



Australian Government



APS Foundational Data Literacy Pathway

Version 2



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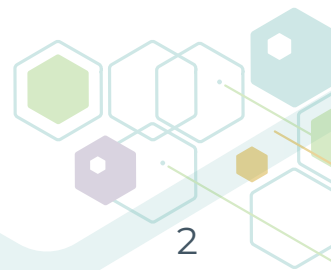
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INTRODUCTION

BACKGROUND

Data in the public sector determines how services are delivered and improved. Australian Public Service (APS) agencies are the custodians of a vast array of information and our government's decisions must be based on well-managed, high-quality data. Treating data as a valuable national asset builds public confidence and trust in the ability of the APS to manage data professionally, securely and effectively¹.

Foundational data literacy is a critical set of capabilities applicable to APS employees across all levels and roles. Building APS data capability is identified in the [Data and Digital Government Strategy](#) as essential to achieving the Government's mission to deliver simple, secure and connected public services, for all people and business.

The training and resources outlined in the Foundational Data Literacy Pathway (the Pathway) present one avenue for building data literacy across the workforce. Achieving whole-of-government uplift will require coordinated efforts that extend beyond training, and encompass leadership, culture, behaviours, on-the-job learning and mentorship, and enterprise-wide actions.

The Pathway was a collaborative project developed through the working groups represented by the agencies listed in [Appendix A](#).

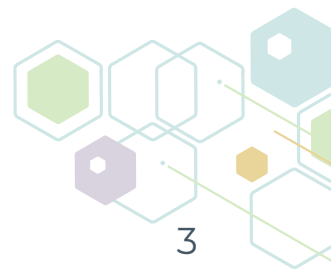
PURPOSE

This document provides agencies with a standardised learning pathway to strengthen data literacy across the workforce. It offers an individual learning solution for enhancing data capability, rather than an approach centred on leadership or organisational culture.

The Australian Government recognises the importance of building broad data literacy across the APS workforce. Growing data capability in all roles is essential to embedding data and evidence into everyday public service work. Strengthening the data skills of APS leaders is equally important in fostering a culture of innovation and sound risk management. This resource is therefore designed to enhance the capability of all APS employees—not just those who consider themselves 'data people'.

The rise of artificial intelligence (AI) now marks a turning point where building data capabilities becomes the foundation for future success. When poor-quality data feeds AI systems, it leads to inaccurate outputs and unintended consequences. When quality data drives AI, the reliability and accuracy of outputs is improved. Building data literacy is therefore imperative to the responsible use of AI tools.

¹ Commonwealth of Australia, Office of the National Data Commissioner, Foundational Four, 2020.



INTRODUCTION

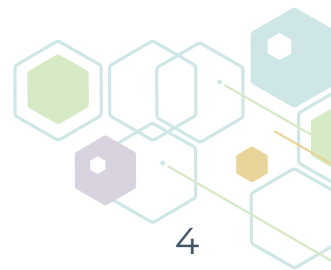
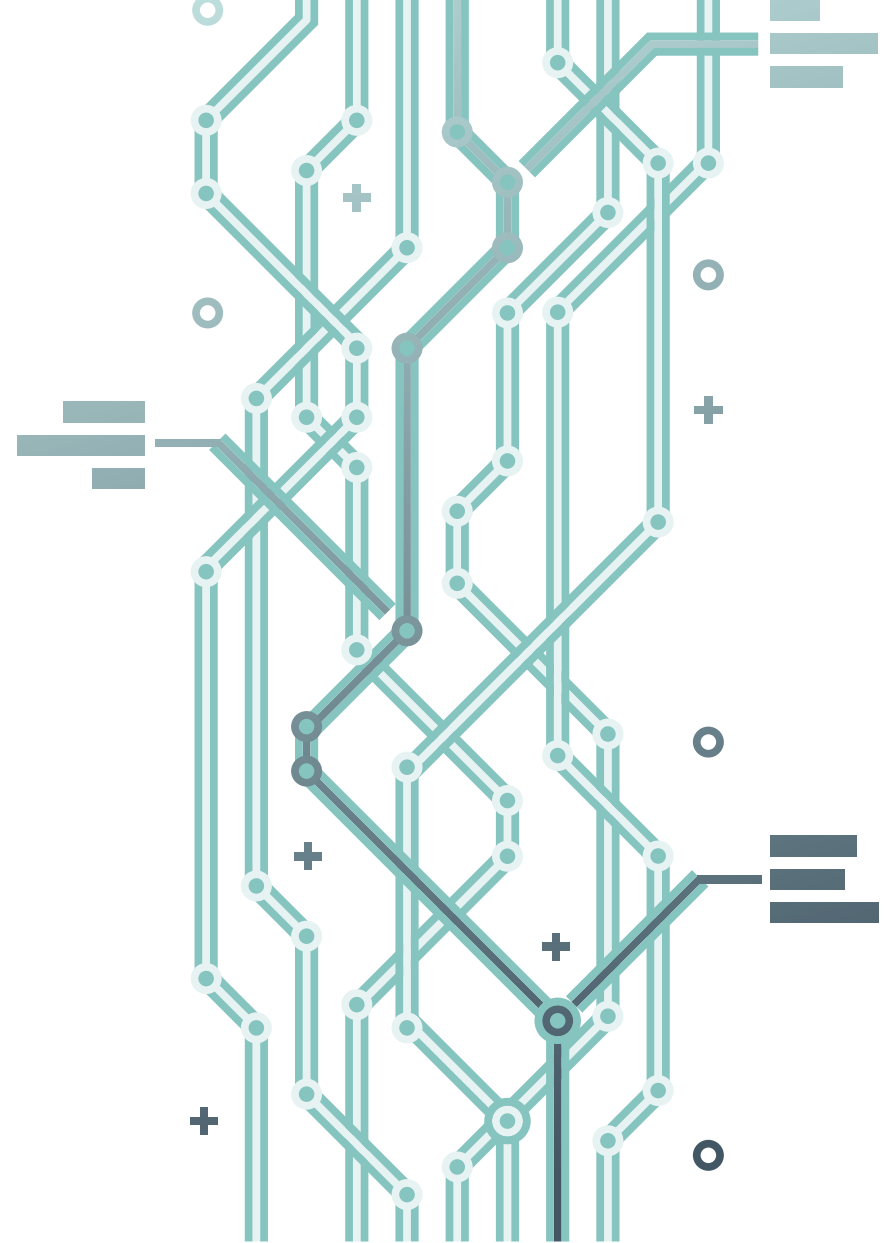
DATA AND AI LITERACY

Data is any information that is capable of being communicated, analysed, or processed (whether by an individual, computer or other automated means)². Data literacy is the ability to identify, manage, understand and communicate data effectively.

Individuals with foundational data literacy can identify the data types relevant to their roles, collect or access them, interpret what they mean, and share insights clearly with different audiences. They understand the principles of data trust and ethics, are familiar with essential tools and terminology, understand data privacy and security, and ensure data-driven decisions align with APS goals. Building these skills strengthens analytical capability and supports the ethical use of data across agencies.

AI and data literacy go hand in hand. AI literacy involves understanding how AI works, its capabilities and limitations, and how to use it responsibly and ethically in decision-making and service delivery. Increased data literacy enables individuals and organisations to assess data sources critically, in turn helping them to recognise limitations and potential biases in AI technologies and interpret AI-generated results accurately. Together, these practices support trustworthy use, reduce risk, and help ensure that data-driven innovation delivers positive outcomes. Prioritising data and AI literacy allows public servants to maximise the advantages of these technologies while addressing related risks.

² Commonwealth of Australia, Data Availability and Transparency Act 2022, 2024.



USING THE FOUNDATIONAL DATA LITERACY PATHWAY

WHO IS THE PATHWAY FOR?

The Pathway is designed to build foundational data competencies among public servants in both data and non-data roles. Its core purpose is to ensure that data is understood, interpreted, and applied effectively at all levels of government. By fostering data literacy, the APS aims to cultivate a workforce capable of using data to inform policy development, program delivery, and service improvement.

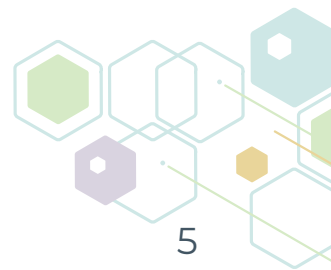
The Pathway is more than an educational resource—it is a catalyst for professional development. All APS employees can use the Pathway to;

- understand the key pillars which form foundational data literacy
- pursue training to develop data skills
- build career resilience in a changing employment landscape
- develop the skills needed to contribute more effectively to their agency's strategic goals while strengthening their leadership capabilities

WHAT'S IN THE PATHWAY FOR ME?

The Pathway is designed to cater to a wide spectrum of data literacy needs and aspirations, from those in entry-level roles to senior leaders.

The use cases below show how the Pathway is relevant across a variety of roles and the benefits it offers.



USING THE FOUNDATIONAL DATA LITERACY PATHWAY

I AM ...

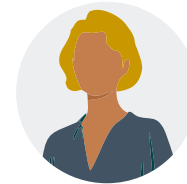


an Entry Level Program Participant

Graduates, Cadets, Interns, Apprentices, Career Starters and School Leavers



an APS employee



a Team Leader/Manager

Tactical leadership



a Senior Leader

Strategic leadership

WHY I'M DEVELOPING MY DATA SKILLS

- I am driven by a desire to help shape effective, fair policies that improve lives across Australia.
- I want to understand how data can be used ethically, responsibly, and transparently within the APS.
- I am interested in future-proofing my career by building a solid foundation in data handling and analysis.

- I am passionate about making a meaningful impact on the lives of Australians. I know data is an important tool that will allow me to uncover patterns and insights.
- I understand that accurate and reliable data is vital to my work. It enables me to contribute to evidence-based public policies and services.
- I want to build my own confidence and capability in handling and using data, ensuring that I am using data responsibly, transparently and effectively.

- I am committed to developing and strengthening my team's data skills and knowledge.
- I recognise that foundational data literacy is not only critical for high-quality decision making, but also for fostering innovation and adaptability in our work. I want to establish foundational capabilities across my team to enable us to flexibly respond to challenges.
- I am driven to create an environment where data is confidently, responsibly and ethically used to create public value.

- I'm motivated to provide Ministers and stakeholders with clear, evidence-based advice that withstands scrutiny and informs impactful decision-making at the highest levels.
- I understand that using data safely, ethically, and effectively is fundamental to building and maintaining public trust.
- I strive to reinforce the integrity of our agency through thoughtful data practices, ensuring that my efforts deliver the greatest value possible to the Australian public.

USING THE FOUNDATIONAL DATA LITERACY PATHWAY

WHAT I'LL GET OUT OF THE PATHWAY

an Entry Level Program Participant

Graduates, Cadets, Interns, Apprentices, Career Starters and School Leavers

- I'll be more confident in navigating new datasets, exploring analytical tools, and effectively using and interpreting the data available to me. I'll have developed an understanding of how the Australian Government uses data and what considerations I need to apply when handling data throughout the stages of the data lifecycle.
- I can contribute to projects that showcase how evidence and data-driven insights can lead to better decision-making.
- I can establish myself as a trusted, responsible data steward. In time, I will be able to mentor other entry-level professionals.

an APS employee

- The Pathway provides a structured means for me to continuously develop my data skills.
- I can apply data literacy to test assumptions in my thinking, reduce bias and improve the quality of my decisions.
- I can communicate data insights clearly and effectively, and tailor my visual and written communication to suit different audiences.
- I can manage and analyse data both autonomously and with the help of AI tools. I understand the risks and limitations associated with using AI.
- I understand that foundational data capability is essential for my career advancement and will create opportunities across a broad range of APS roles.

a Team Leader/Manager

Tactical leadership

- I can use the Pathway to equip my team with the skills and confidence to make data-driven decisions. Increasing their data literacy will help minimise risks of misinterpretation, miscommunication, and bias.
- I can set an example by completing the Pathway to develop my own data literacy, modelling best practice and encouraging the team to explore innovative solutions through the appropriate use of data.
- I can ensure everyone knows how to interpret, manage, share, and use data in ways that add value.
- I can promote the Pathway to encourage the professional growth of my team—recognising that building data capability is central to personal development and career progression.

a Senior Leader

Strategic leadership

- I engender change and lead by example by embedding data-driven approaches throughout our agency. I ensure key decisions, both my own and those in my workgroup, are underpinned by robust evidence and insights.
- I can set clear expectations for staff by encouraging critical engagement with data and fostering a culture where data literacy is continually developed and celebrated.
- As a data steward, I champion best practice, including overseeing rigorous data privacy, sharing, and governance protocols. Establishing foundational data literacy ensures that my agency manages data as a valuable asset; protecting its integrity, quality, and security.

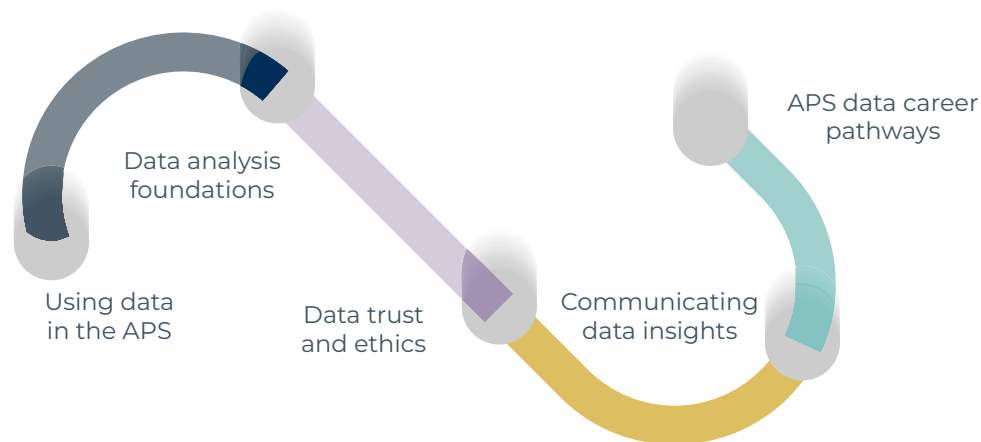
HOW DO I USE THE PATHWAY?

The Pathway serves as a one-stop-shop of curated resources to build foundational data literacy.

It's structured around five key learning areas, each designed to provide the knowledge, practical skills, and understanding of legislation and frameworks needed to start working with data in the Australian Government. Within each area, you'll find a variety of resources, such as videos, tools, templates, courses, and articles, to support your learning journey.

Before you begin using the Pathway, it's recommended you explore the [APS Data Capability Framework \(DCF\)](#) which sets out essential data competencies across seven levels. Levels 1–5 reflect growing technical expertise and responsibility, while Levels 6 and 7 focus on leadership capability. You can use the DCF for self-assessment, alongside any agency tools, to identify opportunities for growth and development.

The Pathway is designed to be flexible and can be used in different ways, depending on your needs and where you are in your data journey. There is no prescribed order for completing the learning resources.



Use the Pathway end-to-end.

If you're new to working with data, start with Using Data in the APS and move through each area in order. Setting aside a regular time each week will help you to maintain momentum and build skills steadily.








Focus on priority areas.

If specific topics are already on the radar, or a self-assessment using the DCF has highlighted gaps, each resource in the Pathway works as a standalone element. Select the topics that matter most now and return to others later.

Keep the Pathway handy for on-demand learning.

To maintain a solid foundation or support team development, bookmark the Pathway and relevant resources. Dip back in whenever a task, project, or discussion calls for just-in-time learning.

Using data in the APS








 Learning Outcomes	 Understand the role of data in the APS	 Understand and apply data management and governance best practice	 Understand data sharing, access and integration	 Understand and apply data security and privacy best practice
 Learning resources	<ul style="list-style-type: none"> • Introduction to Data in Government Course: Module 1 - Data in Government APS Learn~ • Realising the Value of Data Seminar APS Data Profession# • Data in Action DSS Data Showcase • Australian Government Data System Department of Finance 	<ul style="list-style-type: none"> • Information management training NAA~ • Data governance and management NAA • Retaining, managing and disposing of data and datasets NAA • Framework for the Governance of Indigenous Data Seminar APS Data Profession# 	<ul style="list-style-type: none"> • Introduction to Data in Government Course: Module 2 - Data Integration APS Learn~ • Integrated Data Case Studies ABS • Data Integration Explained: Techniques, Platforms & Tools Datacamp 	<ul style="list-style-type: none"> • Australian Community Attitudes to Privacy Survey 2023 OAIC • Privacy in the Australian Public Service OAIC • What is personal information? OAIC • Data breaches and the Australian Privacy Act OAIC • Guide to data analytics and the Australian Privacy Principles OAIC • Treating aggregate data ABS
	 Strategies, Frameworks, Policies and Guidelines	<ul style="list-style-type: none"> • Data and Digital Government Strategy and Implementation Plan 	<ul style="list-style-type: none"> • Australian Government Data Governance Framework • Framework for the Governance of Indigenous Data • Building Trust in the Public Record Policy • Foundational Four 	<ul style="list-style-type: none"> • DATA Scheme A scheme for sharing Australian Government data • Data Discovery ONDC • Five Safes Framework • Census and Statistics Act 1905

~ Course which requires registration with [APS Learn](#).

Resource which requires registration with the APS Data Profession [Members' Community Platform](#) (MCP).

+ Free course, requiring user to register an account with the provider.

Data analysis foundations

 <p>Learning Outcomes</p>	 <p>Understand key terms and principles</p>	 <p>Understand how to collect, prepare and analyse data</p>	 <p>Identify key data analysis tools and their use</p>	 <p>Understand data's application in public service work</p>
 <p>Learning resources</p>	<ul style="list-style-type: none"> • What is data? Geeks for Geeks • What Is Data Analytics? - An Introduction YouTube • Data Basics Webinar APS Learn~ • The Data-Information-Knowledge-Wisdom Pyramid Datacamp • Data Lifecycles Factsheet Department of Finance 	<ul style="list-style-type: none"> • Turning Data into Information: Modules 1-7, 9-12 APS Learn~ • How to Analyse and Interpret Data Cottage Health • Introduction to Data Analytics TafeNSW+ • Statistics Basics w3 Schools • Data Cleaning Checklist Datacamp 	<ul style="list-style-type: none"> • 15 Data Analysis Tools and When to Use Them Coursera • Excel Basics w3 Schools • Excel Basics for Data Analysis by IBM Coursera+ • AI in government fundamentals APS Learn~ • Introduction to excel Datacamp • Interactive Learning Environment GovAI^ • Knowledge Hub GovAI^ • AI in the Australian Government Seminar APS Data Profession# 	<ul style="list-style-type: none"> • APS Data Awards Australian Government • National Health Data Hub Case Studies AIHW • Data Integration Project Register ABS
 <p>Strategies, Frameworks, Policies and Guidelines</p>	<ul style="list-style-type: none"> • ABS Data Quality Framework 	<ul style="list-style-type: none"> • Commonwealth Evaluation Toolkit • Data/Evaluation Matrix Template Commonwealth Evaluation Toolkit 	<ul style="list-style-type: none"> • Staff guidance on public generative AI • Policy for the responsible use of AI in government • AI Plan for the Australian Public Service 2025 	

~ Course which requires registration with [APS Learn](#).







Resource which requires registration with the [APS Data Profession Members' Community Platform \(MCP\)](#).

+ Free course, requiring user to register an account with the provider.

^ Requires access to GovTeams.



Data trust and ethics







 <p>Learning Outcomes</p>	 <p>Understand the issues impacting public trust in the government's use of data</p>	 <p>Understand how data can be collected, used and stored ethically to maintain public trust</p>	 <p>Understand the application of data ethics in public service work</p>
 <p>Learning resources</p>	<ul style="list-style-type: none"> • Introduction to data in government - Module 3: Trust in data and government APS Learn~ • The role organisations have to protect privacy in 2023 OAIC • Edelman Trust Barometer Edelman • How might artificial intelligence affect the trustworthiness of public service delivery? PMC 	<ul style="list-style-type: none"> • Introduction to Data Ethics Odyssey Learning Project • APS Data Ethics Framework Seminar APS Data Profession# • APS Data Ethics Framework at a glance Department of Finance# 	<ul style="list-style-type: none"> • Data and analytics ethics: Application and influence ATO • APS Data Ethics Use Cases Department of Finance • Integrity Australian Public Service Commission
 <p>Strategies, Frameworks, Policies and Guidelines</p>	<ul style="list-style-type: none"> • Trusted and secure Data and Digital Government Strategy 	<ul style="list-style-type: none"> • APS Data Ethics Framework • Australia's AI Ethics Principles 	<ul style="list-style-type: none"> • Using technologies in safe and responsible ways DDGS Implementation Plan • Standard for AI transparency statements • APS Ethics Advisory Service

~ Course which requires registration with [APS Learn](#).

Resource which requires registration with the APS Data Profession [Members' Community Platform](#) (MCP).









Communicating data insights

 Learning Outcomes	 Understand the principles of data visualisation and storytelling	 Apply key considerations when providing data and evidence	 Identify key data visualisation tools and their use
 Learning resources	<ul style="list-style-type: none"> • Introduction to data in government - Module 4: Data in action APS Learn~ • Everything you wanted to know about data visualisation ABS • Insightful Data Storytelling APS Learn~ • David McCandless: The beauty of data visualization TED Talk • Data Storytelling: The Essential Data Science Skill Everyone Needs Forbes • Data storytelling: A key for data-driven decision-making CIO 	<ul style="list-style-type: none"> • Turning Data into Information: Modules 8, 13 and 14 APS Learn~ • The MasterChef™ guide to data analysis, interpretation and presentation APS Learn~ • Visual vocabulary: Designing with data Financial Times • Accessible and inclusive content: Agency responsibilities and commitments APS Style Manual 	<ul style="list-style-type: none"> • Top 6 Data Visualization Tools for Business Professionals Harvard Business School • Power BI vs Excel: Which Should You Use? Datacamp • Visualizing Data in Excel Datacamp • Getting started with data visualization in Excel Datacamp+ • 23 Best Data Visualization Tools You Can't Miss! Simplilearn
 Activity	<ul style="list-style-type: none"> • Identify your stakeholders and consider their different communication needs and priorities. What are the key themes and findings in your data, and how can you present them in a way that's easy to understand? 	<ul style="list-style-type: none"> • Apply what you've learned and practice different ways to design and communicate data insights. Review the APS Style Manual and, if your agency has one, your agency's style guide. Consider how these guidelines apply to data visualisation. 	<ul style="list-style-type: none"> • Practice creating data visualisations using different charts and graphs, using the examples discussed in the learning resources above. Consider how different graphics make patterns in the data easier or harder to identify.

~ Course which requires registration with [APS Learn](#).

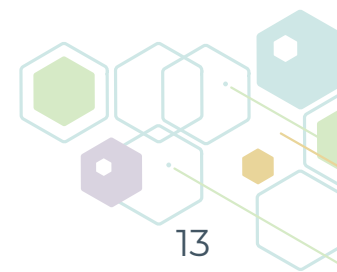
+ Free course, requiring user to register an account with the provider.

APS data career pathways

 <p>Learning Outcomes</p>	 <p>Awareness of the APS Data Profession stream</p>	 <p>Understand different data roles and career pathways</p>	 <p>Awareness of data professional networks</p>
 <p>Learning resources</p>	<ul style="list-style-type: none"> • Introduction to data in government - Module 5: APS Data Profession and uplifting data capability APS Learn[~] • APS Data Profession Australian Public Service Commission 	<ul style="list-style-type: none"> • Data job role personas Australian Public Service Commission • Career Pathfinder Tool • In Conversation series with Dr David Gruen AO: Exploring distinguished careers in data Australian Public Service Commission 	<ul style="list-style-type: none"> • Data Profession Members' Community Platform MCP[#] • Data Management Association DAMA • Graduate Data Network Department of Finance
 <p>Activity</p>	<ul style="list-style-type: none"> • Explore the other resources on offer from the APS Data Profession. Consider how they might be implemented by your team or within your agency. 	<ul style="list-style-type: none"> • Create a profile with the Career Pathfinder Tool to start exploring career and learning pathways. 	<ul style="list-style-type: none"> • Sign up to the Data Profession Members' Community Platform. Join a Community of Practice, register for an event, or post a question to crowd-source an answer to a data problem.

[~] Course which requires registration with [APS Learn](#).

[#] Resource which requires registration with the APS Data Profession [Members' Community Platform](#) (MCP).



FURTHER RESOURCES

[APS Data Capability Framework](#)

[Curated Data Courses[#]](#)

[Microdata and TableBuilder | Australian Bureau of Statistics](#)

[Data integration | Australian Bureau of Statistics](#)

[APS AI Use Case Library | GovAI[^]](#)

[Information is Beautiful](#)

[Data Visualisation Guide](#)

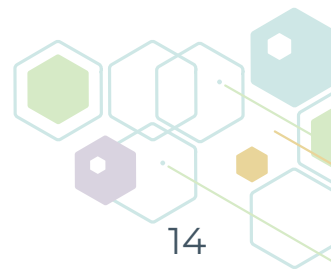
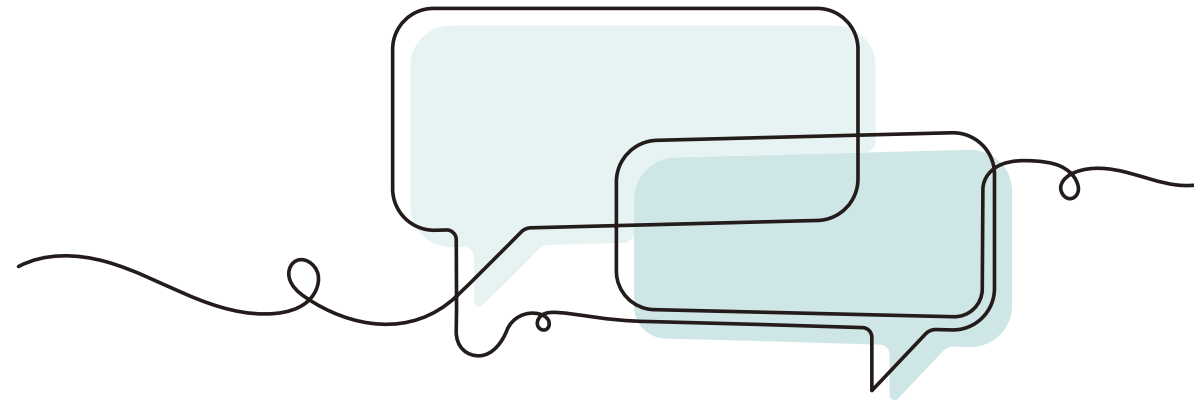
FEEDBACK

We would love to hear about your experience using the APS Foundational Data Literacy Pathway, or how you are implementing the Pathway in your agency for use in our case studies.

Please send your feedback to the APS Data Profession team at dataprofession@abs.gov.au.

[#] Resource which requires registration with the APS Data Profession [Members' Community Platform \(MCP\)](#).

[^] Requires access to GovTeams.



APPENDIX A – AGENCY CONTRIBUTIONS

The APS Data Profession would like to acknowledge Department of Home Affairs' contribution in leading this project.

We thank the following agencies who have contributed to the development of these pathways:

- Australian Bureau of Statistics
- Australian Public Service Commission
- Australian Taxation Office
- Department of Health, Disability and Ageing
- Department of Infrastructure, Transport, Regional Development, Communications, and Arts
- Services Australia
- Department of Agriculture, Fisheries and Forestry
- Department of Veterans' Affairs
- IP Australia
- National Indigenous Australians Agency
- Department of the Prime Minister and Cabinet
- Department of Defence
- Department of Foreign Affairs and Trade
- Department of Health, Disability and Ageing
- Department of Industry, Science, Energy and Resources

