

UNDRR

Data Strategy

and Roadmap

2023-2027



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UNDRR Data Strategy and Roadmap

2023-2027


SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030


UN Office for Disaster Risk Reduction

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Summary

Everyone has a role to play in harnessing the power of data for public good. This Data Strategy identifies those roles and the opportunities to use data in reducing disaster risks and losses. It spells out how UNDRR, its partners and stakeholders can access, analyse and share data for risk-informed sustainable development, and climate and humanitarian action. The new data strategy promotes capabilities in:

- **Governing data** – Policies for managing data as a strategic asset and as a shared global resource ensure the desired level of quality and utility for implementing the Sendai Framework at all levels.
- **Managing data** – A common and consistent set of tools and practices will meet UNDRR’s own data needs for informed decision-making, and those of stakeholders, applications and processes throughout the community.
- **Analysing data** – Stronger organizational business intelligence will make data analytics an organization-wide competence in our daily work.

These capabilities are game-changers for diagnosing problems, understanding challenges now and in the future, making better decisions, preventing and minimizing risks, and decreasing losses. The strategy builds on the Decade of Action and aligns with the UN Secretary-General’s Data Strategy for Action by Everyone, Everywhere (Figure 1).

The strategy contributes to the UN System’s agenda for data-driven transformation in two ways:

- Internally, UNDRR focuses increasingly on the value of data and analytics, the quality of data as a strategic asset, the accessibility of shared resources and the cultivation of an organizational data mindset.
- Externally, it aligns with the UN Secretary-General’s data strategy, with an emphasis on the interoperability of tools and resources in connecting better with global data ecosystems, and supporting greater flexibility with multiple external data sources and consumers.

Figure 1 How UNDRR Data Strategy underlies UNDRR Strategic Framework

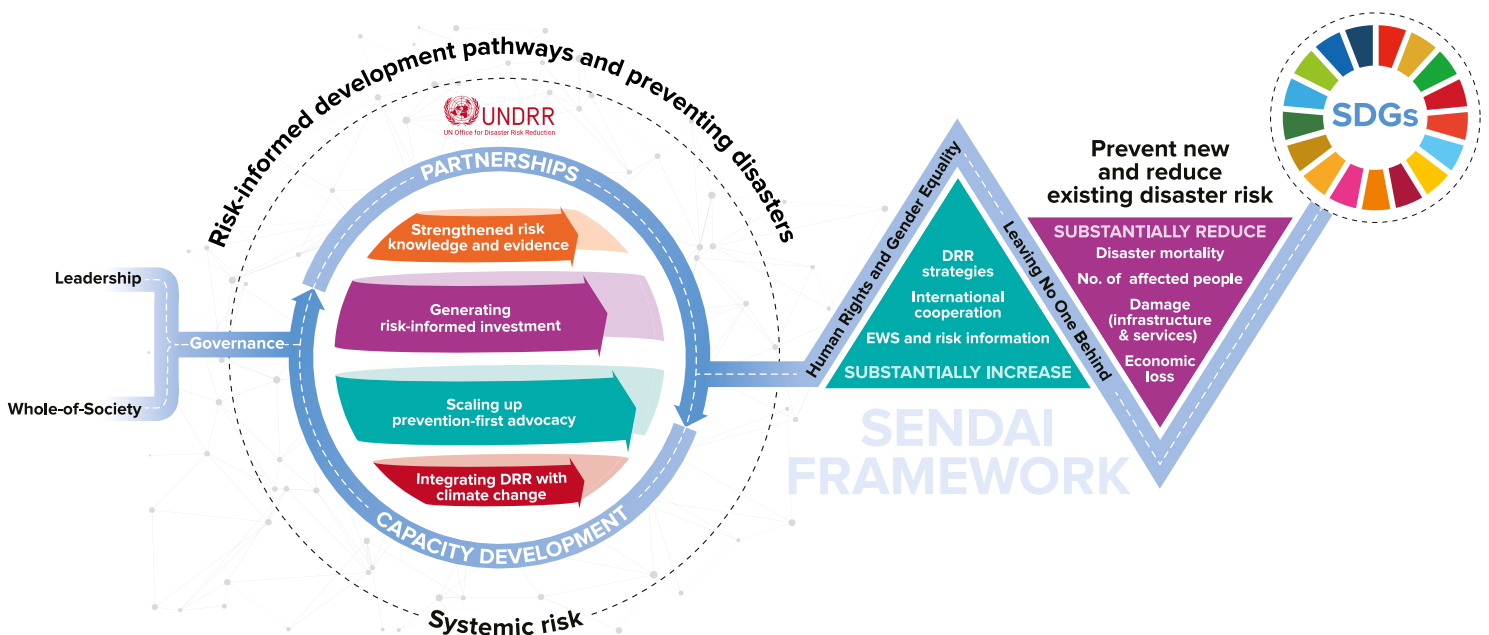


1

Where is UNDRR today?

In today's multi-stakeholder environment, data is growing exponentially in volume and complexity. The UNDRR Strategic Framework emphasizes leadership and support to accelerate global efforts in disaster risk reduction (Figure 2).

Figure 2 UNDRR Strategic Framework 2022–2025



For a relatively small organization, UNDRR is a very data-centric organization that serves as a repository of data and information received from Member States and stakeholders. With its frameworks for action, platforms and portals for disaster risk reduction, UNDRR has made important achievements in collecting and publishing data useful in making decisions and taking action. Here are some important gains:

- UNDRR supports the development and adoption of data standards. Examples include DRR terminologies, indicators and metrics for monitoring progress, classifying hazards, and so on.
- With consistent efforts over the past decades, UNDRR has helped generate high volumes of DRR data for a variety of purposes. For example, over 155 Member States and Observer States now use the Sendai Framework Monitor (SFM), 110 countries have established disaster losses and damages-tracking systems, and risk data has been collected from over 50 countries through the Risk Information Exchange (RIX) portal. PreventionWeb

has over 20,000 records contributed by various organizations, and about 200 users contribute to the ARISE Global Network.

- Despite such high volumes of data, UNDRR maintains historical data with diligence through online archives. These archives include substantive as well as business-process-based data.
- Member States and partner organizations have appreciated and sustained UNDRR data-centric service offers. Open-access software and data models have helped to disseminate knowledge across the DRR community.
- Several data resources incorporate external data as well as several data sets used to analyse and inform UNDRR and partners' flagship reports.
- Interoperability is increasingly ensured, including through application programming interface (API) helping business users understand the need for data linkage and aggregation in reporting.

2 What is the organizational target?

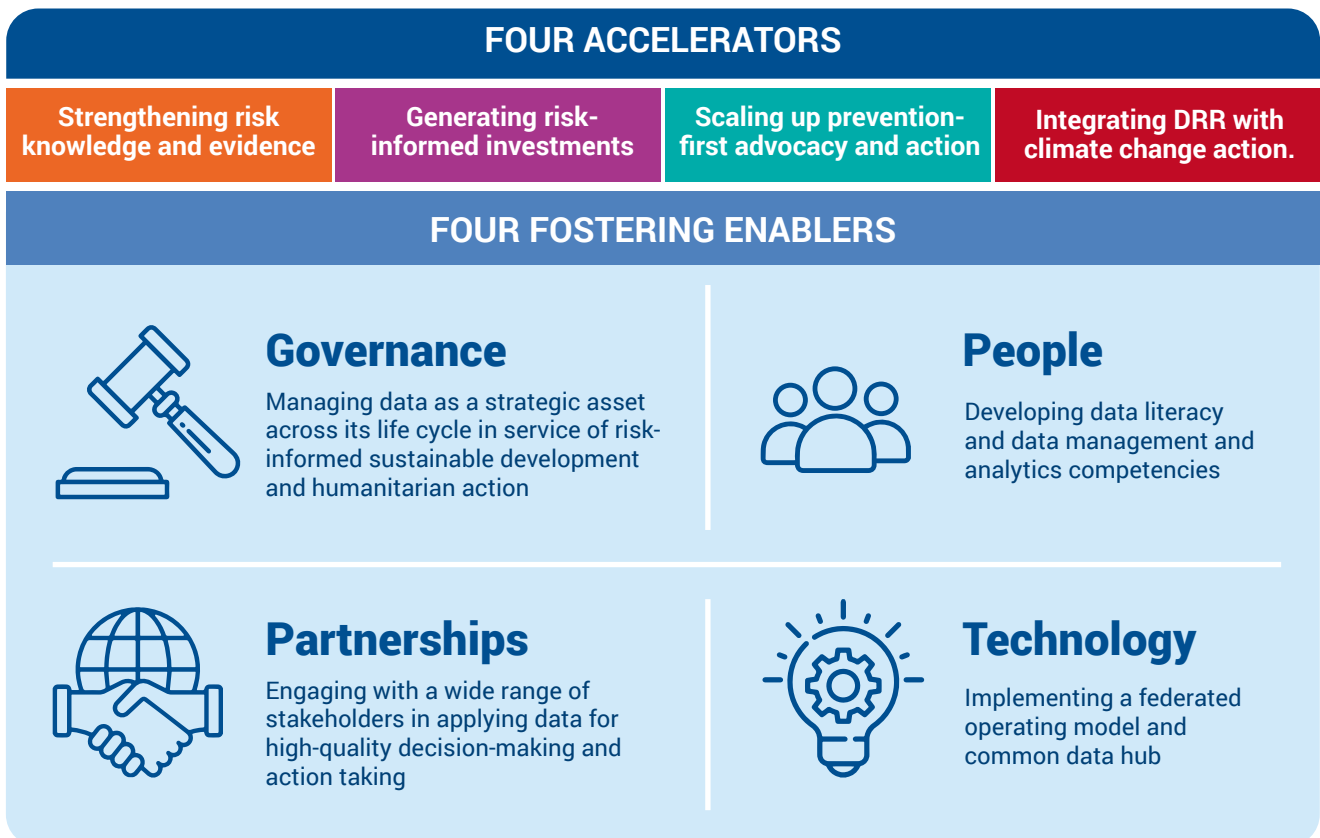
The changing overall data ecosystem and data maturity require us to revisit our current data products and practices and then improve or strengthen them to meet the new requirements. Our goals are to: (1) ensure that Member States as well as partners and stakeholders not only use higher-quality data, but also have better access to data analytics and analytical tools to interpret insights and take evidence-based actions for risk-informed sustainable development and humanitarian action; and (2) bolster data literacy so that staff use data effectively in programme implementation.

- **Data governance:** Strong data governance is a subsystem of organizational decision rights and accountability framework. Data governance is the pillar that supports interoperability of the diverse programmatic data collection and storage processes, streamlines programmatic data work, and helps to realize cost savings.
- **Data skills and capabilities:** Data governance standards and policies take into account the people,

processes, procedures, tools and technologies that UNDRR needs to administer, secure and appreciate its data assets across its data ecosystem, with quality data and protection of individuals' privacy in mind. Organization-wide data literacy is key.

- **Data maturity:** Specifying decision rights – who holds the rights to make decisions about the organization's data – and an accountability framework that guides people's behaviour across the data value chain, from acquiring and curating data, to publishing and consuming data as a strategic asset. The result is advanced organizational maturity of data capabilities.
- **Data alignment:** Ensures that we generate more value from the UN's wealth of data. Figure 3 shows how the UNDRR Data Strategy lines up with the UNDRR Strategic Framework accelerators and the Data Strategy of the Secretary-General for Action by Everyone, Everywhere, 2020–2022 (UN Data Strategy, 2020).

Figure 3 Summary of fostering enablers and accelerators of UNDRR Data Strategy



3

How will we reach our target?

The UNDRR Data Strategy and Roadmap advances organizational data capabilities and creates value through targeted data initiatives and use cases that improve the organization’s data value chain. Implementation rests on four fostering enablers – governance, people, technology, and partnerships – and contributes to the UNDRR Strategic Framework’s enabler of strengthened organizational performance, with high-quality, efficient operational performance, and strong technology.

3.1 Fostering enablers’ initiatives

3.1.1 Data governance guiding principles

The UNDRR Data Strategy is in line with the Secretary-General’s data strategy as well as with data governance principles adopted by other United Nations agencies and international organizations. We intend to use an effective and adaptable data governance framework to enable value, therefore all UNDRR engagements with data will strive to produce outcomes that are centred on people’s wellbeing, do no harm to any individuals and entities, and empower governments, local communities, civil society and partners to use data to advance inclusive sustainable, risk-informed and equitable development for all.

a. **Guiding Principle 1 – Integrity and quality**

When engaging with data, UNDRR will uphold the highest ethical standards, anchoring data practices and processes in the UN Charter and international relevant frameworks to ensure data serves the public good.

b. **Guiding Principle 2 – Accountability, responsibility and transparency**

UNDRR will adopt standards and ensure practices that maximize the value of data by ensuring its usability in multiple domains, by using open standards, machine-readable formats, and aligning its data with the Findable, Accessible, Interoperable and Reusable (FAIR) Data Principles

c. **Guiding Principle 3 – Proportionality, efficiency and effectiveness**

UNDRR will explore and adopt emerging practices and innovative technologies, especially digital ones, and use alternative data sources such as socioeconomic data, remote-sensed, geospatial data and big data, to increase data availability and expand coverage of under-represented issues and groups through data disaggregation approaches.

3.1.2 Structured oversight

Oversight is foundational to data governance. A structure empowers those responsible for data stewardship to manage, implement and enforce data policies, standards and metrics. Table 1 presents the governance structure that UNDRR will establish.

Table 1 Data strategy oversight

ROLE	CORE FUNCTION
Data advisory board	The UNDRR Senior Management Team will serve as the data advisory board and will oversee the development of the implementation plan for the data-driven transformation of UNDRR that this data strategy intends to achieve.
Data Strategy Focal Point	Responsible for coordinating the implementation of the data strategy, working with working groups, engaging with partners and resolving business issues.
Data action working group	This working group includes focal points from different business units who collaborate to implement data strategy through standards, policies and metrics.
Data owners	These are often the originators or original producers of the data in a process or system.

3.1.3 Data-driven culture

Despite being a relatively small organization, UNDRR aims to develop further a strong data culture, where everyone shares a set of values and behaviour on data as a strategic asset, and everyone uses data to make decisions, take action, and influence changes, while preserving privacy. In such a culture, each person commits to produce or consume, protect and preserve this precious asset.

The operating model engages first-line stakeholders and improves accountability, transparency, confidence, and efficiency in implementing the data strategy and managing data critical to UNDRR programmes, analytics and reporting. UNDRR will strive to adopt a federated structure as its operating model, to translate the data strategy into concrete action. The federated structure is appropriate because the data and technology decisions that benefit from central control – such as standards, architecture and common systems – are more centralized, whereas decision rights specific to data owners align with organizational governance.

3.1.4 Technology fit for purpose

Technology is crucial, but one size rarely fits all. The technology that fits the UNDRR mission is “to provide leadership and support to accelerate global efforts in

disaster risk reduction”. Sharing data assets is mission-critical, as is the user’s experience in accessing and publishing data, interacting with other data portals, and using business-intelligence reporting and analytics tools.

Optimizing processes is key. The goal here is to improve the operating model and service delivery by removing impediments to success. Candidates for change are those activities with excessive cycle time or latency, and steps that add no value. It means process optimization and automation with discretion, not automation for automation’s sake.

3.1.5 Partners for the goal

Partners are fundamental to the organization’s mandate and ongoing work. The agility and the responsiveness of its partner network are critical in reducing disaster risk and losses. UNDRR acknowledges the importance of its partnerships and the necessity for UNDRR to lead by engaging with a wide range of stakeholders – such as the private sector, civil society, and the international academic and scientific community – in applying data for risk-informed sustainable development and strengthening capacity development. UNDRR will continue engaging with all partners, communicate the vision for using data across the ecosystem, mobilize support and involvement, and gain expert insight on how to optimize data value responsibly.

3.2 Proof-of-concept value drivers

To get started on its bold data vision, UNDRR has created targeted use cases (understood as the purposes for which data is collected or could be potentially used) to focus organizational efforts on tangible deliverables. A proof of concept (POC) is a key part of use case implementation; it is an effective means of assessing the technology solution and building organizational capabilities in the process.

The analysis of the feasibility and impact of recommended improvements informed and helped

to prioritize a set of use cases is shown. These are expected to drive change and value through governance, people, technology and partnerships.

In each use case, UNDRR can (1) test whether a specific solution supports the stated goal, (2) get stakeholder feedback and (3) determine whether the solution has enough features to substantiate, build on and roll-out the use case. This section summarizes each use case, and Table 2 lists the benefits of each.

Table 2 Summary of use cases for strengthening organizational data ecosystem

USE CASES*	#	BENEFITS
Data governance	Use case 3.2.1	<ul style="list-style-type: none"> • UNDRR-wide data-health scorecard • Improved collection and sharing of procured datasets from multiple data sources • Improved privacy and data protection.
Training and capacity development	Use case 3.2.2	<ul style="list-style-type: none"> • Data literacy across UNDRR • Raised awareness of the power of data in daily work • Ongoing development of data competences
Central data hub	Use case 3.2.3	<ul style="list-style-type: none"> • A common store of shared data • Data architecture in the cloud • Cloud environment • Automated data ingestion
Self-service data and analytics platforms	Use case 3.2.4	<ul style="list-style-type: none"> • Self-service data and analytics dashboards • Enterprise reporting tools • Greater data transparency

3.2.1 Organization-wide data-health scorecard

A data-health scorecard is a means of assessing the condition of the data moving through the data value chain. This use case lays the groundwork for creating a catalogue of UNDRR data, identifying data connections across UNDRR and facilitating automation.

3.2.2 Organization-wide data literacy

Increasing data literacy across the organization strengthens UNDRR data leadership, promotes ecosystem changes and supports the strategic use of data. This use case lays the foundation for advanced data competencies. Suited to the context of a given portfolio of work, UNDRR will use existing training resources and tailor learning paths to the data-literacy needs of specific data roles, as well the needs of the larger audience. The purpose is not only to strengthen internal capacity, but also to add the skills that UNDRR needs to achieve desired outcomes throughout the data value chain.

3.2.3 Central data hub

The goal of this use case is to set up a centralized view of data collection and develop a data-quality framework and guidance for the long-term management of data assets. The use case addresses the disadvantages of a siloed data architecture and takes advantage of the cloud environment. UNDRR will structure its vast and diverse sources of data (see Appendix 1) in an easy-to-access repository so that different data needs for different domains are met.

3.2.4 Self-service data and analytics platform

UNDRR has demand for self-service analytics; users want to query, analyse and visualize data themselves, and dashboards are good tools for doing so. In many instances, the perceived quality of UNDRR data depends on what countries collect and report. Implementing this use case assists data partners in developing and aligning data standards and enhancing analysis of their own data

3.3 Deliver DRR data-action portfolios

Through prioritized data-action portfolios selected from among those with higher added value to solve problems and inform decision-making, UNDRR will enhance the application of climate and DRR data for better informing development and humanitarian decisions and assessing and benchmarking progress in disaster risk reduction.

UNDRR will use the SG Data strategy 6-steps framework¹ to prioritize and deliver data-focused products, projects or programmes at every level. This will focus on outward-looking elements of UNDRR Data Landscape (Appendix 1 – data for disaster risk reduction), especially the core domain knowledge most relevant to the UNDRR strategic framework. This will be guided by the mission of our organization to provide leadership and support to accelerate global efforts in

disaster risk reduction to achieve inclusive sustainable development and the goal of the Sendai Framework.

Further, UNDRR will take progressive steps towards strengthening the overall DRR data ecosystem, as part of its convening and custodian role of the Sendai Framework. This will include better understanding of UN system-wide DRR data and related products through existing global inter-agency mechanisms, issue-based coalitions and UN Country Teams. UNDRR will also use stakeholder engagement mechanisms and multi-partnership mechanisms to identify the best ways to enhance collaboration with partners in applying data for better understanding of what happened, why and what might happen next, for high-quality decision-making and inclusive action on risk reduction.

3.4 Data value chain: Life cycle of the asset

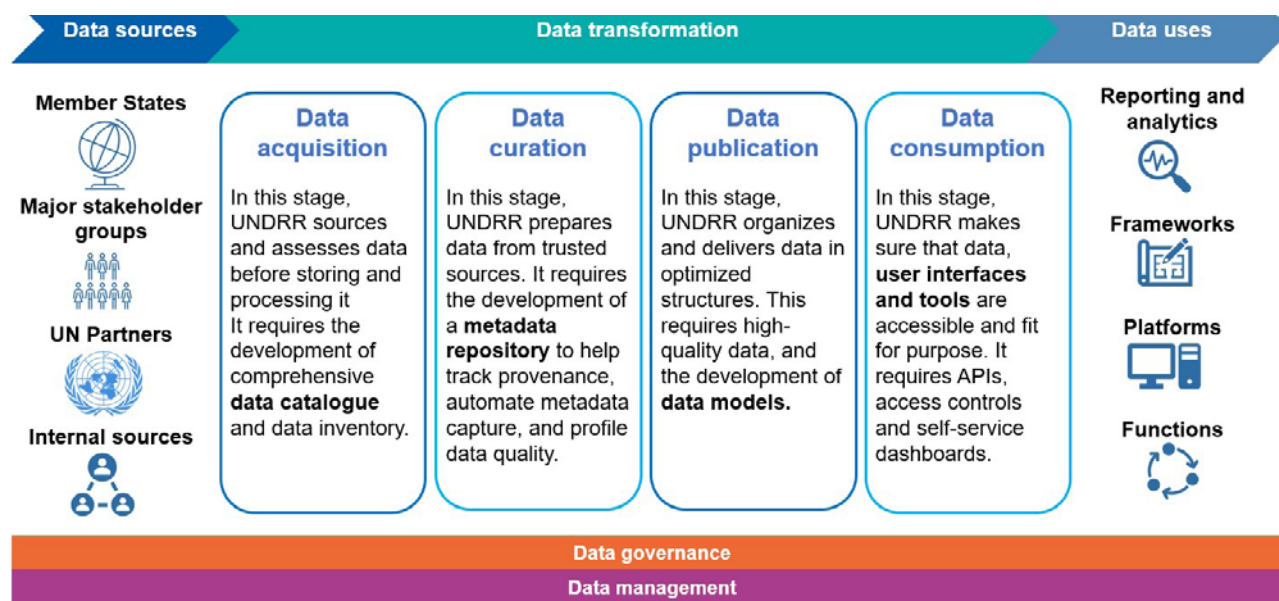
Underpinning the data strategy is the **data value chain**. That is, the full life cycle of data as an asset, from collection to analysis and use (Figure 4). It identifies the steps in transforming raw data into useful insights. It is more than a process that generates a return on investment (ROI); it represents the whole community of data practice.

On the left, Figure 4 shows sources of raw data – the

Member States, stakeholders, UN partners and UNDRR as an organization. On the right are the primary uses of data. Between these sources and uses is a four-stage process that transforms raw data into a precious strategic asset, according to the data governance and data management that UNDRR puts in place. Each of the fostering enabler initiatives and proof-of-concept value drivers helps to strengthen every link in the data value chain.

¹ UN SG Data Strategy propose a 6-steps framework to evaluate and deliver data-action portfolios, starting with building value propositions steps 1) clarify priorities; 2) drill down to outcomes; 3) identify use cases; moving to assessing net value steps 4) evaluate use cases and scoring total potential; and, lastly, building optimal use-case portfolio steps 5) evaluate case portfolio; and 6) deliver portfolio.

Figure 4 Target state for the UNDRR data value chain



3.5 Bimodal approach to implementation

Taking a bimodal, iterative, cumulative and inclusive approach, framed and driven by data initiatives and use cases (Table 3). **Bimodal** means two distinct but complementary modes of work – one focused on reliability and predictability (e.g., regular reports, legacy systems) and the other on agility and discovery (e.g., change, innovation).

- **Stability:** Efficient data and model management are non-negotiable in today’s environment. In a stable

mode, staff members strengthen their data skill sets, process and technical foundations with an emphasis on accuracy and predictability.

- **Agility:** The organization exploits agility and speed in delivering value through quick wins, without compromising strategic objectives or incurring technical debt. This approach leads to better insights, tested solutions and improved user experience.

Table 3 Bimodal approach to implementation

STABILITY – MODE 1	AGILITY – MODE 2
Like a marathon, building data stamina over time	Like a series of sprints, learning and adjusting quickly
<i>Service delivery</i> for projects and activities focused on business needs	<i>Applied engineering</i> to generate ideas, identify improvements and evaluate opportunities through proofs of concepts
<i>Data mindset</i> to deliver readily consumable and valuable products.	<i>Small pilot projects</i> launched to public for immediate feedback and impact

Both modes are important, and the goal is to maintain balance between them. This approach to data strategy implementation is effective for several reasons:

- It is inclusive: it acknowledges the importance of partnerships and the necessity for UNDRR to lead by engaging with a wide range of stakeholders in applying data for risk-informed sustainable development.
- Completion of each use case and data initiative builds out a specific aspect of the organization’s governance framework and strengthens specific data capabilities in sections and business units.

- This approach yields visible quick gains and lasting benefits, with lessons learned and opportunities to correct before investing more time and resources.
- It does not overwhelm staff; rather, it builds staff confidence in their ability to learn and improve data and processes together.

With bimodal approach – **agility** in managing projects and **stability** in maturing foundational capabilities – UNDRR can evaluate its progress in real time: are more people adopting data tools and engaging with data to generate insights for action? Are users sharing their knowledge more? Is UNDRR seeing improved efficiency? What adjustments can the organization make?

4 How to join us

The UN Data Strategy recommends that UN organizations look for ways to engage bilateral and multilateral partners, communicate the vision for using data across the ecosystem, mobilize support and involvement, and gain “expert insight on how to optimize data value responsibly” (UN Data Strategy, 2020).

We invite our partners and wide range of stakeholders – such as the private sector (e.g., telecommunications, insurance and utilities), the media and civil society, other United Nations agencies and the international academic and scientific community – to join us in exploring ways to improve the risk and disaster-related

data value chain, developing better tools and interfaces for synthesizing data generated by various parties, and strengthening our data ecosystems.

The overarching goals are stronger regional and cross-border cooperation in data exchange, and better quality, availability and utility of data, stronger data governance across the ecosystem, and seamless data sharing among stakeholders. Those benefit us all. Together we can answer the United Nations Secretary-General’s call to make sure that early-warning systems protect every person on Earth within five years (UN News, 2022), and the commitments of Our Common Agenda. [Please join us.](#)

5 Appendices

Appendix 1 Data for disaster risk reduction

Table 4 UNDRR data landscape

DATA CATEGORY	DATABASE	DATA SOURCE	LINK
Programmatic/ domain knowledge	Sendai Framework Monitor	Member States	https://sendaimonitor.undrr.org/
	Disaster losses and damages tracking	Member States	https://www.desinventar.net/ https://www.undrr.org/disaster-losses-and-damages-tracking-system
	Global Risk Assessment Framework/ Risk Information Exchange	Various	https://www.preventionweb.net/understanding-disaster-risk/graf https://rix.undrr.org/
	Global Assessment Report	Various	https://gar.undrr.org/
	SFM Mid-term Review	Various	https://sendaiframework-mtr.undrr.org/
	Making Cities Resilient 2030 Dashboard	Cities	https://mcr2030dashboard.undrr.org/
Partner's contribution	UN Plan of Action	UN entities	https://unsceb.org/topics/disaster-risk-reduction-resilience
	Sendai Framework Voluntary Commitments	Stakeholders	https://sendaicommitments.undrr.org/
Business process	Annual Report	UNDRR units	https://www.undrr.org/search?text=annual+report
	Project Management Reports	UNDRR units	internal
	Project Management Dashboard	UNDRR units	internal
Curated content	UNDRR website	Various	https://www.undrr.org/
	Prevention Web	Various	https://www.preventionweb.net/
	International Day for Disaster Risk Reduction/ World Tsunami Awareness Day	Various	https://iddrr.undrr.org/ https://tsunamiday.undrr.org/
	Global/regional platforms	UNDRR units	https://www.undrr.org/implementing-sendai-framework/regional-platforms
	ARISE Global Network	Various	https://www.ariseglobalnetwork.org/
	International Recovery Platform	Various	https://recovery.preventionweb.net/
	Making Cities Resilient 2030	Various	https://mcr2030.undrr.org/openmcr

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