Australian Government

National Emergency Management Agency

Data
Strategy

2023-25

We acknowledge the Traditional Owners
and Custodians throughout Australia
and acknowledge their connection
to land, waters and community.

We pay our respects to the people, the cultures
and the Elders past, present and emerging.

We acknowledge those who have lost
loved ones, homes, businesses and
livelihoods in disasters across Australia.

We acknowledge the dedication of
emergency workers, front line service
providers and volunteers who work
tirelessly to provide safety and relief.

We celebrate the strength and resilience of all
of those who have been affected by disasters.

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Message from the Coordinator-General

I am pleased to release the National Emergency Management Agency's first ever Data Strategy.

This Data Strategy (2023-25) plays an important part of the National Emergency Management Agency's (NEMA) vision to support the Australian Government in making data-informed decisions to seek a better outcome for all Australians. Data Strategy sets out our commitment to invest in data, mature the way we use and share data, and is an important step towards delivering against NEMA's Statement of Strategic Intent 2023, Strategic Objective 3: Building evidence, intelligence and insights to empower communities, leaders and stakeholders to make effective decisions.

Data underpins everything we do at NEMA. It is one of our best ways to answer questions, solve problems and inform decisions during every phase of the emergency management continuum.

Data informs how we target our investment in resilience and risk reduction projects, so we can save lives and livelihoods, mitigate damages and harms, and reduce the cost of clean-up and recovery. When a disaster or emergency does strike, data allows us to achieve near real-time situational awareness so we can empower decision makers to make the best decisions.

Data helps us facilitate the flow of the Australian Government's financial support during or after a disaster, so our communities have relief during times of need and can start their recovery journey.

The Data Strategy will help us to improve data capability across NEMA, so that we're providing the right data, in the right format, at the right time to our decision makers. It will help us ask the right questions and collect the right information to measure the success of our policies and programs.

The Data Strategy will assist us to become trusted data advisors at the national, jurisdictional and local, and international level, so we can influence and inform emergency management actions across the country.

Our inaugural Chief Data Officer will own the Data Strategy, with the support of their team of data specialists.

But they can't do this on their own.

Data expertise and leadership is a critical capability, and crosses all roles, teams and levels. We are all responsible for the data we use and produce and ultimately the success of this Data Strategy.

I encourage you to put our NEMA Data Strategy into action.

Brendan Moon AM
Coordinator-General
National Emergency Management Agency

Data Strategy 2023-2025

Why do we need a Data Strategy?

Data is one of our most important resources. It informs our situational awareness, provides a picture of the communities we are assisting, and supports our decision making across all phases of the disaster continuum. The data and analysis that we produce directly influences the deployment of assets for response, relief and recovery and the policies and programs we implement for risk reduction and preparedness. The information and knowledge we store helps us understand and improve what we do.

The aim of this strategy is to strengthen the way we use data and grow our data capability. The strategy will help us provide our people with the skills and tools they need to use and work effectively with data in a safe and secure way. This strategy will also help us implement a new model for how we use and enable data at NEMA. A Hub and Spoke model for data will be implemented in conjunction with the Data Strategy enabling data driven insights for strategic decision making.

The strategy will help us:

- improve data capability to provide the right data, in the right format, to inform decision-making

- set a framework to ensure we manage our data assets, and address data privacy and security concerns

- ensure data consistency and integrity across the agency, in a way that enables different outcomes to be achieved

- enhance our use of and influence over location based insights, particularly during and immediately after disasters

- help us ask the right questions and collect the right data to measure the success of the policies and programs we implement

- help us to influence and drive government wide data driven policy and policy initiatives

- assist us in becoming trusted advisors in data at the Commonwealth level and to facilitate data sharing and sharing of insights to our key stakeholders.

How will we achieve this?
Our six strategic objectives:

Building capability and culture

Enhanced learnings, information, and knowledge management

A focus on analytics feeding intelligence

Situational awareness and place based insights

Promote a culture of data sharing, data discovery, innovation and collaboration

Strong data governance

Building capability and culture	Promote a data culture and build data literacy and capability through a Hub and Spoke approach.
Enhanced learnings, Information, and knowledge management	Enhance our processes and systems for knowledge/learnings/ information management. These processes and systems are vital in our role as the national coordinator, and allow us to learn lessons from the work we do.
A focus on analytics feeding intelligence	Use analysis to inform situational awareness, impact assessment and decision making during response and inform resilience and recovery policy and program design, and provide communities with information on recovery activities.
Situational awareness and place based insights	Increase awareness of the value of location based data to aid situational awareness and actively collaborate across the Australian Public Service (APS) to influence location data policy.
Promote a culture of data sharing, data discovery, innovation and collaboration	Promote a culture of data sharing and collaboration with our counterparts, Look to innovate with states and territories domestically, and International partners to openly source best fit data through data discovery activities. Provide data that is compatible with a diverse range of platforms including mobile devices. Always look for ways to innovate with the data we use through cutting edge techniques and new data sources.
Strong data governance	Set a strong foundation of data governance through implementation of a data governance framework encompassing strong data management, data security, and data privacy policies.

Introduction

The National Emergency Management Agency continues to invest in maturing our data, analysis, information, and intelligence capability to assist Australian, and at times overseas, communities before, during and after disasters and build disaster resilience and recover more effectively.

This strategy reinforces the need to collaborate with our partners including the state and territory response and recovery agencies, other Commonwealth departments and agencies, and other data providers, to improve access to data. It reinforces the importance of discovery and data sharing to support our understanding of disasters and identify opportunities to increase resilience. The strategy also prioritises high quality analysis and modelling to inform situational awareness, impact assessment and decision making during disasters and support evidence based decision making in program design, and the measurement and evaluation of the programs we deliver.

Under the strategy, the agency will be both a consumer and provider of reliable data and information across all levels of government, partners and communities by using innovative technology solutions. Using technological services, the agency will continue the push to increase public access and data transparency. We will continue to invest in lifting the digital and data skills of our people and deliver 'business ready' products to increase efficiencies and streamline processes.

Royal Commission

The National Emergency Management Agency is responsible for the implementation of a number of recommendations of the Royal Commission into National Natural Disaster Arrangements (Royal Commission).

The Royal Commission's final report listed 80 recommendations outlining a national approach to disaster risk management. The agency, in its national leadership role, is either responsible for, or involved in addressing these recommendations. A number of recommendations relate to the coordination of data and information at a national level. The agency is taking a coordinated role to implement these recommendations, enabling the consistent sharing of disaster risk and impact data at a national level.

Our vision and strategic objectives

As a new agency, we are seeking to build a strong foundation to embed data in our internal process to generate situational awareness, inform policy, program design and decision making.

The strategy outlines our six **strategic objectives**:

1. Building capability and culture
2. Enhanced learnings, Information, and knowledge management
3. A focus on analytics feeding intelligence
4. Situational awareness and place based insights
5. Promote a culture of data sharing, data discovery, innovation and collaboration
6. Strong data governance

Our Vision

To drive innovation, collaboration and sharing to enhance intelligence and data capability across the disaster continuum, and enable data-driven decisions for prevention and risk reduction preparedness, response and relief, and recovery and reconstruction.

Our Context

Our context

This strategy links to our Statement of Strategic Intent through delivering on the objective to build evidence, intelligence and insights to empower communities, leaders and stakeholders to make effective decisions. It also links with NEMA's Corporate Plan 2022-23 to 2025-26, the Evaluation Strategy 2021 2024 to address and mitigate enterprise wide risks. The strategy is required to detail our data governance and management, how we will formalise and enhance our data sharing arrangements, and how we will use data. The strategy also addresses how we plan to build data capability within the agency to drive data driven decisions that support our key activities as outlined in the Strategic Intent.

The strategy will be delivered by the agency as a whole, facilitated by the Data and Technology Branch. While the Assistant Coordinator-General of the Data and Technology Branch will own and champion the strategy at the agency level, all Assistant Coordinator-Generals have an obligation to promote the strategy, ensure their branches are aware of the strategy, and encourage their staff to undertake data training and participate in strategy activities. Further, all policy and program design, communications, and measurement and evaluation frameworks should reference the use of data, in line with this strategy.

Reporting on the progress of measurable outcomes of the strategy will occur at 6 month intervals at the Data Governance Committee and annually to the Executive Group. The Executive Group will determine if further reporting on progress against the strategy is required.

A new impactful and effective model

Following a review of NEMA's data and technology landscape, a model for the delivery of data capability will be implemented. This Hub and Spoke model provides us the opportunity to strengthen NEMA's data capability, and supports our desire to be a national (and international) leader across the disaster continuum. The Hub and Spoke model will help us to improve data driven insights for strategic decision making, optimise automation, and data integration. The model will also assist us in strengthening Data Governance for internal and external data sharing, decision making to coordinate services across the disaster continuum, and improve near real-time reporting for national incident coordination capabilities and services.

The new model will embed best practice principles that will support more effective and impactful data-driven decisions facilitated by seamless access to, and sharing of, curated data that is viewed as a critical enabling asset. Under these principles, data will be appropriately managed and governed, shared, integrated and accessible. It will be treated as a reliable organisational asset with well defined, timely and appropriate lifecycle management parameters.

Hub and Spoke

Navigate away from data swamps	Empower users with self service capabilities
• Many organisations have implemented data lake/lake house environments with multi-million dollar investments over the past decade	• Business users are increasingly frustrated with dependency on IT teams for the delivery of anticipated capabilities • Key logic and functionality is often lost in the process of requirements translation

Increase agility and accelerate time to insight	Improve access to information
• Industries are experiencing more disruptions which demands that data & analytics capabilities evolve dynamically and rapidly to cater to changes to business models and processes	• Users are either struggling to find the right information from the correct location, or spending valuable cycles reinventing the wheel

While responsibilities for the hub and spokes in the new model are still under consideration, the potential responsibilities of these are outlined below.

	Potential responsibilities (non-exhaustive)
Hub	• Leads the development of data strategy and narrative whilst facilitating input gathering through spoke partnerships and (data) community of interest – providing pastoral care for data uplift across NEMA
	• Develops NEMA's data culture, supporting a single source of truth for data including setting data standards and frameworks with close partnerships with technology stakeholders
	• Leads and facilitates data capability uplift - embedding and rotating technical talent through spokes
	• Represents Data & Analytics Capability to executives and advises on business engagement decisions
	• Supports emerging spokes to build capacity and grow their maturity
	• Advises NEMA Executives on emerging Whole-of Government Data initiatives and best practice

Spoke	• Provides insights and perspectives to inform hub-led strategy
	• Leverages specialist tradecraft to exercise capability in specific business-context
	• Responsible for business specific data & information at local level
	• Actively engages with business to support data-driven decisions
	• Operates with flexibility and agility to alter activities and direction as required by situational developments and direction from the Hub

The Data Strategy will help embed the Hub and Spoke model with tangible alignment and support activities. This will include implementing robust data governance and data architecture, through to automation and centralisation of our data assets to ensure that as an agency we all work to a 'single source of truth'. This Data Strategy, and those to follow, will help ingrain data as a fundamental component of how we work and help us increase our data maturity.

Opportunities and challenges

Challenge	Opportunity
Using relevant data to adhere to our whole of Government obligations and support local communities	Cultivate relationships with other APS agencies, state and territory counterparts, NGO's and private sector to source data that directly influences policy and promote data harmonisation
Data capability is inconsistent across the agency	Provide ongoing systems training for all staff to increase data fluency
Data is currently external to wider agency processes	Have SES champion data in fundamental practices to embed it into agency culture
Uncertainty surrounding where to access data and no means for self-service analytics	Create a central storage location in the Data Hub that all staff are aware of, have access to and know how to use
Minimise human error to ensure data accuracy through automation	Utilise specialised and appropriate technical systems to store manage and automate data as much possible
Data harmonisation	Leverage technology to innovate and solve complex data issues to aid agency work and state and territory partners
Creating a central repository that is the single source of truth for the data we use	With multiple sources of data available, we need to utilise the most appropriate, fit-for-purpose data

Our data partners

Collaboration and innovation is fundamental to ensuring the agency remains cutting-edge, accurate and transparent. The relationships between the agency and external bodies demonstrates our commitment to discovery and our data sharing principles. We utilise relationships with our data partners to source the most up to date, fit-for-purpose data that broadens our knowledge base and informs our decisions.

A diagram showing "National Emergency Management Agency" at the center, surrounded by: Commonwealth Departments such as BOM, ABS, Geoscience Australia, CSIRO; International EM Agencies; Australian Institute for Disaster Resilience; Services Australia and other program delivery agencies; State and territory agencies; Private Sector and data vendors; Academia.

National Joint Common Operating Picture (NJCOP)

The NJCOP is a trusted single source of truth for all hazards awareness, impact analysis and decision support that enables a rapid Australian Government response to disasters. The NJCOP project is currently in year two of development out of a four year program cycle and aims to address recommendations from the Royal Commission into National Natural Disaster Arrangements for an enhanced national preparedness and response entity, and to coordinate disaster management at a national level.

A near-real-time dashboard has been developed which depicts all-hazard incidents on a single display to enable complex analytics and predictive analysis capabilities to better support decision making. The NJCOP is also used by the National Situation Room to develop notifications and dashboard products which are distributed to a variety of stakeholders external to the NJCOP platform. The NJCOP is currently available to a range of Commonwealth stakeholders, with access expanding to include states and territories.

Stakeholders are consistently engaged on data sets that can be ingested and displayed on the NJCOP to be viewed in real time. This includes data such as weather warnings, bushfire advisories, telecommunication outages, and population information. A mobile responsive version of the NJCOP is also currently under development.

Further enhancement and refinement of the NJCOP over the coming two years of the program cycle is imperative to coordinate the multitude of data feeds that supply the NJCOP to tell a coordinated national story. There is also opportunity to incorporate additional functionality and new sources of data to produce a deeper overlay of on the ground situations.

Our Strategic Objectives

This section expands on the six strategic objectives and how they will be achieved.

1. Building capability and culture

Our people are the core of our strategy. Building our data maturity can only be achieved by maximising our employees' data capabilities and embedding data as a functional part of our decision making process. As a new agency, we will build a strong foundation to increase our data maturity, fluency and capability.

Data fluency is knowing how to use, explore, interpret and visualise data in a way that allows ideas to be effectively communicated. It's also:

- Using data to inform our programs, policy and decisions
- Knowing what data to use, where it's most appropriate, and fit for purpose
- Using data in a way that tells a powerful story
- Data collection in a coordinated manner
- Solving problems with data
- Understanding the limitations of data, the agency's capabilities, and knowing when to leverage our stakeholder relationships.

To achieve greater data fluency and capability within the agency, we will develop a targeted data training program, that will help employees at all levels think critically about the data they need to support the agency's activities.

- Empowering staff with data skills by providing development opportunities in training:
  - Install data training programs - identify gaps in training needs and formulate compulsory and elective components to develop the agency's skills in the use of data. For example, LearnHub, PM&C Acorn, Linkedin learning, APS training, data workshops run internally.
  - Drive cultural change within the agency to embed a data driven culture that uses analytics and statistics to optimise processes and accomplish tasks.
  - Highlight the value of data and insights in response to improved situational awareness and policy and program

design and decision making. For example, promote the branch as a foundation for the agency's strategy; create an internal training package on how to use self-serve dashboards in Power BI; invite guest speakers on data, and hold a Data Symposium highlighting the latest data trends.

- A data driven culture starts at the (very) top. Organisations with a strong data culture tend to have top managers who set an expectation that decisions must be anchored in data. Our executive will drive data as a foundation to all areas of the agency.
  - All SES to incorporate data as a part of their branch processes. They will make resources known and available to staff to broaden their data capability.
  - To instil confidence within the executive, all SES are to be provided with training to be able to access data products. As a result, all branches are aware of and will be able to access data products consistently to inform the basis of their work.
  - The executive will ensure the incorporation of data and analysis as a foundational element of their branches work.
  - All SES officers have accountabilities in their key performance indicators for the proper use of NEMA and government data within their areas of business responsibility and for supporting efforts to build NEMA and wider government data capabilities.
  - To enhance performance reporting, respond to requests for information and enable the executive to answer questions on notice.

- Influence policy across the APS

  - Engage in APS wide data policy forums.

  - With autonomous access to the agency data, all areas of the agency are able to make decisions on the basis of the most current developments within Australian communities.

  - Policy decisions have a clear basis and widely accessible linear reasoning, in line with traceability principles.

- Increase awareness of data storage locations and availability of training

  - In addition to the executive championing data resources, agency literature and the Data and Technology Branch initiatives outline where staff can access historic as well as current data sets.

  - Skill development opportunities encourage staff to consider their data capability and broaden their knowledge across the agency's resources and data programs.
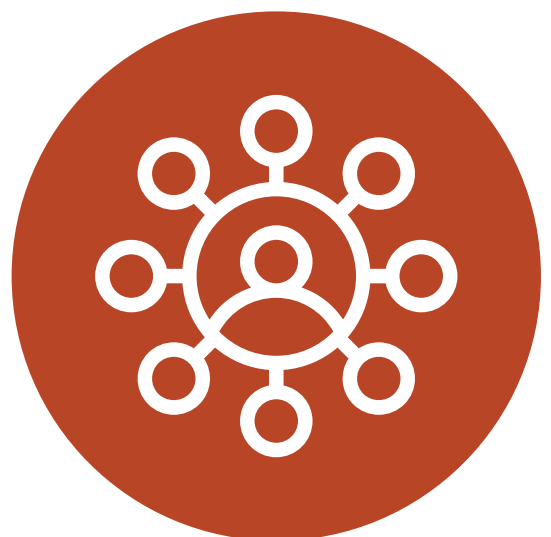
2. Enhanced learnings, information, and knowledge management

We require actionable data and intelligence before, during, and after a disaster. Through our national coordination functions and activities, especially during disaster response, we produce vast amounts of information, lessons-learnt, on-the-ground intelligence and knowledge. More than providing purely situational awareness, the collection, analysis, and sharing of intelligence and data, can inform an incident's response and recovery, with much needed decision-making information.
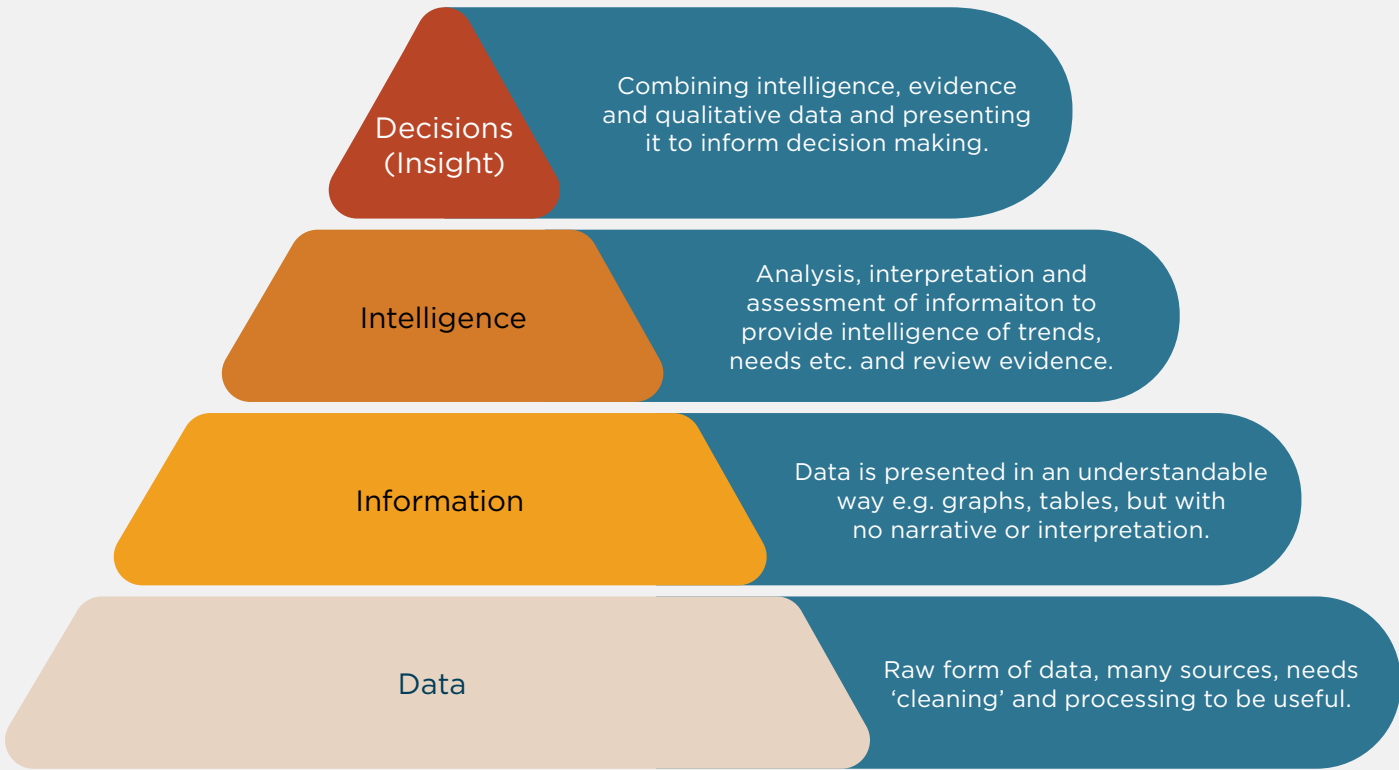
It's important here to distinguish between data, information and intelligence. Data in its raw form is formatted into tables, maps and graphs, and becomes information. Add analysis interpretation and assessment on top of this, and we have intelligence that helps us inform our decisions. This flow can be illustrated by the table below.

Consultation on the Data Strategy has highlighted the need for comprehensive and streamlined learning, knowledge, and information management processes and systems. Enhancement of these processes and systems will allow greater automation, storage, and processing of the vast amount of information we gather, produce, and utilise during response. It will also allow our people to store and access the information and resources they require to do their jobs in an easier automated way. Enhancement of these systems and processes will also allow us to efficiently retain knowledge and learnings for future use which will ensure we can learn from previous events.

Streamlining our processes and systems around how we manage our learning, knowledge and information will allow us to leverage existing knowledge and convert new knowledge into actions. We can achieve this by:

- Reviewing our current methods of storing the information we produce to harness more automated ways of collection, storage, and use of this data. This could be through the use of a Customer Relationship Management (CRM) system

    - This will allow greater access to, automation, and reporting of data especially around the National Coordination Mechanism.

- Enhancement of current processes used to chronologically map keypoints through disaster response and the actions taken so that these can be utilised to enhance future understanding.

Decisions (Insight) — Combining intelligence, evidence and qualitative data and presenting it to inform decision making.

Intelligence — Analysis, interpretation and assessment of informaiton to provide intelligence of trends, needs etc. and review evidence.

Information — Data is presented in an understandable way e.g. graphs, tables, but with no narrative or interpretation.

Data — Raw form of data, many sources, needs 'cleaning' and processing to be useful.

3. A focus on analytics feeding intelligence

Analytics let us tell a story with data. It lets us turn raw data into useful information that provides evidence to deliver situational awareness and impact assessment to support decision making across the disaster continuum as well as influencing our policy and programs, and to tell a compelling story.

Robust and credible data is key to measuring our performance. The Data and Reporting team will support branches and programs to monitor and evaluate policies and programs by collecting performance data throughout program implementation and aligning this to existing data collections where possible.

Analytics is a foundation of a data-driven culture and will be embedded into the agency by:

- Building analytics skills at all levels of the agency, and championing the approach for an analytics rich culture

- Enhance our situational awareness capability:
    - Define information requirements - with high data availability, what is the most appropriate data to inform situational awareness
    - How do we gather information - where do we source the best data
    - How we analyse data to inform the situation and potential community impacts
    - How we use this data to inform effective decision making
    - How we share the information.

- Support the measurement and evaluation of the policies and programs we implement to understand outcomes and what success looks like

- From our lessons learnt during capability training and coordination activities, define the analytics we need to see to inform future learning and delivery of capability and response

- Define what a data-driven culture means for the agency and develop measures in the strategy's evaluation framework

- Establish a Data Champions network with an executive level member from each branch or team of the agency
    - Data Champions will be the branch/team point of contact for the Data and Technology Branch for data related issues and information. The Data Champion will promote the use of data within their branch, assist in promoting the data assets the agency has available and be responsible for the data produced by the branch, that it is up to date, in agreed formats and machine readable. Data Champions will also relay the data requirements of their branch.
    - Data Champions will also hold responsibility for the data assets of their area. This mean ensuring data ensuring data is up to date, quality assured, and meets requirements to reporting on Programs and projects for their branch according to the agency Program Reporting Framework.

- Engage with the whole-of-government data and analytics agenda including the Australian Public Sector reform and response to the Productivity Commission's Inquiry Report into Data Availability and Use

- Identify opportunities to promote the agency as a data and analytics thought leader, such as at symposiums and data conferences

- Support self-service analytics and data visualisation and encourage staff to use data visualisations tools and case studies in policy communication

    - The benefits of self-service functions of the agency's data products are emphasised so staff are empowered to access and utilise data in their daily processes

    - These functions are made easy to use with the introductory and developmental training implemented agency wide

    - Staff have direct access to programs and tools that enable them to view data in formats that are easily communicable across all community demographics

    - Emphasise the inclusion of data visuals, sets and case studies within the policy process and communications provide a robust understanding of community requirements. Inclusion ensures the agency meets its obligations to serve communities and create trustworthy policy.

- Highlight the support automation can offer in reporting processes

    - SES and the Data and Technology Branch will champion the implementation of automation processes to reduce the risk of human error, as well as decrease the manual labour load across the agency

    - Ensure we embed automated processes wherever appropriate to eliminate human error, ensure quality of data, and to make analysts available for higher level analytical work.

- Keep our technological systems current and fit for purpose

    - Ensure that the systems used in data collation, storage and presentation are fit for purpose. The agency is system agnostic and uses the technology that is most suited for its best fit for purpose.

- Incorporate qualitative data into our analysis

    - The agency does not solely focus on the collection of quantitative data. The strategy will help build capability by utilising qualitative data from situation reports, case studies and surveys that are also necessary in forming thorough assessments.

4. Situational awareness and place based insights

Disasters happen in physical locations or have flow-on effects to various locations, so our data supporting situational awareness for response, resilience and recovery needs to be location based.

The agency relies on location based data to provide insights into the communities that we are supporting in disaster resilience and recovery.

In large-scale events, it's difficult to know what is happening where. Using location based intelligence and insights we are able to see a holistic view of the situation—real-time data such as weather and traffic, on-the-ground updates, plus the locations of assets, crews, and other resources.

We regularly collect location based data to inform our decision making on the key risks and areas of need within a community. Under this strategy we will:

- Promote the value of location data in what we do

- Location drives the data requirements as the work we do is carried out in communities. The data we source and use is always location based, to form the basis of how we understand community needs. Includes historical insights of location

  – The agency understands that historical data is essential in creating a complete narrative and as a result, has longitudinal records that are widely accessible by staff, other government bodies, and Australian communities.

- Recording the development of Australian communities creates a holistic basis for policy decisions

  – Archival information also helps match specific community areas and their needs with effective programs.

This location data is split into the four domains:

Social
What is the demographic makeup of the area? What are the resources of the community? What are the strengths and vulnerabilities of the community?

Environment
What are the key environmental drivers of the area? Where are national parks and heritage? What endangered species exist in the area? What is the main forms of land use?

Economic
What types of industries and businesses make up the community? What is the impact of disaster on these industries and businesses? What is the economic turnover of the community? What are the main forms of employment in the area?

Built
Where are key pieces of infrastructure located? What are the supply chain routes? What is telecommunications like? Where are the energy supply routes? Where are escape routes located?

- Collaborate across government to influence location based data policy

  - The agency is committed to sharing data in accordance with F.A.I.R. (findability, accessibility, interoperability, reusability) principles, and recognises the important role external data sources play in presenting a holistic picture of community need

  - Participate in Inter-Departmental Committees to influence and promote the collection of location-based data, improve location elements in data collected, and better address validation and geocoding of data.

- Work with our stakeholders to promote the use and collection of location based data

- Conduct a strategic review of our systems for collecting information, intelligence and data, to streamline and enhance their functionality from record keeping database's to intelligence and insights based systems, that can produce data on emerging trends and themes on a geospatial level.

5. Promote a culture of data sharing, data discovery, innovation and collaboration

The agency is primarily a data consumer. NEMA consumes data from outside sources to provide situational awareness and impact assessments, that support decision making across all phases of the disaster continuum, as well as influence and inform our program and policy design processes. As a data consumer, we work closely with other APS agencies, and our state and territory counterparts, to gather location based data, primarily at the Local Government Area (LGA) level.

The agency promotes data sharing and discoverability via the creation of publically accessible products such as online maps, LGA profiles and other diverse tools. We also promote close working relationships with academia, industry bodies, and the private sector to ensure we have fit-for-purpose location based data.

Our state and territory counterparts are one of our greatest sources of data, principally around response data, that adds to our picture for situational awareness. One of our primary focusses under this strategy will be to foster an environment of mutual sharing of data with states and territories to ensure we are making decisions with the same data available to us all. To achieve this we will ensure we are accountable for the data that is shared with us and that we utilise this data in accordance with defined data sharing agreements. We will also ensure that we share as much Commonwealth data with states and territories as possible.

While the focus of our work is Australia, we often provide support to our neighbours in the region and beyond. With all countries facing greater challenges due to extreme weather events, NEMA needs to look to global partners, to work on innovation and lead collaboration on the mutually shared issues. Greater collaboration and innovation, along with enabled shared resources, can help us to tackle large problems with a collective effort.

Under this strategy we will:

- Embrace discovery and sharing of data as a data consumer, and promote collaboration and innovation with our partners both domestically and internationally

- Foster a culture of data-sharing, and embed data sharing agreements, across APS agencies, states and territories, and other stakeholders

- Support knowledge discovery and innovation as the amount of data increases exponentially

- Be a single source of truth, coordinating with data partners to develop data definitions and harmonise data usage

- Ensure we are utilising the most accurate and up-to-date data that is available whether that be from the Commonwealth or other sources

- Establish a Global Data Dialogue with partners facing similar obstacles and challenges to innovate and collaborate to solve mutually encountered problems.

6. Strong data governance

Data governance and management means having processes, roles, policies, standards, and metrics in place that ensure the effective and efficient use of data to meet the agency's goals and ensure the quality and security of data, while also providing clarity on who can take what action, with what data, in what circumstances, using what methods. The below hierarchy shows how the Data Governance Framework and Data Management Policy fit within the Data Strategy.

As the amount of data we are responsible for is growing, new challenges arise for our employees to navigate, analyse and interpret data appropriately. To respond to this, we need to mature our data governance framework by:

- Implementing the Data Governance Framework that sets out the rules, processes and roles that help us ensure robust data management and governance practices. This will minimise risk, establish rules for using data, help us meet compliance requirements, improve communication, increase the value of data, and reduce the cost of managing data.

- The Data Governance Framework will be the overarching document outlining the various roles and responsibilities including the Chief Data Officer, the Data Champions, the Data Governance Committee, including how they interact and how we govern data at a high level.

- Developing a Data Management Policy that outlines how we acquire, validate, store, protect, and process required data to ensure the accessibility, reliability, and timeliness of the data for users. The Data Management Policy should include:

    - Standard Operating Procedures on how we validate, store and protect our data

    - Quality Assurance around how we validate our data and analysis

    - Appointment of Data Stewards for our data holdings. The Data Steward will be a person from the Data and Technology Branch who is responsible for the data set

    - Ensure data adheres to privacy, security and risk management protocols and links back to address the agency Risk Register

    - Document our data sources.

- Introducing a data catalogue to ensure our data assets are F.A.I.R (Findable, Accessible, Interoperable, Reusable)

    - All staff are provided with resources that outline where they can find relevant data

    - The agency will emphasise the location of the data repository to increase awareness

    - Awareness of branch catalogue locations and accuracy will increase across the agency

    - Establish a Data Partners register to accompany the catalogue with the source details of the agency's data holdings.

- Following the introduction of the data catalogue we will have a greater understanding of the NEMA data landscape. We will then be able to identify where we duplicate effort in the collection of data, and streamline our assets to the singular most appropriate sources. With centralisation of data holdings, this will ensure we all have access to a single source of truth for agency data. This will ensure the quality of NEMA's data holdings and ensure all areas of the agency have access to, use, and report the same data

- Ensure all data collection methods including surveys, feedback from community meetings etc. meet ethical standards for dealing with vulnerable people and agency and Commonwealth standards

- Incorporate data governance into our data sharing agreements so our stakeholders can have assurance around how we handle their data and what we use it for

- Increasing the use of automation to minimise human error

  – The Data and Technology Branch will make automation processes available to all staff and offer advice as to where existing manual processes could be improved.

- Making data and metadata 'machine readable' and supporting new discoveries through the harvest and analysis of multiple datasets

- Ensuring our data assets and governance meet all Australian and International data standards

- Ensuring our use of data is transparent and meets Australian Standards and statutory requirements under AS4590 and the Data Availability and Transparency Act 2022

- Continuing our leadership and involvement in data governance forums including the Australia-New Zealand Emergency Management Committee (ANZEMC), ANZEMC Community Outcomes Recovery Subcommittee, and the State Federal - Recovery Data Working Group.

Data Strategy

How data will be used to meet broader business objectives.

Data Governance Framework

Sets the overarching objectives, rules and processes for collecting, storing and using data to reduce risk, ensure compliance, improve communication, reduce cost and improve value of data.

Data Management Policy

Outlines how data and information assets are managed consistently and used effectively - encompasses data security, quality assurance, standard operating procedures, data privacy, data architecture, data storage, integration and operability, documentation and metadata.

Roadmap

The roadmap outlines the key actions required to implement the strategy across its six strategic objectives to 2025.

1. Building capability and culture

	Objective	Action	Indicators *(if relevant)*	Timeframe
1.1	Empowering staff with data skills by providing development opportunities in training.	Develop and implement an online data and analytics training program for the agency, with one compulsory course to be included in the agency's mandatory training program.	Data and Analytics training program is developed and ready for rollout by 31 December.	29 Feb 2024
1.2	Rollout and uptake of data and analytics training.	Promotion of data and analytics training to ensure staff know about the training available and how and where to access.	Aim for 100% completion of mandatory training component, and a 20% uptake of discretionary training courses. Aim for 25% uptake of discretionary training course annually.	31 Dec 2024
1.3	Executive will drive data as a foundation to all areas of the agency.	Develop and implement a 'Decision Making Using Data' course aimed at Senior Executives to develop data and data storytelling skills.	Embed course to be annual.	29 Feb 2024
1.4	Empowering staff with data skills by providing development opportunities in training.	Host the first agency Decision Making Using Data course.		29 Feb 2024
1.5	Empowering staff with data skills by providing development opportunities in training.	Develop a 'Data Dialogue' series aimed at promoting the use of data and analysis through presentations on current research, short courses, guest speakers, data symposiums, Data Week activities.	Develop an annual schedule for quarterly 'Data Discussions' and gather feedback on their usefulness via survey.	Quarterly
1.6	Increase awareness of data storage locations and availability of training.	Implement a data catalogue to increase awareness of the agency's data holdings.		31 Dec 2023
1.7		Following completion of action item 1.6, ensure data catalogue is up to date and promote its use.		Ongoing

1.8	Influence policy across the APS.	Engage in APS wide data policy forums such a Locations IDC, Data Governance, etc.	Representation at APS wide Data policy forums.	Ongoing

2. Enhanced learnings, information, and knowledge management

	Objective	Action	Indicators *(if relevant)*	Timeframe
2.1	Enhance the way we store information for National Coordination.	Investigate and document requirements for a CRM to assist with contact management, scheduling and documenting National Coord meetings.		TBA suggest review by Technology
2.2	Build on our Knowledge Management processes.	Enhancement to NJCOP to chronologically map key points within response to be accessed for lessons learnt.		TBA

3. A focus on analytics feeding intelligence

	Objective	Action	Indicators *(if relevant)*	Timeframe
3.1	Building analytics skills at all levels of the agency.	Develop and promote self service analytics platforms for agency data.		First platform to be released by 31 Dec 2023
3.2	Building analytics skills at all levels of the agency.	Following completion of action item 2.1, ensure all staff have access to the agency's self-service data products.	100% staff access by 31 December 2023.	Ongoing
3.3	Engage with the whole-of-government data and analytics agenda.	Engage with whole of government (including state and territory counterparts) data and analytics agenda through participation in data forums to promote the agency as a thought leader.		Ongoing
3.4	Support self-service analytics and data visualisation.	Encourage use of data and data visualisations in policy and program design through Data and Technology Branch presentations on best use.		
3.5	Establish a Data Champions network.	Establish Data Champions team with representatives from each branch by end Q3 2023.	One EL level representative from each branch.	Feb 2024

4. Situational awareness and place based insights

	Objective	Action	Indicators *(if relevant)*	Timeframe
4.1	Collaborate across government to influence location based data policy.	Participate in Interdepartmental Committees to influence and promote the collection of location based data, improve location elements in data collected, and better address validation and geocoding of data.	Agency representation at Location IDC forums.	Ongoing
4.2	Collaborate across government to influence location based data policy.	Enhance already implemented data strategies and update geospatial activities when required.		Ongoing
4.3	Record the development of Australian communities to influence policy decisions.	Collect place based data to inform our decision making on the key risks and areas of need within communities.		Ongoing
4.4	Work with our stakeholders to promote the use and collection of location based data.	Ensure collection of data is updated from our sources, as well as identifying new data sources are presented to the agency where required.		Ongoing

5. Promote a culture of data sharing, data discovery, innovation and collaboration

	Objective	Action	Indicators *(if relevant)*	Timeframe
5.1	Embrace and foster a culture of data sharing across APS agencies, states and territories, and stakeholders.	Promote sharing and reuse of data by establishing Data Sharing Agreements with our state and territory counterparts.	Data sharing agreements in place with each state and territory.	30 June 2024
5.2	Embrace and foster a culture of data sharing across APS agencies, states and territories, and stakeholders.	Following completion of action item 5.1, review Data Sharing Agreements annually to consider data needs.		Annual
5.3	Embrace and foster a culture of data sharing across APS agencies, states and territories, and stakeholders.	Share our data products and analysis outputs widely with our partners e.g. states and territories, other government bodies, NGO's.		
5.4	Embrace and foster a culture of data sharing across APS agencies, states and territories, and stakeholders.	Conduct a data needs assessments on our data holdings to highlight data gaps.		Annual by the end of quarter 3 each year
5.5	Support knowledge discovery and innovation.	Following completion of action item 5.4, routinely complete data needs assessments on our data holdings to highlight data gaps.		Ongoing
5.6	Support knowledge discovery and innovation.	Undertake data discovery to identify new data sets that will assist in informing our decision making.		Ongoing
5.7	Support knowledge discovery and innovation.	Establish a Global Data Dialogue with countries that face similar Emergency Management challenges.		

6. Strong data governance

	Objective	Action	Indicators *(if relevant)*	Timeframe
6.1	Developing a Data Governance Framework.	Develop and begin a phased implementation of a Data Governance Framework that effectively manages our data architecture, security, quality assurance, roles and responsibilities, ownership, processes, and storage.	Data Governance Framework document produced.	31 Dec 2023
6.2	Developing a Data Governance Framework.	Following completion of action item 3.1, review and amend Data Governance Framework to cover changes in agency needs. Ensure processes are being followed.		Ongoing
6.3	Developing a Data Management policy.	Develop a Data Management Policy outlining the technical detail of data management processes.	Data Management policy document produced.	31 March 2024
6.4	Developing a Data Management policy.	Appoint data stewards who own various data assets and are the point of contact for advice.	Data stewards appointed for the Agencies main datasets.	31 Dec 2023
6.5	Introduce a data catalogue.	Introducing a data catalogue to ensure our data assets are F.A.I.R.	Data catalogue available online via agency intranet.	31 Dec 2023
6.6	Data Centralisation.	Establish 'most appropriate' data sources and centralise data collection.	Hub and spoke model with central data warehouse storing agency data as single source of truth.	TBD
6.7	Increasing the use of automation to minimise human error.	Encourage use and search of machine readable data, with all agency data outputs to ideally be machine readable and automated.		Ongoing
6.8	Increasing the use of automation to minimise human error.	Develop Standard Operating Procedures within Data and Technology Branch that outline roles and responsibilities and steps and processes related to our data assets and outputs.		31 Dec 2023