provides design-time mapping & modeling of business processes based on mature open standards like Business Process Model and Notation (BPMN) and facilitates the run-time execution of deployed workflows in order to orchestrate process flows from initiation to completion.

From silo ICT investments to reusable software components to digitize governments services at scale

GovStack

Silo investments, duplication of functionalities





Source: David Eves, UCL 2023

GovStack Functional and Technical layers

Delivering generic Capabilities to build functional Services

GovStack

Functional layers

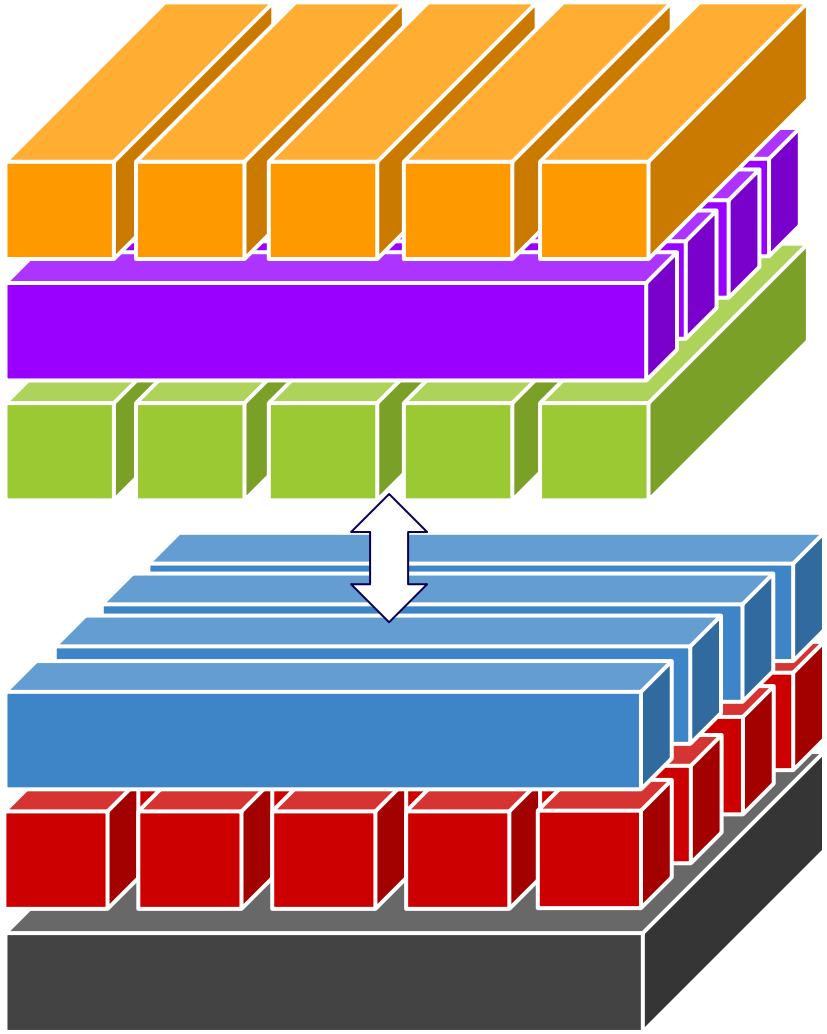
(GovStack sectors & countries specifics deliverables)

Sectors *implement* ***Programs*** *which offer* ***Services*** *to their users, those ones are built on GovStack* ***Capabilities****.*

Technical layers

(GovStack generic deliverables)

Infrastructures *host the* ***Building Blocks*** *which are integrated to deliver the* ***Capabilities*** *of GovStask releases.*



Health, Education, Transport, Agriculture

Mothers & Child, Universities, Road safety

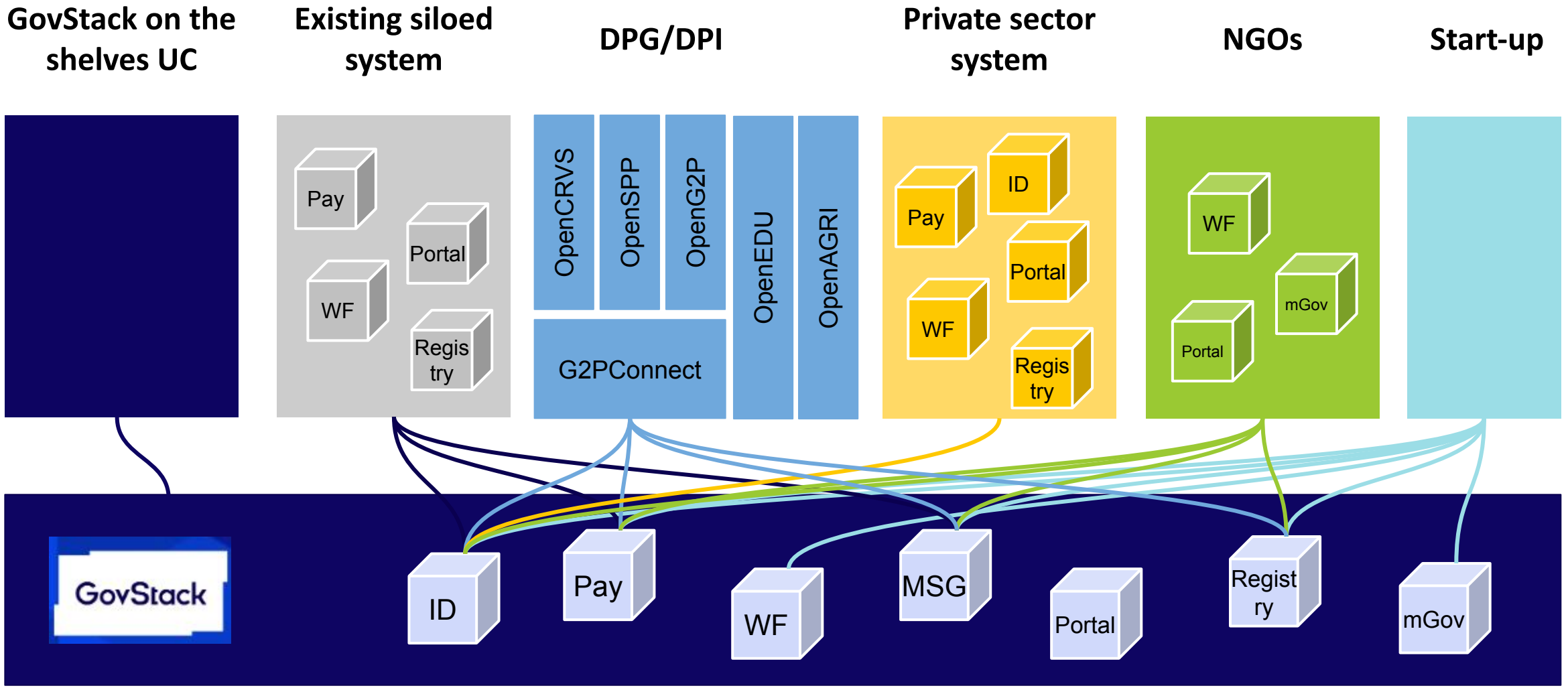
Learning course and exam, Benefits distribution, Marketplace

Interactions, Payments, Mobile, ..

ID, Workflow, Data Mediation, Consent

Datacenter, cloud, servers

Adapt to existing, to means, to objectives and to context



GovStack

Example of Setup in Togo

Différent layers

Sectoral
Solutions & Services
(**Functional**)

Secondary
Building Block
(**Capabilities**)

Primary
Building Block
(**Technical bricks**)

Hosting
Infrastructures

Business services are developed by various sectoral entities using the **capabilities** offered by the mutualized platform.

Capabilities are offered as services by **secondary building blocks**, thus hiding their technical complexity.

These are based on elementary **technical bricks** known as **primary building blocks.**

The whole is based on hosting, network and data storage **infrastructures**.

SECONDARY Building Blocks (Functional capabilities)

Empower USERS

Digital User Capability

Onboard user
Update user data
Authenticate, Sign, Claim
Manage preferences
Apply, follow-up, learn

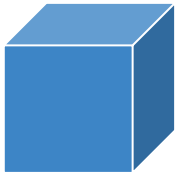
Mobile Capability

Authenticate
Store VC
Generate VC
Share VC

Vault Capability

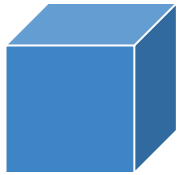
Store data
Collect data
Manage data
Delete data
Wallet preferences
Vaults management
Index management

Empower SERVICES PROVIDER



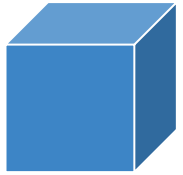
Interactions Capability

Digitally Enabled User Database
Design and manage applications
Monitor & improve Quality of Services
Interact, Notify, Verify
Issue, collect and verify authentic data
Services continuity and Scale-up



Payment Capability

Pay from X to Y
Payment history, status
Batch payments
Payment preferences
Mass or micro disbursements
Traceability & Trust



Automation Capability

Automate User interactions
Automate Flows & Processes
Automate access to data
Automate reporting

Empower GOVERNMENTS

Data Capability

Configure reports
Configure Dashboard
Generate report
Display Dashboard

Reporting Capability

Configure reports
Configure Dashboard
Generate report
Display Dashboard

Assessment Capability

Assess individual score
Assess household score
Assess company score
Manage profiles
Make predictions

PRIMARY Building Blocks (Technical bricks)

Interactions

Digital Services portal one-stop-shop

Browse and search services
Services information
Services Application
Service follow-up

Web portal — **Web based**

Mobile portal — **Mobile App**

USSD portal — **SMS/USSD based**

Conversational AI — **Natural language**

Automation

Robotic Process Automation RPA
Automate manual process steps

Smart contracts
Automated transactions based on preliminary digital agreement

Machine Learning
Help decisions based on data

Analytics

Open Data
Allow to create value from open and normalized data

Data Anonymization
Anonymize data for purpose of analytics

Reporting & Dashboards
Structure and present information to identify trends and monitor KPIs

Business Intelligence
Leverage data for improvement of business flows.

User capabilities

Identity
Create ID
Authenticate
KYC
Manage
Issue ID Credential
Notify/Subscribe
Manage Relying parties

Digital Signature
Create Signature keys
Create
Encryptions keys
Sign
Encrypt

Payment
Manage accounts
Manage PSP
Perform payment

Messaging
Send Message
Create Channel

Personal Services UI
Personal UI
Manage preferred UI
Manage preferences
Manage applications

Consent
Define consent policies
Store & retrieve consent
Verify consent
Collect consent

Personal Vault & Wallet
Store and retrieve docs & VC
Generate VC

Flows management

Workflow
Create workflow
Manage workflow

Events
Create event
Manage event
Delete event
Receive event
Notify event

Scheduler
Schedule and trigger one time or recurrent event

Authorizations

Information Mediator
Manage and control access to services in between sector

IAM
Manage and control access to services in between sector

Data management

GIS
Analyzes and displays geographically referenced information.
Uses data that is attached to a unique location

Registries and Credentials
Store and retrieve data
Issue and verify VC

Trust services

Foundational ID
Establish a Unique Digital Identity to all individuals.
Allows to verify that Identity

Blockchain
decentralized and immutable ledger,

PKI
decentralized and immutable ledger,

Timestamp
Participates to data authenticity and integrity

Turn Key Services

Infrastructure AAS

Platform AAS

Software AAS

Data AAS

GovStack

Benefits of GovStack
Whole-of-Government approach

Nationwide digitally enabled users database for services providers

GovStack

Unique digital identification coupled with the public digital platform creates an infrastructure for interaction with all individuals.

By leveraging GovStack platform Services providers have immediately access to a nationwide database of digital user all with fully fledged digital capabilities.

Improve operational efficiency of public services

GovStack

Implementing whole-of-a-government approach builds interoperability in between organisations, creating bridges in between siloed administrations.

It will make sure data are up to date in a defined place and accessible in a uniform way by all systems.

It can improve organizations' operational efficiency by streamlining processes, optimizing resource utilization and automating tasks.

Taking informed decisions

GovStack

Whole-of-a-government approach help to access and consolidate data wherever they are in the government systems.

It then can provide more accurate, real-time data to help policy-makers make better, faster decisions.

Increased transparency and trust

Digitalisation of administrative processes generate data for audit and inquiries, by making them accessible transparently GovStack can help increase transparency and trust by enabling better monitoring and control of digital activities.

Enhanced safety and risk management

GovStack

Whole-of-a-government approach comes with common rules and governance on security, data protection and cybersecurity.

As security of the ecosystem depends of its weakest component, applying common rule helps overall to strengthen security and risk management by establishing standards and policies to protect sensitive data.

Improve User satisfaction

GovStack will allow to build faster, more convenient and more personalized online service helping on improving the user experience.

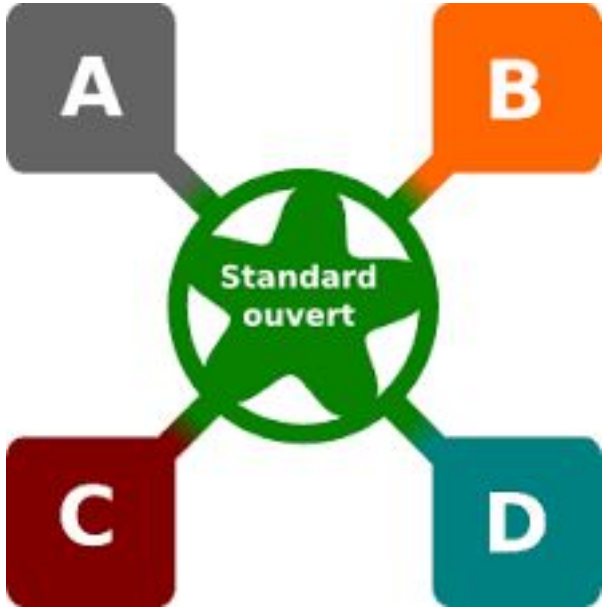
It can help improving user satisfaction and also quality of public services.

Ease Interoperability in between systems

GovStack

GovStack ensures system interoperability by establishing common norms and standards.

Different IT systems interact smoothly and efficiently, regardless of their technical or organizational specificities.



Costs optimization

GovStack

Whole-of-a-government approach digitalize processes allowing to automate them in a second steps.

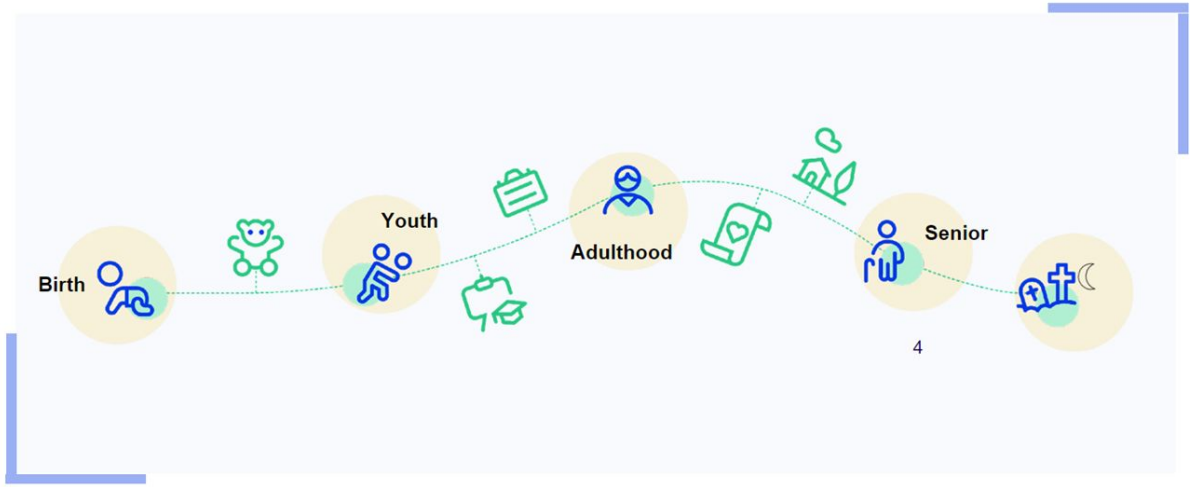
It can cut costs of staff and offices by reducing manual processes.

It can automating repetitive tasks leaving time for staff to focus on exotic cases, saving money on the overall applications.

Expectable benefits

The GovStack approach can help stakeholders accelerate their digital transformation, improve operational efficiency, decision-making, transparency, accountability, security, service quality and reduce costs.

Building Block value proposition summary



Respond to people's' life events
From cradle to grave

Source:GovStack Ecosystem Reference Architecture (GERA): A Guide for Policymakers, Public Administration Leaders, and Strategic Stakeholders

The GovStack approach has wide-ranging benefits

GovStack

Speed

Increases speed of delivery by facilitating reuse of core service elements anredirectingd resources towards improving citizen outcomes.

Cost-efficiency

Improves procurement efficiency and provides common capabilities cross-departments / -agencies which avoids duplication of efforts, reduces cost to develop new e-gov. services,.

Real economic return

Provides socioeconomic ROI by enabling faster and closer connections from government to addressing needs of citizens and businesses.

ONE government

Enables service delivery that links and invokes different parts of government, providing a connected, consistent and seamless user experience.

Agility + Responsiveness

Enable governments to design and deliver new services quickly to respond to needs and unexpected circumstances (e.g. global pandemic and disasters).

Integration + exchange

Enables integrated transactions and exchange of information across other equivalent stacks and systems through standards and open APIs.

Harmonized policies

Opens possibilities for aggregation of big data for richer insights that would help develop better nonconflicting policies and monitor operations.

Minimized vendor lock-in

Minimizes product 'lock-in' and allows independent services to run where modular Building Blocks could be replaced without impacting overall experience.

[Ref. on other documented rationalization w. AsiaPac. countries examples: GSMA Report "Advancing digital societies in Asia Pacific: a whole-of-government approach"]

In summary, GovStack is about:

- **Citizen-centricity:** serving the citizens and not only the government (G2C, G2B, G2G)
- **Outcome focus:** based on clear measurable results (high-impact use cases)
- **Whole-of-government:** public agencies achieve together a shared goal and deliver an integrated response to a particular issue working across government departments.
- **Community and Ecosystem driven**
- Allow countries to take full **ownership** of their digital futures and scale technology in ways that maintain **national digital sovereignty**
- **Unbundling:** complex challenges into micro services to then be re-bundled for specific context
- **Reusability:** maximizing return on investments (invest once but use for all)
- **Integration & Interoperability:** seamless exchange of information across agency-silos and delivered through different channels. Services should be “integrated by design” (API-fication)
- **Open Standards and Open Source** Digital Public Goods (DPGs) to build safe, inclusive, and trusted Digital Public Services Infrastructure
- **Data sharing:** Data is shared across government based on rights and privileges
- **Privacy by design**
- **Government as Service Enabler/platform:** moving from development of applications to making available public digital infrastructure/platforms where multiple applications can be developed on top of it

Digital Government Transformation & GovStack as enabler

GovStack

"Digital transformation is a continuous process of adoption of digital technologies that fundamentally change the way government and private sector services are ideated, planned, designed, deployed and operated and, to create new services that were not possible before by being **personalized, paperless, cashless, presenceless, frictionless, and consent-based**" - a new generation of transformational citizen-centric digital services.

Source: ITU, 2019, Digital transformation and the role of enterprise architecture

GovStack approach:

- Powers governments with Digital Service Infrastructure that is foundational and where digital services can be built on top of it
- Establishes a **Trust and Interoperability Framework** that is the basis for **green** digital economy
- GovStack is thus the "**Engine" of Sustainable Digital Transformation**

Source: https://digitalpublicgoods.net/blog/unpacking-concepts-definitions-digital-public-infrastructure-building-blocks-and-their-relation-to-digital-public-goods/

GovStack

HOW?

GovStack offerings

GovSpecs

Building Blocks build the basis for scalable, interoperable digital services
Functional specifications for foundational building blocks

GovTest

A digital testing environment to learn, experiment, and prototype services Sandbox for building blocks and create prototypes for eGovernment services

GovLearn

Supporting countries in using building blocks through the GovStack Implementation Playbook, workshops and Communities of Practices.

GovExchange

A platform to explore and compare products, view use cases, post or find RFPs.

GovStack offerings accelerate the digitization of governments services

GovStack

GovSpecs

GovTest

GovLearn

GovExchange

Country Engagement

Countries build their services based on Building Block specifications
Countries may contribute to their development in working groups.

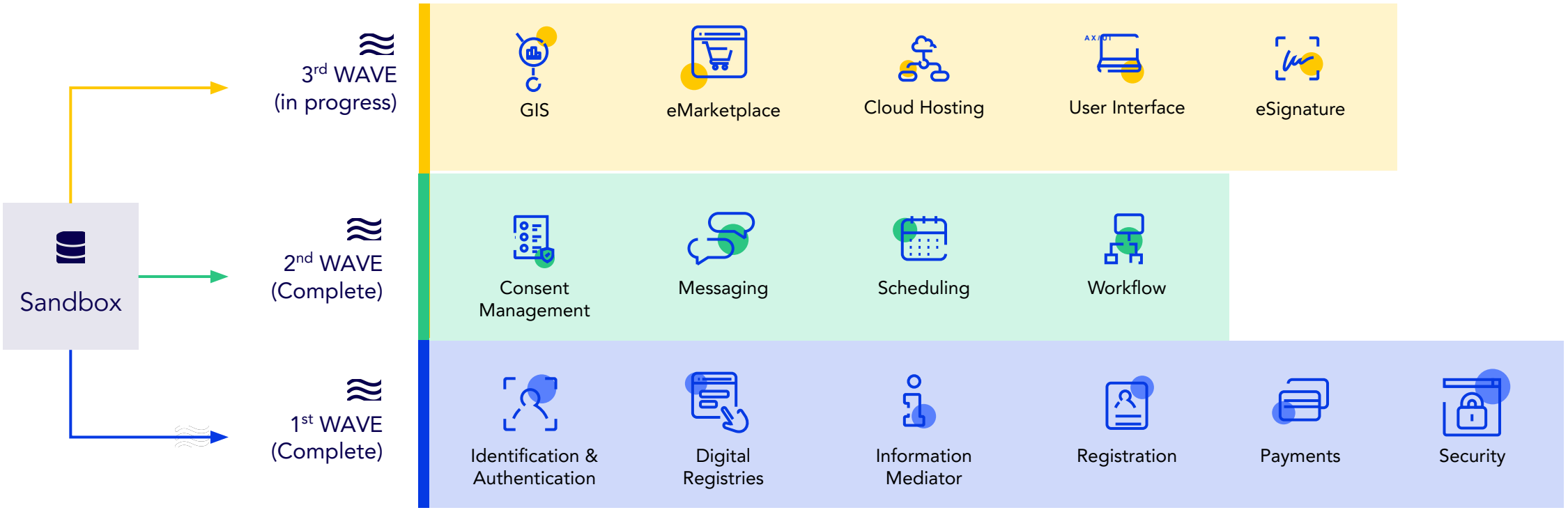
Countries identify and prioritize use cases which can then be demonstrated, tested and explored in sandboxes.

Countries benefit from capacity building (e-learning, implementation playbook, workshops) and exchange knowledge through Communities of Practice.

1

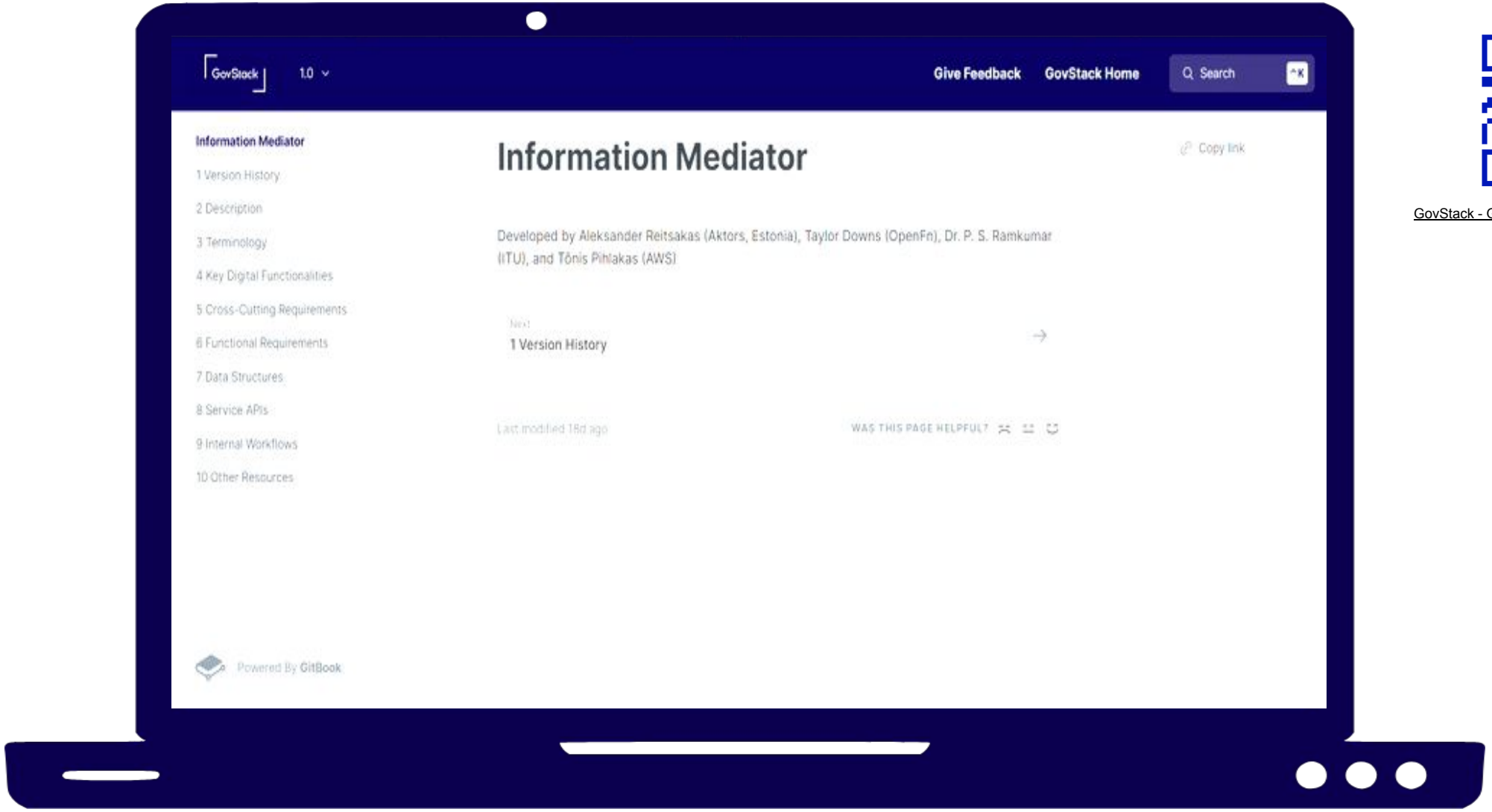
GovSpecs

GovStack Building Blocks are released in waves



Current specifications available at https://govstack.gitbook.io/specification/

Technical specifications accelerate software development and API integration among BBs



GovStack - GovStack Specification (gitbook.io)

2

GovTest

GovTest: The GovStack Sandbox to experiment, learn and prototype

The Challenge

- ❑ Lack of comprehensive pre-procurement testing
- ❑ Limited transparency of existing best practice systems
- ❑ Reinventing the development, deployment and operating life cycle

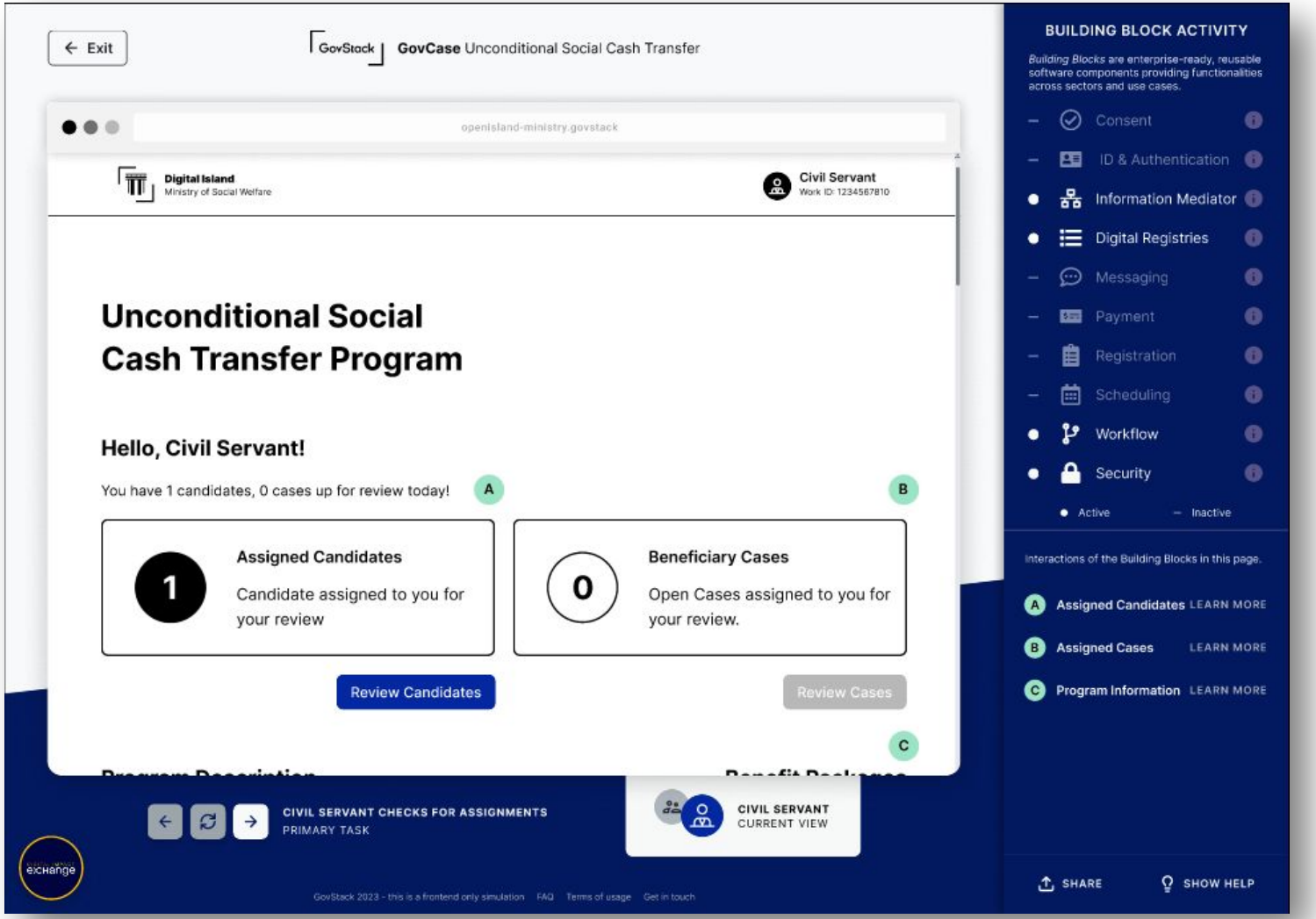
GovStack's Solution

- ✔ First GovStack reference implementation acts as best practice
- ✔ Experience the citizen's user journey of reference use cases
- ✔ Test the interchangeability of Building Blocks with a variety of use cases
- ✔ Assess the deployment, configuration and interoperability of Building Blocks

GovTest: The GovStack sandbox is being developed

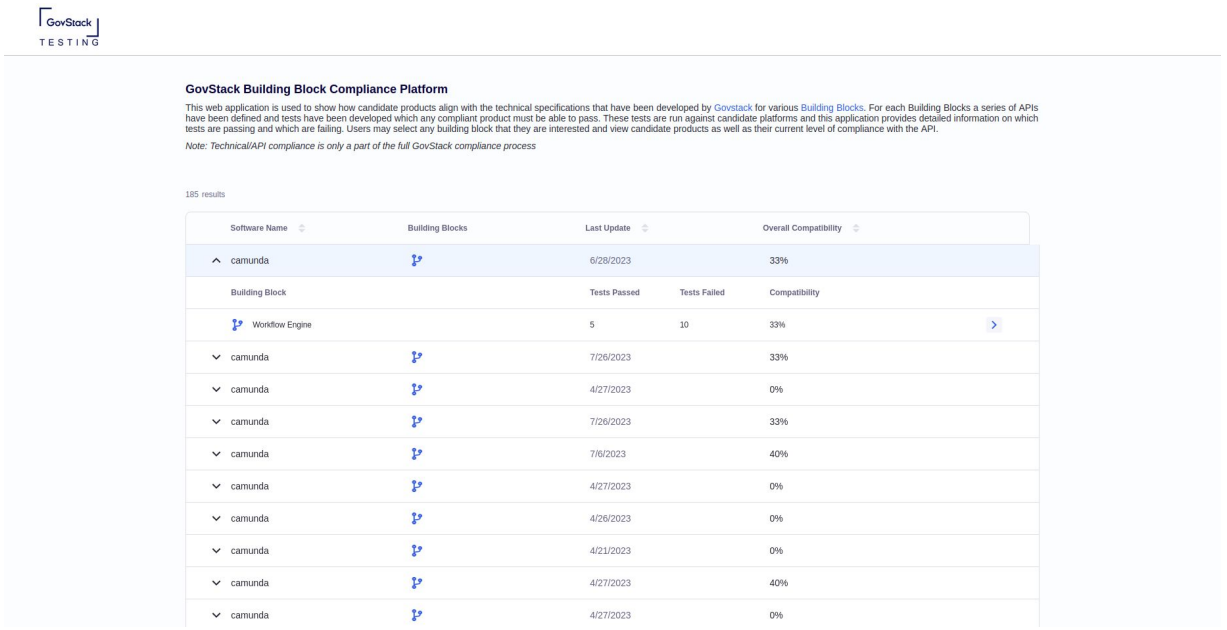
Sandbox Features

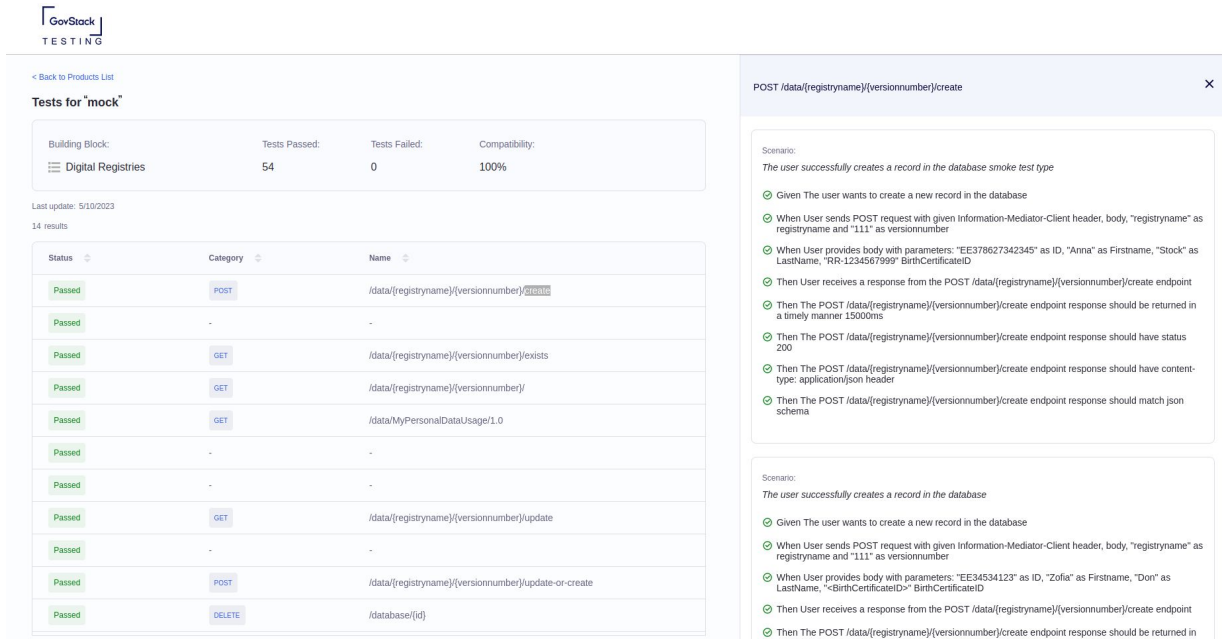
- ✔ makes the GovStack approach tangible
- ✔ is an isolated, safe environment simulating a small governmental e-service system (reference implementation)
- ✔ encapsulates the business logic and data necessary to represent multiple GovStack (APIs, BB, use cases and workflows)
- ✔ follows the GovStack architectural approach centered around APIs and microservices to help unlock monolithic legacy systems to increase the speed of IT project delivery, leading to more effective and cost-efficient digital governments



Test harness facilitates APIs compliance process

The Testing Webapp, a part of the Test Harness system, serves as a window into software compliance, providing a simple yet insightful overview of how different applications measure up against BB standards.





Application: https://testing.govstack.global/

Current specifications available at https://govstack.gitbook.io/specification/

3

GovLearn

GovLearn: capacity building through eLearning, workshops, implantation playbook & communities of practice

GovStack

<u>GovStack Playbook</u>
Resources, guidelines and step-by-step instructions

E-learning modules around GovStack implementation and & the building blocks

atingi

<u>Communities of Practice</u>
& other exchange formats

In-person trainings

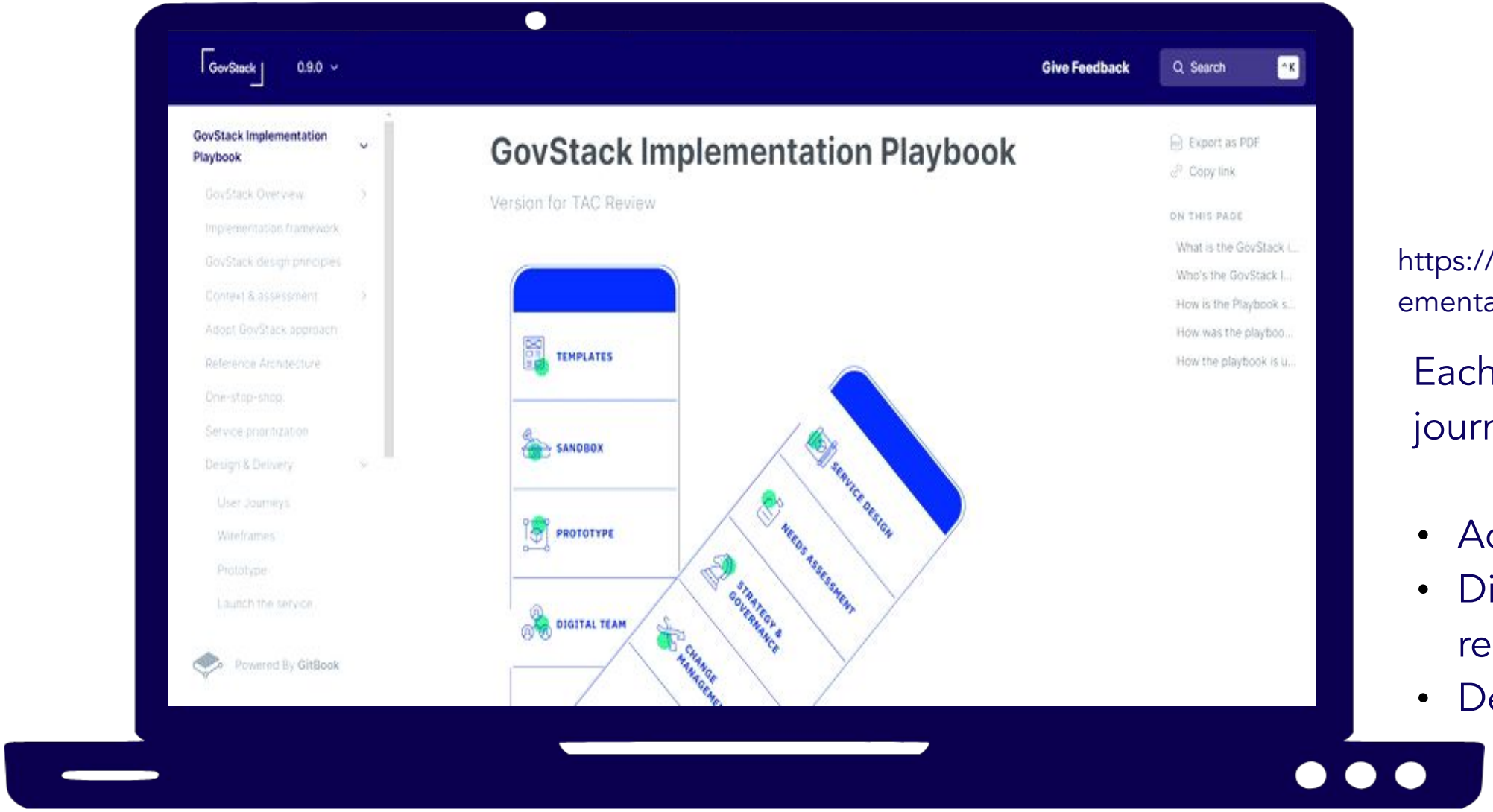
Available for everyone, may be used for independent guidance as well as a step-by-step guide understanding and implementing GovStack

Hosted on atingi, complementing the Playbook; a-synchronous short courses

Initiated by founding partners on technical aspects, gender & inclusion or regional exchange

Specific trainings based on needs assessment in focus-countries

GovStack Implementation Playbook: a step-by-step guide to digital service design using the Building Block approach

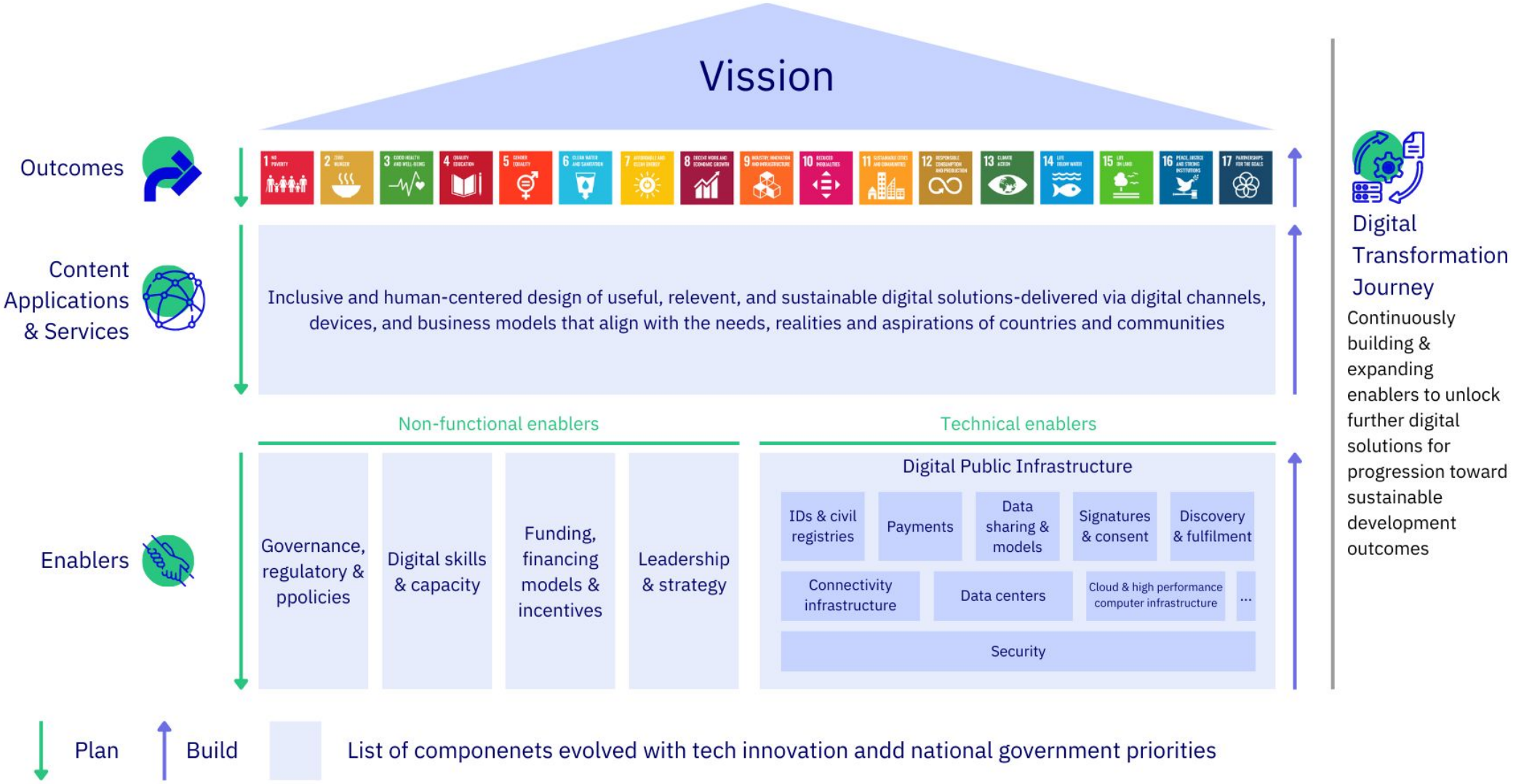


https://govstack.gitbook.io/implementation-playbook/

Each step within the journey describes of:

- Activities/Resources
- Digital teams roles & responsibilities
- Deliverables

GovStack implementation framework strengthens institutional mandate, service design and delivery using a BB approach



GovStack implementation framework strengthens institutional mandate, service design and delivery using a BB approach

GovStack

GOVSTACK CAN BE INCORPORATED INTO POLICY

- Digital Transformation Strategy
- Digital Government Strategy/Policy/Roadmap
- Whole-of-Government Enterprise Architecture

GOVSTACK CAN GUIDE SERVICE DESIGN, PROTOTYPE & SCALING

- Service design (Life Events, User Needs, Journey)
- Prototyping (Optional in Case of Sandbox)
- Procurement
- Piloting/Scaling Up

GOVSTACK DESIGN PRINCIPLES

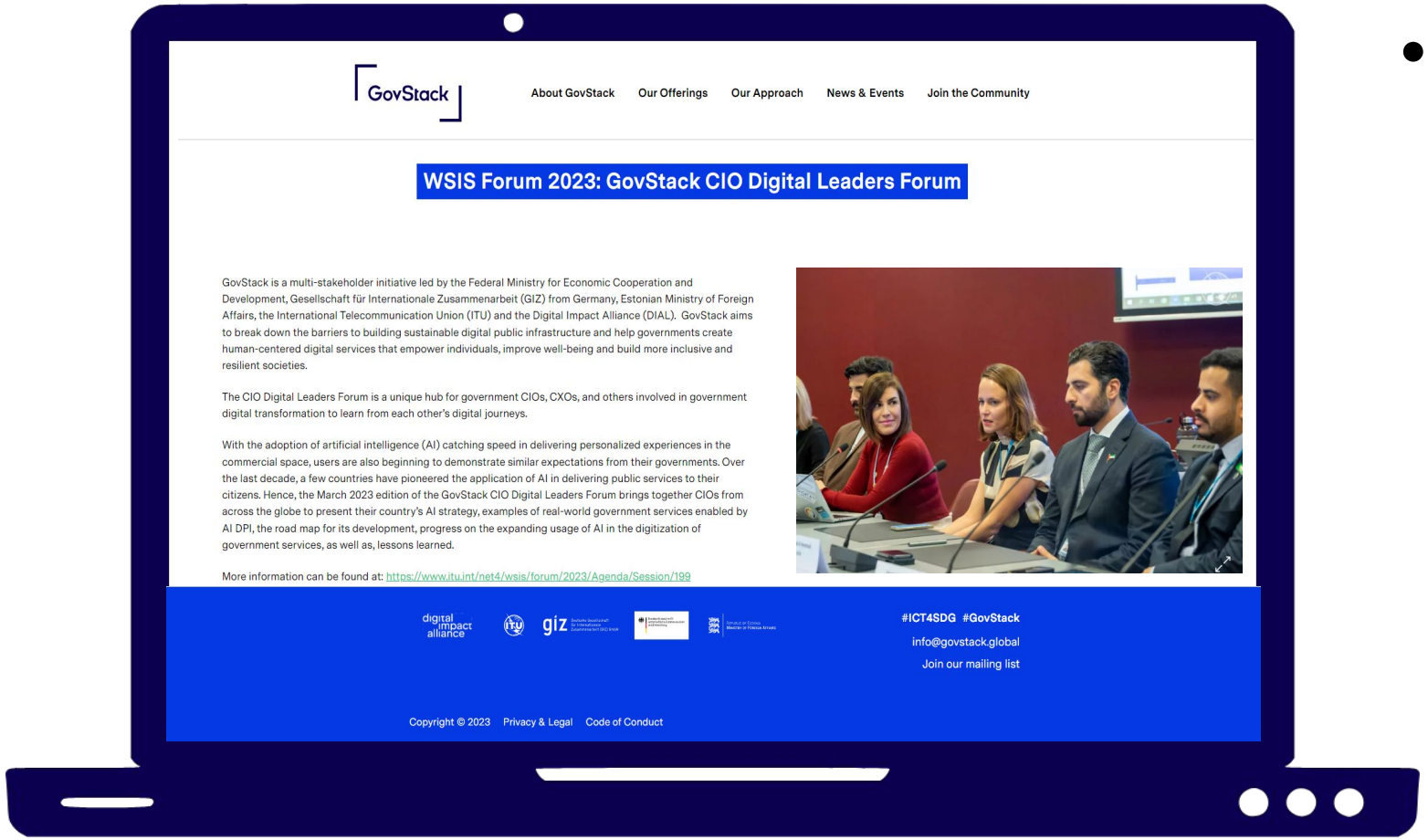
CAPACITY BUILDING AND COMMUNITY ENGAGEMENT HAPPENS THROUGH IMPLEMENTATION FRAMEWORK

The Challenge brings together the women in the global GovTech community in applying the BB approach in their fields

About the applicants:

- 29 mentors
- 129 participants
- Regions covered: Europe, South Asia, South east Asia, Africa and Latin America.
- 13 thematic areas covered (Service delivery, Security, agriculture, Waste Management etc)

CIO Digital Leaders Forum



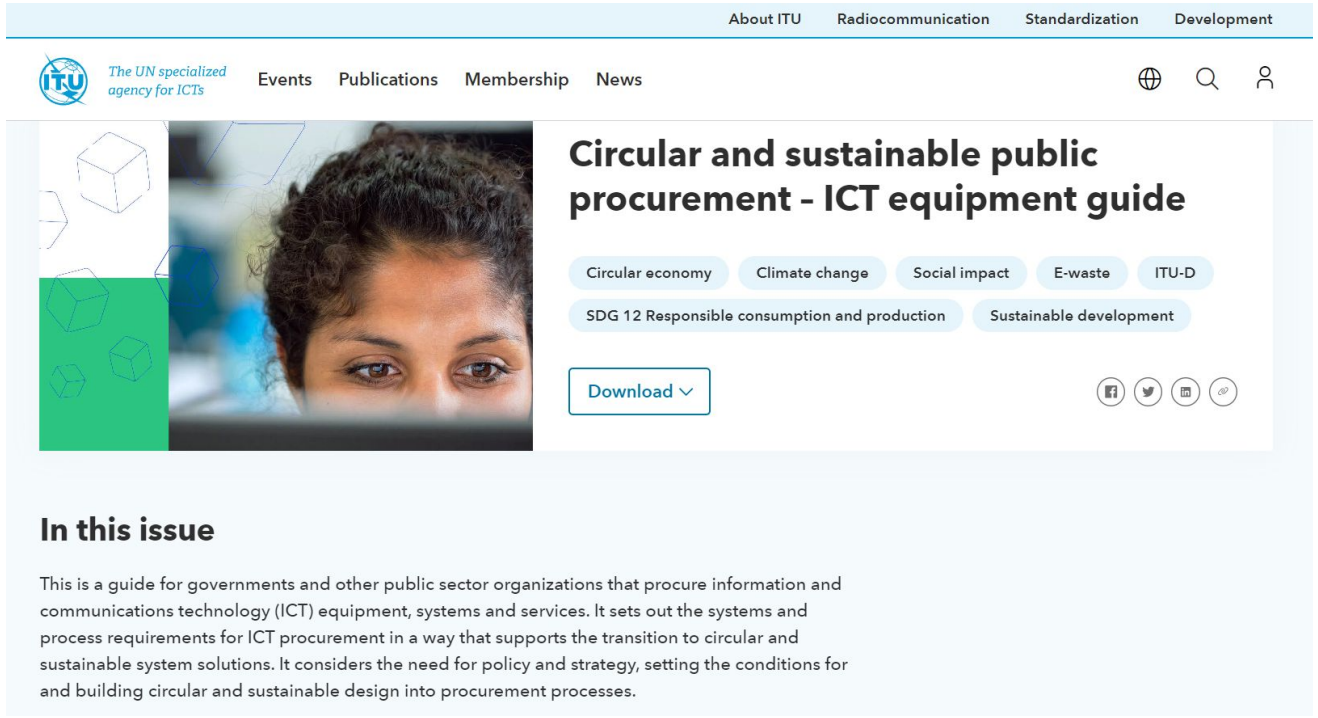
- 10 best practices featured
  - Peru
  - Estonia
  - India
  - Rwanda
  - Egypt
  - Ukraine
  - UAE
  - Saudi Arabia
  - Argentina
  - Senegal
  - Sierra Leone

WSIS Special Prize in Digital Service Design 2023 Edition

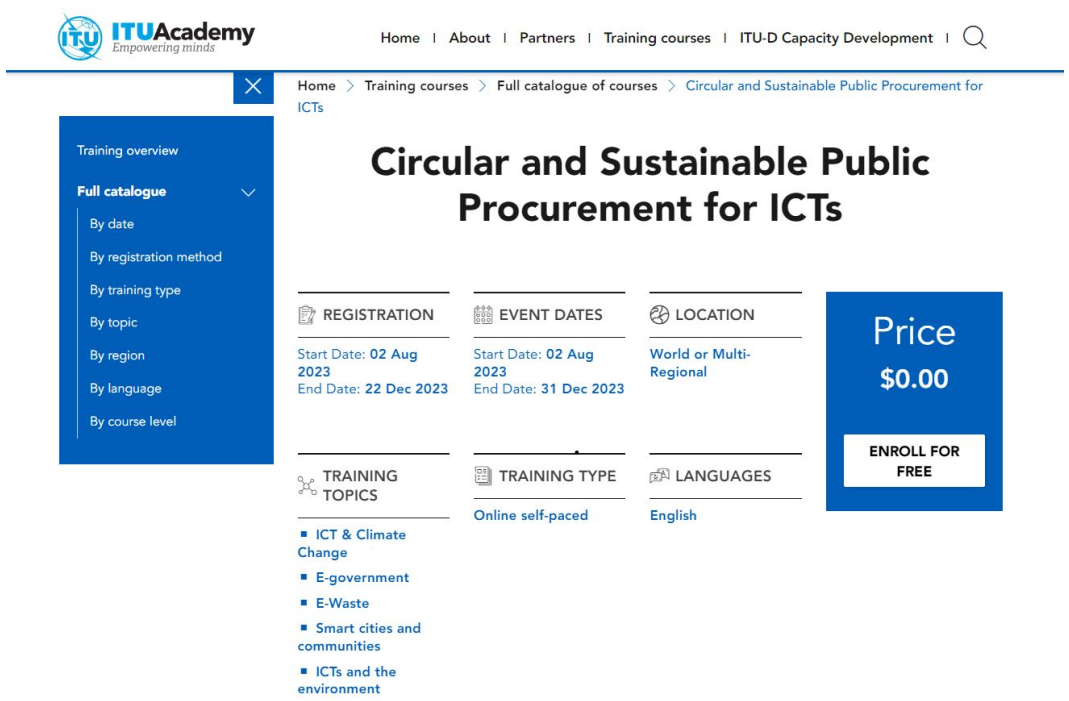
50 applicants from all over the world and 10 finalist selected:

- Front-Office Digitization (FOD), Moldova (Winner)
- Portal Mais Transparência, Portugal
- TradeTrust, Singapore
- Gob.pe, Peru
- Sapawarga, West Java Indonesia
- Digital Livestock Services, Bangledesh
- BanglarShiksha, West Bengal
- MODUL-F, Hamburg Germany
- TAMM: Abu Dhabi, UAE
- Tina, Argentina

Green GovStack ICT procurement guidelines

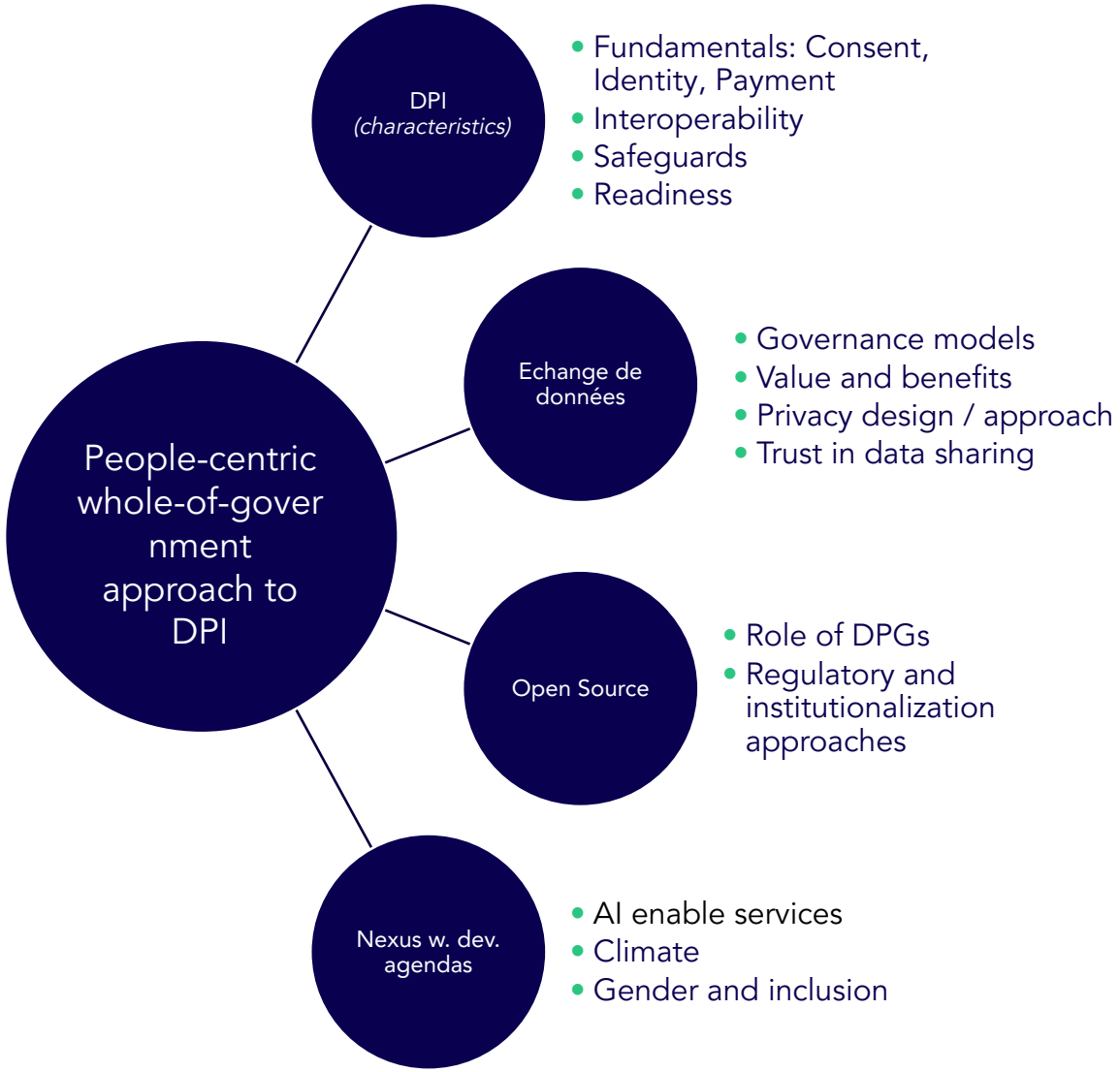


https://www.itu.int/hub/publication/d-hdb-guidelines-04-2023/



https://academy.itu.int/training-courses/full-catalogue/circular-and-sustainable-public-procurement-icts

GovStack research focus areas pre-identified so far:



À produire et à externaliser via les formats suivants :

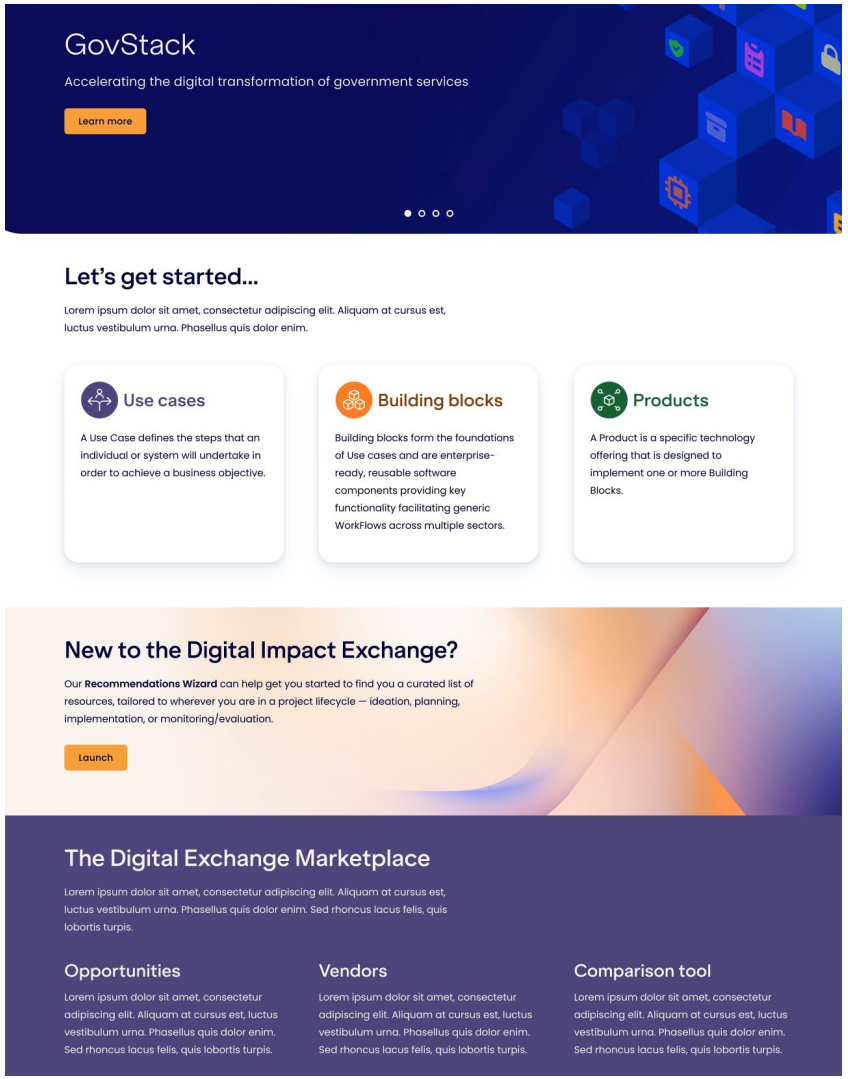
- Blogs
- Articles de recherche
- Études de cas par pays
- Livres blancs (6 produits)
- Commandés auprès d'experts externes
- Positionnement à l'ordre du jour lors d'événements existants
- Recherche de partenariats dans les forums de recherche
-

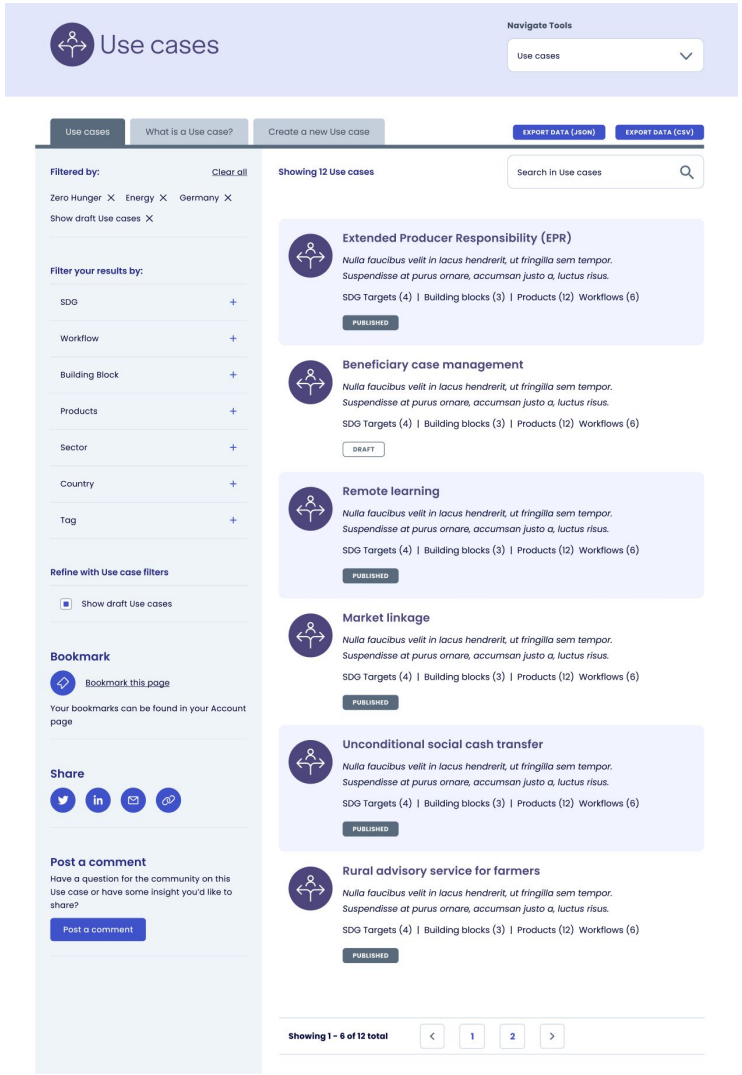
4

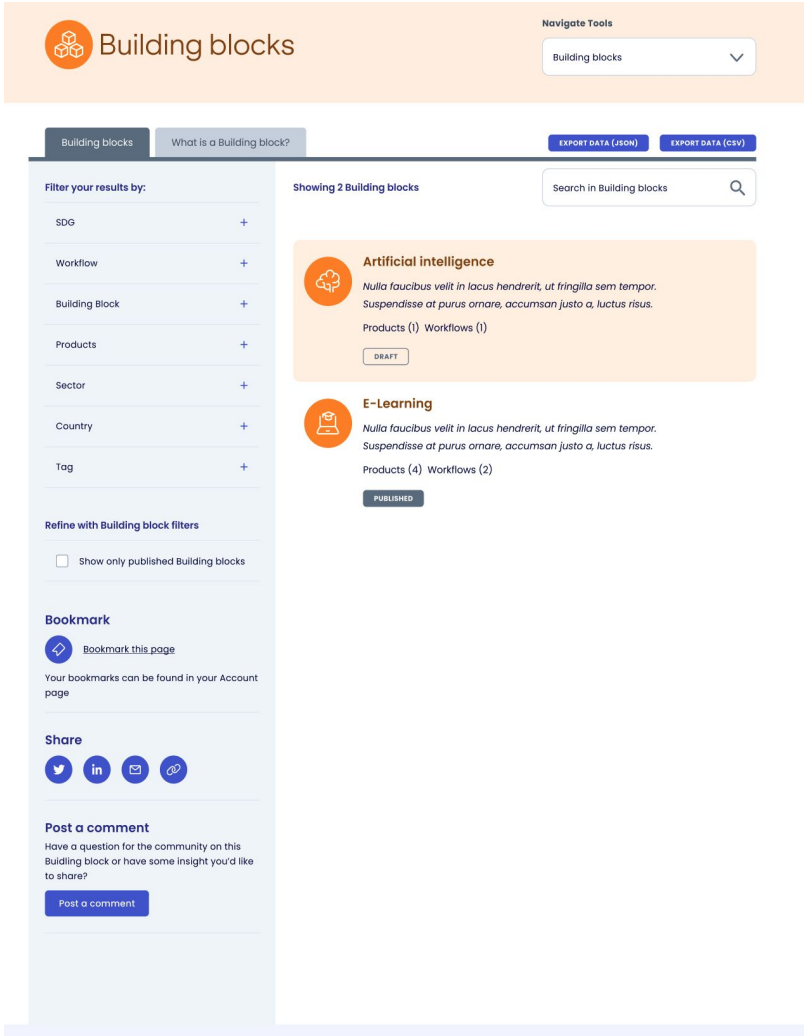
GovExchange

GovExchange Wireframes

GovStack

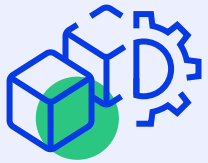






Become a part of the GovStack Initiative

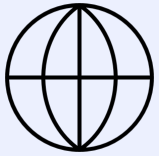
GovStack



Tech & Product Contribution

Organizations or Countries contributing to the Working groups various GovStack technical assets in operationalizing the BB approach

- Working group contributions
- BB compliant Products
- CIO Forum, COPs
- Direct pathways via Jira, Confluence



Design & Demonstrate

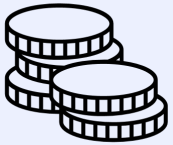
Countries piloting or supporting the GovStack approach. GovStack support mechanisms include

- Strategy support
- Service design & prototyping
- Capacity development
- Country & regional COPs

Knowledge Contribution

Partners who share knowledge, best practices with GovStack

- Technical review committee
- Research outputs
- Advocacy
- Feedback on Tools & Products



Funding Partner

Partners funding the GovStack initiative or GovStack roll out in countries

- Core Funding
- Country Implement-ation
- Be part of the Advisory Board
- BB compliant Product funding

GovStack

Building Blocks
Guess game

Guess the Building Blocks..

GovStack

Estonia - Land transaction

Mexico - Birth declaration

Ukraine videos - Diia Digital Document - Emergency war use case - more videos

Thank You!

GovStack

Exemplar digital government services
India, Kazakhstan, Estonia, Moldova, Mexico

Republic of Estonia
Ministry of Foreign Affairs

Bundesministerium für
wirtschaftliche Zusammenarbeit
und Entwicklung

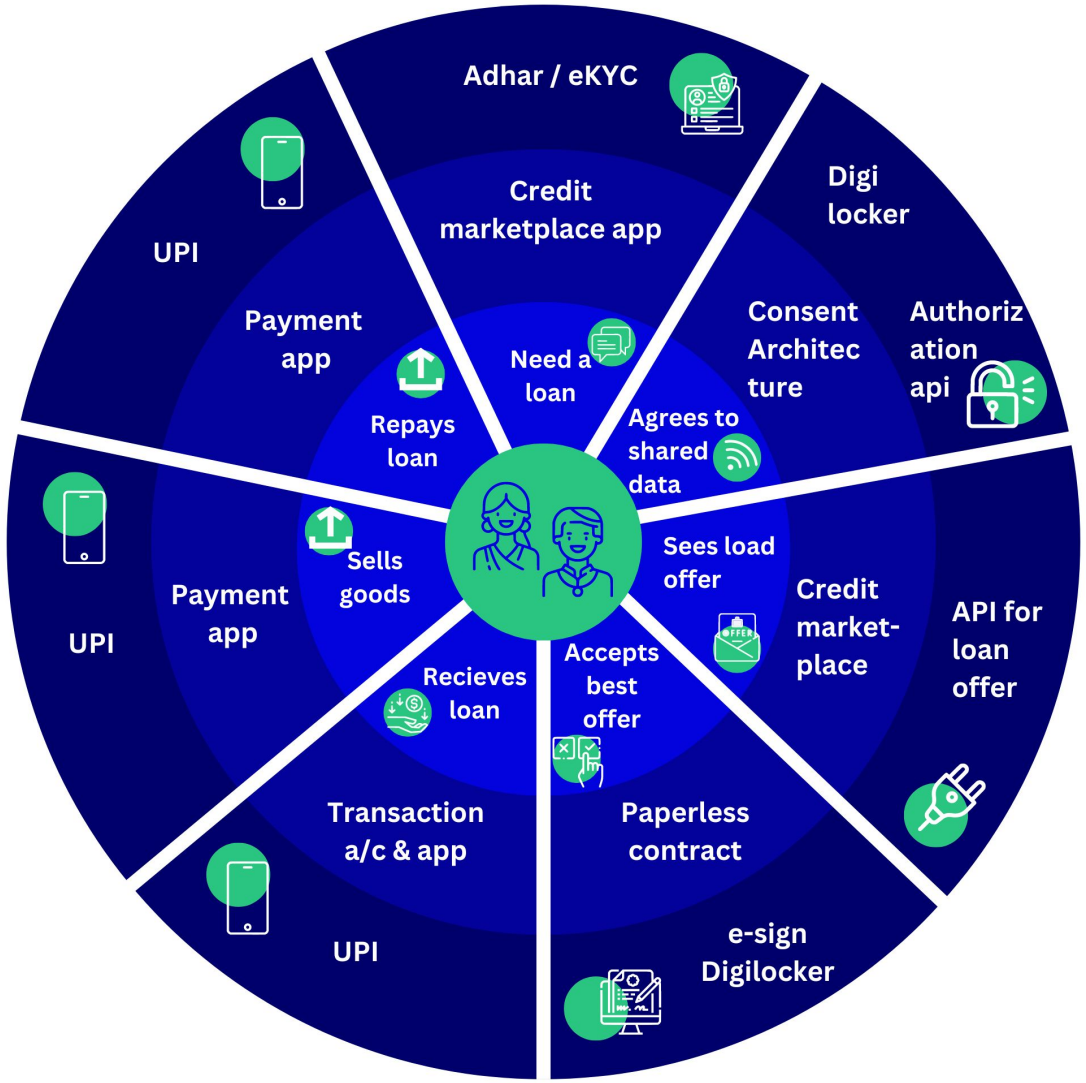
ITU

digital
impact
alliance

India

India Stack is a set of open APIs and digital public goods that aim to unlock the economic primitives of identity, data, and payments at population scale

GovStack



Identity Layer

Aadhaar:

- Provides identity to 1.38 billion residents
- 97 Billion e-authentications completed.
- Led to DBT disbursal of USD 372 B in govt. welfare schemes.
- Saving to government exchequer: USD 33 Billion (as on July, 2023)

Payments Layer

UPI:

- Simple and user-friendly onboarding of users and on-click secure payment from any bank account
- 458 Banks live on UPI.
- 190 Billion Transactions on UPI.
- 4.1 Trillion USD worth of transactions.

Data Layer

DigiLocker:

- Secure and Private: Accessed by user consent, no unverified usage of records, secure platform
- Anytime, anywhere usage: Shareable and accessible on the move using desktop or mobile
- Environment friendly: Paperless process reducing cost to the environment
- Facilitating 180 Million users and providing 6.2 Billion issued documents

https://www.imf.org/en/Publications/WP/Issues/2023/03/31/Stacking-up-the-Benefits-Lessons-from-Indias-Digital-Journey-531692

https://www.indiastack.global/statistics/

India

GovStack

Kazakhstan

Accelerating integration process between public and private information systems to boost service efficiency

GovStack

SMART BRIDGE

Optimization of the processes of organizing information interaction between the public and private sector by creating a single platform for all systems.

Published	Conducted
1361	**2663**
services	integration to services

The platform allows institutions (both public and private) to seamlessly integrate with government information systems using readily available free software tools and unified (standardized) digital infrastructure for interacting with users.

SINCE THE LAUNCH:

- simplified rollout and management of services;
- improved transparency;
- automated signing of 3 types of documents.

Economic effect

Simplified the integration process and reduction of paper workflow:

- from 3 months to 1 month
- from 8 approvals to 1 approval
- from 8 letters to 0 letters
- from t technical documents to 1 online forms

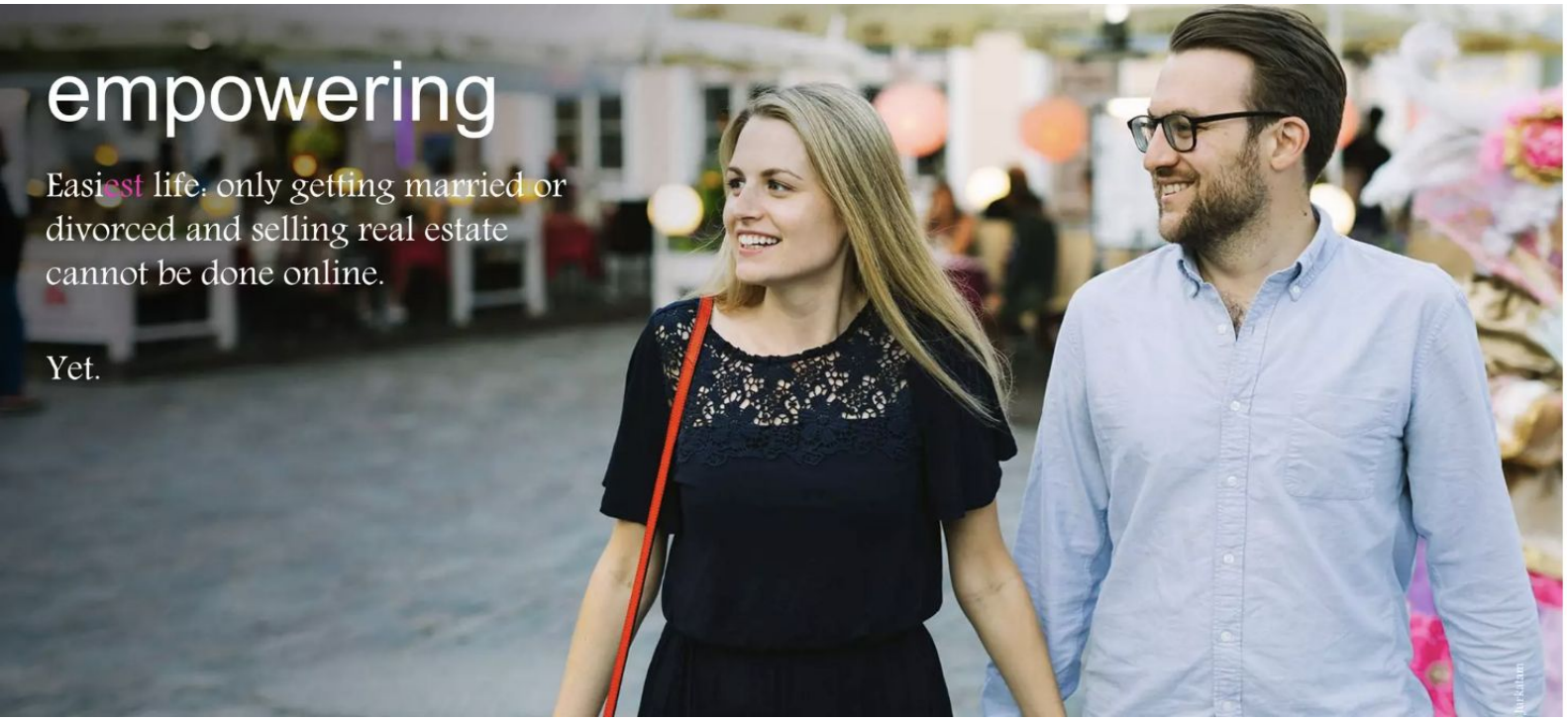
Kazakhstan

Kazakhstan

GovStack

Estonia

Integrated Governance



Citizen-Centric Vision

E-Identity Empowerment

Estonia's Approach: Trailblazing Digital Frontiers

Integrated System Harmony
X-Road

Pioneering Accessibility.
24/7 Anyware, anytime, from any device

[e-Estonia building blocks]

Estonia

Land registry in Estonia

e-estonia

Moldova

Moldova's Strategic Digital Evolution: A Unified Ecosystem & its Components

GovStack

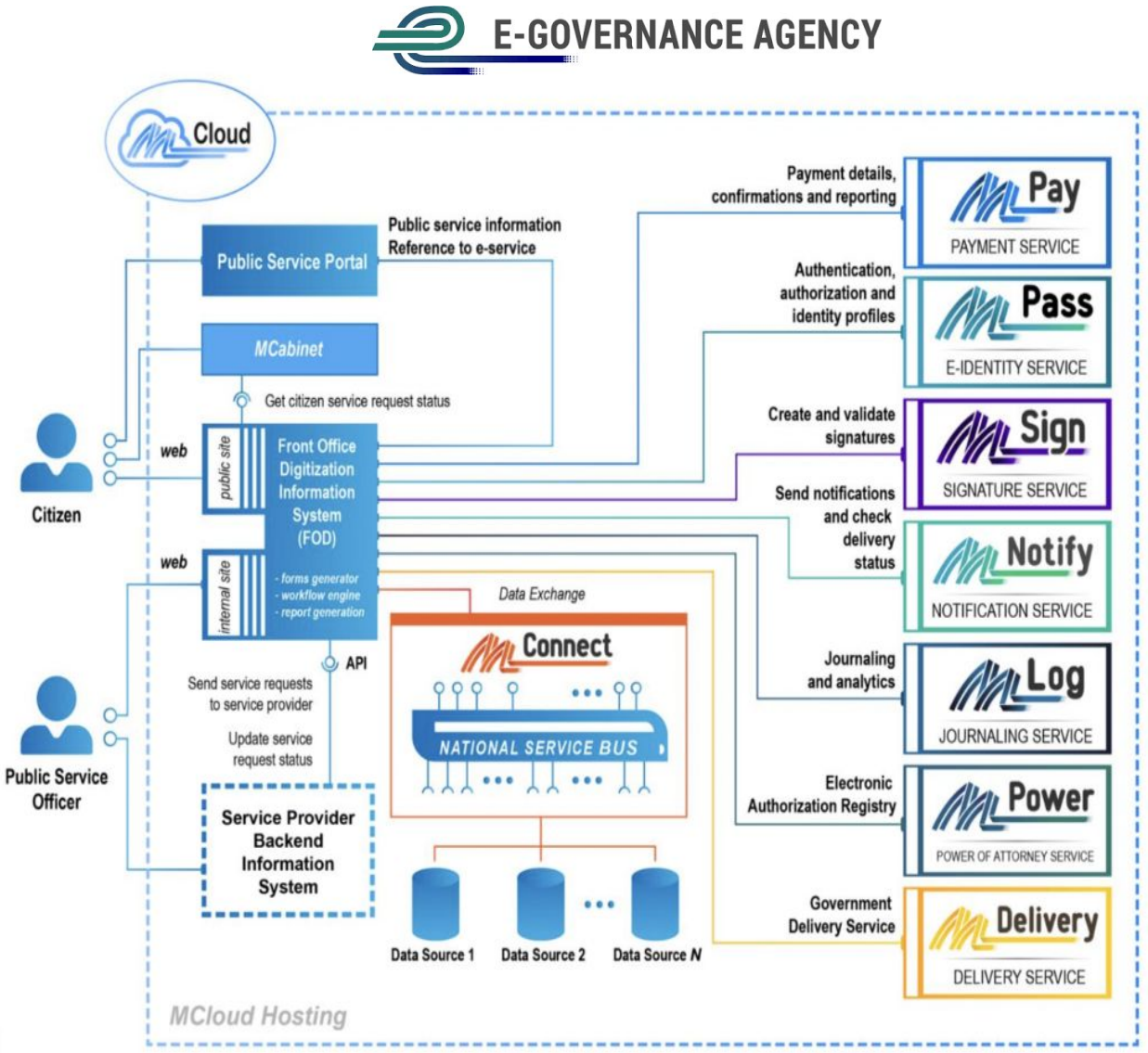
National interoperability framework ensures consistent data systems, aligned with Moldova's commitment to efficient governance.

Seamless digital integration empower public service providers to collaborate efficiently as FOD aims to form an interconnected ecosystem that fuels innovation.

Dynamic e-services development framework allows assembling user-centric solutions, reusable components & minimizing redundancy.

User-friendly back office ensures uniform delivery by tightly integrating with platform services.

Smart resource allocation optimizes investments, bolstering digital transformation.

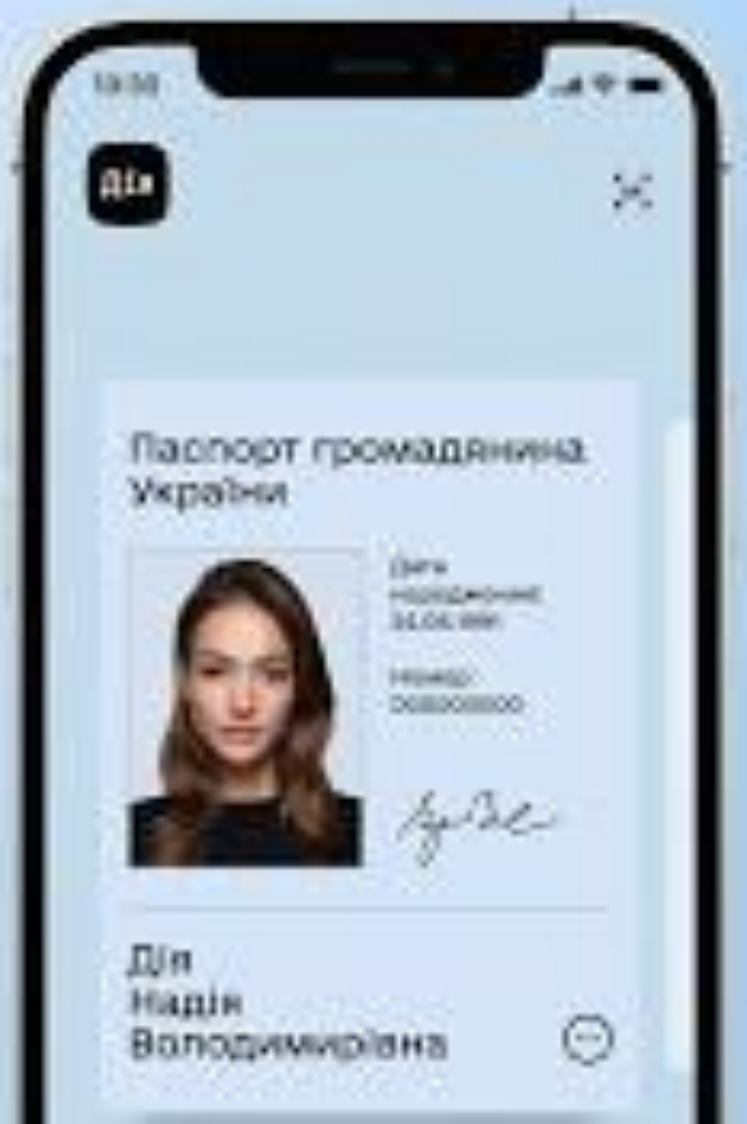


Ukraine

GovStack

Digital passport in Diia

Дія



CMS- gob.mx alfa, beta
Entities websites & service cataloge
Specs, APIs, software

eSignature, payments, identity, service estandard
Specs, APIs, regulation

+900 estandarized services a year

2013 2014 2015 2016 2017 2018

15 Tec Specs w APIs definitions

What could have been the road map if GovStack Tech Specs were avilable in 2013?

Birth certificate
Education credentials
5534

CMS- gob.mx alfa, beta
Entities websites & service catalogue
Customize the spec & APIs if need it

eSignature, payments, identity, service estandard
Specs, APIs, regulation

+900 estadarized services a year

Birth certificate
Education credentials

Operating licences
Construction permits
Driver licenses

2013 2014 2015 2016 2017 2018

Mexico

A digital service standard to unified the digital experience across all government services

GovStack

CMS
299 Government entities
Service catalogue - Life events
5000 service information sheet

Standard web form instead of 32 different websites

Standard electronic document instead of 32 different official print paper

API definition to validate identity using the national population registry

Mexico

Birth certificate online

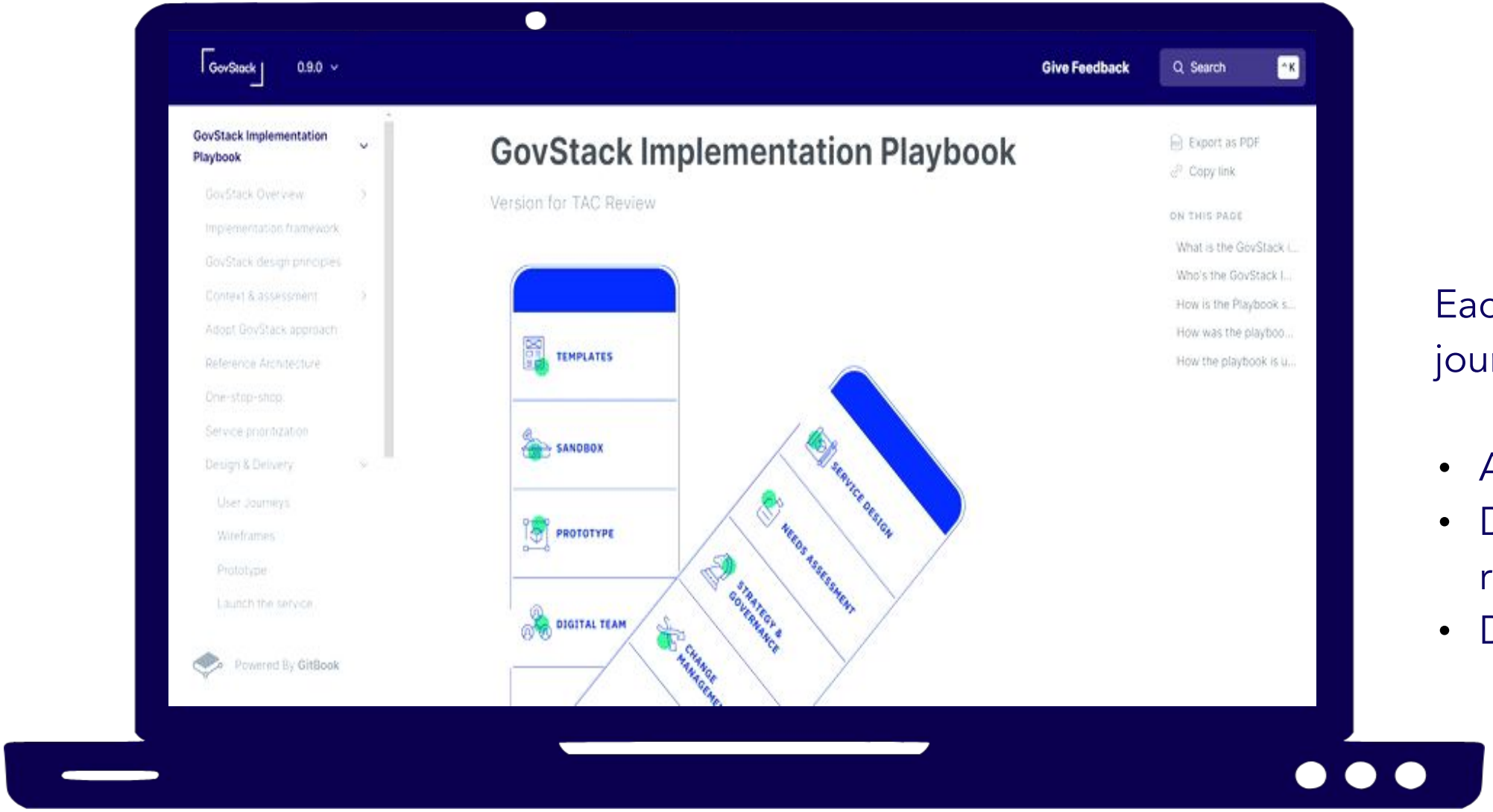
GovStack

Sustainable digital transformation comes with the highest political support, strong governance structure, and a team to deliver

GovStack

	Institutional set up	Regulatory framework	Governance structure to defined	Funding mechanism to maintain the stack
India https://indiastack.org/	National eGovernance Division National Payments Corporation	Smart bridge provide services to public and private organization	National eGovernance Division National Payments Corp.	National eGovernance Division National Payments Corporation
Kazakhstan https://www.nitec.kz/	NITEC	Single requirements in the field of ICT approved by the Decree of the Government of Dec. 20, 2016 No. 832.	NITEC, Ministry of Digital Development, Innovation and Aerospace Industry	NITEC - Smart bridge
Estonia	Office of the CIO Ministry of Economy	Only once principle is mandatory	Office of the CIO Ministry of Economy	NIIS - Estonia, Iceland, Finland X-Road
Moldova https://www.egov.md/en	Moldova eGovernance Agency	Methodology on public services re-engineering A complex legal framework supporting gov. digital transformation available here	eGovernance Agency, State Chancellery, Ministry of Economic Development and DIgitalization	Co Financing based on the government funding and resources of various development partners
Mexico	President Office National Digital Coordination Office	Digital Agenda Digital service standard ICT Policy to align ICT investments to Digital Agenda	Interministerial commission for the development of e Government • Agreed on standards • Yearly digitization plan	Shared service policy defines which BB are maintained by each gov entity with their own ICT budget • Ministry of interior eID • TAX Agency eSignature • Public Administration gob.mx

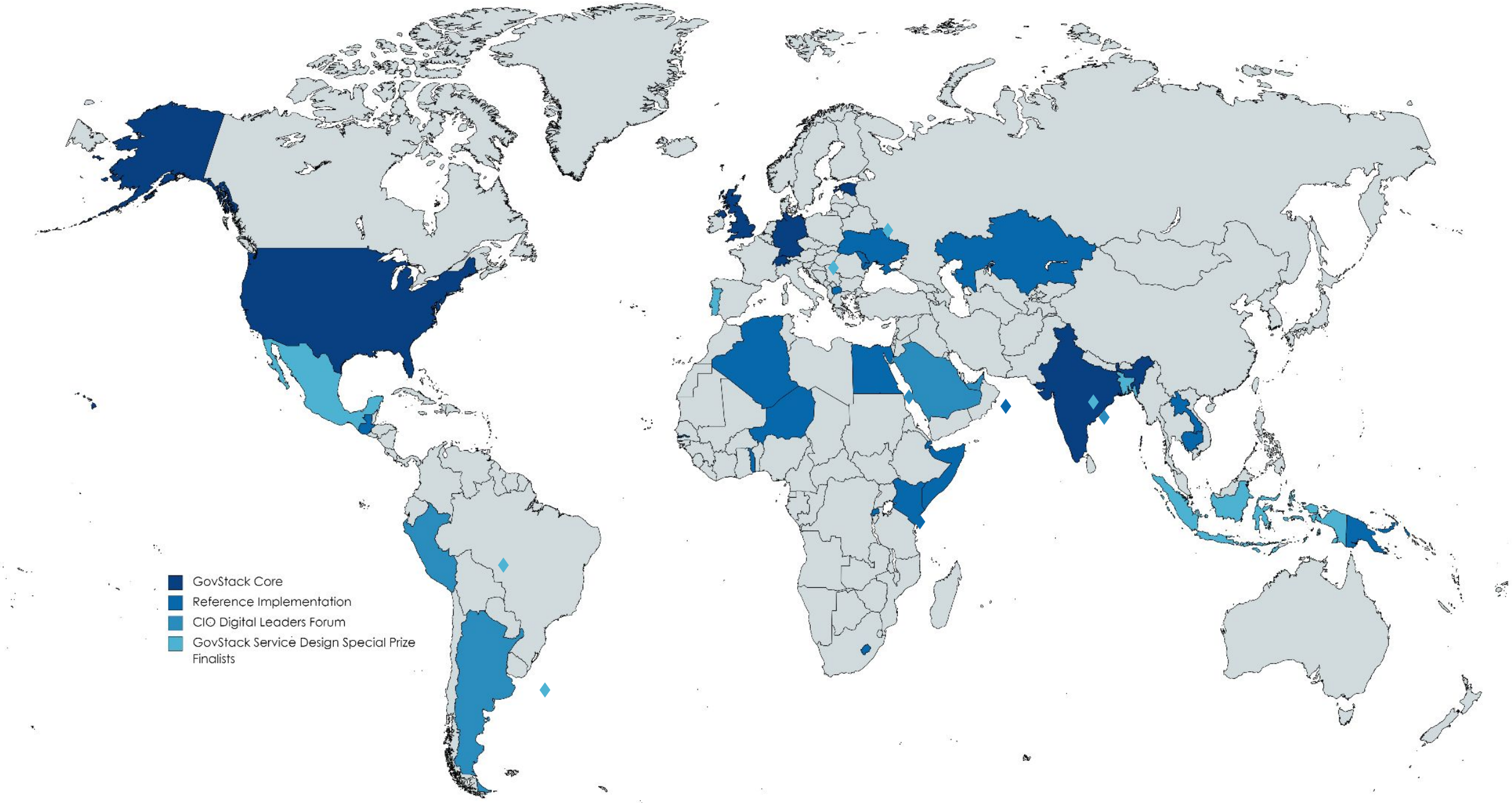
GovStack Implementation Playbook: a step-by-step guide to digital service design using the Building Block approach



Each step within the journey describes of:

- Activities/Resources
- Digital teams roles & responsibilities
- Deliverables

How global is GovStack?



GovStack Country Engagement

Current GovStack Partner Countries from…

GovStack Services: We collaborate with governments in the following areas:

- Assessing e-government readiness and roadmap development
- Piloting of e-government use case
- Strengthening local capacity
- Contribution of local actors to the Building Block specifications
- Participation of local actors in Communities of Practice

GovStack Engagement in Horn of Africa (HoA) co-financed by the EU Commission

Djibouti

Somalia

Kenya

GIZ local project/ office: GIZ Digital Transformation Center (DTC) Kenya

Duration: 01/2022 - 03/2025

Developing digital government strategies and roadmaps	Development of Digital Readiness Studies and Implementation Roadmaps
Design and Prototyping of e-services	Design and development of priority e-services based on the GovStack approach (Djibouti: eCabinet & Construction Permits, Somalia: Service Catalog & High School Certificates, Kenya: Integrated Case Management Systems)
Strengthening government capacity	GovStack and Change Management capacity development including Training-of-Trainers and on the job coaching
Participation in Communities of Practice	Regional and Global GovStack Communities of Practice

… an **EU D4D cooperation** together w. France, Spain – the International Telecommunication Union (ITU), Digital Impact Alliance (at the UN Foundation) and Estonian Centre for International Development (EstDev)

GovStack Engagement in Ukraine

Partner Ministry

Ministry of Digital Transformation (MDT)

GIZ local project/ office

GIZ Ukraine

Duration: 06/22 – 08/25

Making Ukrainian e-government platform GovStack compliant	The Ukrainian UA.Platform will be converted into a GovStack compliant and added to the GovStack sandbox.
Further development of Ukrainian Sytstem with GovStack	GIZ and MinDigital are assessing further needs of the Ukrainian eGovernment system and adapting the GovStack approach.
Participation in International Platforms	Ukrainian stakeholders participate in Communities of Practice, Digital Leaders forums etc. for knowledge and best practice exchange

GovStack Engagement in Egypt

Egypt

Partner Ministry

Ministry of Information and Technology (MCIT)

GIZ local project/ office

GIZ Project “Supporting e-Government and Innovation in the Public Administration (**InnoPA**)”

Duration: 02/22 – 08/25

Adaption of GovStack Building Blocks	Usage of GovStack Building Blocks as addition to existing systems
Strengthening Ecosystem Capacity	Deep Dive Workshops on the usage of GovStack in the country are held
Participation in International Platforms	Egyptian stakeholders participate in Communities of Practice, Digital Leaders Forums to exchange on best practices

GovStack Engagement in Rwanda

Rwanda

Partner Ministry

Ministry of ICT and Innovation (MINICT) - Rwanda Information Society Authority (RISA)

GIZ local project/ office

GIZ Digital Transformation Center (DTC) Rwanda

Duration: 07/22 – 08/25

Prototyping of e-government services	E-government use cases are piloted based on the GovStack approach using the building blocks
Strengthening government capacity	GovStack related capacity development are developed and carried out
Contribution to building block specifications	Rwandan actors are participating in Building Block Working Groups and Technical Review Cycles

GovStack Engagement in Rwanda
Deep Dive

Thomas Wiemann

- GIZ GovStack Lead located in Kigali, Rwanda
- In Rwanda since 2019 seconded to the Rwanda Information Society Authority (RISA)
- Mathematician by education
- Years of experience at IBM, Deutsche Telekom and as freelancing consultant in Germany, India, Eastern Europe and Rwanda
- Professional work in IT sector for more than 20 years in architect, management and project lead roles

GovStack Engagement in Rwanda
Deep Dive

MINISTRY OF ICT & INNOVATION

RISA
Rwanda Information Society Authority

Government of Rwanda

- Since 2017 the Ministry of ICT and Innovation is implementing ist digital strategies through RISA
- RISA has the mandate of planning and coordinating the implementation of national ICT for Development Agenda
- All government services are to be provided digitally by 2024 – 2020: 40%
- Rwanda has developed IREMBO, the one stop shop for digital government services

GIZ in Rwanda

- GIZ´s Digital Transformation Center is located in Kigali and has thus far implemented 21 digital solutions and supported over 110 start-ups
- GovStack is attached to the DTC and collaborates closely with ITU´s regional office in Kigali

GovStack Engagement in Rwanda
Deep Dive

Rwanda

Use Cases

GovStack Content Management Building Block	200 Government Websites have been developed supporting the Content Management BB
GovStack Workflow Building Block	A tree plantation tracker, a platform to finance refugee services, a service registry and a training management system for civil servants are being developed
GovStack Enterprise Architecture	A government business intelligence solution/reporting solution was rolled out
GovStack Consent Building Block	In cooperation with the Worldbank, the Government of Rwanda is developing the new Single Digital ID system.

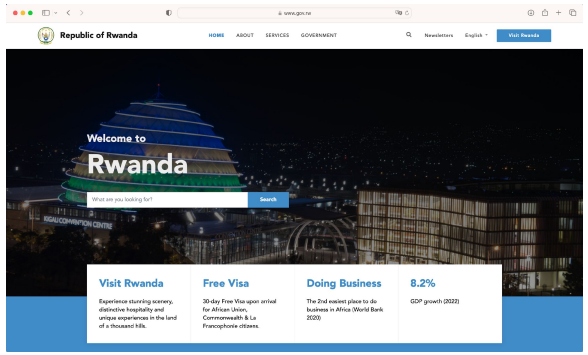
GovStack Engagement in Rwanda
Deep Dive

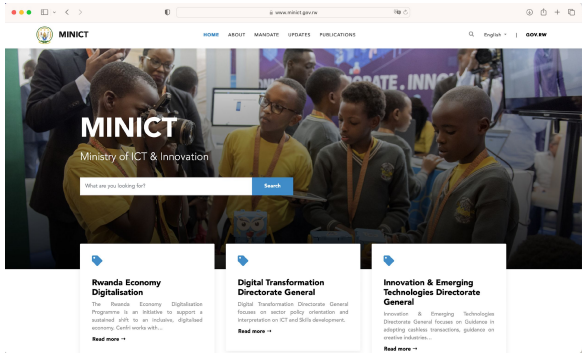
Rwanda

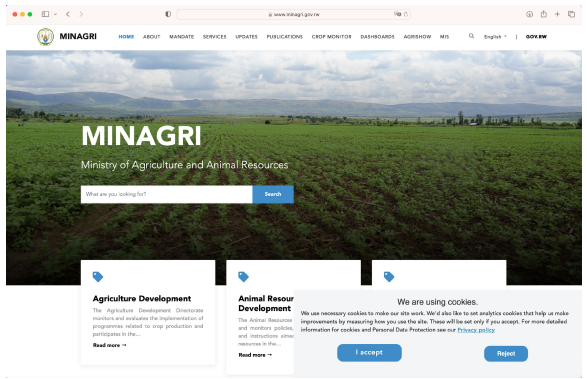
Content Management Building Block

GovStack Content Management Building Block

200 Government Websites have been developed supporting the Content Management BB







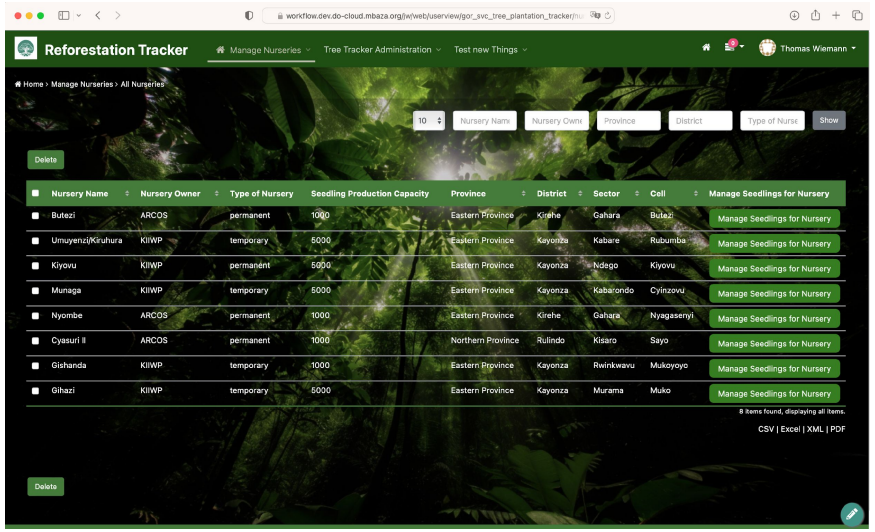
GovStack Engagement in Rwanda
Deep Dive

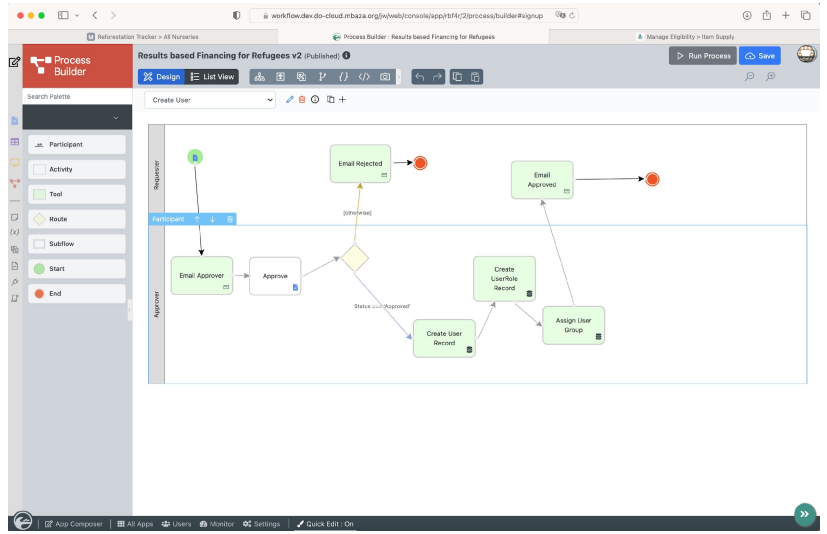
Rwanda

Workflow Building Block

GovStack Workflow Building Block

A tree plantation tracker, a platform to finance refugee services, a service registry and a training management system for civil servants are being developed





GovStack Engagement in Rwanda
Deep Dive

Rwanda

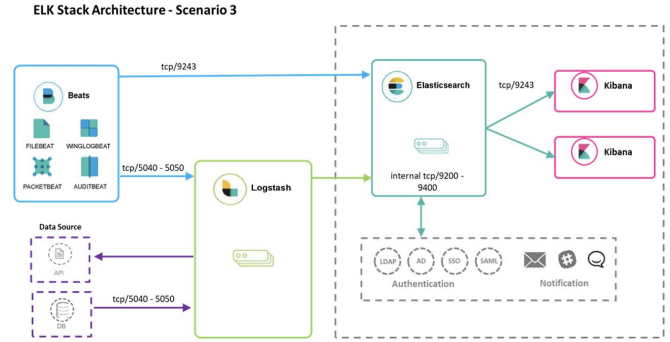
Enterprise Architecture

GovStack Reporting and Business Intelligence

A government business intelligence solution/reporting solution was rolled out

Technical Architecture GBIS

To achieve the objective, we propose **Logstash** for ETL, **ElasticSearch** will used to create data mart and **Kibana** will used for creating dashboards/Reports/Analytics and intrusion detection.



GovStack Engagement in Rwanda
Deep Dive

Rwanda

Consent Building Block

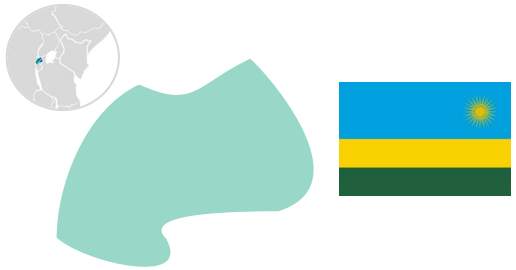
GovStack Consent Building Block

In cooperation with the Worldbank, the Government of Rwanda is developing the new Single Digital ID system.

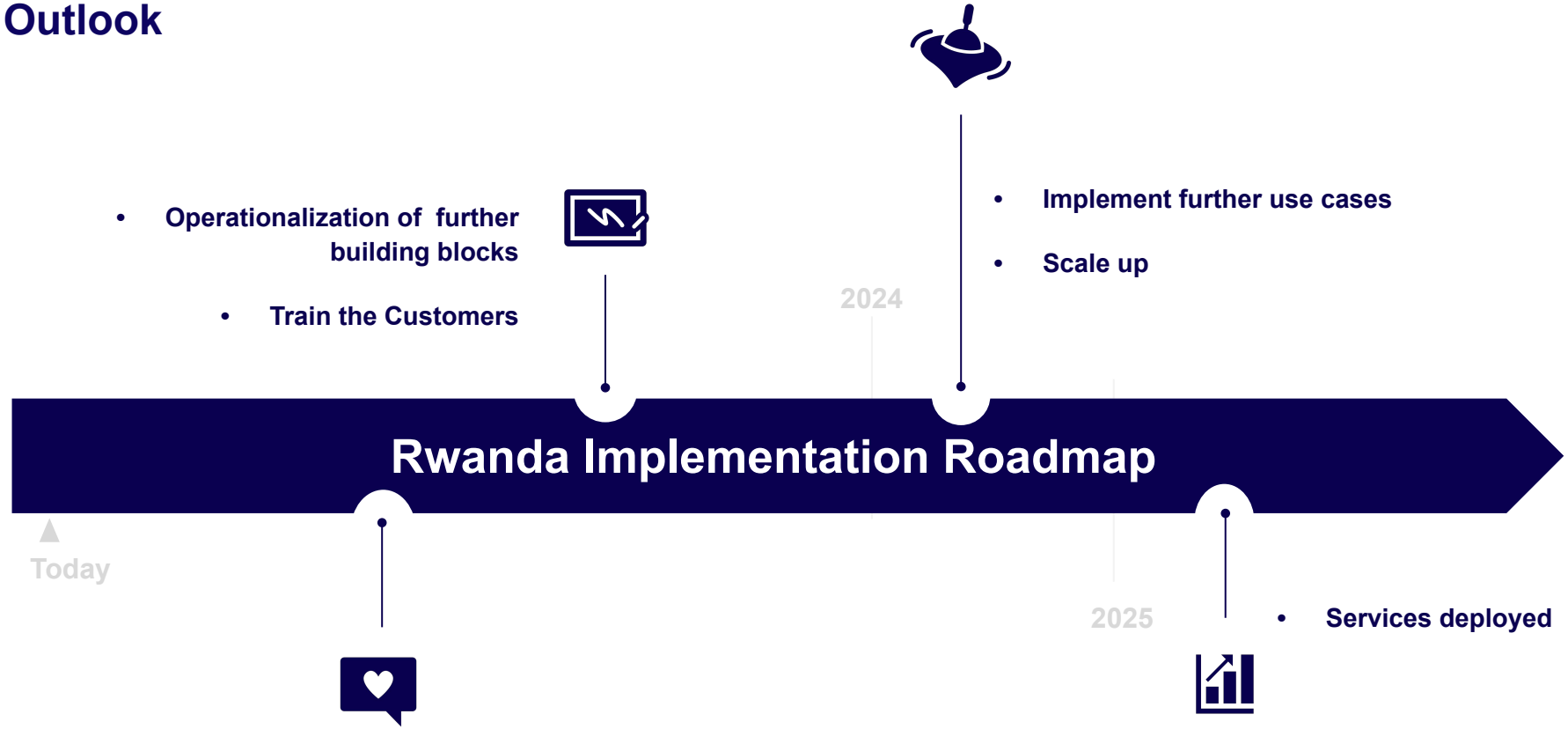
THE WORLD BANK

Consent Building Block is in planning to comply to the Rwandan Data Privacy Law

GovStack Engagement in Rwanda
Deep Dive



Outlook



GovStack Case Exercise

Next Steps

1.Identify your team-members

2.Take a few minutes to think about and discuss a problem statement - **3pm**

3.Identify the different stakeholder-personas who come in contact with each other during provisioning of the service - **3:05pm**

4.Discuss the different stages and phases in which the digital service can be broken into - **3:25pm**

5.Ideate what building blocks may be used to digitize this service - **3:40pm**

6.Use sticky notes and flip charts to capture your responses in the sheet in front of you - **3:50pm**

8.There are no right or wrong answers. Do not eliminate your ideas at this stage.

9.Present! - **4:00pm**