



Australian Government

Department of Infrastructure
and Regional Development

Data and information management strategy

2017–20





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and Regional Development**

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Empowering informed and comprehensive data-driven decisions for the design and implementation of the Australian Government's infrastructure, transport and regional development policies and programs through data availability and use.

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Foreword



Department Data Champion – Gary Dolman

The use of data to improve decision-making is becoming an increasingly important means of delivering improved outcomes for Australia.

Innovations in technology are making data more readily available- providing governments, businesses and communities an evidence-base to test our assumptions and move to solutions that really work.



Chief Information and Security Officer – Gary Leifheit

The demand for access to authoritative information when and where needed has steadily increased in line with the availability of better communications technology and feature rich applications.

The amount of data being generated globally is increasing exponentially as is that being created internally by the Department. It will be important that as we combine and manipulate these datasets that we comply with our privacy and security obligations.



Deputy Secretary – Judith Zielke

The work of our Department depends on having high quality data to inform our decisions on policy, programmes and regulation. I endorse this strategy as an important means of ensuring that we are collaborating to make best use of data available so that we deliver the best possible outcomes for the Australian Community.



Purpose

Effective governance and the achievement of corporate and business priorities depends on the Department's capacity to manage data and information effectively. The Department's strategy supports continual improvement in our data and information management practices. It identifies strengths and weaknesses and outlines plans for building on our strengths and addressing weaknesses. This includes, but is not limited to, consideration of appropriate systems to support our data and information management needs into the future. It is based on an analysis of our current data and information management status and establishes a plan for future progress.

The strategy will ensure that data and information management supports our corporate plan and priorities to ensure Australia's cities and regions are places of commerce and community, supported by safe, efficient and secure transport systems.

Data and information are a department and national asset. This strategy aims to ensure that our practices result in information that support business and satisfy our legal and stakeholder requirements.



Statement about the Strategic Direction

Our Department intends to be fully digital and ensure data availability and use. By 2020 the Department aims to implement a data and information management program which is fully integrated into our Department's *Data and Information Governance Framework*. Our data and information systems and structures will withstand external scrutiny and will help to reduce organisational risks. Data and information will be an organisational and national asset, readily located and accessed by staff and the public who need the right information at the right time.

The Department's six high-level strategic objectives:

1. Enrich data quality and value through governance to ensure its availability, accuracy, integrity, applicability and security for the organisation to fulfil its purposes.
2. Advance data-driven decision-making through ICT architecture and systems that enable more rapid and comprehensive responses to policy related matters and delivery of services.
3. Boost foundational and specialised data skills and capability through learning and development programs and workforce planning to meet the organisation's purposes with the changing environment.
4. Provide simpler, clearer and faster digital services through design and delivery standards to improve interaction in the planning and implementation of infrastructure, transport and regional development policies and programs.
5. Uphold privacy and security requirements through proactively managing risk to prevent, detect and respond promptly to incidents or breaches.
6. Inspire innovation and productivity through culture, collaboration, skills and capability and leadership to stimulate national social and economic prosperity.

Barriers to achieving these strategic objectives will be identified in ongoing reviews. Some current strengths and challenges are detailed in the next section. Continuous improvement initiatives will enable accountable data and information management that supports staff in conducting the business of the Department. In addition, integrated data governance will ensure alignment with government policies and expectations such as the *Data Availability and Use Inquiry*, *Digital Continuity 2020*, the *Guidance on Data Sharing for Australian Government Entities*, and the *Public Data Policy Statement*.

Strategy-on-a-Page

The six strategic objectives for the management of the Department's data and information to ensure its availability and use.





Strengths and Challenges

External Environment

Data and analytics are enhancing decision-making through increased availability of data and use through enriched modelling and visualisation software. Available and quality data results in faster, easier and more-informed judgements and actions. Australians benefit from improved sharing of information between government entities, with industry and the public to solve complex policy issues and improve services.

The Australian Government provides access to public information spatial data and datasets through NationalMap.gov.au and Data.gov.au to spark innovation, productivity and democracy. Development of these sites will provide public cloud-based analytics access to benefit from – volume, variety, velocity and veracity – big data.

Maintaining the privacy and security of all Australians is one of our national priorities. Strengthening resilience to growing malicious cyber activity through risk management is vital.

Strengths

- Decreasing costs of advanced technology
- Advancing business intelligence software
- Increasing accessibility of relevant data
- Supporting government policies, guidance and initiatives
- Growing expertise in public and private sector networks
- Evolving information security and privacy risk management

Challenges / Opportunities

- Refining sharing arrangements between government entities
- Determining value and significance of data for release to the public
- Increasing malicious cyber actors and their metamorphosing methods



Internal Environment

The Department and its people benefit from its data and information being available, usable, reliable, and secure to better inform policy, regulation, programs, and deliver services through easier and faster data-driven decisions. Data and information management is high on the Department's agenda.

Good governance of the Department's Information and Communications Technology (ICT) provides a stable foundation for the future of data and information management. Currency of our technology will ensure the Department advances with an adaptive and agile environment.

Expertise and innovation within divisions and business units improve sharing, analysis and visualisation of data across the Department through unification. Development of our workforce skills and capability with evolving with technologies is vital to our success.

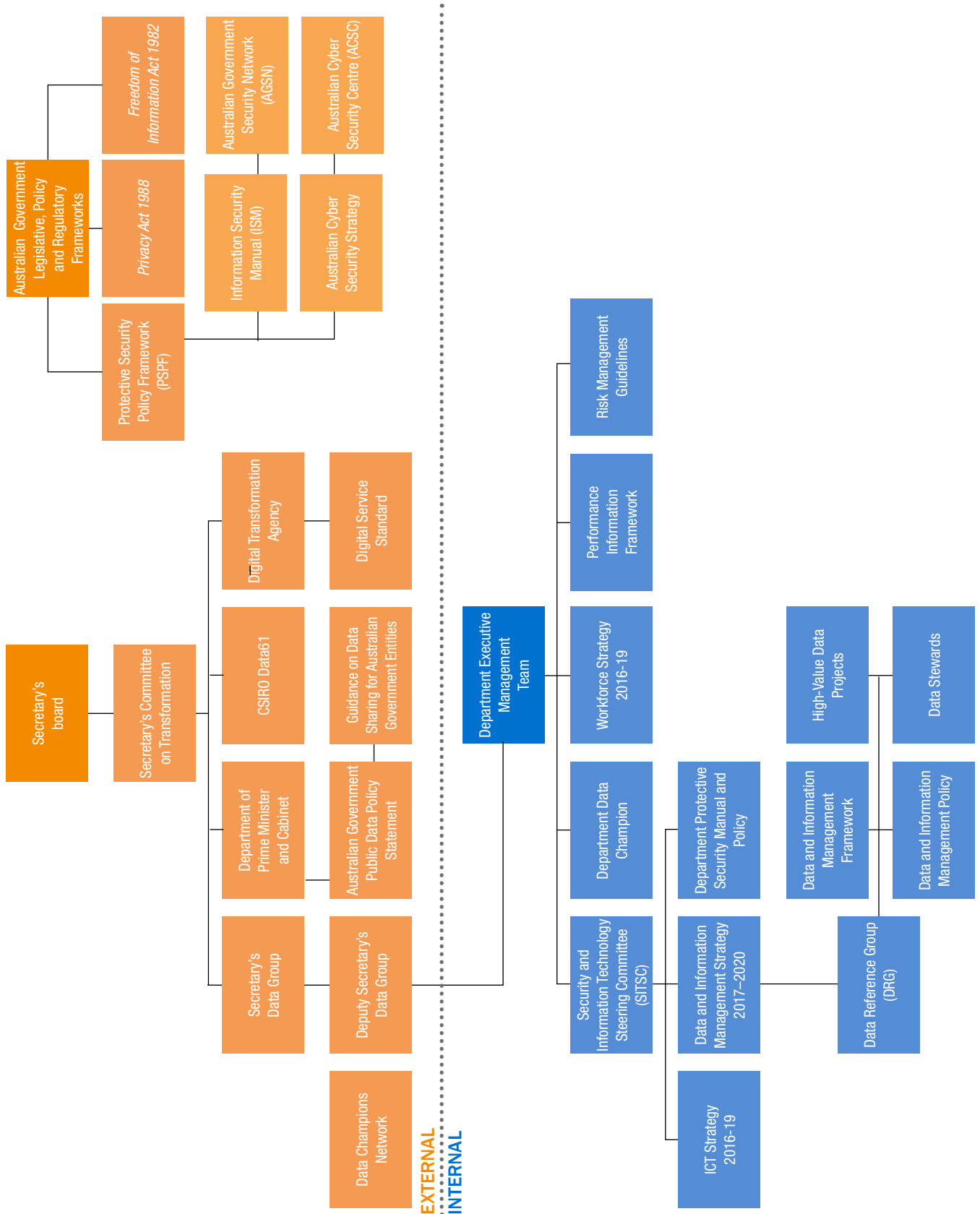
Strengths

- Overseeing ICT and Security
- Providing reliable ICT infrastructure and systems
- Developing software applications
- Being enthusiastic for improvement
- Cultivating expertise within business areas
- Inspiring a centre of excellence for data collection and analysis

Challenges / Opportunities

- Increasing integration of ICT architecture and systems
- Maintaining currency of technologies
- Centralising acquisition and storage of data and research information
- Engaging security in solutions
- Uplifting foundational and specialised data skills and capability
- Determining the future capability requirements – workforce planning

Government Data Governance Map



High-Value Data Projects – Department Perspective

Public Data Agenda Themes			
Evidence	Innovation	Open	Governance

Australian Government				
Data Availability and Use Whole-of-Government Taskforce		Public Data Policy		Secretaries Data Group (SDG) Chair: PM&C
Platforms for open data	Freight Performance Measurement Program	Data.gov.au	National Map	Deputy Secretaries Data Group (DSDG) Chair: PM&C - DHS
National Innovation and Science Agenda (NISA)				Senior Officials Data Champions Network (DCN) Chair: Industry

Public Data Agenda Themes	
National Data Collection and Dissemination Plan for Transport and Infrastructure	Steering Group

Department Data and Information Management Strategic Objectives						
Data Quality and Value	Data-driven Decisions	Skills and Capability	Innovation and Productivity	Privacy and Security	Simple, Clear and Fast Digital Services	Strategic Information Technology and Security Committee (SITSC)

Department	
Performance Information Review	Audit Committee
National Data Collection and Dissemination Plan for Transport and Infrastructure	Steering Group
Freight Performance Measurement Program	
High-Value Data Projects	Strategic Information Technology and Security Committee (SITSC) and Data Reference Group (DRG)

Our Strategic Objectives and Actions needed to meet short-term, medium-term and long-term goals



```
mirror_mod = modifier_ob.  
# Add mirror object to mirror_mod  
mirror_mod.mirror_object = mirror_ob  
if operation == "MIRROR_X":  
    mirror_mod.use_x = True  
    mirror_mod.use_y = False  
    mirror_mod.use_z = False  
elif operation == "MIRROR_Y":  
    mirror_mod.use_x = False  
    mirror_mod.use_y = True  
    mirror_mod.use_z = False  
elif operation == "MIRROR_Z":  
    mirror_mod.use_x = False  
    mirror_mod.use_y = False  
    mirror_mod.use_z = True  
  
#selection at the end -add back to scene  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active = mirror_ob  
print("Selected" + str(modifier_ob.name))  
mirror_ob.select = 0  
# Get the selected object  
one = bpy.context.selected_objects[0]  
data.objects[one.name].select = 1  
  
print("please select exactly one object")  
  
----- OPERATOR CLASSES -----  
  
class MirrorX(bpy.types.Operator):  
    """Mirror X mirror to the selected object.mirror_mirror_x"""  
    bl_label = "Mirror X"  
  
    @classmethod  
    def poll(cls, context):  
        if context.active_object is not None:
```

Strategic Objective 1

Enrich data quality and value through governance¹ to ensure its availability, accuracy, integrity, applicability and security for the organisation to fulfil its purposes.

Actions

1. Establish the *Data and Information Management Governance Framework* (the legal, regulatory and business context) within which information assets are created, used and managed – for the approach and commitment to ensure accountability and resourcing of the planning, monitoring and management of data assets across the organisation.
2. Develop the *Data and Information Management Policy* to support the Strategy and governance framework.
3. Advance the governance role of the *Data Reference Group (DRG)* to monitor, evaluate and advise on data priorities, issues opportunities and projects to facilitate sharing of data across business units within Department and externally with other Australian Government entities, International administrations and publically.
4. Empower the *DRG* to support the *Strategic Information Technology and Security Committee (SITSC)* develop the Department's information technology and security requirements, and oversee the data requirements and determining data collection priorities.
5. Support the Department's Data Champion in their Data Champions Network that reports to the Deputy Secretaries Data Group on promoting the use, sharing and re-use of data within their organisation and across the Australian Public Service (APS).
6. Enable *sharing of data and information* within the Department and externally with other Australian government entities and the public by identifying and commissioning High-Value Data Projects that address key policy and/or service delivery matters.
7. Coordinate acquisition of data and research information to achieve economies of scale, avoid duplication and maximise reuse.

Performance Measure

Increased quality and value of data used to measure the annual departmental performance of its purposes.

.....
 "Fit-for-purpose governance arrangements will ensure the body undertaking the activity can operate efficiently and to a high standard... core principles are: clarity of purpose, accountability to the Parliament, transparency to the public, optimisation of efficiency and performance."²

¹ National Institute of Standards and Technology (NIST), Special Publications 1500-1 Big Data Interoperability Framework: Vol 1 Definitions, Sep- 2015

² Department of Finance , Governance Policy, Australian Government, Apr-2016



Strategic Objective 2

Advance data-driven decision-making through ICT architecture and systems that enable more rapid and comprehensive responses to policy related matters and delivery of services.

Actions

1. Invest in appropriate ICT architecture and systems that enable sharing and use of data and information: within the department; with other Australian government entities and the public, while maintaining security and privacy requirements.
2. Ensure currency of systems and architecture to keep pace with the external environment for the most apt technology to be available and enable business, sharing of data and information whilst upholding privacy and security requirements.
3. Embrace whole-of-Government evolving technologies and practices to improve the effectiveness and efficiency of Australian government data as a whole, such as the national data-centre, and centrally developed applications for discoverable, linked big data through liaising with the Department of Prime Minister and Cabinet and Data61 of the Commonwealth Scientific and Industrial Research Organisation (CSIRO).
4. Continue to resource application development and support to fulfil business priorities and objectives.
5. Coordinate pilot testing, procurement, rollout and training of state-of-the-art applications such as statistical modelling and data visualisation to capitalise on investments.
6. Increase discoverability of data through investment in enterprise search capability.

Performance Measure

Decreased response times and increased quality of data input to policy related matters and delivery of services.

.....
“A sound architecture framework will support government by providing a useful context for decision-making and help agencies develop capabilities needed for the future. In particular, it will support agencies to operate across traditional boundaries to improve service delivery and deliver more responsive policy implementation.”³

³ Information Management Office, Department of Finance, *Australian Government Architecture Reference Models, Version 3.0*, Australian Government, 2011



Strategic Objective 3

Boost foundational and specialised data skills and capability through learning and development programs and workforce planning to meet the organisation’s purposes with the changing environment.

Actions

1. Support the Department’s *Workforce Strategy 2016-19*⁴ implementation to:
 - Identify the relevant core and professional capabilities to build and strengthen the Department’s data analytical capability
 - Attract, develop and retain a workforce with enhanced data analytical capability.
2. Provide opportunities for all staff to develop *foundational data skills* to support evidence-based and informed decision making in policy development, programme management and service delivery.
3. Provide *specialised data skills* development for roles that require more advanced data skills, through a mix of undergraduate and graduate programs and fellowships for:
 - *Data analysts* to manipulate and interpret data for decision-making and to solve problems.
 - *Data policy and law experts* to monitor the effectiveness of controls. Resolve compliance challenges. Advise on legal rules and controls to meet applicable legislation and standards.
 - *Data scientists* as the hybrid experts in analysis and software programming possess strong business acumen, coupled with the ability to communicate findings.
 - *Data infrastructure engineers* to support the infrastructure required to make data applications and platforms available in agencies and across the public service.
 - *Data architects* ensure the design of data systems. Provide technical support for systems to undertake analysis, integrate, centralise, protect and maintain the data sources.
4. Monitor data skills and capability needs and priorities of the Department with those of its workforce to ensure it can meet its legislative, regulatory, service and operational requirements and organisational objectives through workforce-planning measures.
5. Foster an engaged *Data Community of Practice* to grow specialised data skills and capability through sharing knowledge, solving problems and stimulating innovation.

Performance Measure

Increased examples where data skills have been applied by individuals post learning, which have positively affected business outcomes and decisions.

.....
“Skills and knowledge in publishing, linking and sharing public data will help to make government services more citizen-focused.”⁵

⁴ Department of Infrastructure & Regional Development, ‘*Workforce Strategy 2016-19*’, Feb 2017

⁵ The Hon. Angus Taylor MP – Assistant Minister for Cities and Digital Transformation, Department of Prime Minister and Cabinet, *Data Skills and Capability*, Australian Government, 2016



Strategic Objective 4

Provide simpler, clearer and faster digital services through design and delivery standards to improve interaction in the planning and implementation of infrastructure, transport and regional development policies and programs.

Actions

1. Identify and prioritise candidate public-facing digital services to be simpler, clearer and faster through development and engagement with the *Digital Transformation Agency (DTA)* to meet the *Digital Service Standard*.
2. Investigate opportunities to integrate appropriate public facing digital services with government initiatives.
3. Continue to improve internal services to be user-centric, economic, and aid data sharing.

Performance Measure

Increased satisfaction of internal and external customers in digital services.

.....
"It will be simple and fast to get things done with government, through any channel. Government resources will be deployed with agility and performance better measured."⁶
.....

6 Digital Transformation Agency, Digital Transformation Agenda, Australian Government, 2016



Strategic Objective 5

Uphold privacy and security requirements through proactively managing risk to prevent, detect and respond promptly to incidents or breaches.

Actions

1. Continue to incorporate privacy and security by design to protect the:
 - a. Privacy rights of individuals in accordance with the *Privacy Act 1988* that regulates the handling of personal information throughout the information lifecycle, including collection, storage and security, use, disclosure, and destruction.
 - b. Security of information in compliance with the mandatory requirements of the *Protective Security Policy Framework (PSPF)* which provides policy, guidance and better practice advice for governance.
2. Improve efficiency in the provision of information in compliance with the *Freedom of Information Act 1982* through open data and digital services.
3. Engage Security Services early in the development of ICT solutions and assess all ICT systems in accordance with the *Information Security Manual (ISM)* Certification and Accreditation process to evaluate the level of criticality and risk for the Department.
4. Engage with the *Australian Government Security Network (AGSN)* to take advantage of innovative concepts through best practice security governance, design and risk management frameworks.
5. Proactively monitor emerging threats to establish risk-prioritised controls, detect breaches and incidences as early as possible to minimise the impact and respond rapidly to repair the damage, identify the failure points to develop and implement preventative measures that strengthen the Department's ability to recover in future.
6. Connect with the *Australian Cyber Security Centre (ACSC)* to streamline the cyber security governance and identify lead responsibilities within the Department to improve detection, deterrence and response to cyber security threats and vulnerabilities.
7. Leverage the *Australian Signals Directorate (ASD)* Certified Gateway and Cloud Services to maintain the PROTECTED gateway environment for government that has been Information Security Registered Assessors Program (IRAP) assessed and ASD certified, and adopt cloud services where it is fit for purpose, provides adequate protection of data and delivers value for money.
8. Maintain the privacy and security of all Australians whilst releasing non-sensitive data that does not identify an individual or breach privacy or security requirements by managing risk.

Performance Measure

Increased rates of detection, and decreased occurrence of incidences and breaches, and response periods.

.....
"The maintenance of our security online and the protection of freedom online are not only compatible but reinforce each other. A secure cyberspace provides trust and confidence for individuals, business and the public sector to share ideas, collaborate and innovate."⁷

⁷ The Hon Malcolm Turnbull MP – Prime Minister, Australia's Cyber Security Strategy, Australian Government, Department of Prime Minister and Cabinet, 2016



Strategic Objective 6

Inspire innovation and productivity through culture, collaboration, skills and capability and leadership to stimulate national social and economic prosperity.

Actions

1. Liaise with the *Data Availability and Use Taskforce* implement key recommendations to ensure the availability and use of data through best practices.
2. Implement the Department's *Innovation Agenda 2017* to generate new ideas and allow experimentation through the themes of disruption, discovery and data.
3. Lift the profile of the *Data Reference Group* within the department to promote an *open by default* data sharing culture, improve awareness, and discover opportunities for innovative use of data.
4. Evolve *InfoHub* as the centralised, collaboration workspace to coordinate and integrate departmental data and information initiatives.
5. Continue to empower linking and secure-sharing of data with other Australian Government entities for efficiencies and improved decision-making, policy development and programme management through participation in the Department of Prime Minister and Cabinet through *High-Value Data Projects* that address key policy and/or service delivery matters.
6. Explore opportunities to use big and open data and new digital technologies, particularly with industry, including geo-positioning, telematics and intelligence.⁸
7. Lead by example through publishing non-sensitive, high-value government data to *Data.gov.au* and *NationalMap.gov.au* that inspires innovation and productivity for the social and economic benefit of all Australians in accordance with the *Public Data Policy*.⁹
8. Engage key public stakeholders to identify data needs and barriers to data use and release to ensure data publishing is in order of value and priority.
9. Minimise Intellectual Property (IP) risk when publically publishing information and data through the *Australian Governments Open Access and Licensing (AusGOAL) Framework* for support and guidance to facilitate open access to publicly funded information.
10. Support the Australian Government's *National Action Plan (NAP)* under the *Open Government Partnership*¹⁰ (OGP) to improve transparency and accountability in business; open data and digital transformation; access to government information; integrity in the public sector; and public participation and engagement.
11. Utilise the *Australian National Innovation and Science Agenda*¹¹ and the *Global Innovation Strategy*¹² to deliver new sources of growth, maintain high-wage jobs and seize the next wave of economic prosperity through advancing innovation and science within the context of data and information management to infrastructure and regional development.

⁸ Darren Chester, Minister for Infrastructure and Transport, 'Inquiry into National Freight and Supply Chain Priorities – Terms of Reference', 09-Mar-2017

⁹ Department of Prime Minister and Cabinet, Public Data Policy Statement, Australian Government, Dec 2015

¹⁰ Department of Prime Minister and Cabinet, Open Government Partnership - Australia, Australian Government, Nov 2015

¹¹ Department of the Prime Minister and Cabinet, National Innovation and Science Agenda, 2015

¹² Department of industry, Innovation and Science, Global Innovation Strategy, Australian Government, Oct 2016

12. Engage in the *Public Sector Innovation Network*¹³ to provide a rich source of innovative capability through a community of peers who assist each other in creating, applying and sharing innovative ideas, over time, including identifying opportunities to collaborate with the academic sector.
13. Leverage whole of Government knowledge sharing resources, including the *Data Champions Network*, *Agency Data Analytics Centres*¹⁴ and *Data Analytics Centre of Excellence* forum.
14. Contribute to and participate in high profile public events, such as *GovHack*, to promote and support the development of skills and interest in big data analytics.

Performance Measure

Increased delivery of high-value data projects and publishing of high-value open datasets.

.....
"Innovation and science are critical for Australia to deliver new sources of growth, maintain high-wage jobs and seize the next wave of economic prosperity. Innovation is about new and existing businesses creating new products, processes and business models."¹⁵
.....

¹³ Department of industry, Innovation and Science, APS Innovation Action Plan, Australian Government, 2011

¹⁴ Subject to Federal budget approval, as mentioned in Data Champions Meeting 28 February, 2017

¹⁵ –Department of Prime Minister and Cabinet, *National Innovation and Science Agenda*, Australian Government, Dec 2015



Implementation Roadmap



SHORT-TERM GOALS

Strengthen governance of information, technology and security. Develop skills and capability

Increase release of public datasets as open data

Increase knowledge acquisition and application of data skills post learning

Increase quality and value of data used for departmental annual performance reporting



MEDIUM-TERM GOALS

Adapt and meet the changing needs of the Department

Improve policy, regulation, programme and service delivery resulting through increased and better use of data

Maximise data-sharing across Government entities and industry through High-Value Data Projects under the Department of Prime Minister and Cabinet

Increase user satisfaction with internal and external digital services



LONG-TERM GOALS

Increase community engagement to better understand and address evolving public and industry data needs

Ensure all objectives and actions are met and implemented

Revise strategy



Responsibilities

The Deputy Secretary is responsible for leading and monitoring the overall strategic direction of department data and information management. Both the Chief Information Security Officer and Department Data Champion have responsibility for implementing individual actions through division executive directors and corporate services across governance, finance, human resources, information, legal and security.

Reporting

Quarterly reports will be made to the Secretary from the Strategic Information Technology Committee on progress in achieving data and information management strategies in line with the *Governance Framework* document.

Review

Annual evaluation and review of the strategy will ensure it is still appropriate, that expected progress is occurring and, if not, determine what the barriers are. Reviews will also occur after significant changes such as restructure or changes in the regulatory environment.

Senior Executive Endorsement

The Deputy Secretary has endorsed the strategy through the foreword, recognising the importance of data and information in the Department and setting the expectation that staff will support the strategy.

