Digital Readiness Assessment

What are essential building blocks for biodiversity?

Reina Otsuka
Digital Lead for Nature Climate and Energy
United Nations Development Programme

UNDP

Why "digital"?

Digital is a way of work that enables people to innovate with ever-evolving technology to quickly learn, then operate to improve all lives in ways that weren't previously possible.

Digital Eco Twins

news.microsoft.com

Digital twins that could reshape windfarms and the areas around them

SSE Renewables, Microsoft and Avanade are working together to create Azure Digital Twins of offshore windfarms and their local environment.

www.nvidia.com

Visualizing a Twin Earth in NVIDIA Omniverse | NVIDIA On-Demand

This is the Earth as we know it

www.theparliamentmagazine.eu

Why Digital Innovation Must Be Part of the Climate Change Solution

Climate change is the most pressing challenge that humanity faces. But can new technology help meet that challenge? That was the focus of discussio...

eandt.theiet.org

How to decarbonise cities using digital twins

Helsinki, a world leader in using digital models as tools to achieve its ambitious and rapid decarbonisation goal by 2030, is looking to harness the potential of geothermal energy with the help of local homeowners.

www.pbctoday.co.uk

National Tree Map helps improve biodiversity in London

A project targeting biodiversity gain and climate change resilience in London is turning to data captured by Bluesky International's National Tree Map

venturebeat.com

How Singapore created the first country-scale digital twin

Singapore recently completed work on the world's first digital twin of an entire nation. Bentley Systems tools accelerated the process of transforming raw GIS, lidar, and imagery data into reality mesh, building, and transportation models of the country.

www.fastcompany.com

An AI analysis of 800 companies finds that greenwashing is rampant

A tool called ClimateBert assessed whether companies are actually doing what they say they're doing when it comes to the environment.

ehsai.com

Integrate AI for fast EHS compliance

Use ehsAI to reduce the costs and risks of inefficient compliance management. Watch the video (2:12) 0 % Integrate AI to save up to 80% of your time and money with accurate Environment, Health, and Safety compliance automation.

Automated ESG

www.yara.com

Yara to start operating the world's first fully emission-free container ship | Yara International

Oslo , 19 November 2021 : The world's first electric and self-propelled container ship - Yara Birkeland - has departed for its maiden voyage in the Oslo fjord. Today, t he Norwegian Prime Minister was given a tour by CEO of Yara, Svein Tore Holsether.

www.discovermagazine.com

How One Scientist Is Giving Old Phones a Second Life With E-Waste Microfactories

Veena Sahajwalla launched a new way to recycle electronic waste that skips tons of transit and re-forms materials on-site. She's since added plastics to the mix, and is expanding her microfactories across Australia.

WSJ www.wsj.com

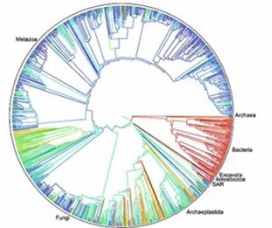**The Startups Predicting Climate Risk for Bond Investors**

High-tech newcomers use satellite imaging, public databases and algorithms to map out threats of natural disasters for specific towns-and even buildings-that back bonds.

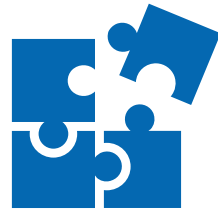**Measure biodiversity** from water samples with machine learning.

Thinking 'Digital'

❑ **Agile – Ver. 0, 0.1, …**

❑ **User Centered Design**
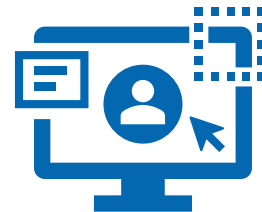
❑ **Think of 10X change**

But we need to steer the digital age - challenges

Digital divide: 2.9 billion still unconnected

Lack of coherence: fragmented and duplicative digital approaches

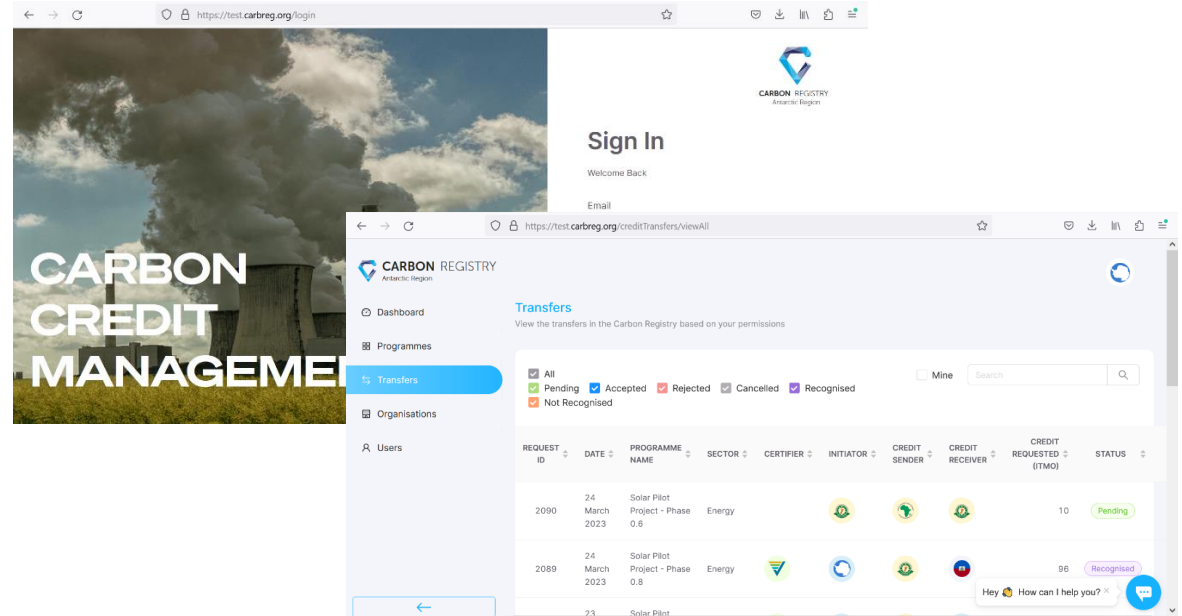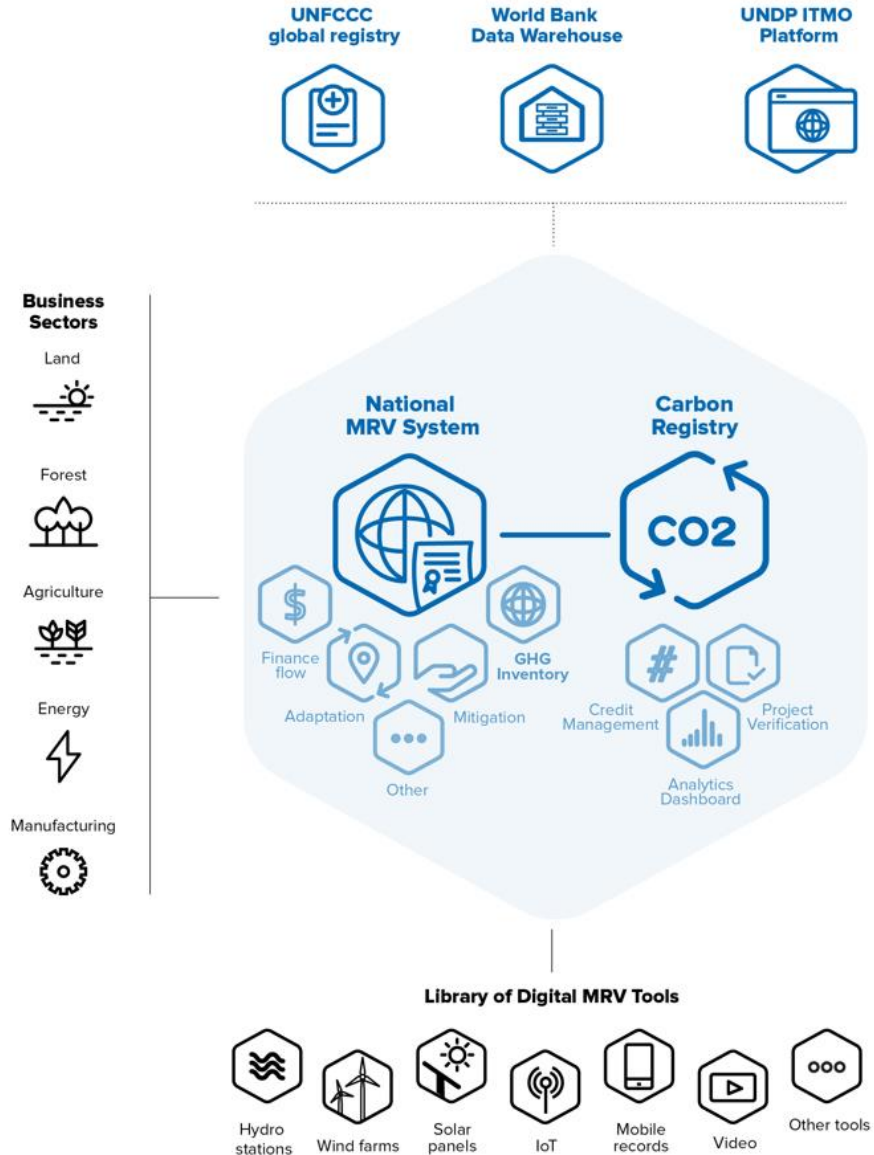**Lack of inclusive design: people still being left behind**

Countries struggle with costly and non-interoperable digital architecture

Data privacy and safe/meaningful internet access

A Ready-to-install 'National Transparency System' as a Digital Public Good

palindaa committed 18 hours ago   Verified

2 parents 1eee9c0 + f7bcf2b   commit 59db9c7

Showing **2 changed files** with **2 additions** and **2 deletions**.

Split   Unified

Filter changed files

README.md

backend/services/src/data-impor...

itmo-system.service.ts

2 ▣▣□□□ README.md

@@ -1,5 +1,7 @@

1	1	`![GitHub last commit](https://img.shields.io/github/last-commit/undp/carbon-registry)`
2	2	`![Uptime](https://img.shields.io/endpoint?url=https://raw.githubusercontent.com/undp/carbon-registry-status/master/api/carbon-registry/uptime.json)`
	3	+ `![GitHub Workflow Status (with branch)](https://img.shields.io/github/actions/workflow/status/undp/carbon-registry/server-deployments.yml?branch=main&label=server%20build)`
	4	+ `![GitHub Workflow Status (with branch)](https://img.shields.io/github/actions/workflow/status/undp/carbon-registry/frontend-deployment.yml?branch=main&label=frontend%20build)`
3	5	`[![](https://img.shields.io/badge/chat-SparkBlue-blue)](https://www.sparkblue.org/group/keeping-track-digital-public-goods-paris-agreement)`
4	6	`[![](https://img.shields.io/badge/Digital%20Public%20Good-Certified-blueviolet)](https://app.digitalpublicgoods.net/a/10403)`
5	7	

2 ▣▣□□□ backend/services/src/data-importer/importers/itmo-system.service.ts

@@ -108,9 +108,7 @@ export class ITMOSystemImporter implements ImporterInterface {

108	108	`        if (!rootUser) {`
109	109	`            throw new Error(\`Root user does not exist in the system\`);`
110	110	`        }`
111		-

Discussion 1

Q. What are we aiming for? What are the 'biodiversity big hairy visions' that digital can accelerate 10X?

What is the
Digital Readiness Assessment?

+ A tool to **provide rapid, high-level insights** into a country's **digital strengths and weaknesses**

+ Intended to serve as an **"entry point" for increased engagement** between governments, COs, and a broad range of UNDP experts

+ Meant to be **used in conjunction with other tools** and approaches

+ Highlights our focus on **inclusive digital transformation**

+ A cornerstone of UNDP's **Whole-of-Society Digital Transformation** framework approach

The Digital Assessment is aimed at addressing existing goals and challenges in Digital Transformation

Design Principles

- Easy to complete
- Includes quantitative elements
- Real-time
- SDG-focused
- Technology as foundation
- Iterative, tailored, actionable
- Built for inclusivity

Assessment Vision

| The assessment IS...	The assessment IS NOT...
✓ A flexible, self-driven guide	✕ An in-depth evaluation
✓ For use by anyone with experience in government or country office	✕ For use only by specialists
✓ Intended to proactively provides insights into potential improvements	✕ Intended to retroactively assesses what happened
✓ Applicable across evolving projects	✕ Bespoke to pre-determined issues
✓ Integrated into UNDP resources	✕ Tailored to institutional processes
✓ Designed for continued use as a reference tool	✕ Only for key decision points
✓ Digital-first and interactive	✕ Paper-based and static
✓ A tool for collaborative engagement	✕ A tool for rendering judgement
✓ For learning	✕ For accountability

Our framework is built upon key operating principles that helps structure our approach and align implementation

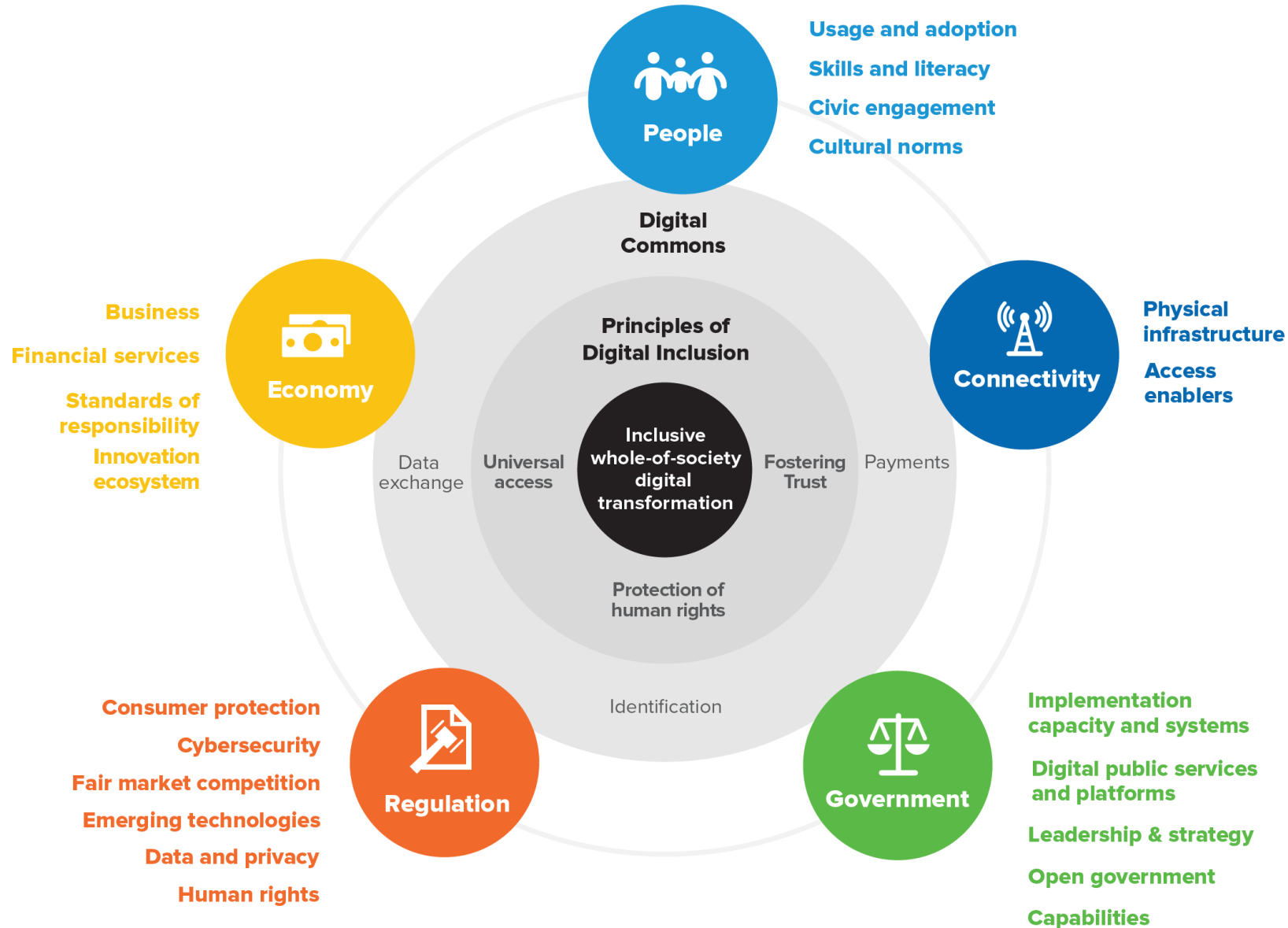Universal Declaration of Human Rights

Sustainable Development Goals
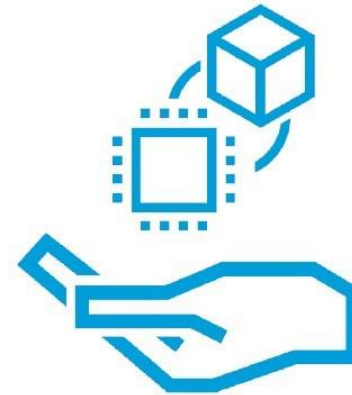
Digital Public Goods & Services

Principles for Digital Development

Whole-of-Society Digital Transformation Framework

People
- Usage and adoption
- Skills and literacy
- Civic engagement
- Cultural norms

Economy
- Business
- Financial services
- Standards of responsibility
- Innovation ecosystem

Connectivity
- Physical infrastructure
- Access enablers

Regulation
- Consumer protection
- Cybersecurity
- Fair market competition
- Emerging technologies
- Data and privacy
- Human rights

Government
- Implementation capacity and systems
- Digital public services and platforms
- Leadership & strategy
- Open government
- Capabilities

Digital Commons

Principles of Digital Inclusion

Inclusive whole-of-society digital transformation

Data exchange · Universal access · Fostering Trust · Payments · Protection of human rights · Identification

- Overarching reference model to identify, structure and prioritize
- Basis for discussion for possible support
- High-level framing
- Can be adapted by each country based on national priorities
- Inclusivity at the heart

The assessment combines results from the survey tool with external data to provide a holistic snapshot of the digital readiness of a nation

Combing results from a survey, external data, and earlier reports provides a holistic view

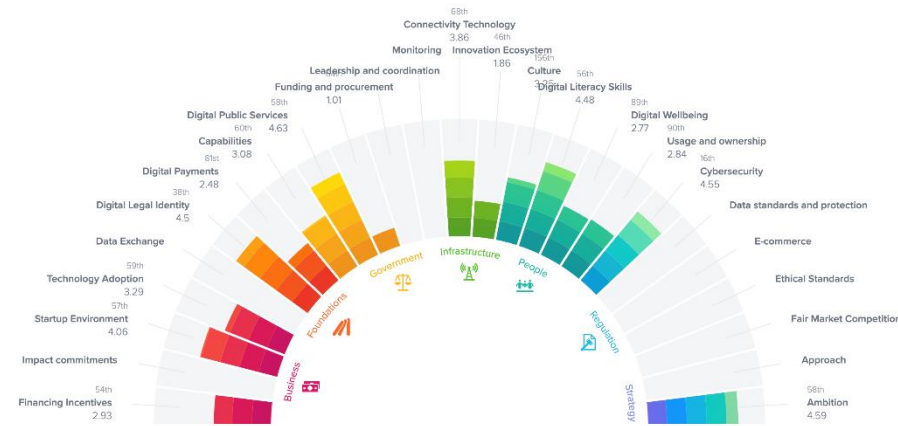| Rapid Country Survey | Digital Development Compass | Workshop / Dialogs |

The relevant digital interventions for each country depend on the stage of "digital readiness". CountryX is currently at the Opportunistic stage.

Impact of digital

Stage score 3.27

LEAPFROG

IMPROVE

Basic foundations of digital transformation (particularly infrastructure and digital skills) are lacking hindering process for further stages

Country is advancing in selected areas of digital transformation but without coordinated strategy

Country is systematically advancing in key areas of digital transformation based on identified priority areas (e.g. skills, digital public services, etc.)

Country has clear strengths in digital transformation and foundational elements in place

Country is advancing in all areas of national digital transformation based on an integrated strategy

1. BASIC

2. OPPORTUNISTIC

3. SYSTEMATIC

4. DIFFERENTIATING

5. TRANSFORMATIONAL

Stages of Digital Readiness

Countries can improve their level of digital readiness by individually supporting each part of the transformation framework. Each pillar is in a unique phase.

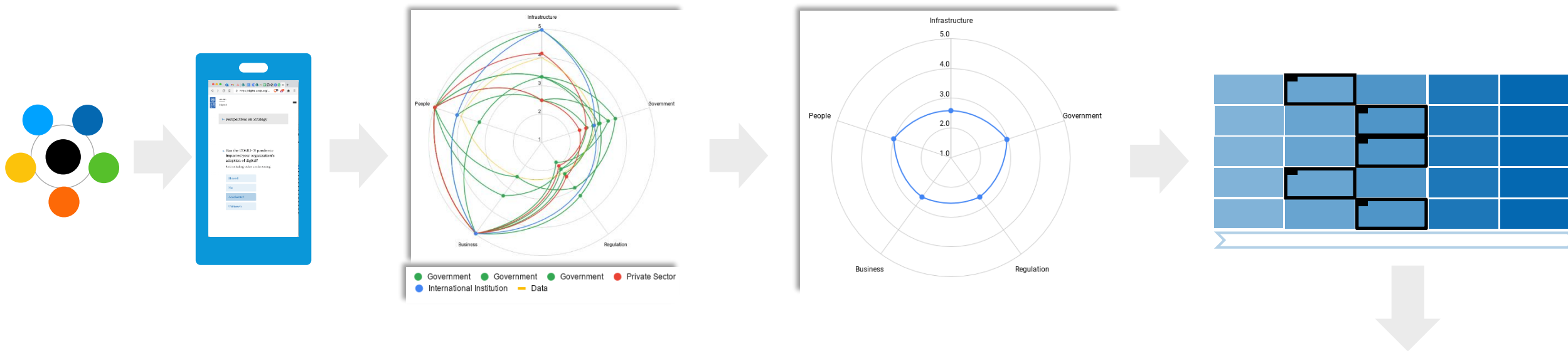|	1. BASIC	2. OPPORTUNISTIC	3. SYSTEMATIC	4. DIFFERENTIATING	5. TRANSFORMATIONAL
FOUNDATIONS	Siloed to operate independently and/or missing key elements entirely	Partially synchronized to operate together	**3.2** Fully synchronized to operate together while protecting user privacy and control	Using open standards and ensuring vendor and technology neutrality	Ensuring universal coverage for individuals from birth to death without discrimination
INFRASTRUCTURE	Limited infrastructure. Access to undersea internet cables.	Growing internet service provider & mobile networks.	**3.0** Growing connectivity. Limited developer & business ecosystems.	Affordable connectivity. Strong supply chains. Growing tech hubs.	Universal broadband. IoT. Inclusive ecosystems.
GOVERNMENT	Limited capacity	First digital initiatives in siloes. Limited political support.	Shared vision and strategy. Vocally encouraged.	**4.2** Embedded in decision-making. Codified in administrative acts.	Culture of innovation. Codified in legislation.
REGULATIONS	Limited legal capacity	Regulations support fundamentals.	**3.8** Initial policies and laws established.	Regulations enable innovation. Transparently online.	Foundations enabled. Regulations integrated.
BUSINESS	Limited digital integration across sectors	Growing technology penetration in key sectors	**3.6** Cross-sector collaboration. Seed financing.	Digital coordinated across sectors. Venture financing.	Digital industry. Enacting digital responsibility standards
PEOPLE	Limited literacy. Cultural aversion to technology.	Limited digital literacy. Consumption-focused. Deep digital divide.	Growing digital literacy. Production increases. Technology embraced.	**4.2** High levels of digital literacy. Online financial transactions.	Limited digital divide.

Stages of Digital Readiness

DRA Analysis Report uses these dashboards to examine responses under each Pillar and Sub-Pillar according to the different respondents to find commonalities and disparities then synthesizes insights

Sub-Pillars	Grade	Rate & Spread	Question Areas	Insights	Case Studies	Tools	Experts
Connectivity Technology	**3.5**	72% 1.6	• Availability, affordability and quality of broadband internet access, mobile internet, mobile services and devices, electricity etc.	• While broadband is believed to be widely available, internet test speeds resulted in less than consistent broad results. Average internet speed of respondents at time of survey was 58mbps down (median of 41.5mbps). Given the respondents, the median being below 50mbps and one respondent having only 11 is concerning.	• **ITU**: Global econometric modelling on ICT regulation	• Electrical Distribution Grid Maps: A predictive model to map electrical distribution infrastructure, built collaboratively with publicly-available data.	• GSMA

UNDP been supporting almost 30 countries on their national digital transformation / digital ecosystem

9
DRA completed and need further support

- **Armenia**
- **Curaçao**
- **Dominica**
- **Grenada**
- **Guinea Bissau**
- **Mauritania**
- **Moldova**
- **Samoa**
- **Solomon Islands**

8
DRA in progress and support ongoing

- **Bolivia**
- **El Salvador**
- **Jamaica**
- **Kosovo**
- **Maldives**
- **Suriname**
- **Trinidad and Tobago**
- **Uzbekistan**

9
Government request received, to be scoped

- **Botswana**
- **Comoros**
- **Dominican Republic**
- **Haiti**
- **Kazakhstan**
- **Mozambique**
- **Namibia**
- **Timor Leste**
- **Tonga**

DRA: Digital Readiness Assessment

DRA enables a strategic and coordinated whole-of-society approach to digital transformation

DRA results – Examples

Dominica:
DRA formed basis for a national digital strategy which was developed through a consultative process.

DRA: Digital Readiness Assessment

Moldova:
DRA formed basis for development of a National Digital Compact and the new national digital strategy.

Mauritania:
DRA informs priorities of the new Ministry for Digital Transformation and setup and organisational design of the National Digital Agency.

Needs at the National Digital Strategy level at a Sectoral level – Example from Cote d'Ivoire (Workshop)

Sector	Pillar	Disagree/Agree	Don't know
Green Economy	Infrastructure		32%
	Government		41%
	Regulation		5%
	Business		7%
	People		2%
Energy	Infrastructure		0%
	Government		9%
	Regulation		9%
	Business		52%
	People		0%
Environmental Management	Infrastructure		30%
	Government		18%
	Regulation		38%
	Business		36%
	People		7%
Waste Management	Infrastructure		16%
	Government		30%
	Regulation		20%
	Business		4%
	People		2%

- Relatively high levels of agreement for the Green Economy and Energy Sector, while Environmental- and Waste Management were mostly disagreed with.

- Large variation among agreement in pillar-specific statements. E.g. very low agreement level with the the Regulation pillar statement in the Waste Management sector. But there was a high level of agreement with the People pillar statement.

- Varying levels of uncertainty among the statements. E.g. a high share of respondents were unsure about the Business pillar in the Energy sector ("Energy providers who incorporated digital technologies have realized high returns on their digital investments").

- Discussion brought up low-hanging opportunities such as the digital climate transparency system, payment for ecosystem services system, and local innovation support.

For discussion

- What are the digital readinesses that are critical for the biodiversity sector in each pillar?
- What are the barriers for getting there?

Infrastructure	Government	Policies / regulations	Private Sector	People
• Connectivity in rural biodiversity rich / mining etc. areas • Access to Data storage and Computing power • Access to Non-internet technology (e.g. satellite, LoRa) • E-waste management system exists • Universal access to electricity	• Technical capacity for geospatial big data collection, management and analysis • Data standards following international requirement • Data standards common with key sectors (e.g. climate, forest, health) • Mechanisms for citizen contribution and use of primary data • Central digital system (geospatial and other) data management and processing	• Biodiversity policies (strategies) note data collection and management • PS regulations with data sharing obligation • Underlying national data privacy law, cyber security law, digital strategy etc. exist	• Digital startup ecosystem is robust • Mining and other major regulated industries have data standards and capacity • Willingness and ability to open data • Nature based companies have digital business capacity • SMART agriculture • Enough workforce with engineering, data collection capacities	• Vulnerable groups of people have access to digital tools • Indigenous people have explicit positions for digital tools • No gender differences • Digital literacy • CSOs, nature conservation institutes have data capacity

Thank you!

Contact: reina.Otsuka@undp.org