











# Conceptual Framework for the Development of a UNEP Global Environmental Data Strategy

Keep the world Environment under Review

3<sup>rd</sup> May. 2023

# The Desk Review and Case Study

## Data Strategy and Structure across UN Entities

 <p><b>UNDP: Chief Digital Officer</b> The Chief Digital Officer works at the intersection of IT and management to support business priority-based digital transformation. A digital governance mechanism equips supports tools and transparent decision-making processes to support investments.</p>	 <p><b>WHO: Assistant Director-General for Data, Analytics and Delivery</b> The Assistant Director-General for Data, Analytics and Delivery for WHO's Impact Division is responsible for leading the Organization's efforts to establish an impact framework of accountability to deliver the 'triple billion' targets, to track health-related Sustainable Development Goals (SDGs), through building enhanced country capacity, and to generate reliable data to forecast and inform public health policy.</p>
 <p><b>UNHCR / World Bank: Joint Data Center</b> The Joint Data Center on Forced Displacement aims to enhance the ability of stakeholders to make timely and evidence-informed decisions by collecting, analysing and disseminating primary microdata.</p>	 <p><b>UN DOS: Using data in partnership with HR professionals for better performance</b> The UN Department of Operational Support has provided recruitment timeline dashboards in a new global virtual community of UN recruiters. By engaging HR practitioners in better understanding the problem and helping them prioritise their caseloads, this approach has cultivated discussions and approaches that helped double the percent of cases completing on time by 2019.</p>
 <p><b>WFP: Data Protection Officer</b> The Data Protection Officer is responsible for overseeing effective and harmonized compliance with data protection principles. She/he identifies effective responses to data breaches, and coordinates with other UN agencies on data protection-related matters.</p>	 <p><b>UN OCHA: Centre For Humanitarian Data</b> The Centre for Humanitarian Data is focused on increasing the use and impact of data in the humanitarian sector. It is managed by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA). The Centre's services are available to humanitarian partners and OCHA staff free of charge, with a focus on data services, data literacy, data policy, and predictive analytics.</p>
 <p><b>UN DPO / DOS: Analytics Support Team</b> The integration of an analytical support team into the peacekeeping review process yields a better understanding of the context of operation and leads to the development of more targeted outputs. Operational data gaps can be better understood and then resolved.</p>	 <p><b>DPPA: e-analytics training for political affairs colleagues</b> The Department of Political and Peacebuilding Affairs (DPPA) has been running "e-analytics" training sessions to foster data literacy, analytical skills and data science applications in peacemaking and peace operations. Colleagues also established a Data Peer Group for regular exchange and reflection on data and analytics applications. This created an ecosystem of collaboration within the UN family and connects the organization to outside expertise to inspire and equip the peace and security field with data-driven solutions.</p>
 <p><b>UN PBix Community</b> First introduced by OICT in late 2018, the PBix community consists of 6,500 self-service analytics users across the UN, with 1,200 power users. More than 1,300 colleagues received hands-on training in Microsoft PowerBI. The team also organizes awards, hackathons, and newsletter.</p>	 <p><b>IOM, UN DESA and OECD: International Forum on Migration</b> IOM, UN DESA and the OECD jointly set up the International Forum on Migration Statistics, a regular event that contributes to the exchange of information, promotes mutual learning and facilitates cooperation. It brings together all producers, analysts and users of migration statistics in a community of interest. It also mobilises expertise from many disciplines, incl. political science, economics, demography, development, geospatial science, sociology, statistics, &amp; technology for a better understanding of the migration phenomenon.</p>

## Data Ecosystem and Mechanisms across UN Entities











 <p><b>UNICEF: Data Warehouse</b> UNICEF's Data Warehouse has been designed to allow easy access to databases of hundreds of internationally valid and comparable indicators on children across many countries, with some datasets spanning back decades. <a href="#">Learn more</a></p>	 <p><b>UNODC: Drugs Monitoring Platform</b> The UNODC Drug Monitoring Platform is a tool for collecting, monitoring and sharing drug and law enforcement related data and features an interactive online mapping resource allowing for multi-level analysis. It provides real-time information and analysis on illicit drugs, including details on trafficking as well as the cultivation and production of illicit opiates. <a href="#">Learn more</a></p>
 <p><b>UNHCR: Refugee Situations Operational Portal</b> The Refugee Situations Operational Portal is a Partners coordination tool for Refugee situations provided by UNHCR. It covers a large number of countries, and provides insights on active situations. <a href="#">Learn more</a></p>	 <p><b>UN OICT, DPO: Unite Aware</b> Unite Aware is a platform designed to provide a coherent and comprehensive approach to situational awareness and information analysis for UN Peace Operations. It standardizes the technologies used to collect and manage a broad range of data and information sources in a secure manner and presents that information to non-uniformed and uniformed decision-makers via visualization, reporting and analysis instruments.</p>
 <p><b>UNOPS: data.unops.org</b> Data.unops.org is a platform that provides users with dynamic and linked information about over 1,000 ongoing projects around the world in an open and easy-to-view format. <a href="#">Learn more</a></p>	 <p><b>WFP: DataViz Hunger Analytics Hub</b> The WFP DataViz Hunger Analytics Hub offers comprehensive real-time data streams in a single window. By clicking on a tab, e.g. as rainfall, food security, markets or global and national COVID-19 trends, the desired layer then appears on the map. It's a one-stop tool where one can do data "deep dives" for a large variety of topics. <a href="#">Learn more</a></p>
 <p><b>DMSPC: Management Dashboards</b> Unite Dashboards are easy-to-use giving senior managers access to reliable data for faster, better informed decision-making, which is essential to gaining key insights that enhance both individual performance and the global mission of the UN.</p>	 <p><b>DCO: UN INFO</b> DCO has deployed an online development coordination portal, UN INFO, which will track the programming, results and financial partnerships falling under the UN Sustainable Development Coordination Framework. It will harmonize the data collection for processes pertaining to the Cooperation Framework, Information Management System, Common Country Analysis and Business Operations. <a href="#">Learn more</a></p>
 <p><b>UNCTAD: UNCTADStat</b> UNCTADStat offers statistical data and offers clear metadata, bulk download facilities in multiple formats, data exploration tools, and clear licensing – creative commons 3.0 IGO, making it fully open data compliant. <a href="#">Learn more</a></p>	 <p><b>UNEP: Knowledge Hub on SDGs</b> The Knowledge Hub is an open, dynamic web platform combining data on progress towards the Sustainable Development Goals with information and resources concerning SDG implementation at the national level. Its goal is to enable efficient coordination of SDG monitoring and reporting at regional level between relevant international organizations and between international organizations and national statistical offices. <a href="#">Learn more</a></p>

Table cited from General Secretary Data Strategy

Document available at:

[https://www.un.org/en/content/datastrategy/images/pdf/UN\\_SG\\_Data-Strategy.pdf](https://www.un.org/en/content/datastrategy/images/pdf/UN_SG_Data-Strategy.pdf)

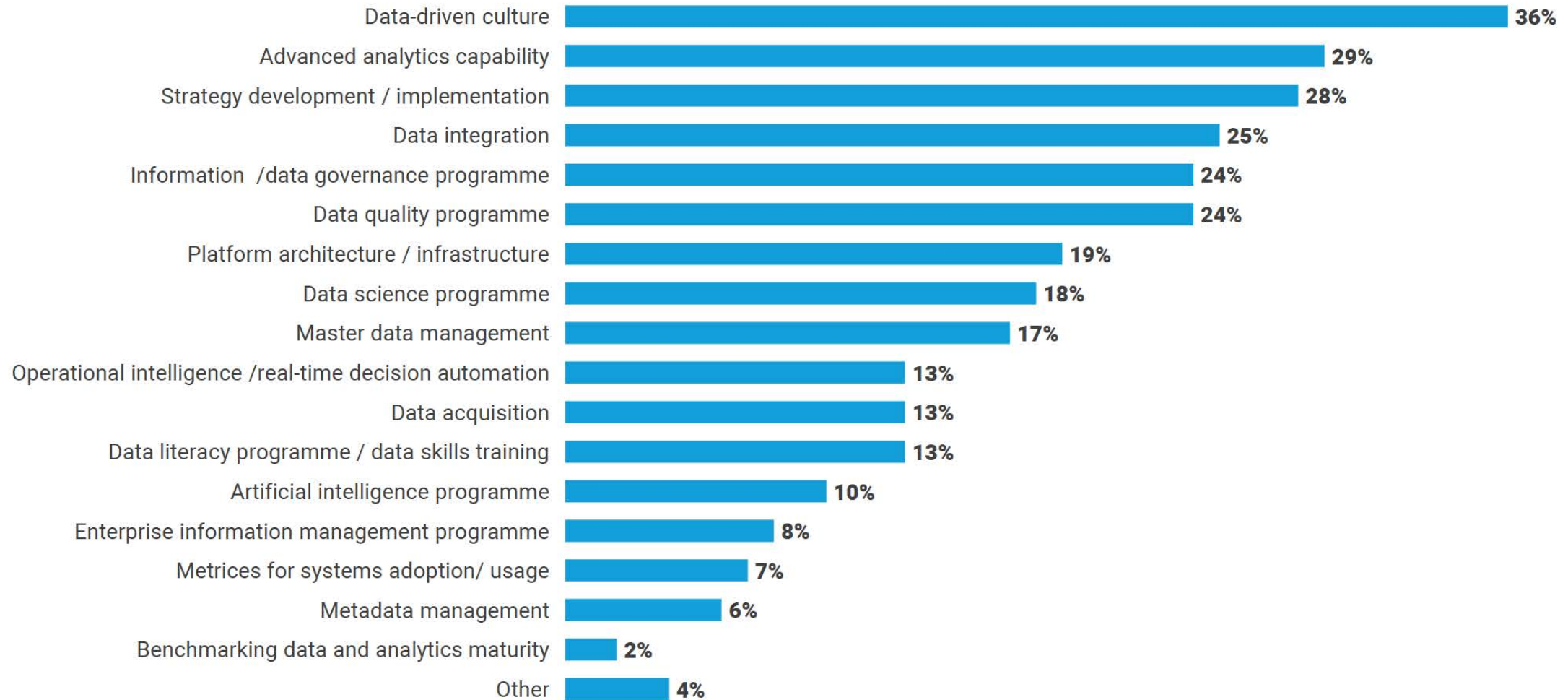


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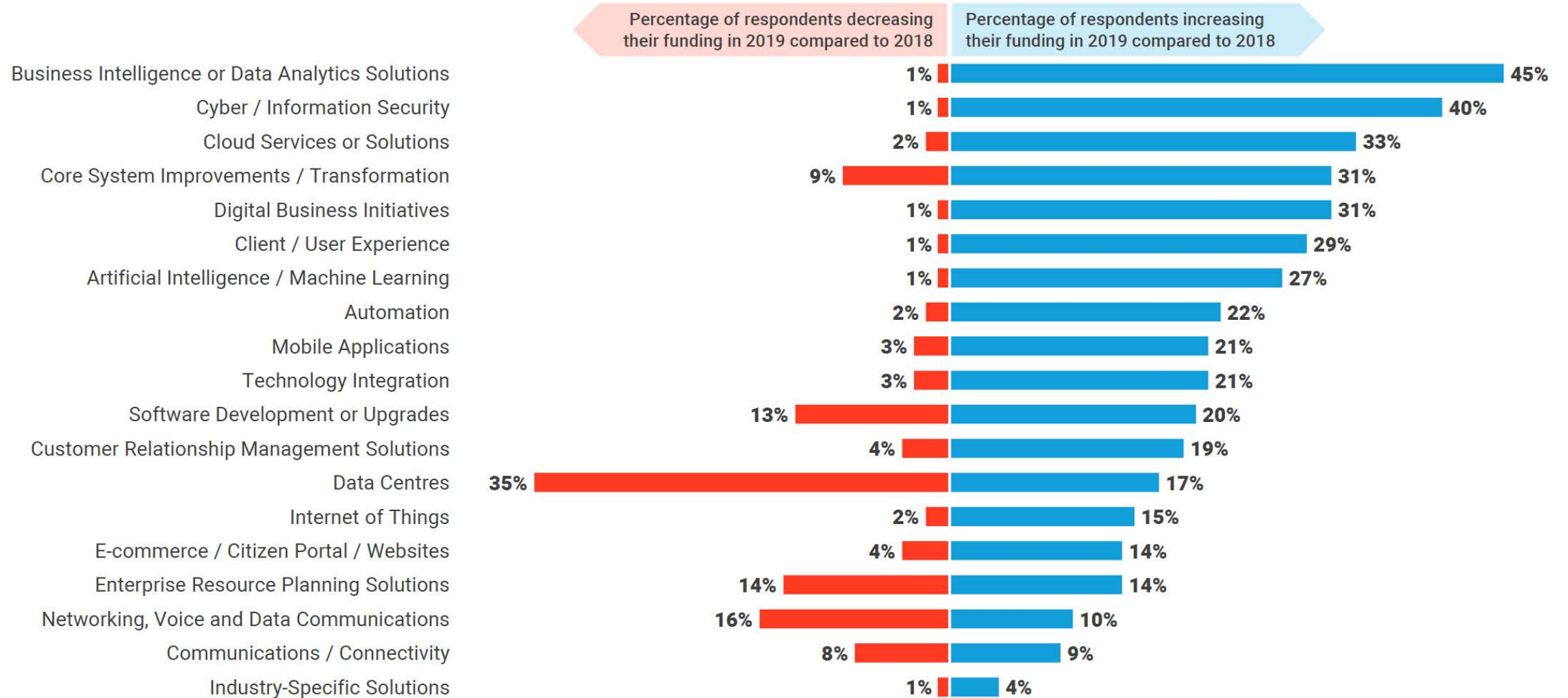
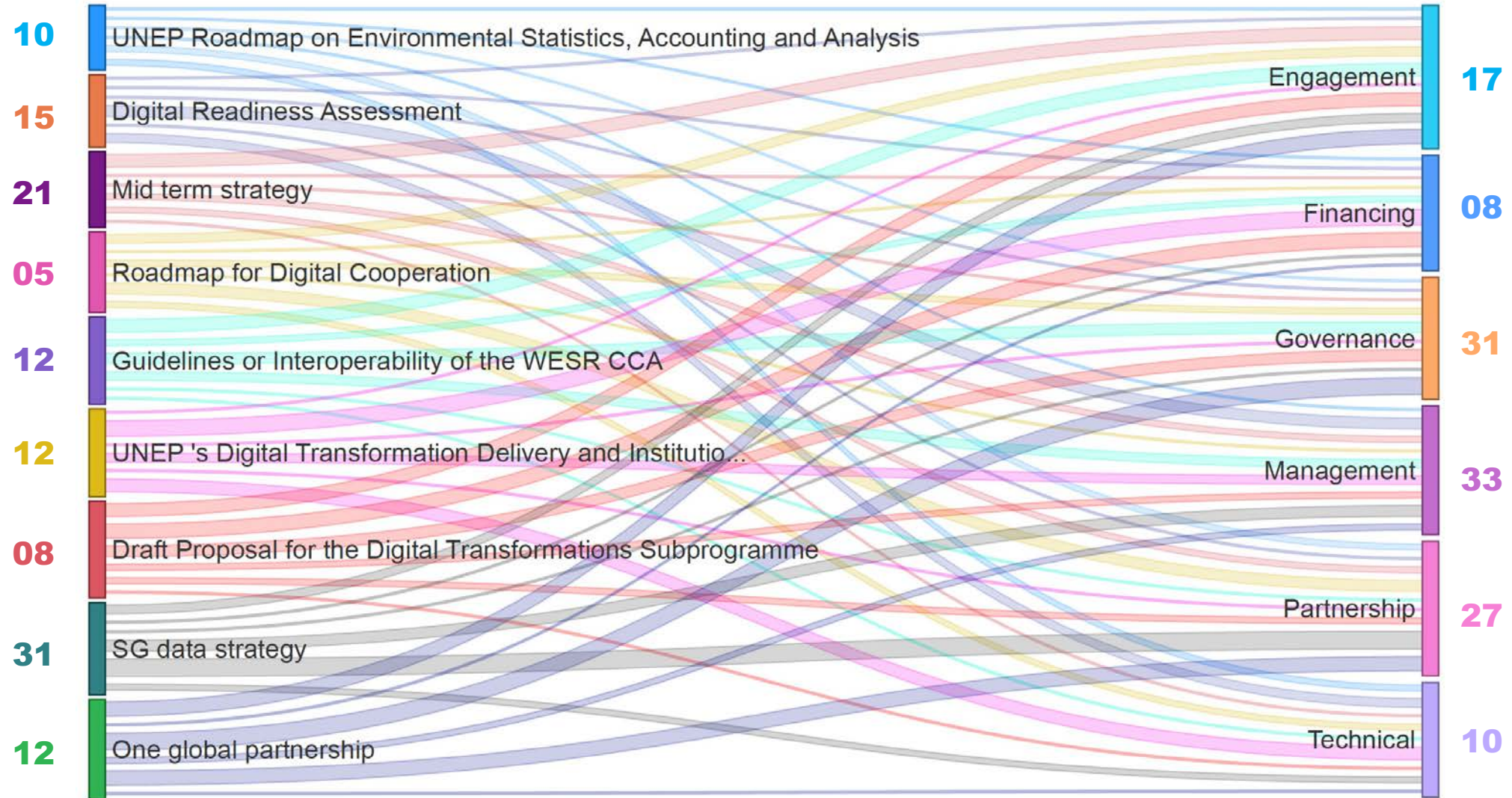


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# The Major Strategic Links of GEDS Revision



## The Major Findings of GEDS Revision

1

### Collaboration

Increase cooperation and coordination across divisions

2

### Governance

Combine Top-down and bottom-up.

3

### Demand-Driven

Transit from supply driven

4

### Actionability

Result based management and action framework guidance

## Strategic Positioning

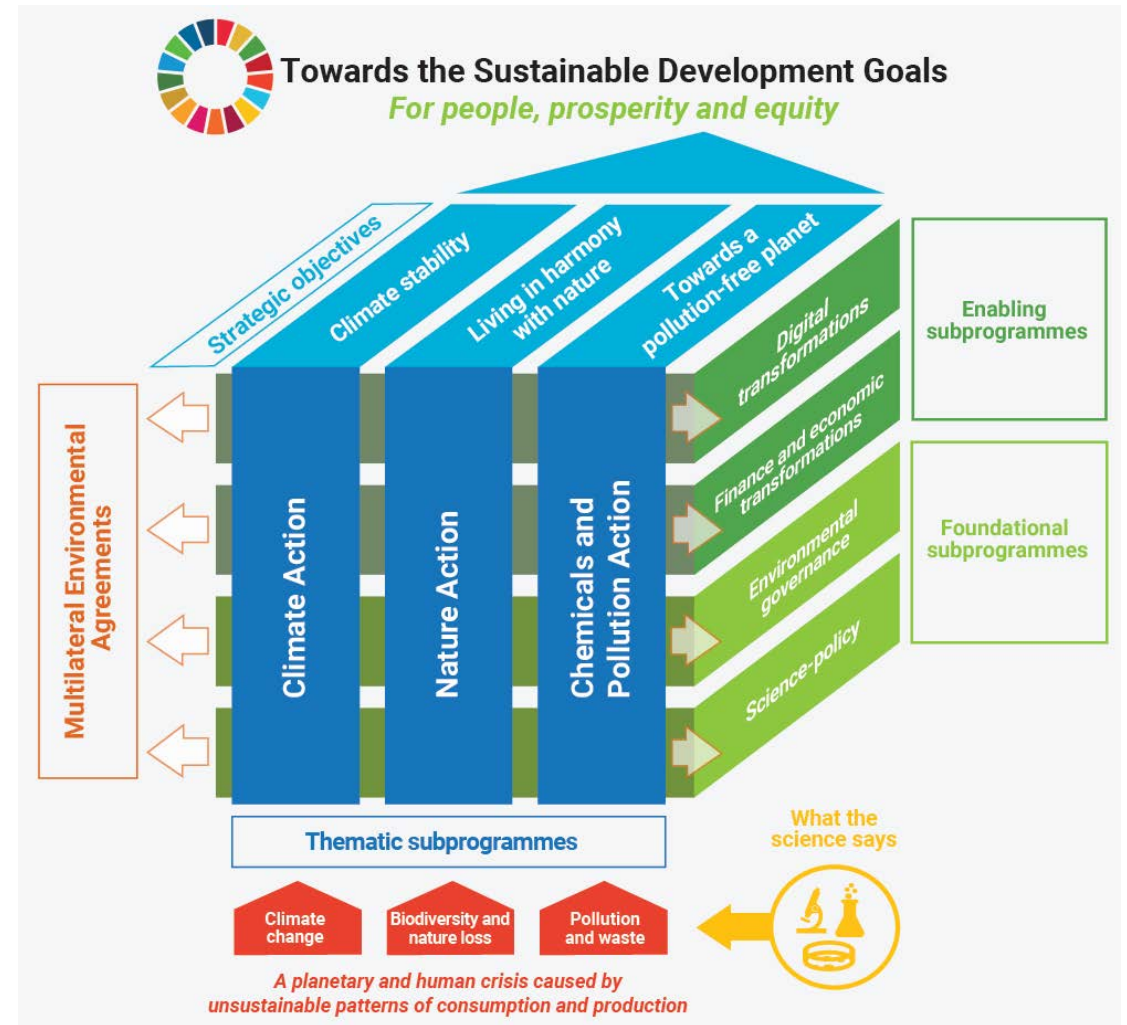
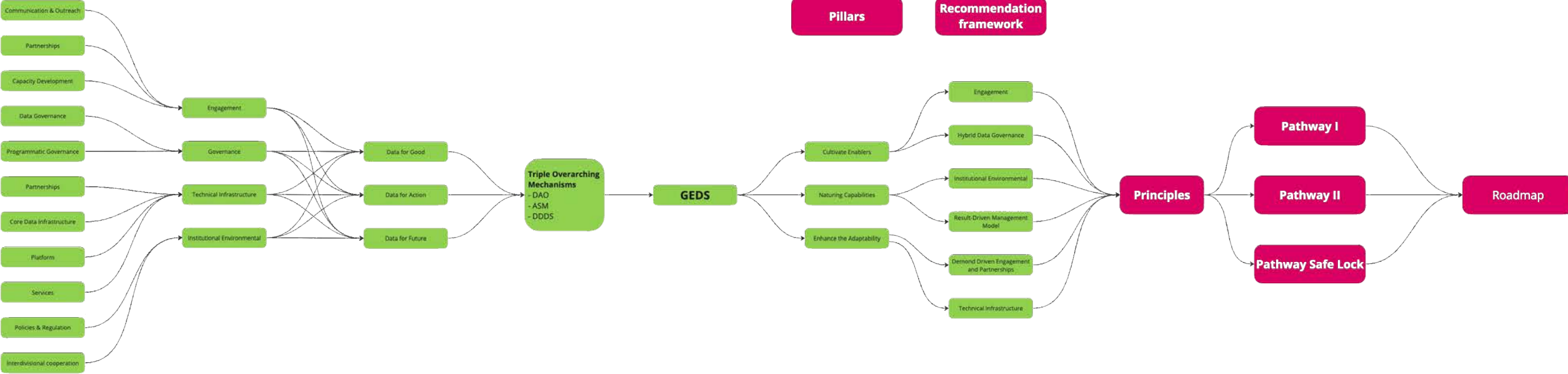


Table cited from Mid-Term Strategy 2022-2025

Document available at:

<https://wedocs.unep.org/bitstream/handle/20.500.11822/35875/K2100501-e.pdf>

# The Logic of GEDS revision



**1**

**Set strategic foundation**

- Purpose
- Vision
- Objective
- Priorities
- Principles

**2**

**Designing an adaptive GEDS**

- Triple Mechanisms
- Visioning scenarios
- Pathways of reaching the scenario

**3**

**Recommendations for implementing GEDS**

- Pillar 1: Cultivate enablers
- Pillar 2: Naturing capabilities
- Pillar 3: Enhance adaptability

**4**

**Align GEDS with current UNEP workstreams**

- Related
- WESR



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## [Component I. ] Set Strategic Foundation

Core:

- **Vision**
- Priorities
- The 10 Principles for Data Action

### **Vision:**

Develop an **adaptive** strategy, which leverages a **federated data system** powered by **collective actions**, as a gateway for **science-based policy** making to address the worldwide climate crisis and uncertainties, benefiting people, places, and the planet.

## [Component I. ] Set Strategic Foundation

### Core:

- Vision
- **Priorities**
- The 10 Principles for Data Action

### Cultivate Enablers:

- Increase cooperation across divisions.
- Establish a sustainable and flexible funding system to incubate broader collaborations.
- A comprehensive digital cooperation that mobilizes resources beyond UN system.
- Roadmap for Data and Statistics.

### Naturing Capabilities:

- Engage through regional mechanisms, pilot at country level, and scale up to complete the cohesive data eco-system cycle.
- Develop a more inclusive governance and leadership approach.
- Enlarge the decision-making group by inviting Member States to elevate the proposed strategy carrying initiative's role in consolidating the formulated 'Acting as One' and Data Governance Groups.
- Guiding the sub-ICT strategy to generate value from evolves everyone.
- A federated data strategy to advance digitalization of the process and services.

### Enhance Adaptability:

- Move technology development from a waterfall to an agile and user-centric approach.
- Create a demand-driven approach from the current supply-driven approach.
- Enhance the engagement with new technologies.
- An adaptive dynamic strategy to facilitate the future structural changes.

## [Component I. ] Set Strategic Foundation

Core:

- Vision
- Priorities
- **The 10 Principles for Data Action**

+ **Principle 01**

Demand driven operation

+ **Principle 02**

User-centric design

+ **Principle 03**

Across-scale partnerships

+ **Principle 04**

As Goods that are beneficial for society as a whole

+ **Principle 05**

Holistic and corresponding capacity development

+ **Principle 06**

Data collective supply ecosystem

+ **Principle 07**

Common and certifiable standards

+ **Principle 08**

Hybrid governance and deep management

+ **Principle 09**

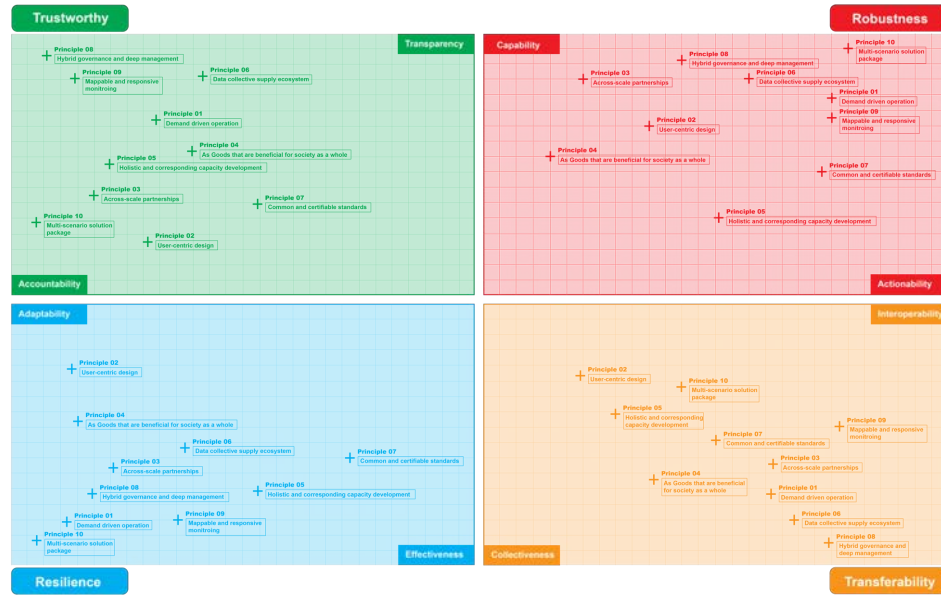
Mappable and responsive monitoring

+ **Principle 10**

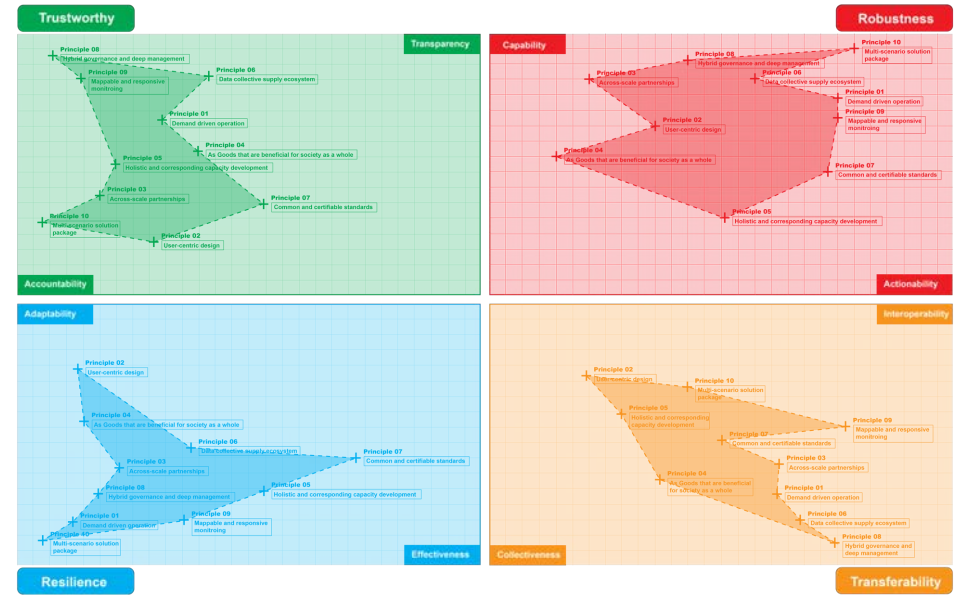
Multi-scenario solution package

# Principle Impact Measurement Chart

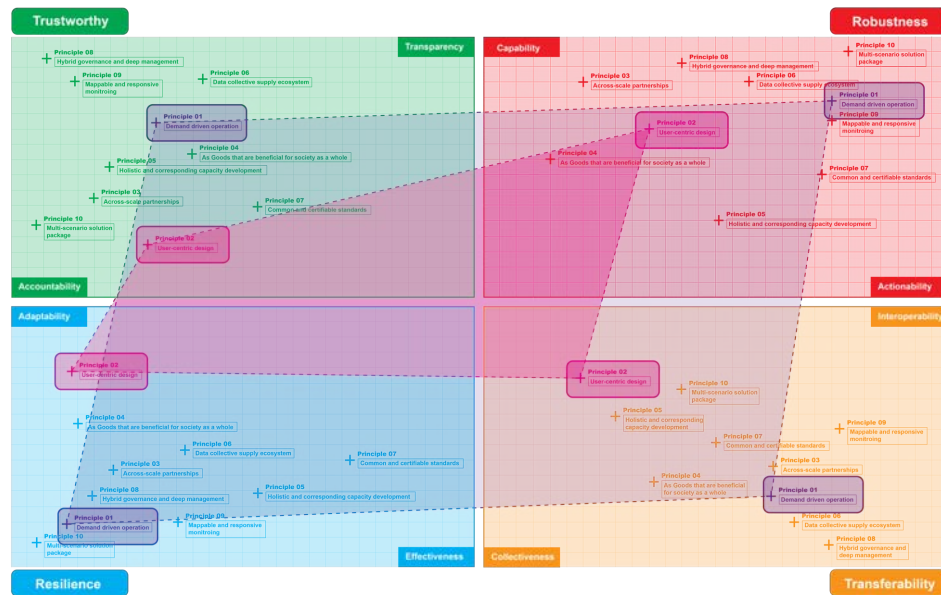
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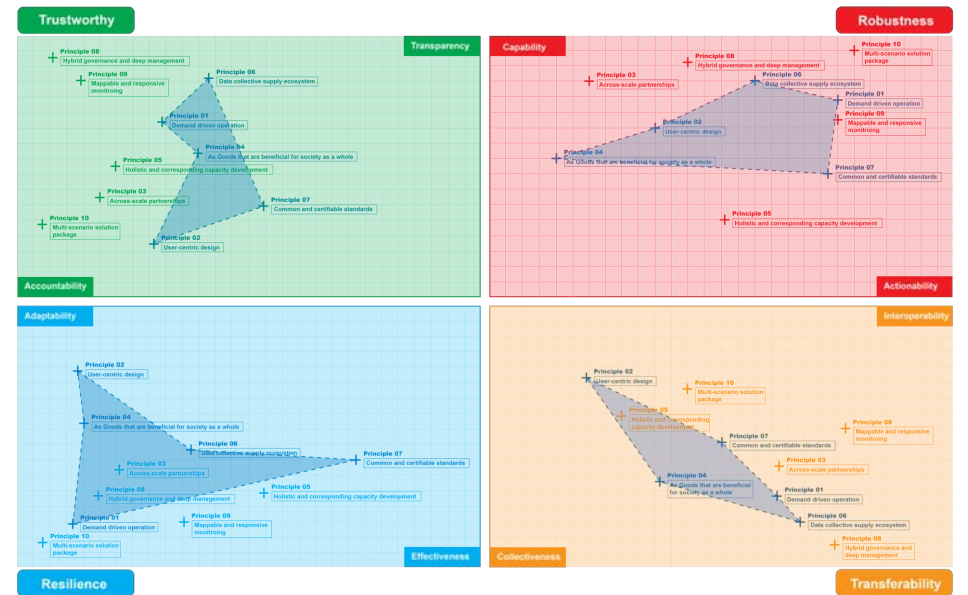
2



3



4



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**Align GEDS with current UNEP workstreams**

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## [Component II ] Designing an Adaptive GEDS

Core:

- **Triple overarching mechanisms**

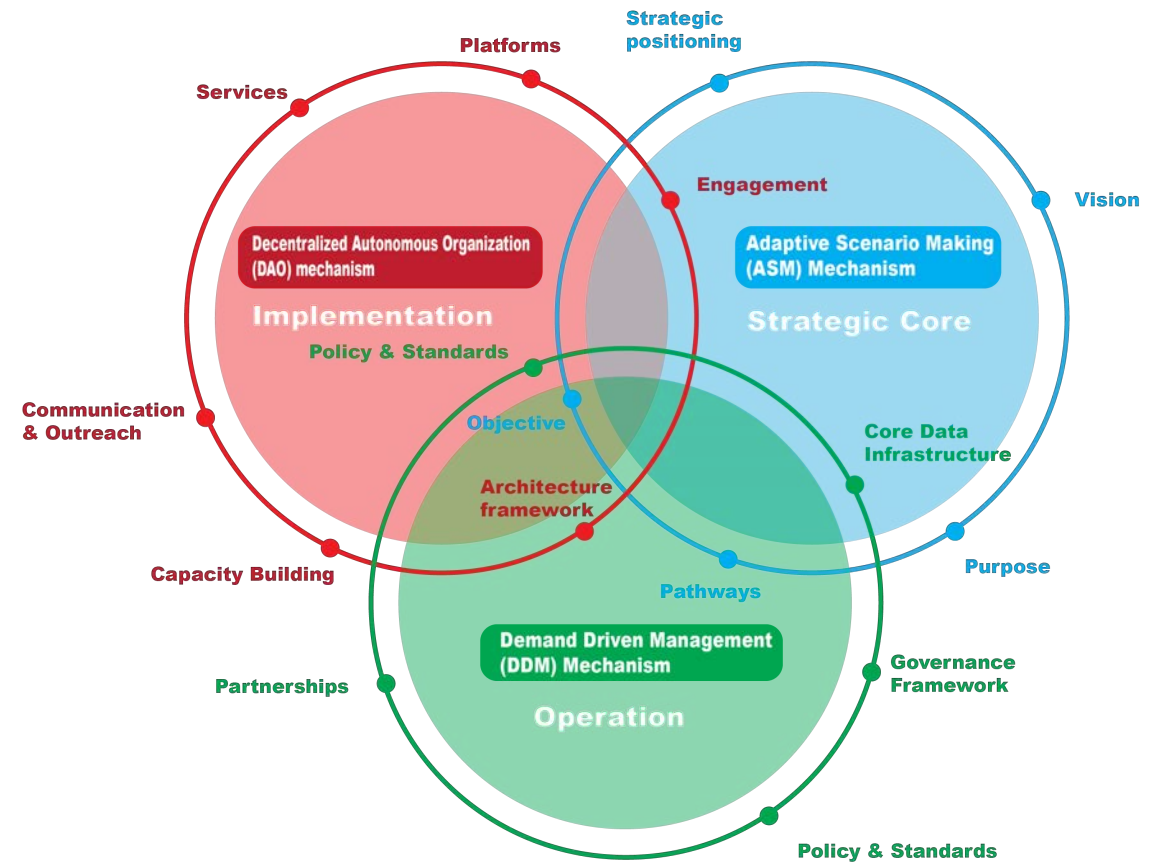
Develop an adaptive data strategy with Multi-scenario pathways that powered by collective actions.

*Mechanism 1: Adaptive Scenario making Mechanism*

*Mechanism 2: Decentralized Autonomous Organization*

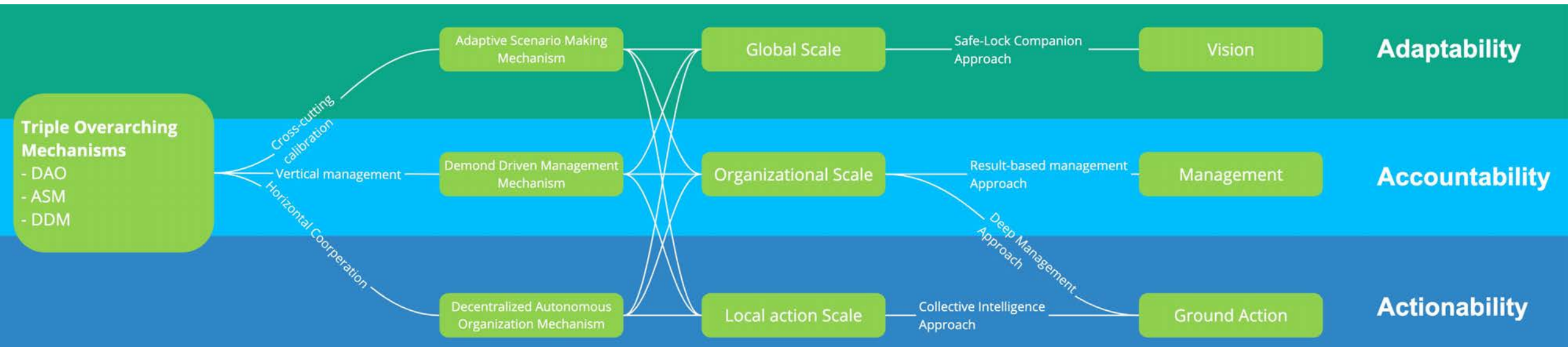
*Mechanism 3: Demand Driven Management Mechanism*

- Visioning desired futures
- Adaptive pathways



# [Component II ] Designing an Adaptive GEDS

Apply three major mechanisms through scale and thematic focus





# [Component II ] Designing an Adaptive GEDS

Show case - DAO

## [Macro Mechanism]

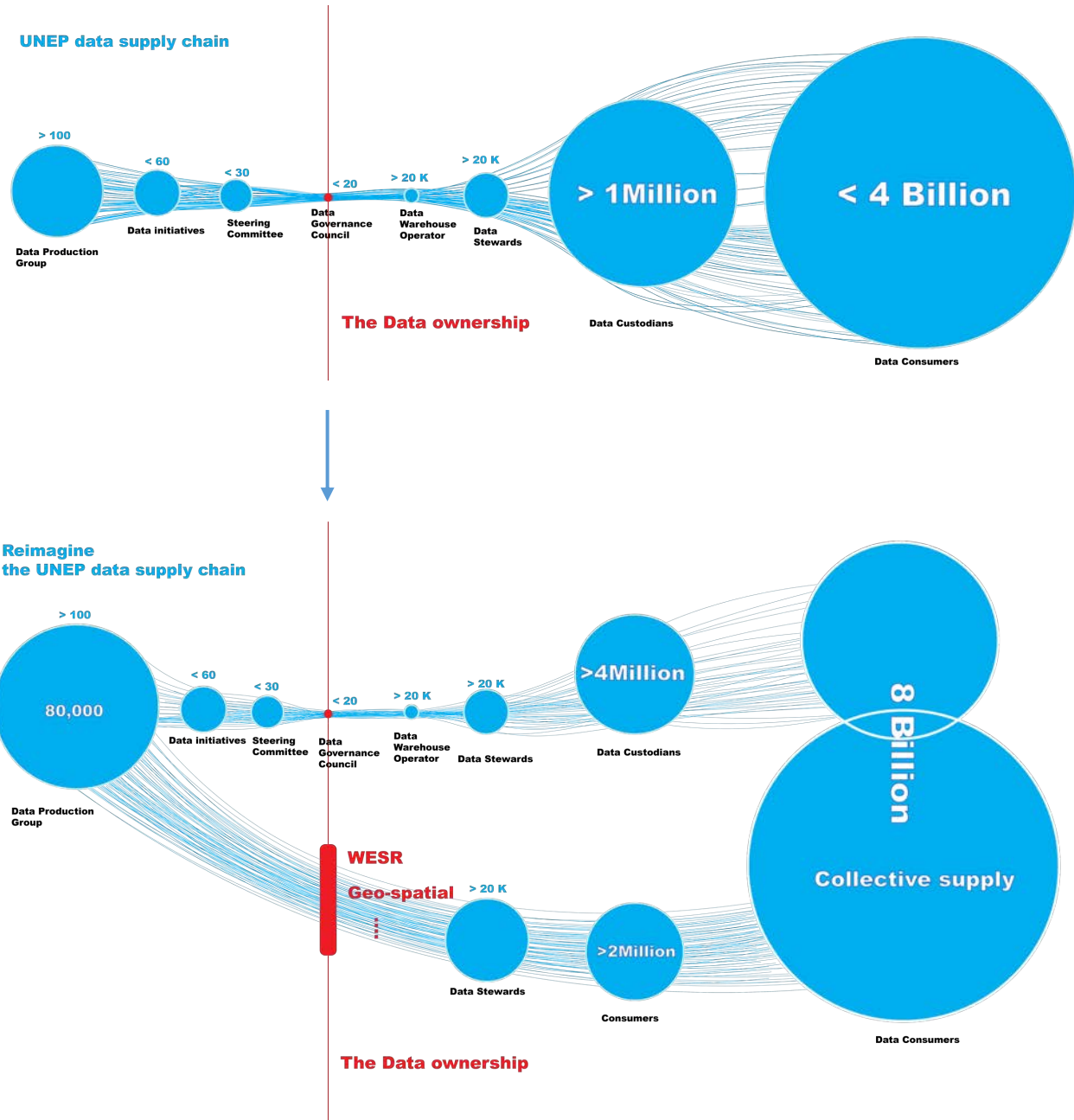
Adaptive Scenario Making (ASM) Mechanism

## [Inter Mechanism]

Demand Driven Management (DDM) Mechanism

## [Micro Mechanism]

Decentralized Autonomous Organization (DAO) Mechanism

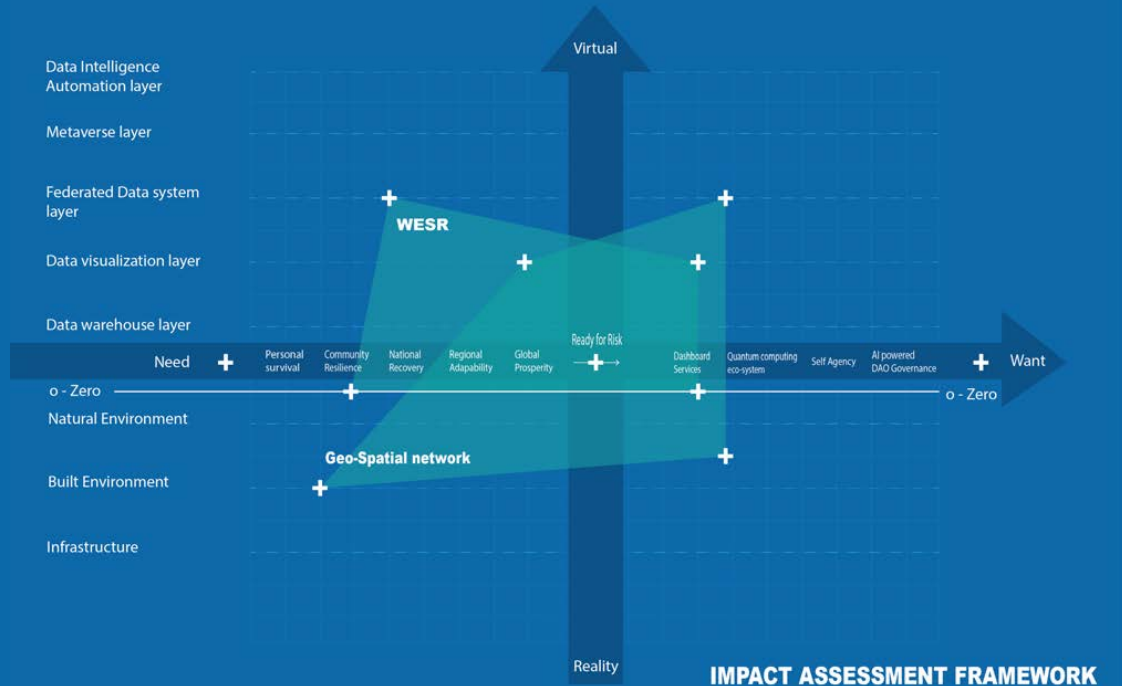
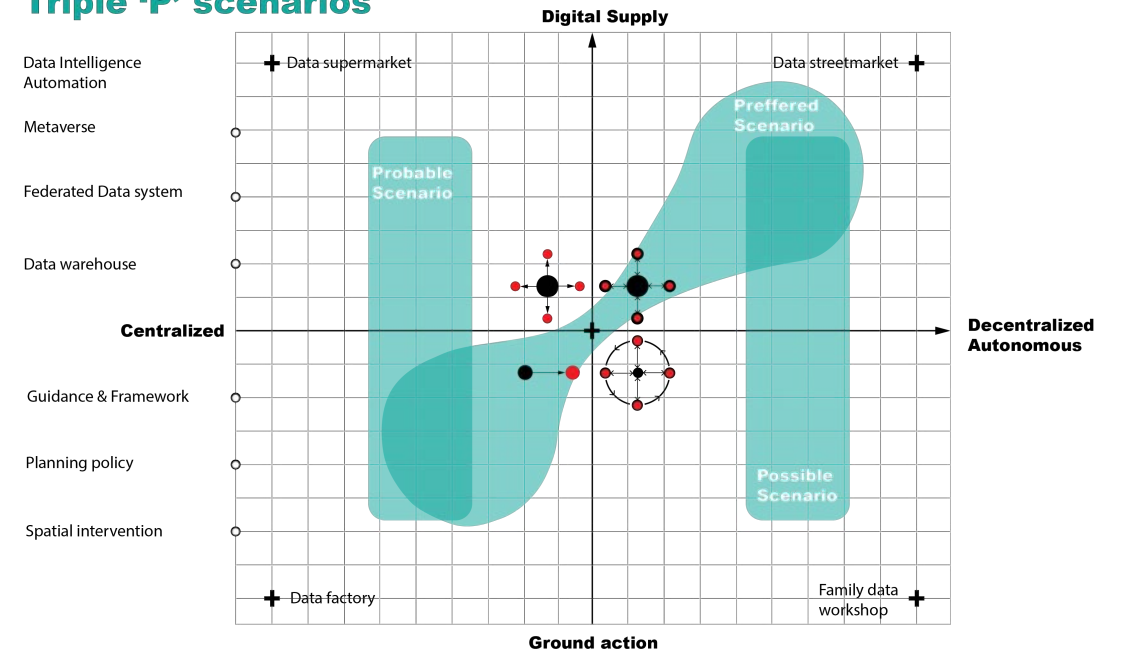


# [Component II ] Designing an Adaptive GEDS

Core:

- Triple overarching mechanisms
- **Visioning desired futures**
- Adaptive pathways

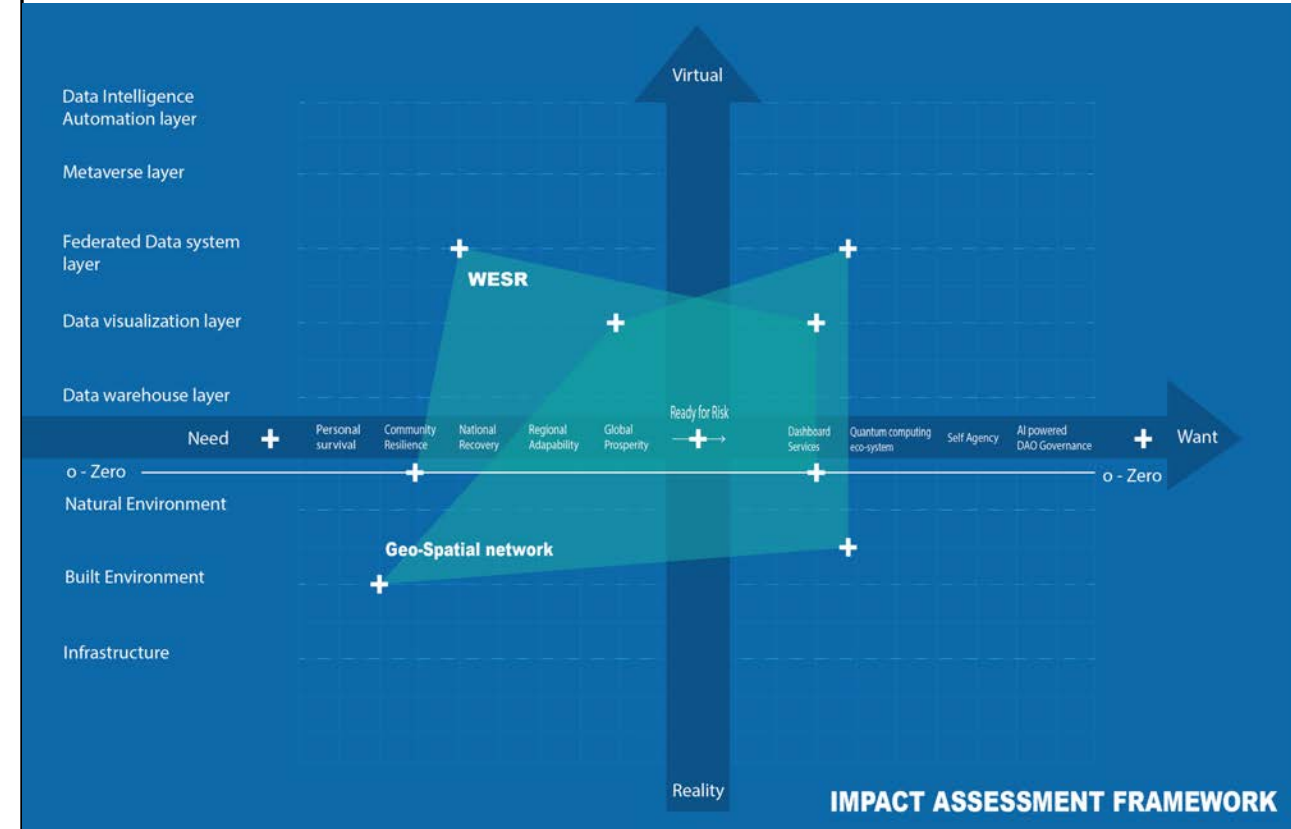
## Triple 'P' scenarios



## [Component II ] Designing an Adaptive GEDS

Core:

- Triple overarching mechanisms
- **Visioning desired futures**
- Adaptive pathways



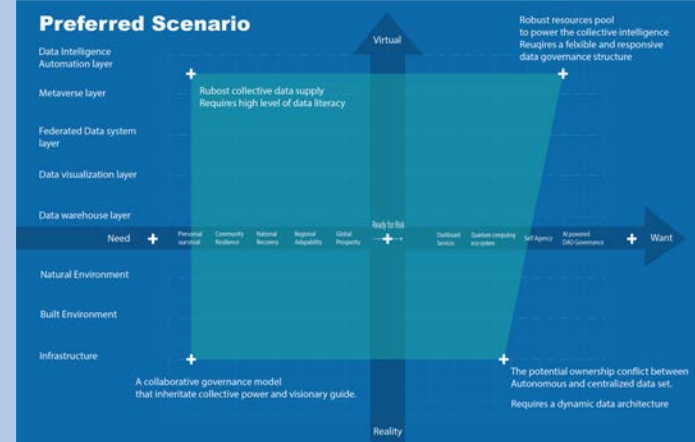
# [Component II ] Designing an Adaptive GEDS

Core:

- Triple overarching mechanisms
- **Visioning desired futures**
- Adaptive pathways

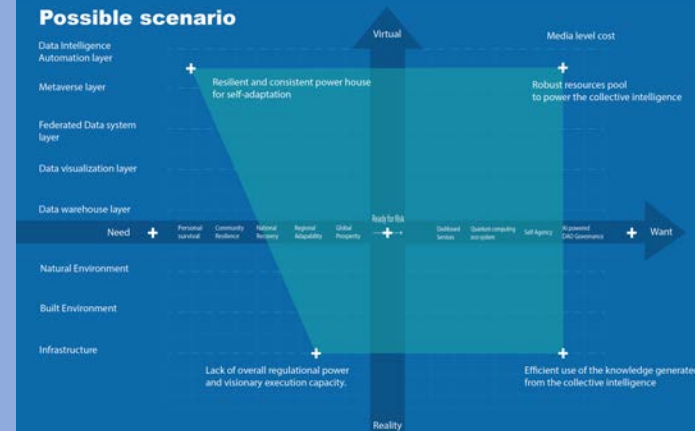
## Preferred Scenario

An adaptive and proactive data operation hub



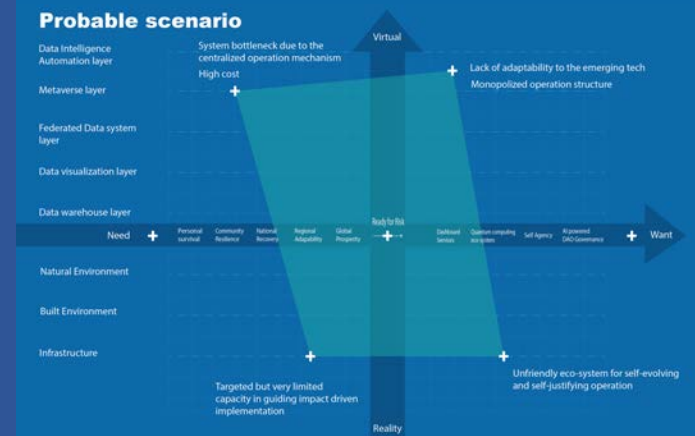
## Possible Scenario

A future-proof and autonomous data supply eco-system



## Probable Scenario

A highly efficient and federated data circulation system



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## Recommendations for implementing GEDS

- Pillar 1: Cultivate enablers
- Pillar 2: Naturing capabilities
- Pillar 3: Enhance adaptability

# 4

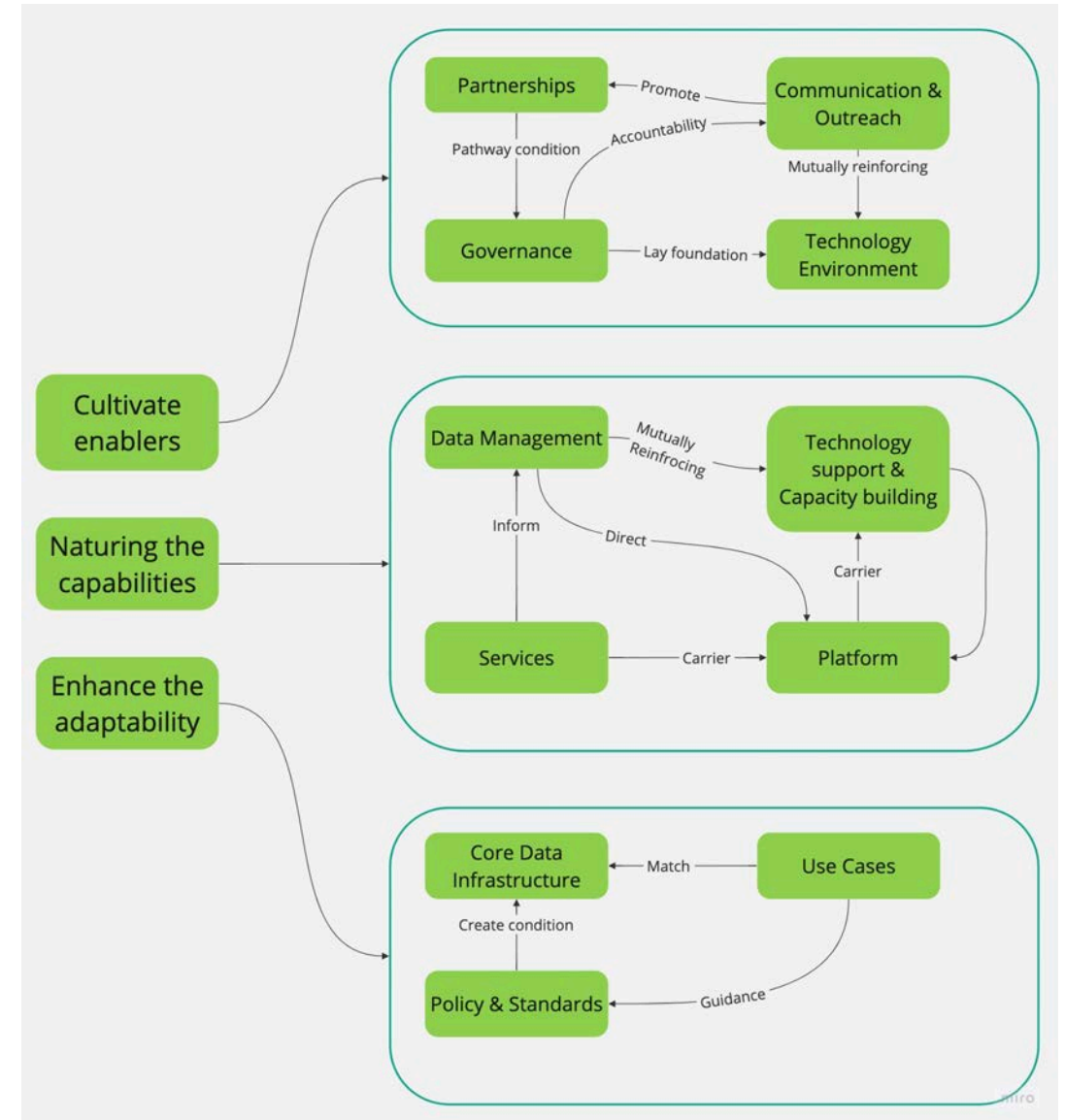
## Align GEDS with current UNEP workstreams

- Related
- WESR

## [Component III ] Recommendations

Core:

- Cultivate Enablers
- Naturing Capabilities
- Enhance the Adaptability

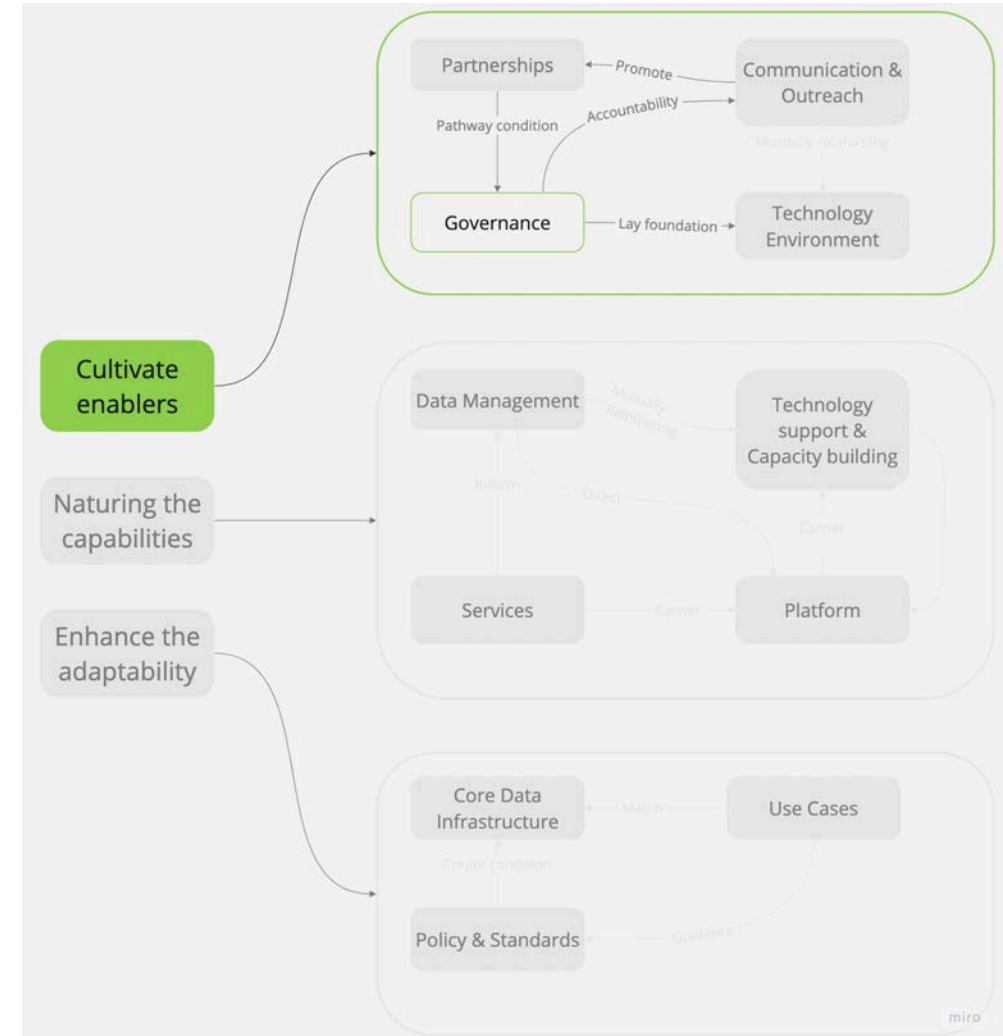


## [Component III ] Recommendations

### Use Governance as Showcase

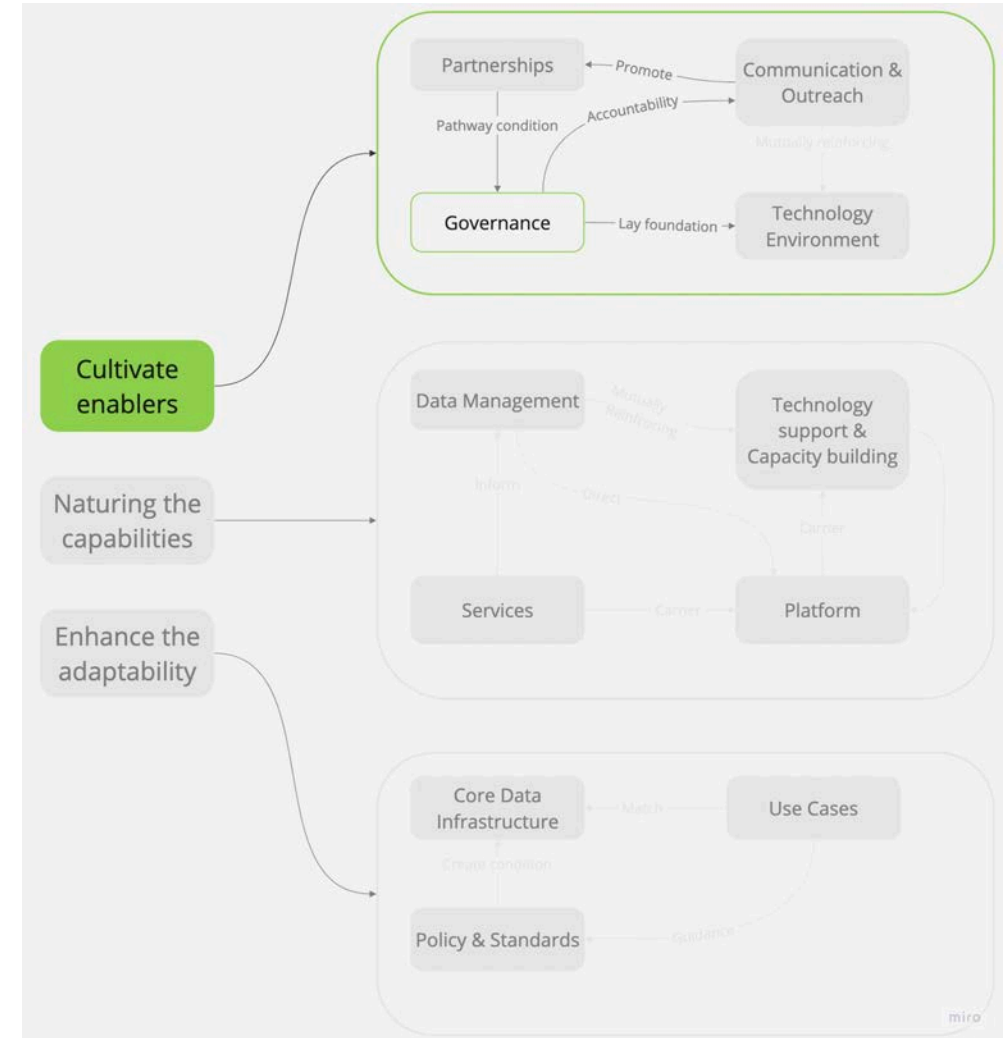
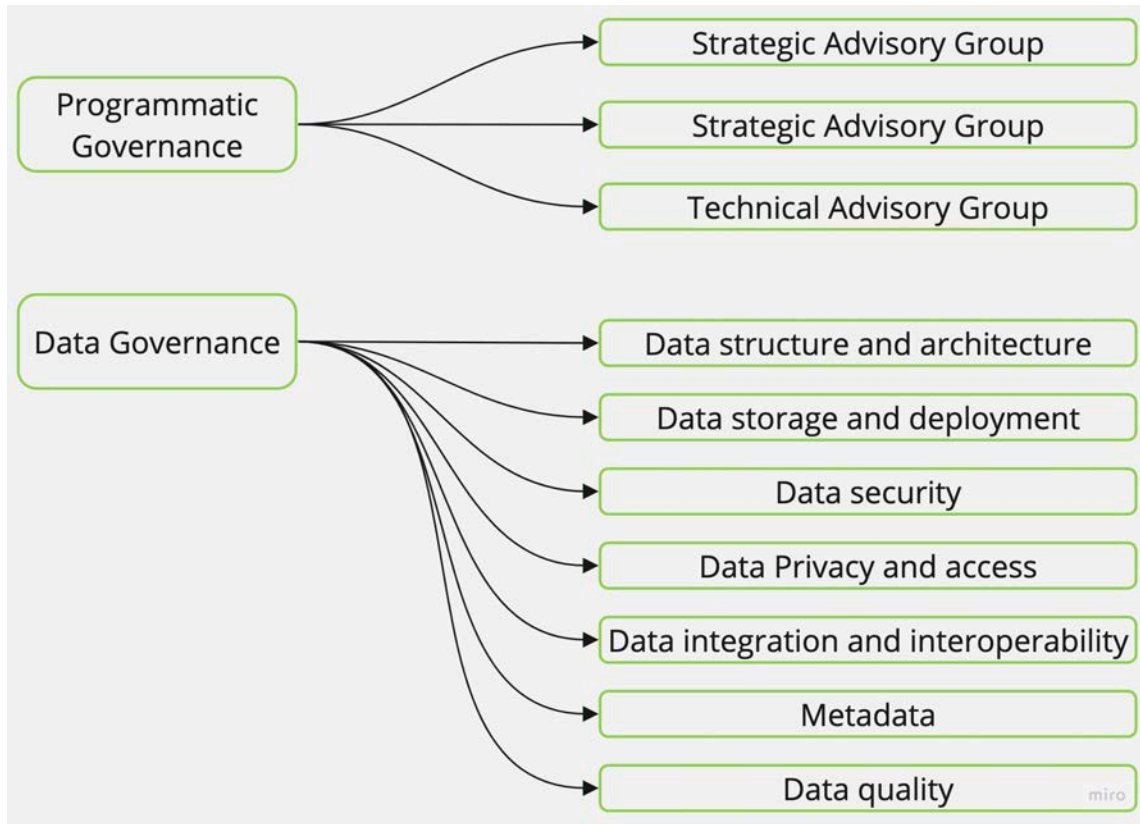
Core:

- **Cultivate Enablers**
  - Hybrid Governance Structure
  - Communication & Outreach
  - Partnerships
  - Technology Environment
- Naturing Capabilities
- Enhance the Adaptability



# [Component III ] Recommendations

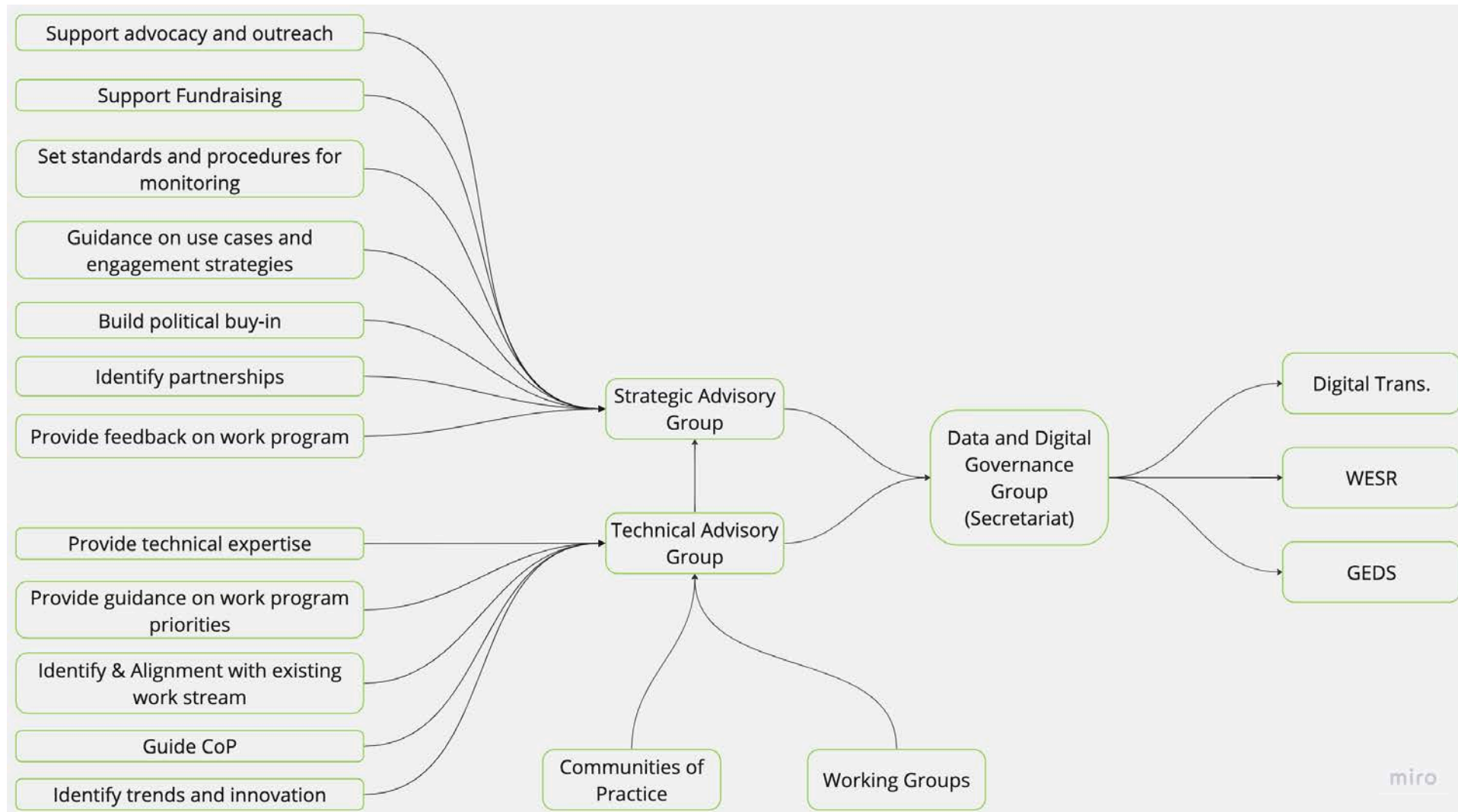
## Use Governance as Showcase



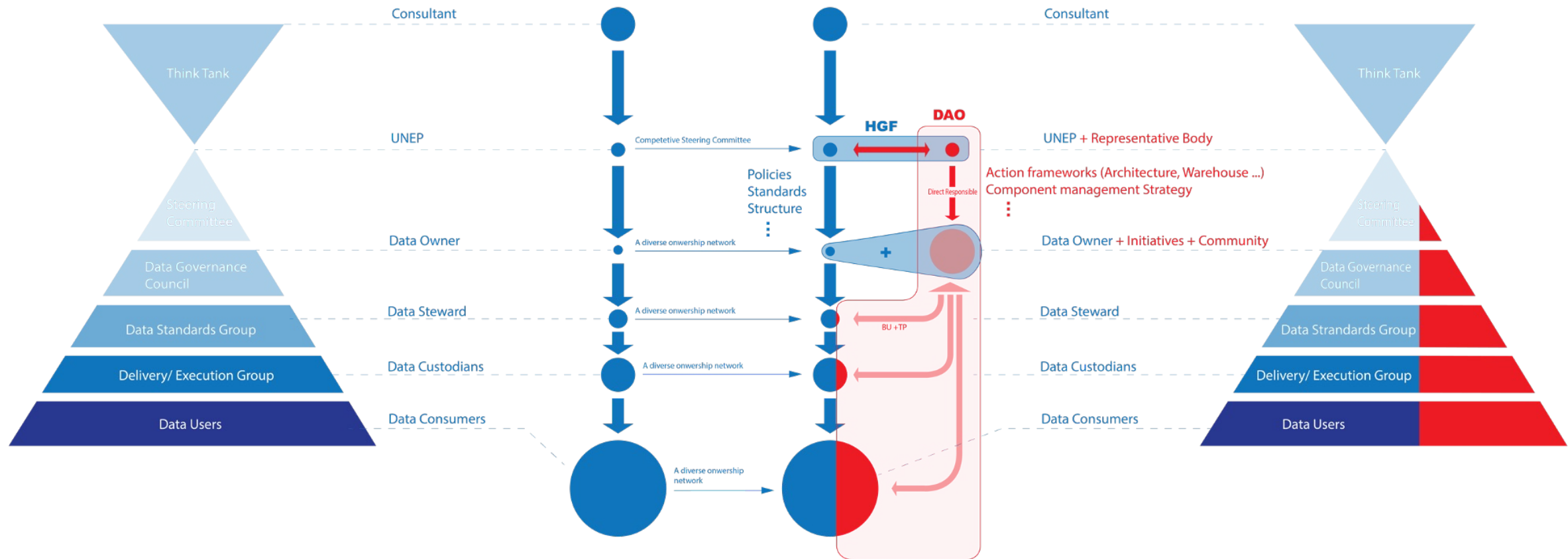


# [Component III ] Recommendations

## Use Governance as Showcase



### Hybrid Data Governance Structure - Parallel Governing + Vertical Deep Management



# [Component III ] Recommendations - Table

## Cultivate Enablers

■ High Prio
 ■ Link
 ■ Initiate
 ■ Enhance  
■ Mid Prio

Guidelines	# Recommendations & Next Step Action	Priorities	Category
<b>1 Partnerships</b>	1 Geospatial network as the core power engine and carrying infrastructure to incubate more diversified partnership eco-systems.	■	■
	2 Highlight the implementing partnerships. A potential collaborator capable of assisting in achieving program objectives on a national and regional scale, which may involve contributing specialized knowledge, engaging users in the design process, enhancing capabilities, communicating effectively, and garnering political backing.	■	■
	3 Technology Partners. The partnership is dedicated to fostering progress in the realms of technology, infrastructure, and standards, with a strong emphasis on innovation and the implementation of cutting-edge solutions. By harnessing the power of collaboration, this partnership seeks to drive meaningful change and create a lasting impact, paving the way for a more dynamic and efficient future.	■	■
	4 Domain Partners. Seek partnerships with organizations and companies possessing specialized knowledge in UNEP's key priority areas, as well as those who can address the identified needs and priorities at the country level, offer capacity development opportunities, or provide expertise in data and technology.	■	■
<b>2 Governance</b>	1 Hybrid governance mechanism to integrate top-down and bottom-up structure.	■	■
	2 Provide strategic guidance on pathway calibration, use cases, and partnerships priorities at different phases.	■	■
	3 Apply Result-based management to regulate the Governance Group workstream and develop the Integration monitoring framework to provide feedbacks.	■	■
	4 Combine our Digital Governance, Strategic Advisory, and Technical Advisory groups to establish a triple monitoring structure and efficiently mobilize our resources for better digital initiatives.	■	■
<b>3 Communication &amp; Outreach</b>	1 Create flexible communication guidelines to ensure tailored communication plans for different groups of partners.	■	■
	2 To maximize the impact of data, prioritize efforts to engage both data users and producers, create a communication network through partner organizations, and develop user personas and targeted communication tailored to the specific needs and preferences of different types of users.	■	■
	3 Guide user-centered and co-design approaches with a social media strategy, efficient communication, and eliminating less impactful actions. This optimizes engagement, co-creation, and impact.	■	■
	4 Maximize the relevance and impact of WESR by conducting stakeholder mapping and defining a user-centered engagement approach with member countries.	■	■
<b>4 Technology Environment</b>	1 Create a governance approach that is inclusive and involves multiple stakeholders, provides expert guidance, and incorporates representation from member countries to ensure buy-in.	■	■
	2 Enhance collective data decision-making by empowering users through a policy that supports mainstream self-service analytics tool sets, as well as improving the available tool sets for data integration.	■	■

# [Component III ] Recommendations - Table

## Naturing Capabilities

■ High Prio
 ■ Link
 ■ Initiate
 ■ Enhance  
■ Mid Prio

Guidlines	# Recommendations & Next Step Action	Priorities	Category
<b>1 Data Management</b>	1 Use WESR to power the geospatial data ecosystem as the core data structure.	■	■
	2 A structured framework for managing APIs that enables access to data from member states.	■	■
	3 Digitalization and knowledge transfer for publications can be made public goods through demand-driven approaches.	■	■
	4 Digitalization and knowledge transfer for publications can be made public goods through demand-driven approaches.	■	■
<b>2 Technology support &amp; Capacity Building</b>	1 Holistic capacity development strategy across global, regional, and national scales.	■	■
	2 Apply phased approach with consistent and accountable monitoring mechanism.	■	■
	3 Capacity development should be directed towards ministry staff, university personnel, and research institutes at the national level, with a particular emphasis on managing digital data in alignment with the established national data transformation strategy.	■	■
	4 Regionally, capacity building is required for executing the engagement strategy in selected countries. Technical training workshops can be conducted by national or regional institutions. Capacity building should focus on UNEP staff, regional commissions, and research institutes to coordinate national initiatives.	■	■
<b>3 Services</b>	1 Provide geospatial mapping interface as interoperable system to connect with external broader resources.	■	■
	2 Develop analytics service environment for geospatial data and statistics data operation.	■	■
	3 Public operable back-end platform to incubate collective data supply.	■	■
<b>4 Platform</b>	1 Create the consolidated platform as the vehical to carry cloud computing, diverse operation interface, Metadata management.	■	■
	2 Interoperable mapping interface to mobilize diverse data resources and incubate crowd-sourcing data supply ecosystem.	■	■

# [Component III ] Recommendations - Table

## Cultivate Enablers

■ High Prio
 ■ Link
 ■ Initiate
 ■ Enhance
   
■ Mid Prio

Guidlines	# Recommendations & Next Step Action	Priorities	Category
<b>1 Core Data Infrastructure</b>	1 Geospatial network as the core power engine and carrying infrastructure to incubate more diversified partnership eco-systems.	■	■
	2 Cost effectiveness: design a cost-effective system to build and operate based on the use.	■	■
	3 Rationality: Avoid duplication of information and build on existing information and data sources as well as procedures, partnerships and intergovernmental processes already in place. Use of existing open-source software and related tools.	■	■
	4 Domain Partners. Seek partnerships with organizations and companies possessing specialized knowledge in UNEP's key priority areas, as well as those who can address the identified needs and priorities at the country level, offer capacity development opportunities, or provide expertise in data and technology.	■	■
<b>2 Use Cases</b>	1 Testability: Use cases should be designed in a way that allows them to be easily tested, ensuring that they meet the required functional and non-functional requirements.	■	■
	2 Consistency: Use cases should be consistent with each other and with the overall system design, ensuring that there are no contradictions or conflicts between different parts of the system.	■	■
	3 Completeness: Use cases should cover all possible scenarios and interactions between the user and the system, ensuring that all relevant functionalities are included.	■	■
<b>3 Policy &amp; Standards</b>	1 Alignment with the upstream guidelines and regional and country level policy context.	■	■
	2 Clarifying the roles, responsibilities, standards, and policies pertaining to data is essential for ensuring accountability with regard to data assets, insights, and actions.	■	■
<b>4 Adaptive Scenario Making</b>	1 Adaptive: the pathways of achieving the strategic goal needs to be multi-scenario based path leading.	■	■
	2 Optimization and calibration: Establishing a companion pathway can act as a safeguard for the planned pathway, ensuring that the journey towards the ultimate goal is secure and seamless.	■	■

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## Align GEDS with current UNEP workstreams

- Related
- WESR

## [Component IV ] Current Services Alignment

Show case - WESR

WESR as carrying infrastructure

Implementing GEDS through WESR

Impacts on the Ground and  
Demonstration Project (Use cases)

Federated Data Eco-system

Impacts on the ground and demonstration projects

WESR-CCA

# Thank you!