

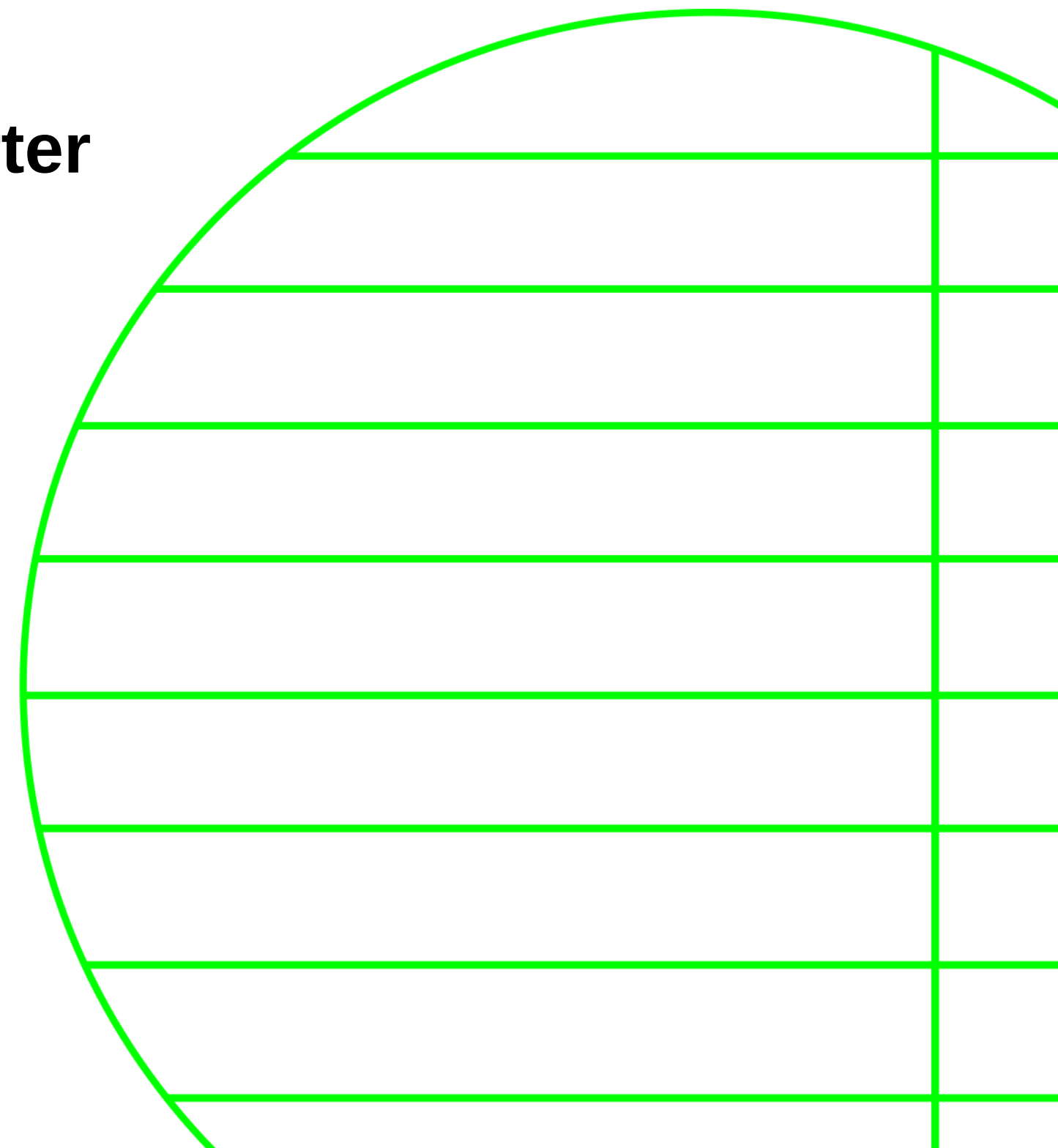
Digitalization for Disaster Risk Reduction

Delivered at Webinar on

**Enhancing Collaboration between NSOs and Disaster Management for Smarter
Disaster and Climate Resilience**

8 Oct 2024

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UNDP's Digital Disaster Risk Reduction Maturity Model (DDRRMM)

A diagnostic tool for the maturity of the digital ecosystem of disaster risk reduction and management practices



Project Overview



Regional Project: “Accelerating Disaster Risk Reduction and Enhancing Crisis Response through Digital Solutions (**DX4Resilience**)”

Duration: June 2020 - March 2022

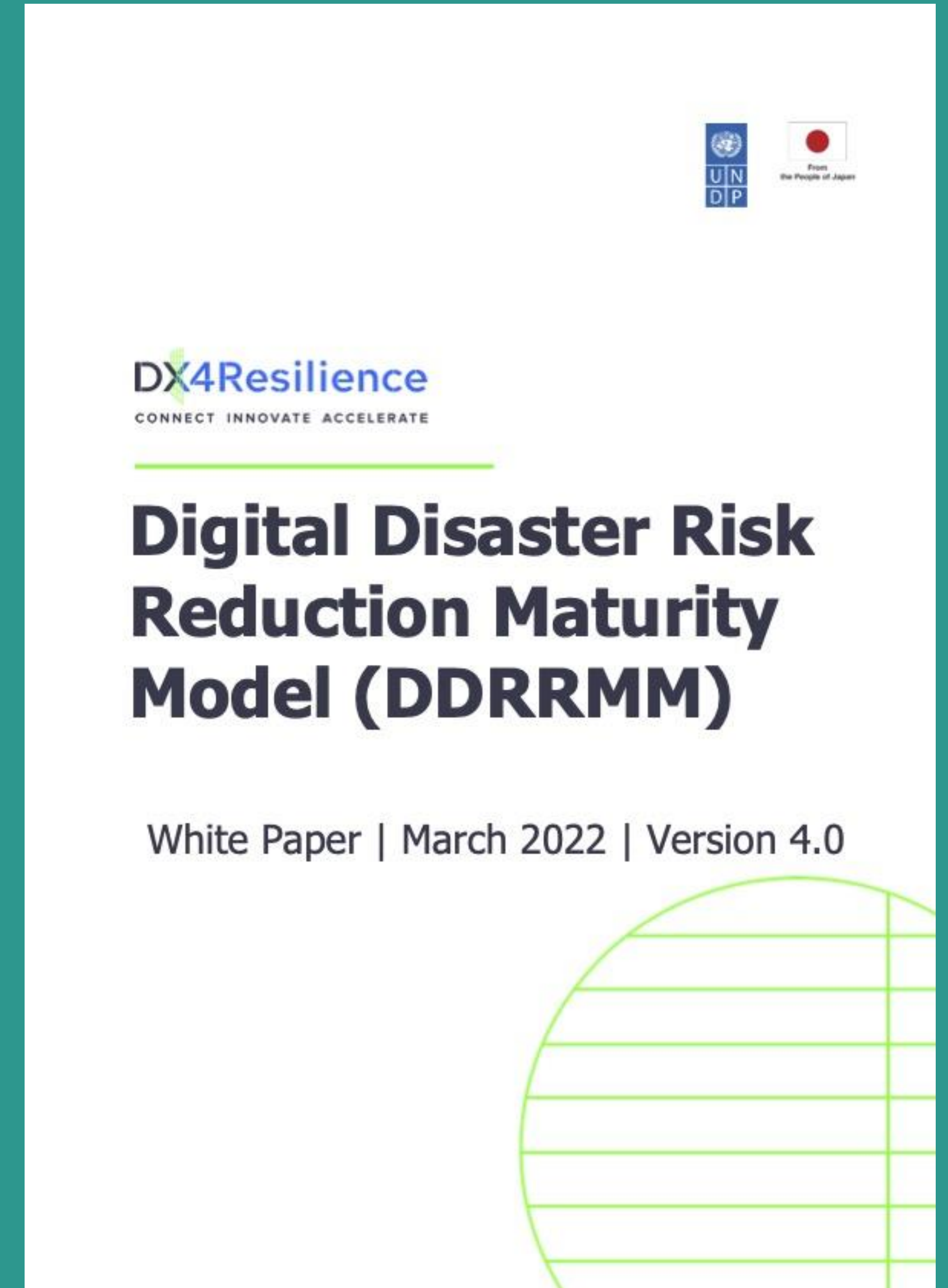
Implementer: UNDP BRH

Project Countries: **Indonesia, Nepal, Philippines, Sri Lanka**

Donor: Government of Japan

Introducing DRRMM

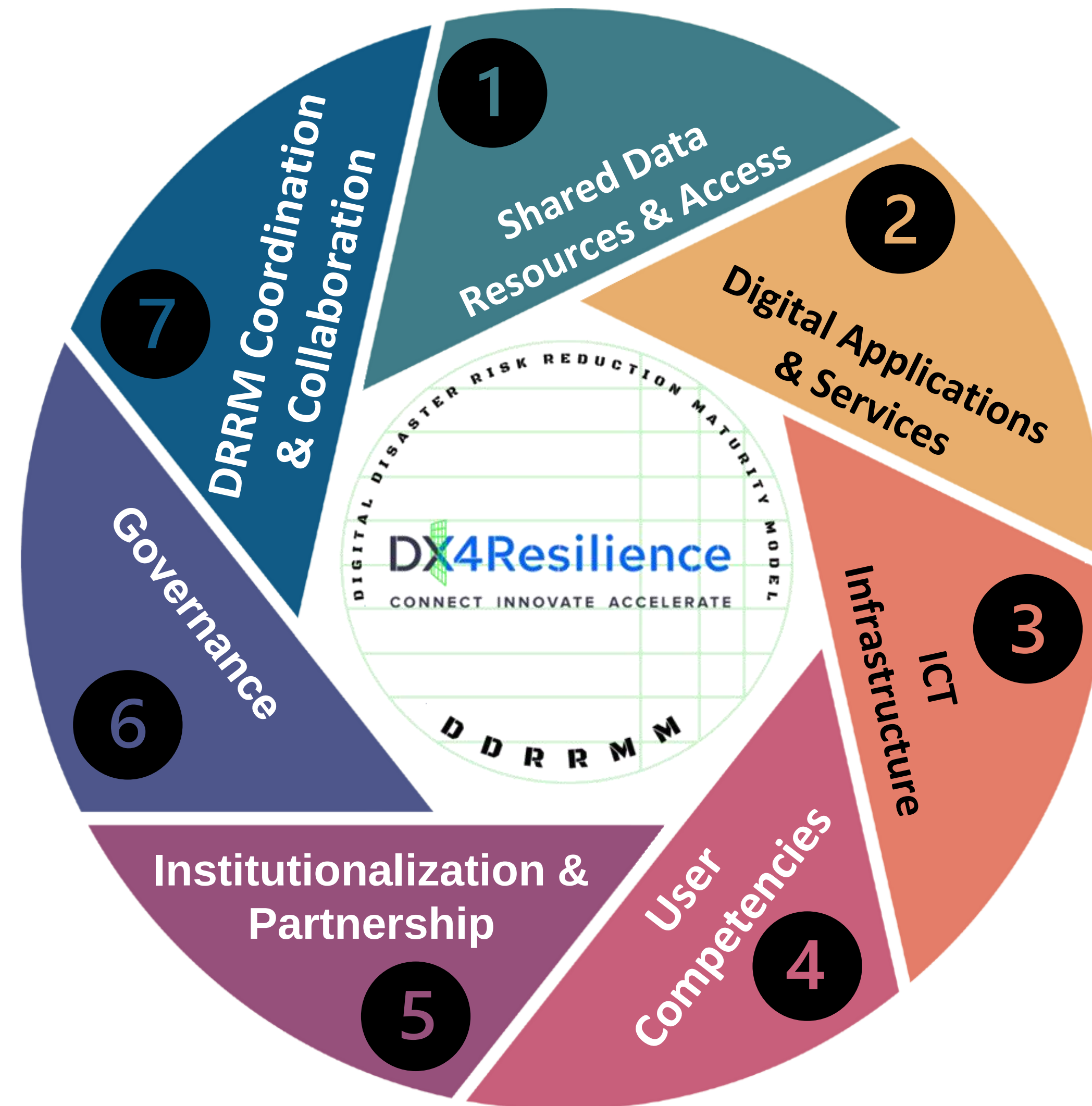
- Benchmark progress towards realizing the full potential of digital technologies and solutions for Disaster Risk Reduction & Management (DRRM)
- Identify areas for improvement and what needs to be done to improve DRRM capabilities and operations
- Provide a standard for evaluating progress towards building the best-of-breed digital ecosystem for effective and integrated DRRM



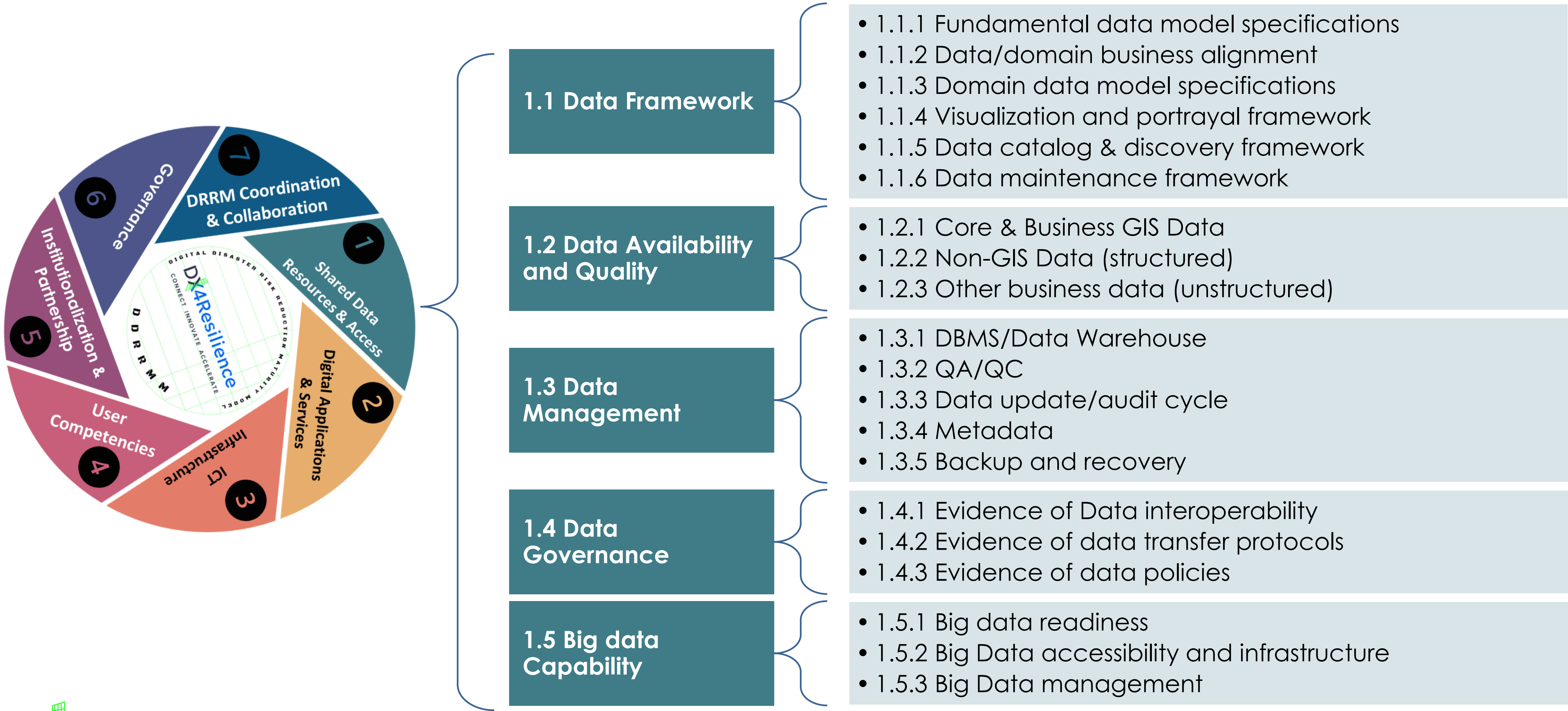


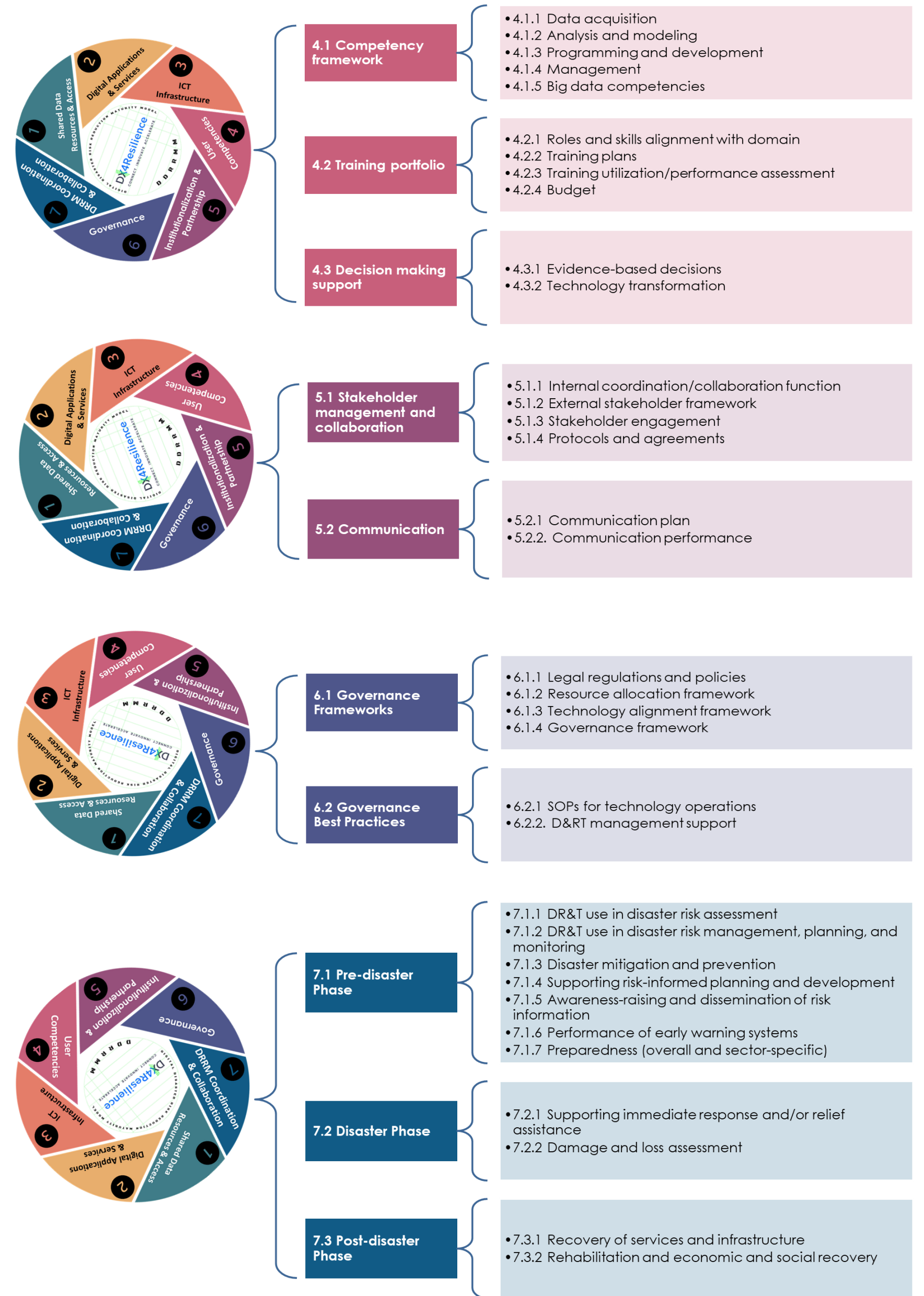
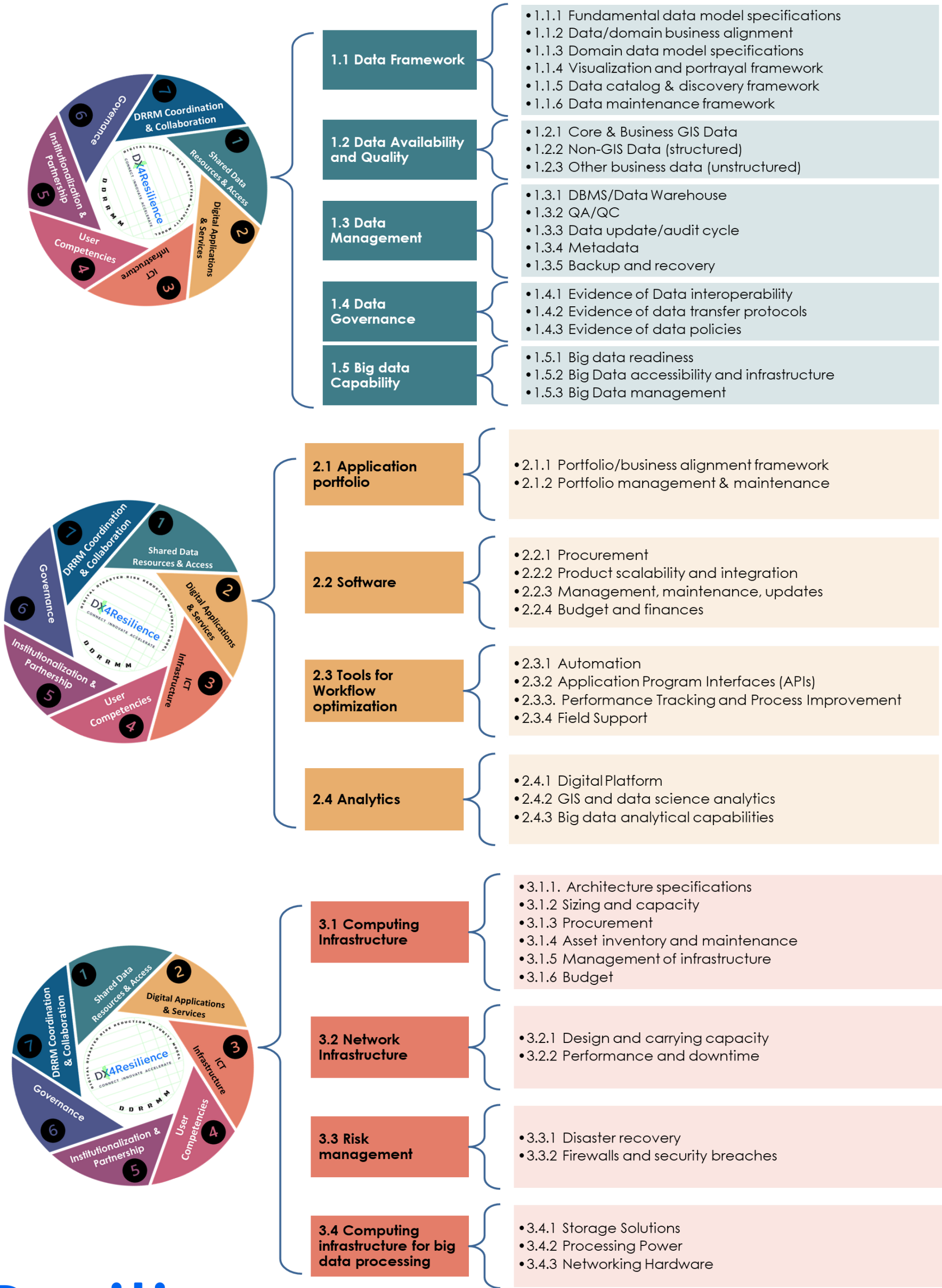
DDRRMM MATURITY LEVELS AND HIERARCHY

The Main Components in DRRMM

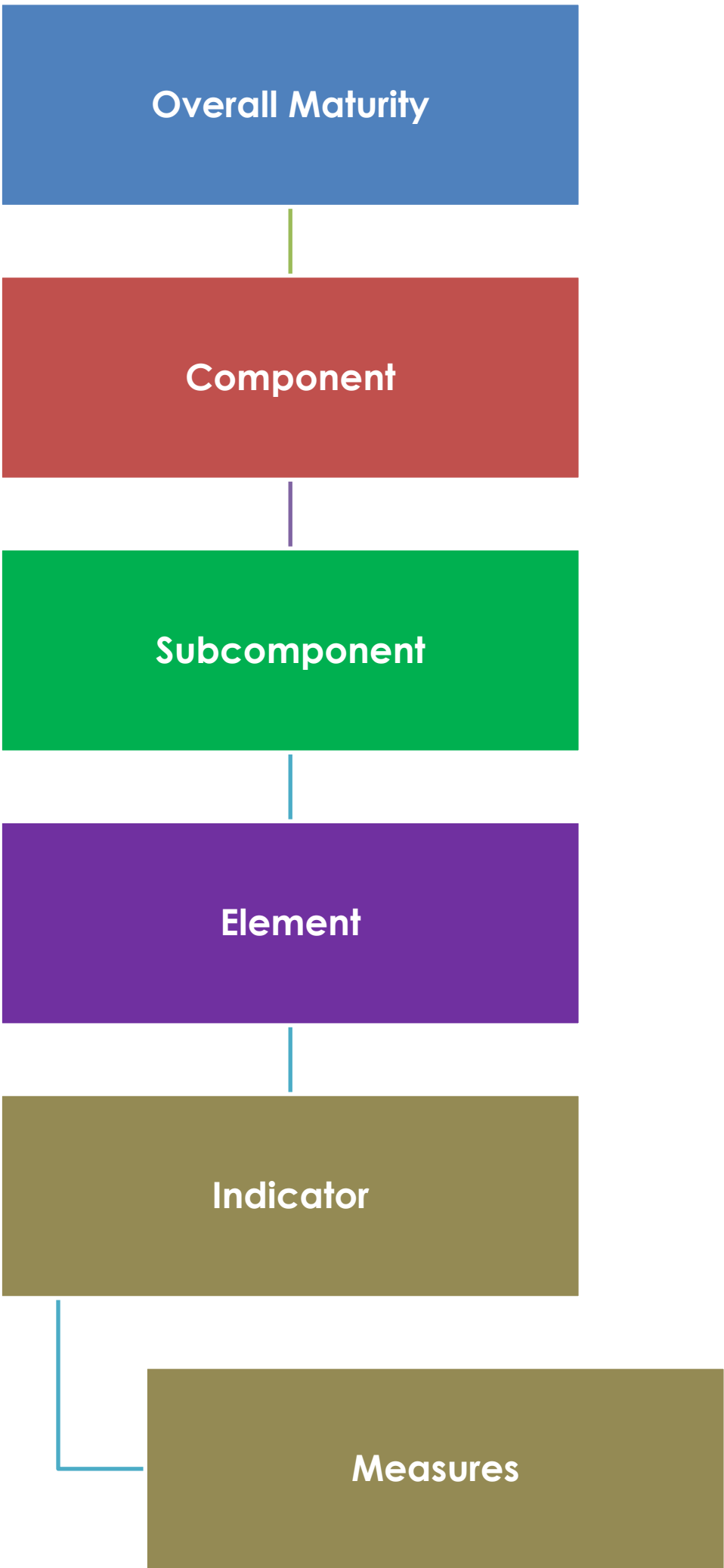
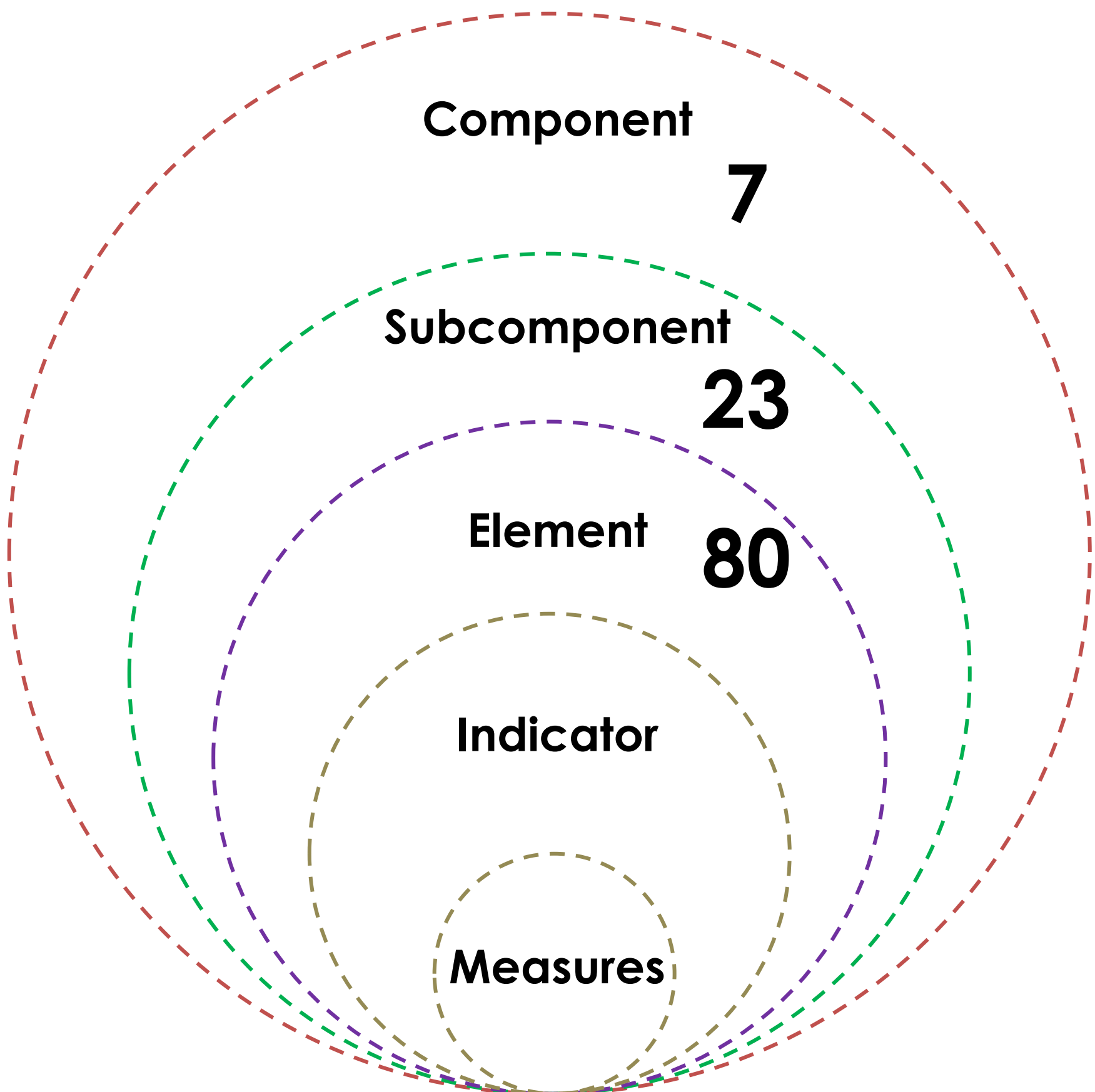


DDRRMM Model Hierarchy: Shared Data Resources and Access





DDRRMM Model Hierarchy

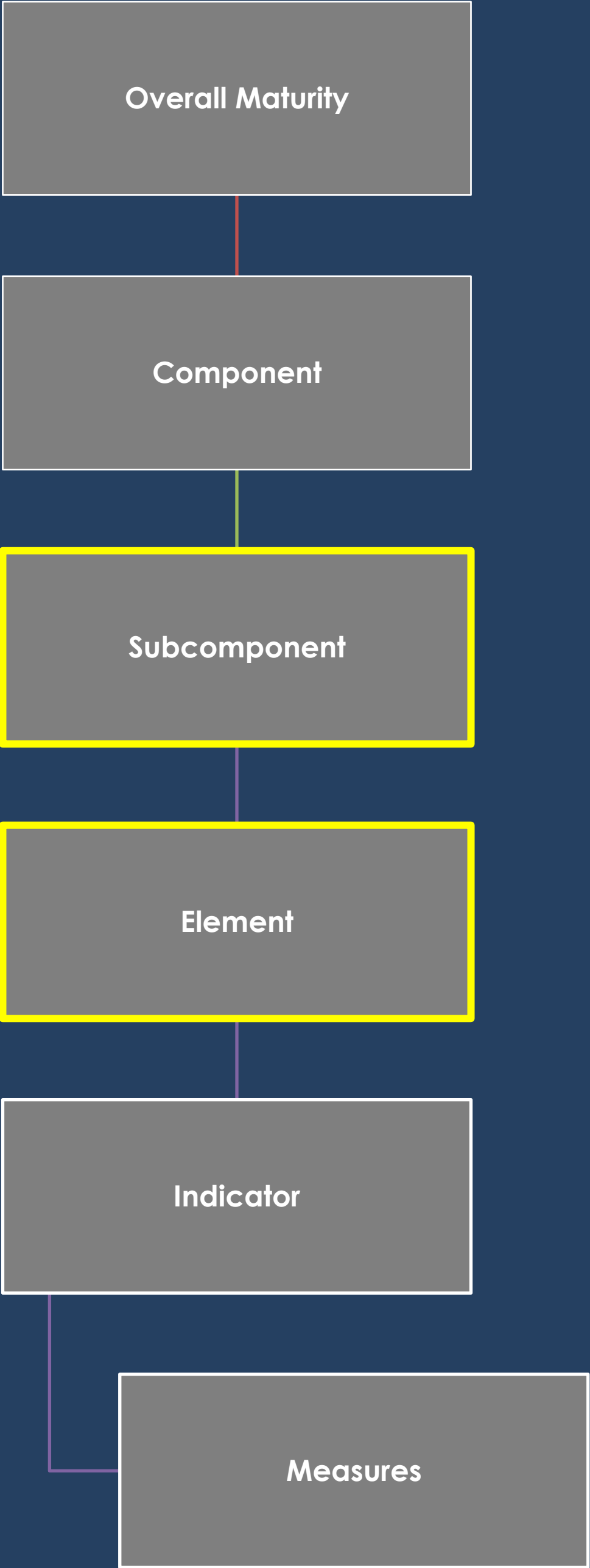


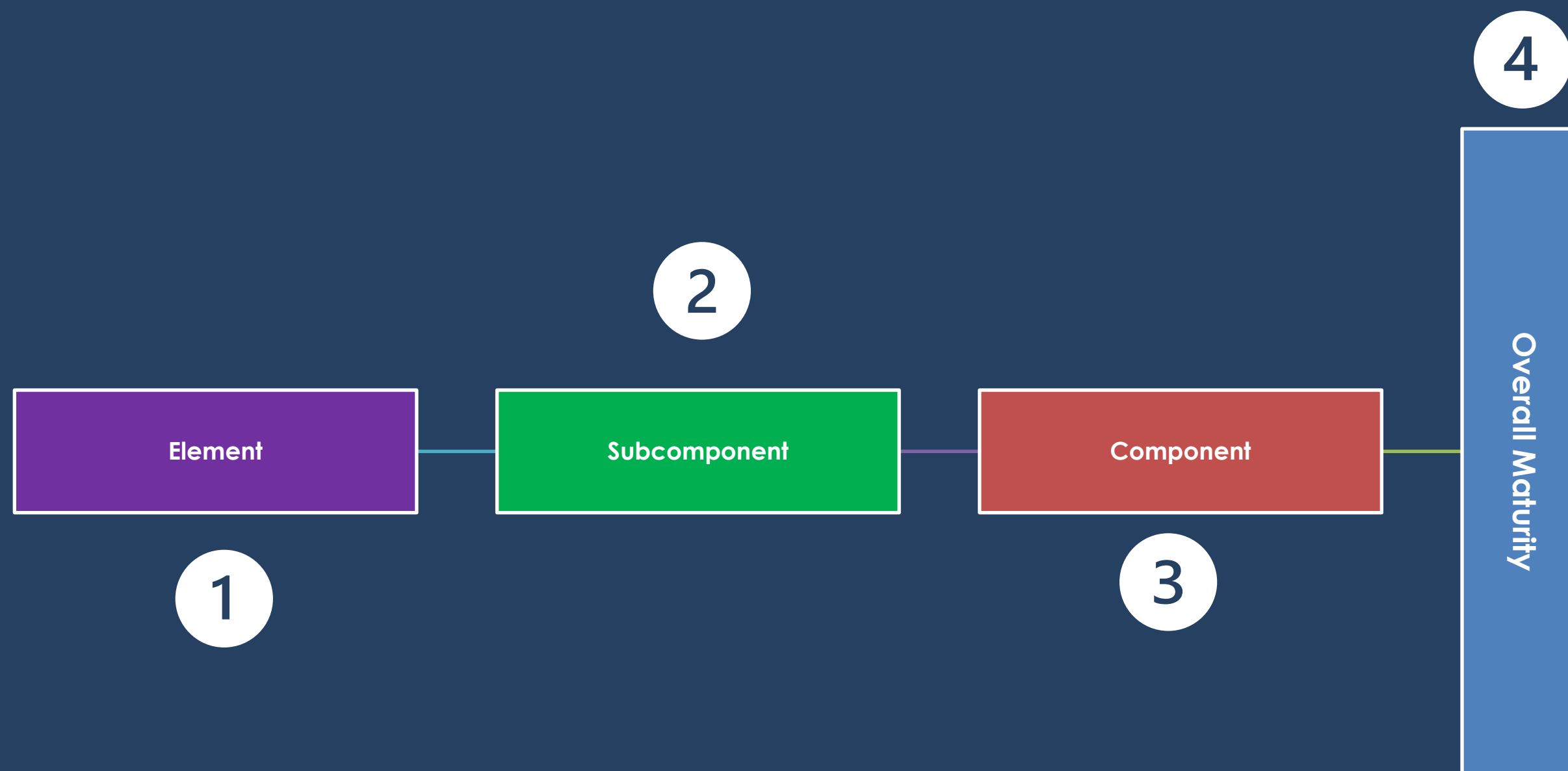
Meaning of Maturity Levels:

Subcomponent and Elements

- Scoring of the maturity levels of the subcomponents is derived from the underlying elements scores and is weighted according to the relative importance of the subcomponent to the parent component
- The scoring at the element level is done based on the following qualitative scale

Maturity Level	Description	Score
N/A	Not applicable (explanation required)	0
Ad Hoc	Desired, but is not planned	1
Recognized	Planned but with no resources available to achieve the capability	2
Defined	Planned and with resources available to achieve the capability	3
Managed	In progress/partially implemented - OR fully implemented but lacking performance assessment and compliance with international standards	4
Optimized	Fully implemented AND performance, full compliance with standards, continuous improvement is done on an ongoing basis based on quantified performance goal	5





How Does the Calculator Work?

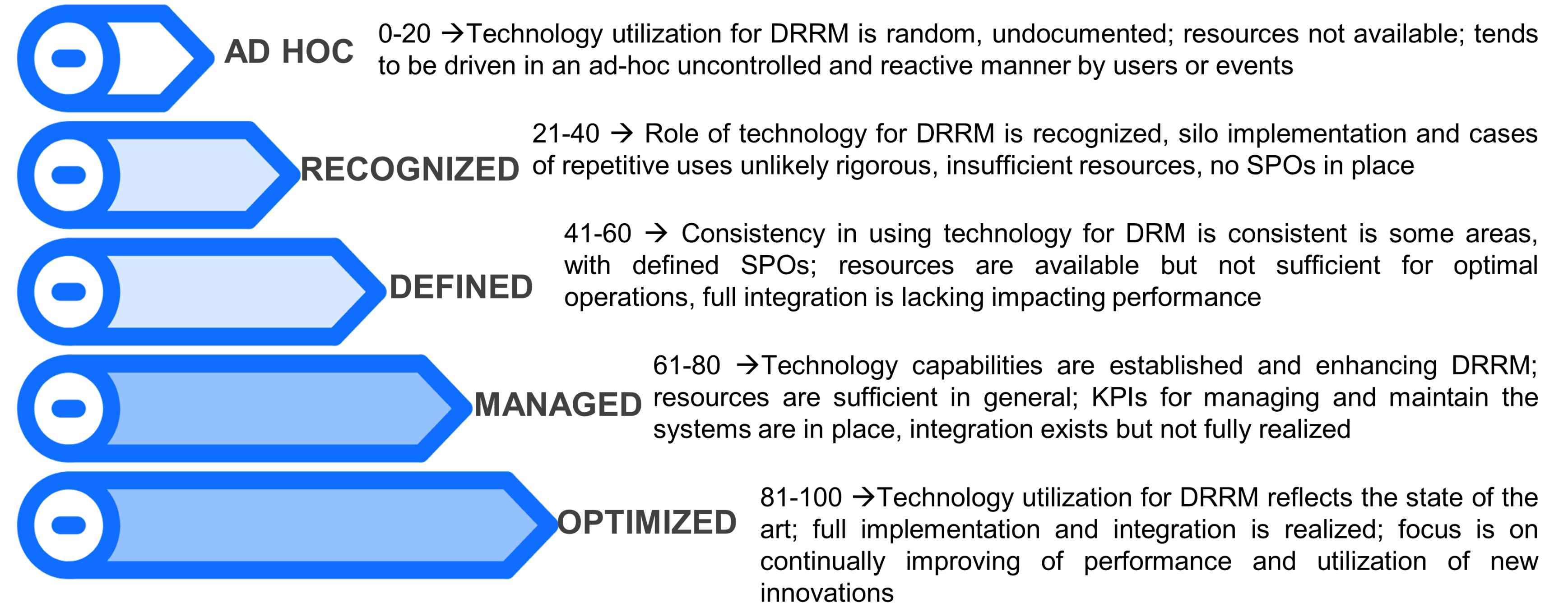
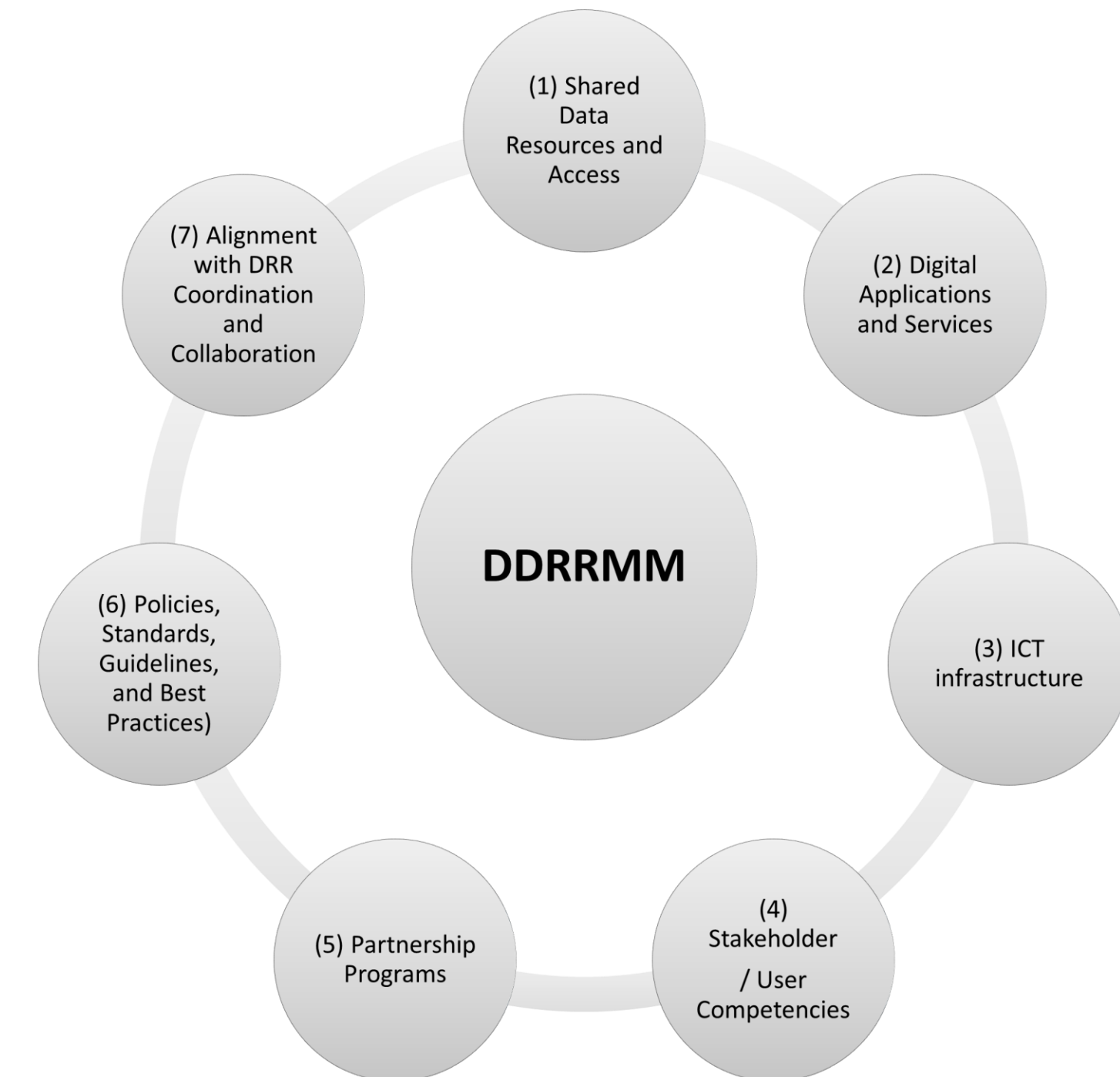
- Maturity is calculated bottom-up, starting with the elements
- Each element within a specific subcomponent is assigned to a numerical score from 0 to 5 based on the self-assessment reported by the stakeholders and according to specific qualitative criteria
- The elements are weighted for their relative importance to the parent such that the score assigned to the subcomponent is a weighted score that ranges from 0 to 5
- The maturity score assigned to each DRRMM component is an average score of the subcomponents
- Finally, the institution's overall maturity score is calculated as the average of the maturity score percentages of all the seven components

Qualitative description and assigned scores for maturity elements (Coarse Assessment)*

Maturity Level	Description	Score
N/A	Not applicable (explanation required)	0
Ad Hoc	Desired, but is not planned	1
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* Assign only one score per element

Maturity Levels



$$maturity = f(\text{technology features, business processes, enabling environment})$$

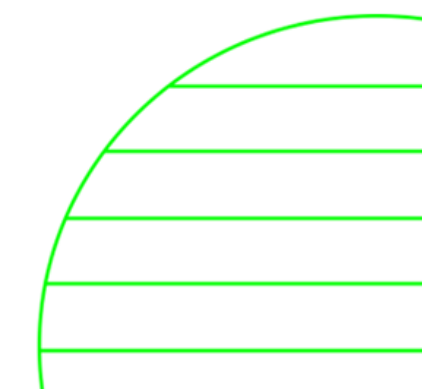
Use of DRRMM in Indonesia, Nepal, Philippines and Sri Lanka

- National level assessment covering a total of **51 institutions** across the four countries
- Self-Assessments include **80 elements** corresponding to 23 areas of possible interventions under the DRRMM seven components



Final Report

Indonesia | 30 Nov 2021



Climate Change Adaptation and Disaster Risk Reduction (DRR-CCA) Data Governance Study and Digital Readiness Strategy for the Philippines

Revised Report by Thinking Machines Data Science (TMDS) for the United Nations Development Programme (UNDP)

Version 3 as of 04 February 2022



Final Report

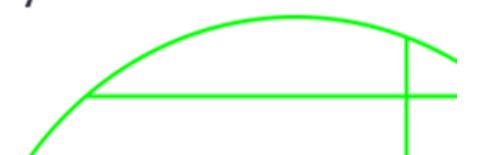
Digital Diagnostic Assessment for Disaster Risk Reduction and Recovery for Nepal

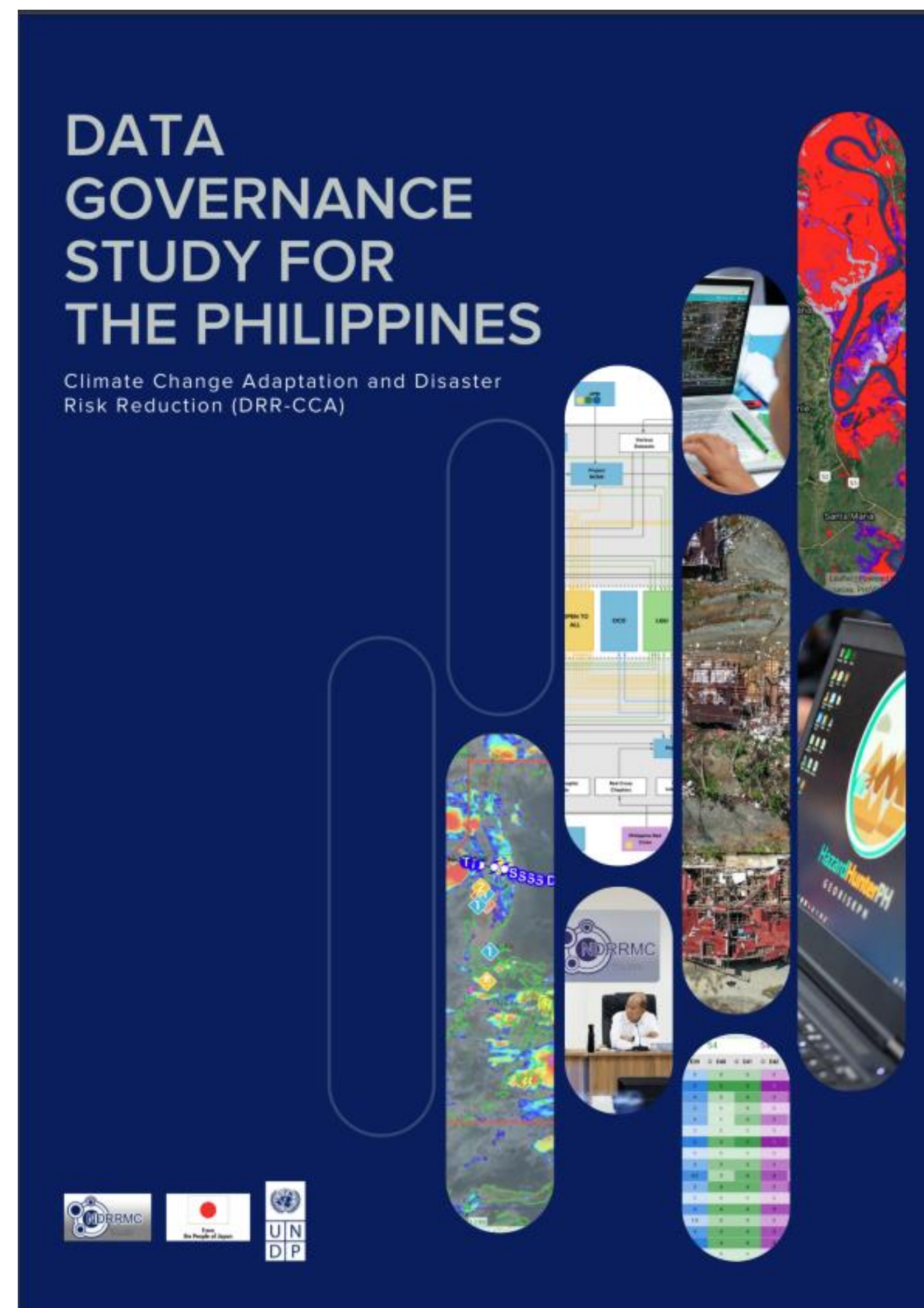
Youth Innovation Lab|October, 2021



Digital Diagnostic Assessment and Solution Development for DRR and Recovery – Sri Lanka

Final Report | 13 February 2022





Data Governance Study for the Philippines

Philippines DRRMM Dashboard

Digital Disaster Risk Reduction Maturity Model Dashboard

Component Maturity Across Agencies

• Click the column header to sort rows

DDRRMM Index Legend

Ad hoc

Recognized

Defined

Managed

Optimized

Component Averages		2.76	2.62	2.94	2.71	3.08	2.94	2.70	2.32
Agency		Overall DDRMM Index	Data Access and Sharing Component 1	Applications and Services Component 2	ICT Infrastructure Component 3	User Competencies Component 4	Institutionalization Component 5	Governance Component 6	Alignment with DRRM Component 7
1.	PDC	5	5	5	5	5	5	5	5
2.	DENR-NAMRIA	4.55	4.39	4.15	4.15	4.9	5	5	4.28
3.	DOST-PAGASA	4.01	3.37	4.48	3.61	4.67	4.25	4.87	2.82
4.	DILG-CODIX	4	4	4	4	4	4	4	4
5.	GSIS	3.97	3.71	3.79	4.45	4	4	4	3.82
6.	DOST-PHIVOLCS	3.74	3.1	4.22	3.22	4.85	4.63	2	4.14
7.	OCD	3.17	3.45	3.33	3.43	3.77	3.38	2.82	2
8.	UPRI	2.77	3.62	3.68	2.16	3.69	2.25	2	2
9.	All Agencies	2.76	2.62	2.94	2.71	3.08	2.94	2.7	2.32
10.	DPWH	2.73	3.05	3	3	2.44	2.88	2.38	2.37
11.	DBM	2.45	1.67	3.29	3.53	3.24	2.12	1.94	1.36
12.	NEDA	2.41	1.04	2.11	2.43	3.03	4	3.88	0.36
13.	DHSUD	1.89	2.14	2.28	1.75	2.63	2.12	1.31	1
14.	LCP	1.89	2.27	1.55	1	1.77	2	2.26	2.37
15.	NPC	1.25	0.79	1.92	1.39	1.18	1.12	1.38	1
16.	DTI	1.07	1	1.12	1	1.09	1.25	1	1
17.	DOE	1.01	1	1	1	1.1	1	1	1
18.	BFP	1	1	1	1	1	1	1	1

Philippines: Digital Readiness Strategy Framework



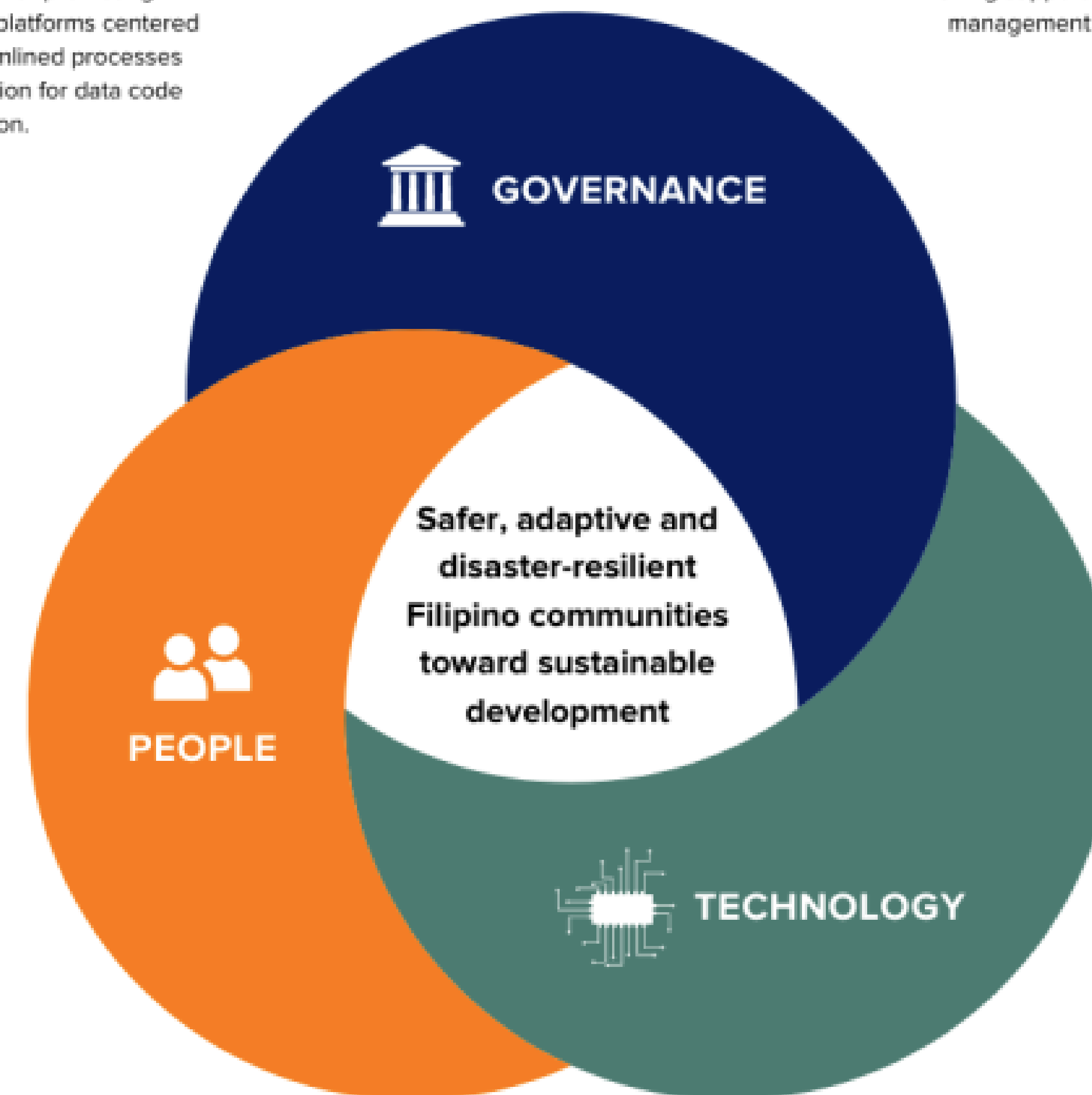
Desired Outcome 1:
Strengthened mechanism, policies, and institutional arrangements for promoting interoperability of DRR-CCA platforms centered on NDRRMC through streamlined processes and informed recommendation for data code standardization.

Desired Outcome 2:
Enhanced evidenced-based decision-making support to NDRRMC on data management and flow matters.

Desired Outcome 3:
Broadened stakeholder engagement and set up for future collaboration on digitalization of DRR-CCA.

Desired Outcome 4:
Advanced digital transformation through the accelerated use of technologies and media on DRR-CCA

Desired Outcome 5:
Institutionalized national data infrastructure.



Presence of numerous digital platforms with overlapping functions.

Data access and sharing is not seamless.

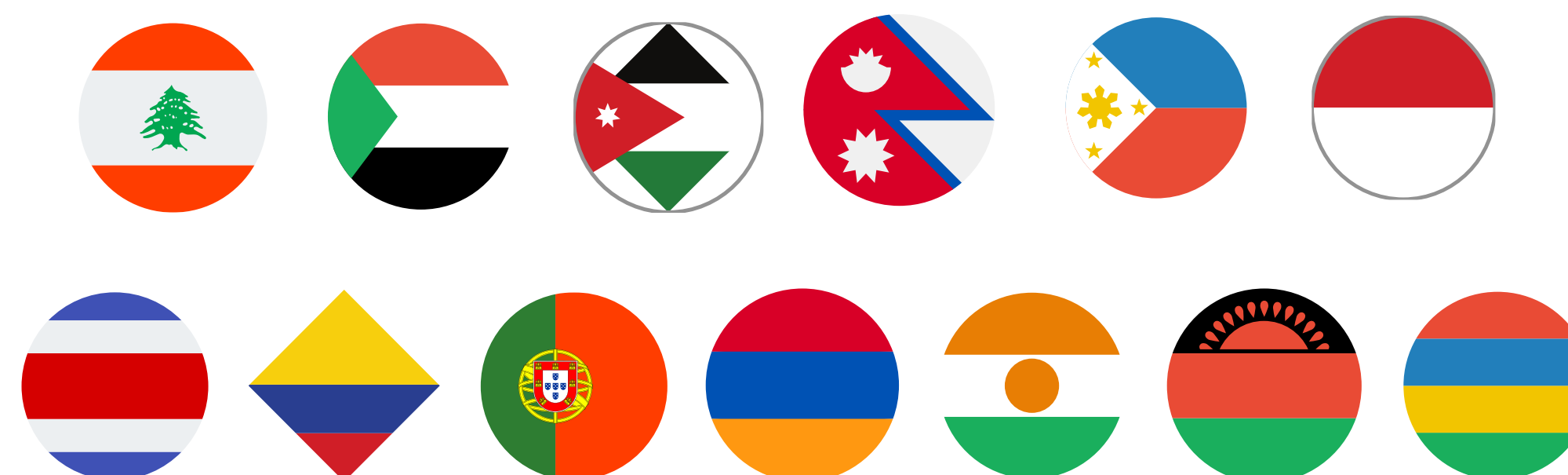
Limited human and financial resource capacities.

Formulating DRRM-CCA plans and conducting assessments are painstaking and convoluted.

**Data and Digital Maturity for
Disaster Risk Reduction**
Informing the Next Generation of
Disaster Loss and Damage Databases

Application of DRRMM

Under a joint UNDP-UNDRR partnership, conducted an in-depth analysis of national disaster database systems, to support the new generation of disaster data and information systems in line with the level of digital maturity in countries



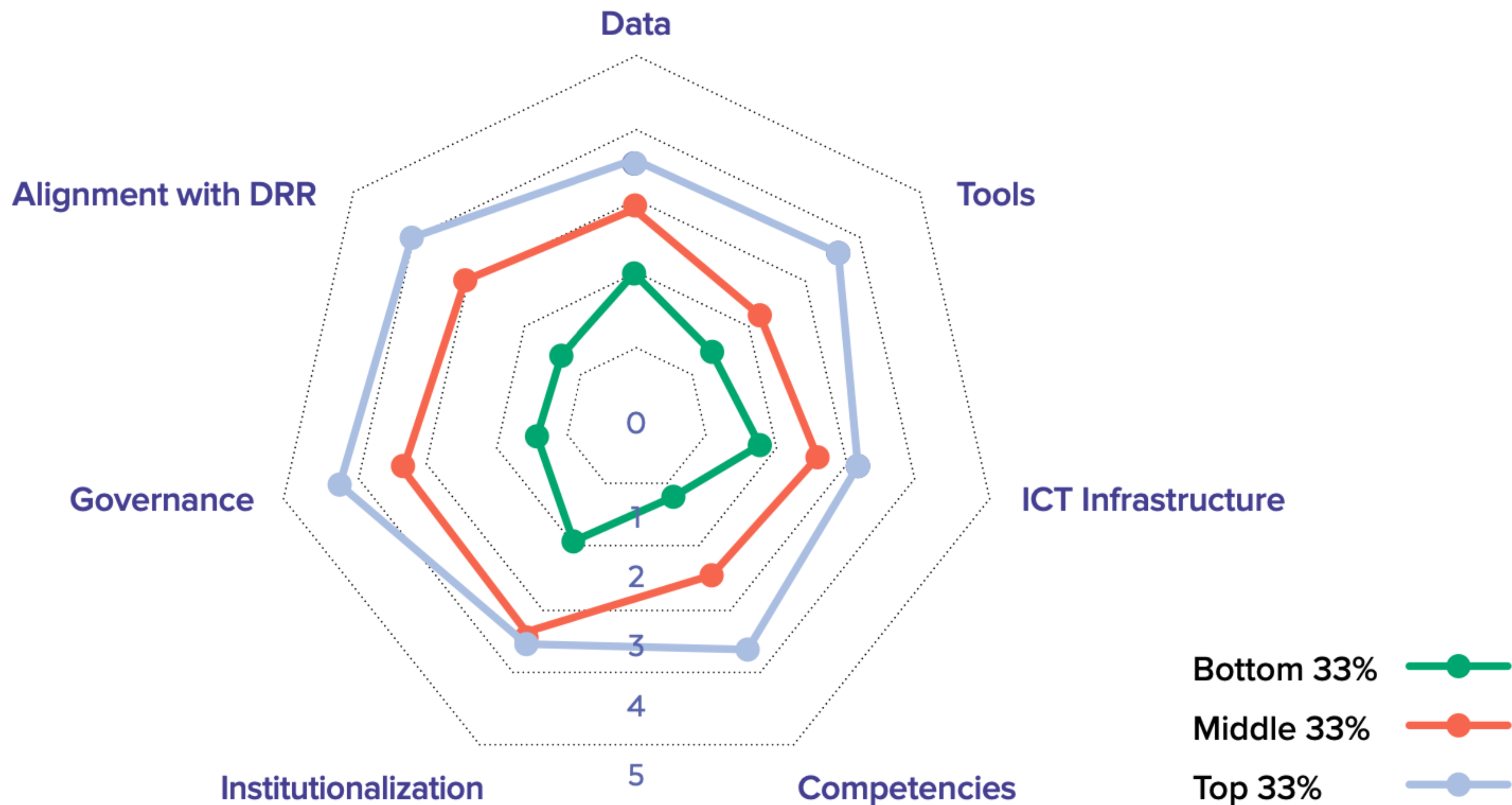
Three DDRRMM Clusters

DDRRMM component scores assigned to the three maturity clusters:

Average normalized scores (1–5) per DDRRMM dimension							
Cluster	Data	Tools	ICT Infrastructure	Competencies	Institutionalization	Governance	Alignment with DRR
Bottom 33%	1.93	1.40	1.75	1.23	1.93	1.40	1.31
Middle 33%	2.87	2.24	2.59	2.45	3.42	3.29	3.01
Top 33%	3.50	3.59	3.15	3.59	3.50	4.20	3.94

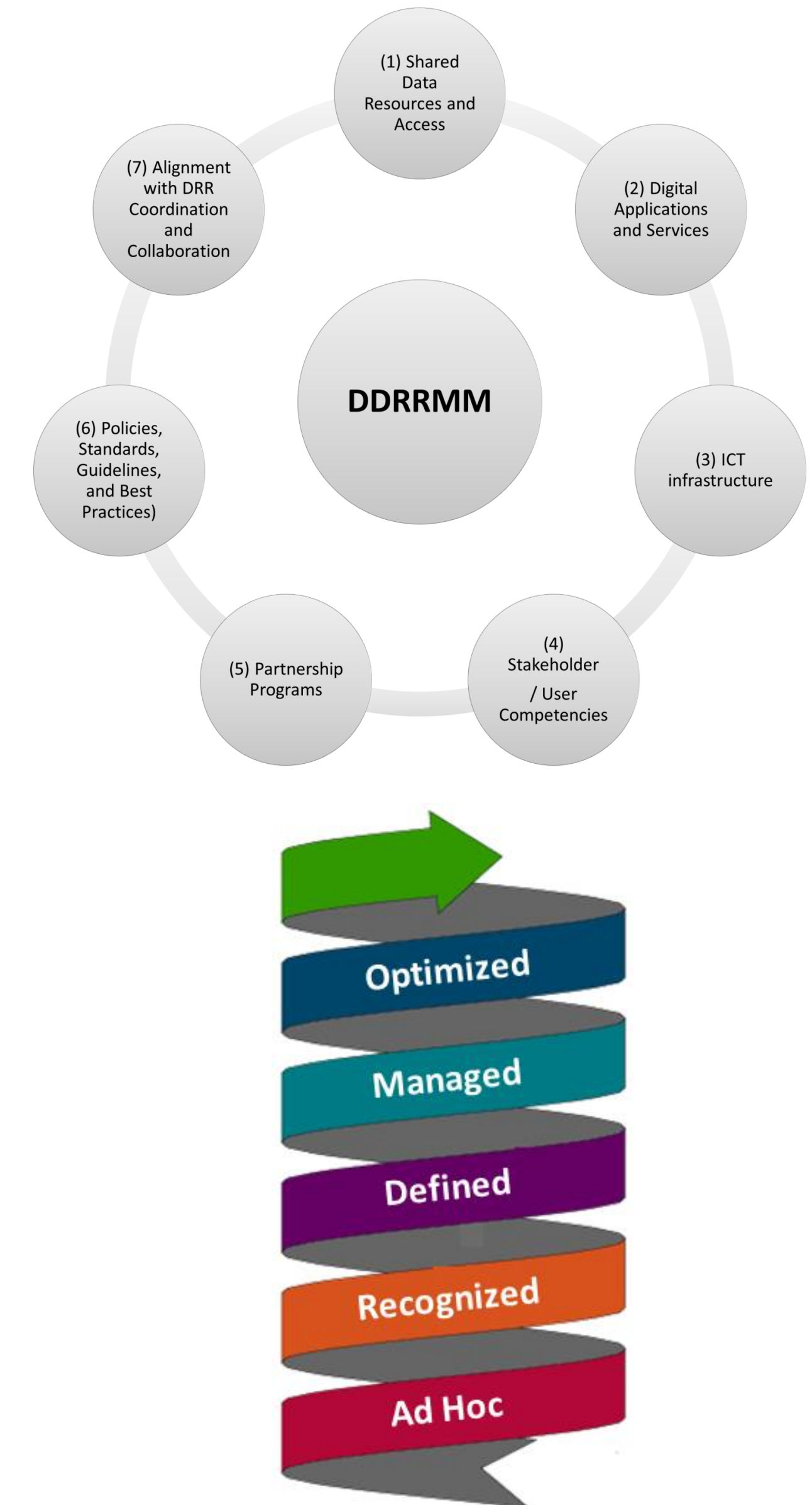
** Based on scores provided by governmental stakeholders in respective countries

Radar chart showing average DRRMM scores by maturity cluster



A Brief Summary of the Results

- Average overall maturity score is **2.65** (higher: 3.4, lower 2.02)
- Tendency for data, tools and technology infrastructure to score higher than capacity building, governance and institutionalization
- Alignment with DRRM tends to the score the least



Key takeaways:

- **Government leadership:** Disaster data systems (DDS) with formal attachments to governments more likely to operate smoothly and effectively
- **Context specific:** DDS need to consider the country context and be tailored to national and local requirements
- **Capacity and skills:** Continuous enhancement of capacity and skills in data and digital management
- **Decentralisation:** Disaster data collection and management at sub-national and decentralized levels is critical for sustainability of DDS and to support national agencies
- **Global standards with country adaptation:** While aiming to develop internationally comparable systems, the system should be flexibly adaptable based on countries' data and digital maturity
- **The digital ecosystem:** DDS need to be embedded in larger digital ecosystem beyond data and technology, to include people, procedures, governance, financial resources
- **Learning and sharing:** Mutual learning and sharing platforms to facilitate knowledge-sharing across countries

Tracking system for hazardous events and losses and damages



UNDRR

UN Office for Disaster Risk Reduction



SEDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030



Thank you

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