Australian Government

APS Data Capability Framework

Version 2

ACKNOWLEDGMENTS

The APS Data Profession acknowledges and thanks Stats NZ for the use of their Data Capability Framework. The APS Data Capability Framework (DCF) has drawn upon this framework, with additional themes included and amendments made to align with the APS context and Data Profession requirements.

This new iteration draws inspiration from the Skills Framework for the Information Age (SFIA), leveraging several data-specific SFIA skill descriptors to anchor the DCF's capability themes, capability items and levelling approaches.

We also thank the following agencies who have been pivotal in developing and testing this framework:

Attorney-General's Department

Australian Bureau of Statistics

Australian Financial Security Authority

Australian Public Service Commission

Australian Taxation Office

Commonwealth Grants Commission

Department of Agriculture, Fisheries and Forestry

Department of Defence

Department of Foreign Affairs and Trade

Department of Health, Disability and Aging

Department of Home Affairs

Department of Industry, Science and Resources

Department of Social Services

Department of Veteran's Affairs

Geoscience Australia

National Archives Australia

National Indigenous Australians Agency

Services Australia

CONTENT

INTRODUCTION

Data is a strategic asset across the Australian Public Service (APS), underpinning evidence-based policy, service delivery, and regulatory functions. As demand for professional data capabilities continues to grow, the importance of establishing the APS Data Profession to source, develop, and mobilise data expertise across the service has been crucial.

The APS Data, Digital and Cyber Workforce Plan 2025-30 aligns with broader government strategies and provides a coordinated approach to attract, develop and retain people with skills in these areas of growing need. Building a strong connection between data, digital and cyber is needed. This new iteration of the APS Data Capability Framework (DCF) draws inspiration from the Skills Framework for the Information Age (SFIA) to encourage greater collaboration across the APS and with industry and academia. By doing this, we hope to be better positioned to tackle shared capability challenges and build a strong future workforce.

The DCF primarily focuses on professional data capability requirements, while also recognising that data literacy is a foundational skill for all APS employees. All APS staff are encouraged to access appropriate data literacy resources to build their confidence and capability in working with data. As such, the DCF helps data professionals:

- recognise their current data capabilities and identify areas of strength or growth
- guide their capability measurement, development, performance, and career progression.

While not an exhaustive list of all data-related responsibilities, the framework outlines essential data competencies commonly required by APS data roles across agencies.

A key expectation for all APS data professionals is a strong understanding and application of data ethics – the principles guiding how data is collected, generated, analysed, and shared, and how these processes impact individuals and communities. Data professionals are expected to abide by:

- Their agency's data and information management policies
- The APS Data Ethics Framework
- Relevant laws, regulations, standards, and best practices

Additionally, data professionals should consider other important frameworks and policies, such as the:

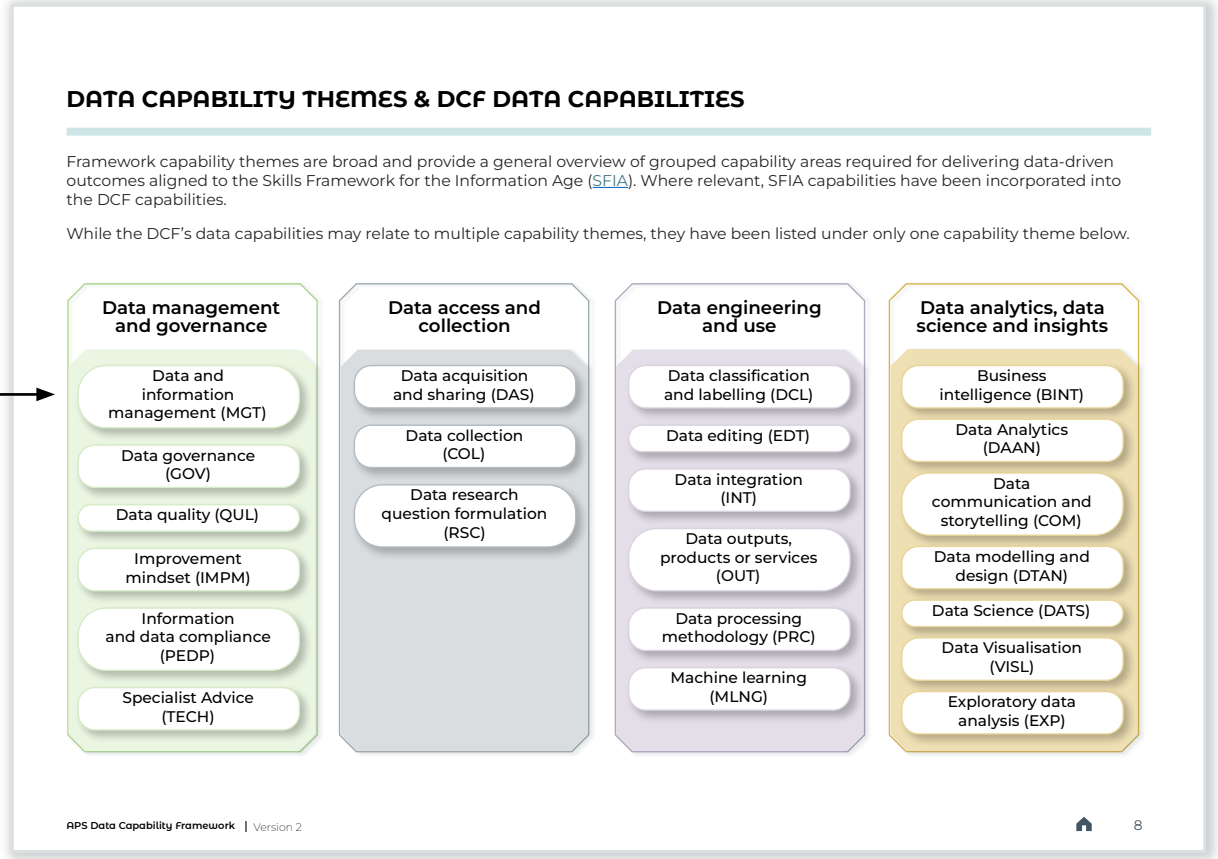
- Framework for Governance of Indigenous Data which provides guidance in improving governance practices for data related to Aboriginal and Torres Strait Islander people; and
- National Agreement on Closing the Gap which highlights the importance of partnerships with Aboriginal and Torres Strait Islander people, including shared decision-making and improved access to data.

The DCF supports these commitments by helping to build an APS workforce that is skilled in ethical and effective data use.

HOW TO USE THE FRAMEWORK

Click

CAPABILITY NAME
Linked to the pdf page



DATA CAPABILITY THEMES & DCF DATA CAPABILITIES

Framework capability themes are broad and provide a general overview of grouped capability areas required for delivering data-driven outcomes aligned to the Skills Framework for the Information Age (SFIA). Where relevant, SFIA capabilities have been incorporated into the DCF capabilities.

While the DCF's data capabilities may relate to multiple capability themes, they have been listed under only one capability theme below.

Data management and governance

- Data and information management (MGT)
- Data governance (GOV)
- Data quality (QUL)
- Improvement mindset (IMPM)
- Information and data compliance (PEDP)
- Specialist Advice (TECH)

Data access and collection

- Data acquisition and sharing (DAS)
- Data collection (COL)
- Data research question formulation (RSC)

Data engineering and use

- Data classification and labelling (DCL)
- Data editing (EDT)
- Data integration (INT)
- Data outputs, products or services (OUT)
- Data processing methodology (PRC)
- Machine learning (MLNG)

Data analytics, data science and insights

- Business intelligence (BINT)
- Data Analytics (DAAN)
- Data communication and storytelling (COM)
- Data modelling and design (DTAN)
- Data Science (DATS)
- Data Visualisation (VISL)
- Exploratory data analysis (EXP)

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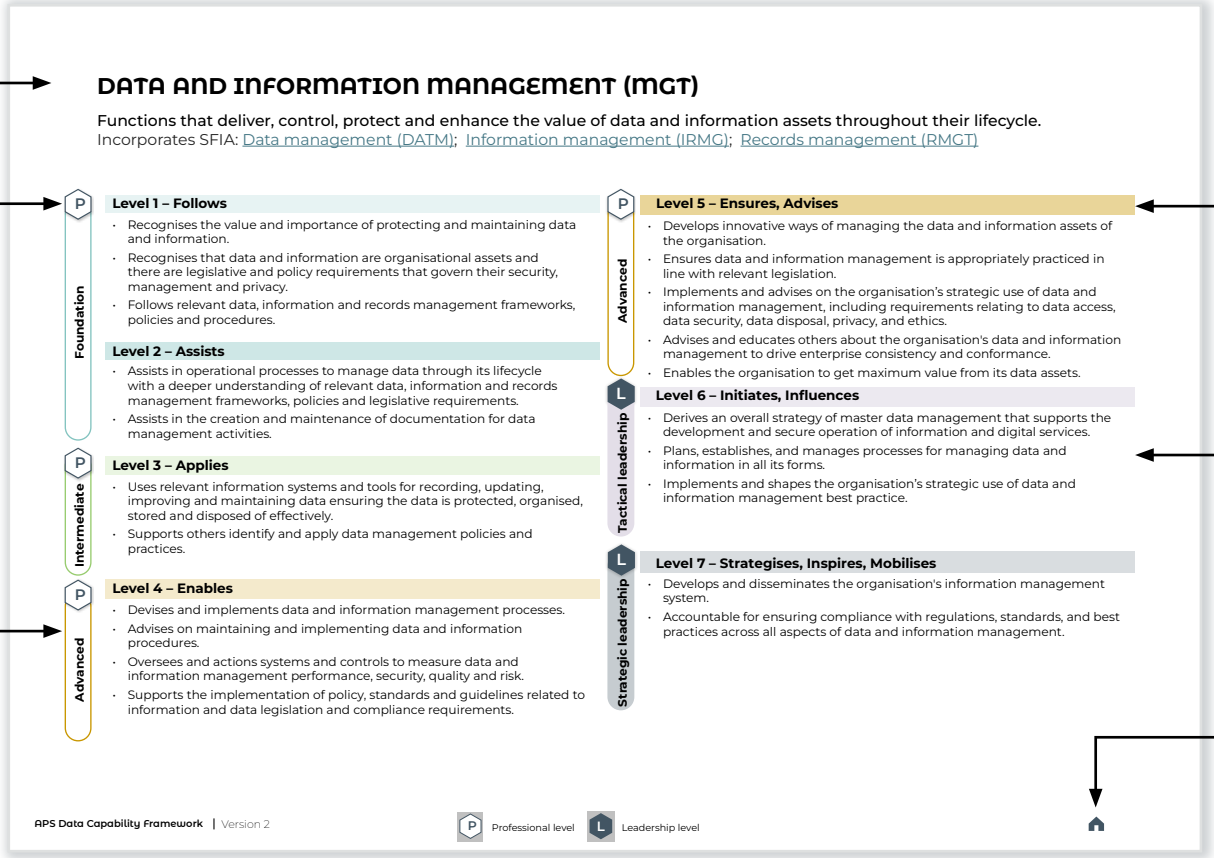
HOW TO USE THE FRAMEWORK

CAPABILITY NAME

1ST LEVEL DESCRIPTOR
Professional levels are indicated by an outlined hexagon. Leadership levels are indicated by a solid hexagon.

2ND LEVEL DESCRIPTOR



3RD LEVEL DESCRIPTOR
Describes the core behaviour/s.

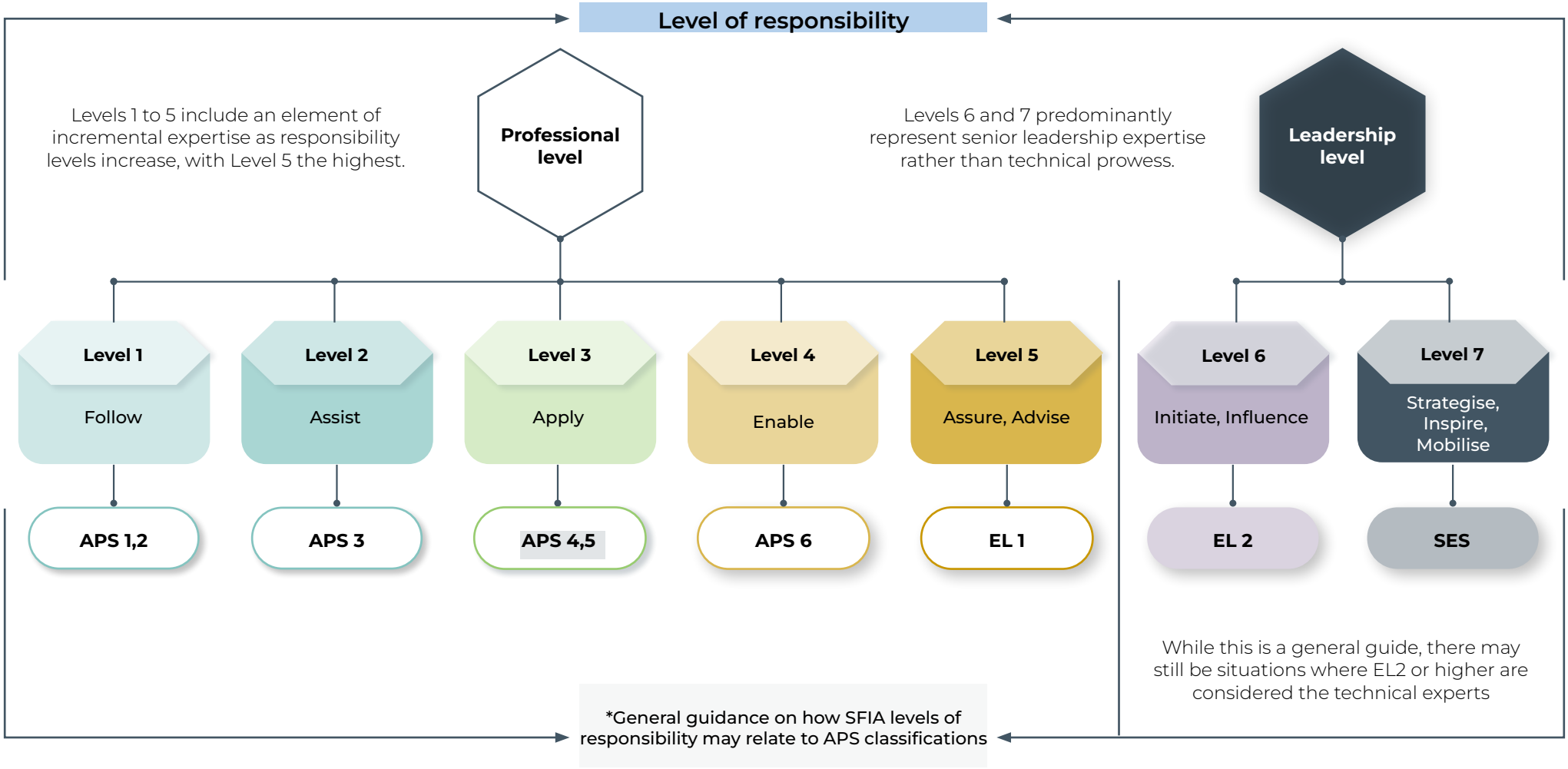
BEHAVIOURAL DESCRIPTORS

HOME ICON
Clicking the home icon will take you back to the capability contents page.

GENERAL GUIDE TO HOW PROFICIENCY LEVELS MAY RELATE TO APS LEVELS

THE 7 LEVELS OF RESPONSIBILITY

Although the level descriptors include some elements of expertise, their primary focus is on work-related behavioural examples that reflect levels of responsibility and consider factors such as autonomy, influence, work complexity and accountability.



DATA CAPABILITY THEMES & DCF DATA CAPABILITIES

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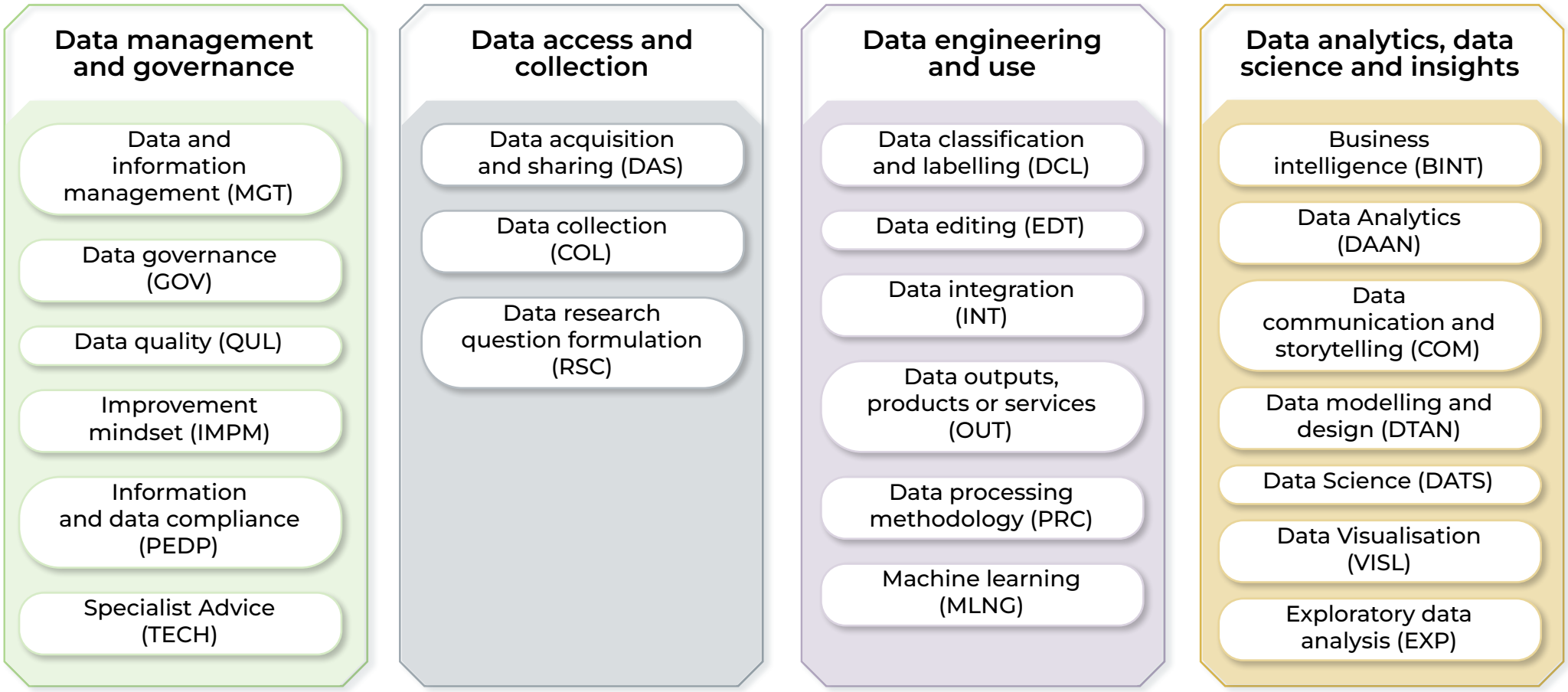
Although the DCF's data capabilities may align with multiple themes, each has been assigned to the most relevant capability theme below.



DATA AND INFORMATION MANAGEMENT (MGT)

Functions that deliver, control, protect and enhance the value of data and information assets throughout their lifecycle.
Incorporates SFIA: Data management (DATM); Information management (IRMG); Records management (RMGT)

P Foundation

Level 1 – Follows

- Recognises the value and importance of protecting and maintaining data and information.
- Recognises that data and information are organisational assets and there are legislative and policy requirements that govern their security, management and privacy.
- Follows relevant data, information and records management frameworks, policies and procedures.

Level 2 – Assists

- Assists in operational processes to manage data through its lifecycle with a deeper understanding of relevant data, information and records management frameworks, policies and legislative requirements.
- Assists in the creation and maintenance of documentation for data management activities.

P Intermediate

Level 3 – Applies

- Uses relevant information systems and tools for recording, updating, improving and maintaining data ensuring the data is protected, organised, stored and disposed of effectively.
- Supports others identify and apply data management policies and practices.

P Advanced

Level 4 – Enables

- Devises and implements data and information management processes.
- Advises on maintaining and implementing data and information procedures.
- Oversees and actions systems and controls to measure data and information management performance, security, quality and risk.
- Supports the implementation of policy, standards and guidelines related to information and data legislation and compliance requirements.

P Advanced

Level 5 – Ensures, Advises

- Develops innovative ways of managing the data and information assets of the organisation.
- Ensures data and information management is appropriately practiced in line with relevant legislation.
- Implements and advises on the organisation's strategic use of data and information management, including requirements relating to data access, data security, data disposal, privacy, and ethics.
- Advises and educates others about the organisation's data and information management to drive enterprise consistency and conformance.
- Enables the organisation to get maximum value from its data assets.

L Tactical leadership

Level 6 – Initiates, Influences

- Derives an overall strategy of master data management that supports the development and secure operation of information and digital services.
- Plans, establishes, and manages processes for managing data and information in all its forms.
- Implements and shapes the organisation's strategic use of data and information management best practice.

L Strategic leadership

Level 7 – Strategises, Inspires, Mobilises

- Develops and disseminates the organisation's information management system.
- Accountable for ensuring compliance with regulations, standards, and best practices across all aspects of data and information management.

DATA GOVERNANCE (GOV)

Data governance ensures data is managed properly. It oversees all other data management functions (without directly executing them). It is the exercise of authority and control (planning, monitoring, and enforcement) over the management of data assets.

Incorporates SFIA: Data management (DATM); Governance (GOVN)

P Foundation

Level 1 – Follows

- Recognises the importance of good governance practices for data access, data security, privacy, and ethics.
- Follows relevant data governance frameworks, policies and procedures .

Level 2 – Assists

- Assists in data governance processes with a deeper understanding of relevant data governance frameworks, policies and legislative requirements.

P Intermediate

Level 3 – Applies

- Applies under general direction relevant data governance frameworks, policies and legislative requirements.
- Understands the organisation's data governance frameworks.
- Communicates the details of the organisation's data management framework to others, helping with their understanding and compliance.

P Advanced

Level 4 – Enables

- Contributes to and supports implementation of the organisation's data governance framework. Advises on maintaining and implementing data and information procedures.
- Monitors the implementation of effective controls.

Level 5 – Ensures, Advises

- Advises on data governance policies and contributes to the content of the organisational data governance frameworks.
- Maintains awareness of new legislative requirements and trends that impact good data governance and ensures organisational compliance with these.
- Implements and advises on the organisation's strategic use of data and information. Identifies issues that might prevent the organisation from meeting its governance goals.
- Advises on implementing compliance controls in products, services and systems.
- Maintains an inventory of legislated data, conducts risk assessments and specifies necessary changes.

L Tactical leadership

Level 6 – Initiates, Influences

- Implements the data governance framework to enable governance activities to be conducted.
- Develops strategies for compliance with information and data legislation.
- Acts as the organisation's contact for relevant regulatory authorities and ensures proper relationships between the organisation and external stakeholders.
- Determines the requirements for appropriate data governance reflecting the organisation's values, ethics and wider governance frameworks.
- Reviews data governance practices with appropriate and sufficient independence from management activity.

L Strategic leadership

Level 7 – Strategises, Inspires, Mobilises

- Directs the definition, implementation and monitoring of the data governance framework to meet organisational obligations under regulation, law, or contracts.
- Provides leadership, direction and oversight for governance activities.
- Integrates risk management into frameworks, aligning with strategic objectives and risk appetite.
- Secures resources required to execute activities to achieve the organisation's governance goals with effective transparency.
- Provides assurance to stakeholders that the organisation can deliver its obligations with an agreed balance of benefits, opportunities, costs and risks.

DATA QUALITY (QUL)

Applying measures to ensure that data being used or produced is fit for purpose.
Incorporates SFIA: Quality assurance (QUAS); Information assurance (INAS)

P Foundation

Level 1 – Follows

- Follows clear instruction when assisting others.
- Recognises the importance of data quality standards and measures.

Level 2 – Assists

- Recognises the importance of data quality standards and measures and knows where to access these for the data they use.
- Assists in quality assurance activities under direction.
- Helps identify and report quality issues and discrepancies.

P Intermediate

Level 3 – Applies

- Applies data quality measures for the data they use.
- Analyses and assesses the quality of data and the need for change to correct deficiencies.
- Supports data quality assurance activities by reviewing records to ensure compliance with quality standards and measures.

P Advanced

Level 4 – Enables

- Plans, organises, and conducts data quality assurance and remediation activities.
- Advises and guides others on data quality standards and measures.
- Plans, organises, and conducts complex data quality assurance and remediation activities.

Level 5 – Ensures, Advises

- Advises and educates others on data quality standards and measures.
- Reviews data quality compliance and reports on findings and associated risks.
- Identifies opportunities to improve organisational quality control mechanisms.
- Contributes to the development of policies, standards and measures.

L Tactical leadership

Level 6 – Initiates, Influences

- Ensures data quality assurance activities are effective and fit for purpose.
- Develops organisational approaches to data quality assurance.
- Contributes to the development of organisational strategies that address the evolving business risk and information control requirements.

L Strategic leadership

Level 7 – Strategises, Inspires, Mobilises

- Directs the creation and review of an enterprise data quality assurance strategy to support the strategic requirements of the business.
- Ensures compliance between business strategies and data quality assurance by setting strategies, policies, standards and practices.

IMPROVEMENT MINDSET (IMPM)

Continuously identifying opportunities to refine work practices, processes, products, or services for greater efficiency and impact.
SFIA: Improvement mindset (IMPM)

P Foundation

Level 1 – Follows

- Identifies opportunities for improvement in own tasks. Suggests basic enhancements when prompted.

Level 2 – Assists

- Proposes ideas to improve tasks and functions in own work area.
- Implements agreed changes to assigned work tasks.

P Intermediate

Level 3 – Applies

- Identifies and implements improvements in own work area.
- Contributes to enhancing team-level processes and tasks.

P Advanced

Level 4 – Enables

- Encourages and supports team discussions on improvement initiatives.
- Implements procedural changes within a defined scope of work.

Level 5 – Ensures, Advises

- Identifies and evaluates potential improvements to products, practices, or services.
- Leads implementation of enhancements within own area of responsibility.
- Assesses effectiveness of implemented changes.

L Tactical leadership

Level 6 – Initiates, Influences

- Drives improvement initiatives that have a significant impact on the organisation.
- Aligns improvement strategies with organisational objectives.
- Engages stakeholders in improvement processes.

L Strategic leadership

Level 7 – Strategises, Inspires, Mobilises

- Defines and communicates the organisational approach to continuous improvement.
- Cultivates a culture of ongoing enhancement.
- Evaluates the impact of improvement initiatives on organisational success.

INFORMATION AND DATA COMPLIANCE (PEDP)

Implementing and promoting compliance with information and data management legislation.
SFIA: Information and data compliance (PEDP)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Is aware of information and data compliance activities.

Level 2 – Assists

- Assists in information and data compliance activities under direction.
- Helps identify and report noncompliance issues and discrepancies.

P Intermediate

Level 3 – Applies

- Understands the organisation's information and data legislative obligations and what would be considered non-compliance.
- Communicates the details of the organisation's information and data management framework to others, helping with their understanding and compliance.
- Supports information and data compliance activities to ensure compliance with information and data legislation.

P Advanced

Level 4 – Enables

- Supports the implementation of policy, standards and guidelines related to information and data legislation and compliance requirements.
- Monitors the implementation of effective controls for internal delegation, audit and control relating to information management.
- Reports on the consolidated status of information controls to inform effective decision-making.
- Identifies risks around the use of information and data that is subject to the organisation's specific legislation. Recommends remediation actions as required.

P Advanced

Level 5 – Ensures, Advises

- Contributes to organisational policies, standards and guidelines for information and data compliance.
- Provides authoritative advice on implementing compliance controls in products, services and systems.
- Investigates breaches and recommends control improvements. Maintains an inventory of legislated data, conducts risk assessments and specifies necessary changes.
- Ensures formal requests and complaints are handled following procedures. Prepares and submits reports to relevant authorities, ensuring all compliance requirements are met.

L Tactical leadership

Level 6 – Initiates, Influences

- Develops strategies for compliance with information and data legislation.
- Ensures that organisational policies and standards for compliance with information and data legislation are fit for purpose, current and correctly implemented.
- Acts as the organisation's contact for relevant regulatory data governance authorities and ensures proper relationships between the organisation and external stakeholders.
- Operates as a focus for information and data legislation for the organisation, working with specialists to provide authoritative advice and guidance.

SPECIALIST ADVICE (TECH)

Providing authoritative, professional advice and direction in a specialist area.
SFIA: Specialist advice (TECH)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.

Level 2 – Assists

- Develops knowledge in one or more data specialisms.

P Intermediate

Level 3 – Applies

- Applies knowledge and provides advice checked by others.
- Actively maintains and further develops knowledge in one or more data specialisms.

P Advanced

Level 4 – Enables

- Provides detailed and specific advice to support the organisation's planning and operations, typically related to the immediate area of responsibility.
- Actively maintains recognised expert level knowledge in one or more identifiable data specialisms.
- Recognises and identifies the boundaries of their own specialist knowledge.
- Where appropriate, collaborates with other specialists to ensure advice given is professionally sound and appropriate to the organisation's needs.

P Advanced

Level 5 – Ensures, Advises

- Provides professional advice that informs leadership and influences the translation of strategy into operations in their specialist area.
- Integrates knowledge from various sources, including third-party experts, to deliver cohesive and professional guidance that advances organisational data goals.
- Supports and promotes the development and sharing of specialist knowledge within the organisation.

L Tactical leadership

Level 6 – Initiates, Influences

- Leads and promotes the development and application of specialist data knowledge across the organisation, delivering professional advice that shapes direction and high-level decisions.
- Maintains a network of internal and external recognised subject matter experts who can deliver expert advice in relevant areas of data and data operations.
- Proactively shapes professional development strategies across a significant part of the organisation to enhance relevant data expertise and ensure the delivery of high-quality professional advice.

DATA ACQUISITION AND SHARING (DAS)

Guiding internal and external stakeholders/clients and provisioning their access to data, and the re-use of data for alternative purposes. Identifying existing and new data sources that can be accessed and used from varied sources.

Incorporates SFIA: Data engineering (DENG)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others .
- Identifies the range of available options to access common data sources.

Level 2 – Assists

- Recognises the range of available options to access common data sources with an understanding of data limitations and gaps and seeks support in evaluating as needed.
- Assists others by performing administrative tasks to provide data accessibility, retrievability, security and protection.
- Supports the monitoring of data pipeline operations, identifying issues and escalating as needed.

P Intermediate

Level 3 – Applies

- Applies an understanding of any data limitations and gaps when identifying and evaluating internal and external sources of data.
- Applies basic data sharing guidelines and organisational procedures to support the re-use of their data by others.
- Collects and evaluates data by following established processes, systems and tools.
- Knows the relevant protocols associated with data access.
- Contributes to data migration and conversion projects, ensuring data integrity and consistency.
- Conducts routine data quality checks and remediation.

P Advanced

Level 4 – Enables

- Understands and amends existing code (programming language) to collect data.
- Mitigates issues arising from different data collection methods.
- Designs, implements and maintains complex data engineering solutions to acquire and prepare data.
- Advises on approaches to make data usable and re-usable.
- Implements a variety of techniques to ensure data is open and can be used beyond the specific purpose for which it was collected, in accordance with legislative requirements and organisational guidelines.
- Conducts complex data quality checking and remediation. Leads data migration and data conversion activities.

P Advanced

Level 5 – Ensures, Advises

- Advises on best practice for data use and re-use.
- Advises on new data sourcing approaches, identifying new ways of using existing sources of data, or providing actionable high-level advice on data access.
- Promotes re-use and ongoing value of data across wider contexts, in accordance with legislative requirements and organisational guidelines.
- Writes custom scripts and code (programming language) to source and combine administrative data.
- Monitors application of data standards, architectures and security, ensuring compliance and scalability.
- Develops and promotes continuous integration, deployment and monitoring practices and contributes to organisational policies, standards and guidelines for data engineering.

L Tactical leadership

Level 6 – Initiates, Influences

- Maintains understanding of new trends and innovations relating to sourcing data (including Artificial Intelligence-based technologies) and develops capabilities in these where relevant.
- Makes justifiable decisions about how data is collected.
- Develops organisational policies, standards and guidelines for the development and secure operation of data services and products.
- Leads the selection and development of data acquisition and sharing methods, tools and techniques.

L Strategic leadership

Level 7 – Strategises, Inspires, Mobilises

- Defines and communicates the organisational approach to data acquisition and sharing.
- Cultivates a culture of ongoing enhancement.

DATA COLLECTION (COL)

Gathering data and useful information, related to a topic of interest, in an established and systematic way. Examples include acquiring administrative data and collecting data through interviews and surveys.

Incorporates SFIA: Data engineering (DENG)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others .
- Identifies data collection methods.

Level 2 – Assists

- Collects data using a variety of established methods, such as surveys, interviews, observations, or automated tools, with minimal supervision.
- Identifies any issues that may hinder data and information collection and finds appropriate solutions or escalates as required.
- Identifies and addresses minor issues in data quality, performing initial checks for accuracy and completeness.

P Intermediate

Level 3 – Applies

- Collects data by following established processes, systems, and tools.
- Designs and implements data collection plans, selecting appropriate methods based on goals and data requirements.
- Monitors data quality throughout the collection process, resolving issues and ensuring the reliability and validity of data.
- Applies relevant data collection and processing methodologies.

P Advanced

Level 4 – Enables

- Develops and/or optimises data collection processes and tools to improve efficiency and data quality.
- Evaluates and adapts data collection approaches in response to changing project needs or requirements.
- Conducts data quality assurance and remediation activities.
- Evaluates and monitors various data collection methodologies.
- Advises on appropriate data collection methodologies for various applications.

P Advanced

Level 5 – Ensures, Advises

- Conducts in-depth quality assurance checks and advises on data validation and verification techniques.
- Advises on complex data collection projects, educating and mentoring others and providing strategic guidance on data governance and ethical considerations.
- Develops new and improved methodologies for data collection and processing, in line with best practice and emerging trends.
- Ensures appropriate data collection methodologies are applied.

L Tactical leadership

Level 6 – Initiates, Influences

- Leads the selection and development of data collection methods, tools and techniques ensuring alignment with strategic goals and compliance with regulatory requirements.
- Innovates data collection methodologies, leveraging new technologies and techniques to enhance data accuracy and relevance.
- Develops policy, standards, and guidelines for developing, evaluating, monitoring and deploying data methodologies.

DATA RESEARCH QUESTION FORMULATION (RCS)

Formulating questions about the topic of interest to guide qualitative and/or quantitative research .
Incorporates SFIA: Data engineering (DENG)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Understands basic principles of data analysis and research question formulation.
- Identifies general data needs and basic metrics relevant to initial questions but requires supervision to ensure alignment with analysis goals.

Level 2 – Assists

- Develops clear, specific research questions for straightforward data analysis projects aligned with business objectives.
- Identifies relevant data sources and basic variables to address research questions, ensuring initial alignment with project goals.
- Refines questions to improve clarity and relevance based on initial findings or project discussions.
- Identifies any issues that may hinder data and information collection and finds appropriate solutions or escalates as required.

P Intermediate

Level 3 – Applies

- Formulates well-structured research questions for moderately complex data analysis, using critical thinking to address business needs.
- Identifies key metrics and data sources to answer questions effectively, collaborating with stakeholders to ensure relevance and clarity.
- Adjusts questions as needed based on initial data insights, refining focus to improve analytical outcomes and answer broader business challenges.

P Advanced

Level 4 – Enables

- Leads the formulation of research questions for complex, multi-faceted data analysis projects, ensuring alignment with strategic objectives.
- Integrates cross-functional insights to create comprehensive, forward-looking research questions that address complex business issues.
- Guides others in refining their research questions, promoting best practices in question formulation and data alignment.

Level 5 – Ensures, Advises

- Establishes frameworks and best practices for formulating data analysis research questions across the organisation.
- Advises on strategic question formulation for high-impact analysis, considering long-term business goals, industry trends, and emerging opportunities.
- Coaches, mentors or educates others in developing sophisticated, hypothesis-driven research questions that drive insightful, actionable analysis for strategic decision-making.

L Tactical leadership

Level 6 – Initiates, Influences

- Develops organisational research policies and sets guidelines for the formulation of research questions.

DATA CLASSIFICATION AND LABELLING (DCL)

Interpreting information to apply classifications, labels and metadata based on specific knowledge, standards and guidelines to make data easier to analyse and use.
Incorporates SFIA: Analytical classification and coding (ANCC)..

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.

Level 2 – Assists

- Accurately assigns classications/ labels to low complexity information under supervision.
- Understands and applies relevant classication/ labelling systems, standards and guidelines.
- Understands the concept of metadata, including its purpose and benets.
- Participates in quality assurance activities such as peer review or supervisor checks.

P Intermediate

Level 3 – Applies

- Independently assigns accurate classications/ labels to a broad range of information.
- Interprets complex information and chooses appropriate classications/ labels.
- Understands there are different ways to summarise data and has a basic understanding of commonly used metadata options.
- Advises and guides others on classication and labelling/ metadata practices.

P Advanced

Level 4 – Enables

- Assigns classications and labels/ metadata to highly complex information.
- Performs quality assurance checks on the work of others. Investigates and corrects complex classication/ labelling errors.
- Analyses the use of metadata and makes changes to improve understanding and effective use.
- Accesses metadata and uses the descriptors to better understand existing data and effectively use it.
- Contributes to the development of classication and labelling/ metadata processes and guidelines.

Level 5 – Ensures, Advises

- Leads team quality assurance and training for information classication/ labelling. Maintains knowledge of best practice, including standards and applications.
- Develops and implements audit methodologies for assessing classication and labelling accuracy and consistency.
- Collaborates with subject matter experts to improve source information quality. Analyses and reports on classication/ labelling quality.
- Contributes to organisational information classication and labelling/ metadata strategies.

L Tactical leadership

Level 6 – Initiates, Influences

- Sets organisational information classication and labelling/ metadata standards, policies and procedures.
- Leads strategic initiatives to enhance information classication/ labelling.
- Engages and collaborates to dene and impr ove standards and working practices.

DATA EDITING (EDT)

Checking data for consistency, errors and outliers, and correcting errors.
Incorporates SFIA: Data engineering (DENG)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Is aware of the guidelines, methods and procedures for editing data.

Level 2 – Assists

- Assists others by performing administrative tasks to provide data accessibility, retrievability, security and protection.
- Knows where to access relevant methods and understands method fundamentals.

P Intermediate

Level 3 – Applies

- Applies established guidelines, methods, and procedures when editing data.
- Conducts routine data quality checks and remediation.

P Advanced

Level 4 – Enables

- Performs a broader range and more complex data editing techniques when editing data.
- Advises on appropriate data editing methods for various applications.
- Conducts complex data quality checking and remediation.

Level 5 – Ensures, Advises

- Advises on highly complex data editing concepts and methods.
- Advises on new innovations relating to data editing methods and develops skills in these where relevant.
- Contributes to organisational policies, standards, and guidelines on data editing.

L Tactical leadership

Level 6 – Initiates, Influences

- Develops organisational policies, standards, and guidelines on data editing.
- Leads the selection and development of data editing methods, tools and techniques.

DATA INTEGRATION (INT)

Combining multiple datasets together to form a larger dataset, aiming to maximise the value of the data.
Incorporates SFIA: Data engineering (DENG)

P Foundation

Level 1 – Follows

- Understands basic data integration concepts and follows instructions to support simple data merging tasks.

Level 2 – Assists

- Assists in combining data from pre-dened sour ces using standard tools and methods, integrating multiple datasets.
- Identies and addr esses minor inconsistencies or gaps, ensuring data alignment and preparing data for analysis.
- Understands the fundamentals of data quality and consistency and works to enhance the value of combined datasets within specic pr ojects.

P Intermediate

Level 3 – Applies

- Applies a range of tools to ensure integrated datasets integrity and consistency.
- Recognises relationships and dependencies across datasets, enhancing data quality and preparing for advanced analysis.
- Collaborates with data and business teams to align data integration with project goals, optimising data value for broader insights.
- Conducts routine data quality checks and remediation.

P Advanced

Level 4 – Enables

- Performs complex data integration using a variety of data integration practices and principles.
- Contributes to data integration activities across teams, designing processes and methods to combine data from multiple sources in alignment with organisational goals.
- Identies and r esolves complex data quality and consistency issues, ensuring data integrity for high-impact analyses.
- Conducts complex data quality checking and remediation.
- Develops best practices for data integration, advising teams on maximising data value through comprehensive and accurate data merging.

P Advanced

Level 5 – Ensures, Advises

- Ensures data integration methods, tools and techniques are being appropriately applied.
- Provides thought leadership and mentorship in data integration, ensuring that data is consistently combined to support business intelligence, analytics, and decision-making at all levels.
- Innovates data integration approaches, leveraging new technologies, trends and methodologies to maximise data value for strategic insights.
- Contributes to organisational policies, standards and guidelines for data engineering.

L Tactical leadership

Level 6 – Initiates, Influences

- Shapes the organisation's data integration approaches, establishing frameworks and advanced methods to integrate data across departments and platforms.
- Develops organisational policies, standards, and guidelines on data integration.

DATA OUTPUTS, PRODUCTS OR SERVICES (OUT)

Delivering data-related usable items and services.
Incorporates SFIA: Data engineering (DENG)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Is aware of the steps involved to produce a data output, product or data service.

Level 2 – Assists

- Knows where to obtain advice on data outputs, products and/or services as required.
- Assists others to produce a data output, product or data service. Understands the steps involved and the decisions made at each of those steps.

P Intermediate

Level 3 – Applies

- Creates and delivers data outputs, products, or services in accordance with established processes and systems.
- Explains decisions made at all stages related to data outputs, products, or services.
- Contributes to data migration and conversion projects, ensuring data integrity and consistency.

P Advanced

Level 4 – Enables

- Produces and assures the quality of data outputs, products, and services.
- Leads data migration and data conversion activities.

Level 5 – Ensures, Advises

- Provides expert knowledge on one or more data output, product, or service.
- Develops and implements new data outputs, products, or services to meet evolving requirements, needs and opportunities.

L Tactical leadership

Level 6 – Initiates, Influences

- Develops organisational policies, standards and guidelines for the development and secure operation of data services and products.

DATA PROCESSING METHODOLOGY (PRC)

Understanding and/or applying the statistical methods and standards used to deal with intermediate data and statistical outputs, e.g., weighting schemes, statistical adjustment, or methods for imputing missing values or source data.

Incorporates SFIA: Data science (DATS)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Is aware of the statistical methods and standards used.

Level 2 – Assists

- Assists others by performing administrative tasks to prepare data for use by data science models.
- Analyses and suggests improvements in how data is processed.
- Addresses simple issues, using algorithms included within standard software frameworks and tools.

P Intermediate

Level 3 – Applies

- Applies the proper processing methodology for the data being used.

P Advanced

Level 4 – Enables

- Evaluates and monitors various data processing methodologies.
- Advises on appropriate data processing methodologies for various applications.
- Investigates problems and data assets to assess the usefulness of data processing methodologies.

Level 5 – Ensures, Advises

- Advises on new innovations relating to data processing methodology and develops skills in these where relevant.
- Ensures appropriate data processing methodologies are applied.
- Identies and justi es what dat a sources to use or acquire.

L Tactical leadership

Level 6 – Initiates, Influences

- Develops and drives adoption and adherence to organisational policies, standards and guidelines that relate to deploying data processing methodologies.
- Sets direction and leads in the introduction and use of various data processing methodologies.

MACHINE LEARNING (MLNG)

Developing systems that learn from data and experience, improving performance, accuracy and adaptability in dynamic environments.
SFIA: Machine learning (MLNG)

P Foundation

Level 1 – Follows

- Understands the importance of good organisational machine learning frameworks and tools for responsible use of machine learning.

Level 2 – Assists

- Assists in data preparation, model training and evaluation tasks under routine supervision.
- Applies, under general direction, standard machine learning frameworks and tools to develop basic models for well-dened pr oblems.
- Documents results and contributes to maintaining machine learning solutions.

P Intermediate

Level 3 – Applies

- Applies established machine learning techniques and algorithms to enable organisational solutions.
- Selects and prepares data for model training and evaluation.

P Advanced

Level 4 – Enables

- Assesses the suitability of machine learning and designs and develops solutions for a range of business problems.
- Selects and applies appropriate techniques and algorithms based on data characteristics and business requirements. Provides guidance to others.
- Designs features and enhances model performance. Develops, evaluates, monitors and deploys algorithms. Contributes to and supports implementation of organisation's specic r egulations, conducts risk assessments and species nec essary changes.
- Collaborates with cross-functional teams to integrate machine learning models into production systems. Conducts in-depth performance analysis and troubleshoots issues.

P Advanced

Level 5 – Ensures, Advises

- Leads the development and implementation of machine learning solutions for complex, high-impact business problems.
- Designs comprehensive machine learning pipelines and systems, integrating Machine Learning Operations (MLOps) practices and tools. Assesses and chooses tools, frameworks, and infrastructure for machine learning projects.
- Establishes practices and standards for machine learning development and operations. Provides expert advice and guidance on machine learning techniques and applications.
- Collaborates with stakeholders to align machine learning initiatives with organisational goals.

L Tactical leadership

Level 6 – Initiates, Influences

- Sets the strategic direction and roadmap for machine learning adoption and innovation within the organisation.
- Establishes governance frameworks and recommended protocols for responsible, ethical and sustainable development and use of machine learning.
- Leads the development of organisational capabilities, policies, standards and guidelines in machine learning.
- Collaborates with senior stakeholders to identify high-impact opportunities for machine learning and drives their implementation. Follows research and industry trends and integrates them into organisational practices.

BUSINESS INTELLIGENCE (BINT)

Developing, producing and delivering regular and one-off management information to provide insights and aid decision-making.
SFIA: Business Intelligence (BINT)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.

Level 2 – Assists

- Assists with the creation of regular business intelligence reports using standard tools.
- Supports data preparation from existing sources.

P Intermediate

Level 3 – Applies

- Sources and prepares data for analysis and performs standard business intelligence analysis activities.
- Checks the integrity and validity of data sources. Creates and delivers standard reports in accordance with stakeholder needs and conforming to agreed standards.
- Investigates the need for new or revised business intelligence analysis.
- Contributes to the recommendation of improvements. Engages with stakeholders under direction.

P Advanced

Level 4 – Enables

- Supports business intelligence needs of specic management or governance processes or operational areas.
- Investigates the need for business intelligence reporting and analysis where there is some complexity and ambiguity.
- Uses non-standard business intelligence tools to provide insights and support decision-making. Collects, integrates and checks the quality and integrity of data for analysis.
- Identies oppor tunities to digitise and streamline operational data handling and optimise business intelligence capabilities.

P Advanced

Level 5 – Ensures, Advises

- Plans and manages business intelligence activities.
- Ensures business intelligence processes are robust, efc ient and suitable, emphasising automation, key controls and data quality. Advises on standards, procedures, methods, tools and techniques.
- Manages reviews of the benets and v alue of business intelligence techniques and tools and recommends improvements.
- Contributes to the development of analytics policies, standards and guidelines.

DATA ANALYTICS (DAAN)

Enabling data-driven decision making by extracting, analysing and communicating insights from structured and unstructured data.
SFIA: Data analytics (DAAN)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Identies dat a preparation and analysis activities.

Level 2 – Assists

- Assists in data preparation and analysis activities under direction.
- Processes and validates data to support analytics.
- Generates standard reports and insights using established tools and methods.

P Intermediate

Level 3 – Applies

- Supports data analytics by gathering and preparing data from multiple sources.
- Applies analytical and statistical methods and software tools to analyse data and develop reports.
- Assists in identifying trends, patterns and insights that inform business decisions.
- Collaborates with team members to rene anal ysis techniques and maintain data quality.

P Advanced

Level 4 – Enables

- Conducts end-to-end data analysis, dening dat a requirements and ensuring data integrity.
- Applies advanced analytical and statistical techniques to extract meaningful insights and develop predictive models.
- Communicates complex ndings t o stakeholders in an understandable manner.
- Contributes to the development of data analytics processes and standards.
- Identies oppor tunities for improving data analytics practices.

P Advanced

Level 5 – Ensures, Advises

- Manages data analytics activities, establishing frameworks and methodologies aligned with business objectives and data governance policies.
- Leads the implementation of data analytics solutions. Translates business needs into analytics requirements and identies dat a-driven solutions.
- Guides the selection and application of advanced analytical techniques.
- Communicates insights and recommendations to senior stakeholders, inuenc ing strategic decisions.

L Tactical leadership

Level 6 – Initiates, Influences

- Develops organisational strategies and roadmaps for data analytics.
- Sets policies, standards and recommended practices for the use of data and data analytical techniques.
- Leads initiatives to build data analytics capabilities and develop a data-driven culture.
- Oversees the delivery of analytics projects and programs. Promotes the ethical use of data and data analytics.

L Strategic leadership

Level 7 – Strategises, Inspires, Mobilises

- Leads the development and assessment of an organisation-wide strategy and culture for leveraging data analytics and data science.
- Promotes the use of data analytics and data science to improve organisational performance. Oversees the organisation's data analytics and data science capabilities.
- Ensures the strategic application of data analytics and data science is embedded in the governance and leadership of the organisation.
- Aligns business strategies, enterprise transformation and data analytics and data science strategies.

DATA COMMUNICATION AND STORYTELLING (COM)

Effectively communicating with data or about data with a range of audiences.
Incorporating SFIA: Data visualisation (VISL); Data analytics (DAAN); Business Intelligence (BINT)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Understands basic principles of communicating data.
- Recognises the importance of structuring communications that connect with the audience.

Level 2 – Assists

- Assists in creating simple charts or summaries to present basic data trends and patterns to non-technical audiences.
- Uses standard tools to structure data into a coherent message, showing an emerging ability to select appropriate visuals and summaries.
- Begins to identify key messages within the data, with guidance on framing insights in a way that is relevant to the audience.

P Intermediate

Level 3 – Applies

- Develops clear, structured data narratives independently, focusing on essential insights and selecting visuals that enhance audience understanding.
- Uses storytelling techniques to explain data context, trends, and implications in a way that is engaging and informative for the target audience.
- Tailors data presentations to meet the needs of different audiences, using visualisations and summaries to highlight key findings effectively.

P Advanced

Level 4 – Enables

- Crafts compelling data stories that connect with diverse audiences, using advanced visuals (including interactive dashboards, layered charts, etc.) to enhance comprehension.
- Integrates narrative techniques that guide the audience through data insights, context, and implications, drawing actionable conclusions.
- Coaches others in effective data storytelling, promoting best practices in visualisation, narrative flow, and audience engagement.
- Comfortably questions data and results they are presented with, and answers technical questions relating to their data, relevant to the audience.

P Advanced

Level 5 – Ensures, Advises

- Develops and delivers compelling and influential narratives to communicate insights drawn from complex data sources and outputs.
- Leads data storytelling initiatives for complex projects, developing custom narratives that align data insights with strategic business goals.
- Employs highly advanced storytelling frameworks, visual metaphors, and interactive elements to create immersive and impactful presentations.
- Partners with senior leaders to translate data into persuasive, actionable and compelling narratives and insights, helping shape strategic decisions and organisational direction.
- Pioneers innovative data storytelling approaches, combining visualisation tools, multimedia, and interactive elements to engage audiences deeply.
- Educates others in data communication and storytelling.

L Tactical leadership

Level 6 – Initiates, Influences

- Defines and drives data storytelling strategies, establishing standards, guidelines and best practices for impactful data communication across the organisation.
- Fosters a data-driven culture where storytelling enhances decision-making and aligns with strategic objectives.
- Delivers compelling and influential narratives to communicate insights drawn from complex data sources and outputs.
- Translates data concepts, issues, and insights between technical and non-technical stakeholders.

L Strategic leadership

Level 7 – Strategises, Inspires, Mobilises

- Fosters a data-driven culture where storytelling enhances decision-making and aligns with strategic objectives.
- Translates data concepts, issues, and insights between technical and non-technical stakeholders.

DATA MODELLING AND DESIGN (DTAN)

Developing models and diagrams to represent, communicate and manage data requirements and data assets.
SFIA: Data modelling and design (DTAN)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Is aware of data modelling and design techniques.

Level 2 – Assists

- Establishes, modifies or maintains simple data structures and associated components.
- Uses specific data modelling and design techniques under guidance.

P Intermediate

Level 3 – Applies

- Applies standard data modelling and design techniques based upon a detailed understanding of organisational requirements.
- Establishes, modifies and maintains data structures and associated components.
- Communicates and explains the details of data structures and components to others.

P Advanced

Level 4 – Enables

- Investigates the organisation's data requirements where there is some complexity and ambiguity.
- Plans data modelling and design activities, selecting appropriate techniques and levels of detail to meet objectives.
- Provides advice and guidance to others using the data structures and associated components.

Level 5 – Ensures, Advises

- Sets standards for data modelling and design tools and techniques, advises on their application and ensures compliance.
- Manages the investigation of enterprise data requirements based on detailed understanding of information requirements.
- Oversees the exploration of enterprise data needs, leveraging a comprehensive understanding of information requirements.
- Organises the use of analysis, design, and modelling techniques to create, change, or maintain data structures and associated components.

DATA SCIENCE (DATS)

Applying mathematics, statistics, data mining and predictive modelling techniques to gain insights, predict behaviours and generate value from data.
SFIA: Data science (DATS)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.

Level 2 – Assists

- Under routine supervision, applies specified data science techniques to data.
- Analyses and reports findings and addresses simple issues, using algorithms included within standard software frameworks and tools.

P Intermediate

Level 3 – Applies

- Applies standard data science techniques to new problems and datasets using specialised programming techniques.
- Identifies and selects appropriate data sources and prepares data to be used by data science models.
- Evaluates the outcomes and performance of data science models. Identifies and implements opportunities to train and improve models and the data they use.
- Publishes and reports on model outputs to meet customer needs and conform to agreed standards.

P Advanced

Level 4 – Enables

- Investigates problems and datasets to assess the usefulness of data science solutions.
- Uses various data science methods and programming languages, follows industry-specific rules, and anticipates potential risks of modelling.
- Selects and gathers data for analysis, creates hypotheses, and assesses data science models. Provides recommendations on the best techniques based on analysis and research findings.
- Contributes to the development, evaluation, monitoring and deployment of data science solutions.

P Advanced

Level 5 – Ensures, Advises

- Plans, coordinates and drives all stages of the development of data science solutions.
- Provides expert advice to evaluate the problems to be solved and the need for data science solutions. Identifies and justifies what data sources to use or acquire.
- Specifies and applies appropriate data science techniques and specialised programming languages.
- Assesses the effectiveness of data science methods and tools, suggesting improvement. Helps create policies, standards and guidance for developing, evaluating and implementing data science solutions.

L Tactical leadership

Level 6 – Initiates, Influences

- Champions and leads the introduction and use of data science to drive innovation and business value.
- Develops and drives adoption of and adherence to organisational policies, standards, guidelines and methods for data science.
- Sets direction and leads in the introduction and use of data science techniques, methodologies and tools. Leads the development of organisational capabilities for data science.
- Plans and leads strategic, large and complex data science initiatives to generate insights, create value and drive decision-making.

DATA VISUALISATION (VISL)

Facilitating understanding of data by displaying concepts, ideas and facts using graphical representations.
SFIA: Data visualisation (VISL)

P Foundation

Level 1 – Follows

- Follows clear instructions when assisting others.
- Identifies data visual concepts.

Level 2 – Assists

- Creates standard data visuals using established products, tools and techniques, under routine supervision.
- Assists in updating and rening e xisting data visualisations to maintain effective representation of concepts, ideas and facts.

P Intermediate

Level 3 – Applies

- Uses visualisation products, as guided, to design and create data visuals.
- Selects appropriate visualisation techniques from the options available.
- Engages with the target user to prototype and rene spec ied visualisations.
- Assists in developing narratives around datasets to support understanding and decision-making.

P Advanced

Level 4 – Enables

- Applies a variety of visualisation techniques and designs the content and appearance of data visuals.
- Operationalises and automates activities for efc ient and timely production of data visuals.
- Selects appropriate visualisation approaches from a range of applicable options. Develops narratives around datasets to guide decision-making processes and enhance understanding of key insights.
- Contributes to exploration and experimentation in data visualisation.

Level 5 – Ensures, Advises

- Leads exploration of new approaches for data visualisation. Establishes the purpose and parameters of the data visualisation.
- Oversees the use of data visualisation tools and techniques. Communicates results using appropriate methods for the target audience.
- Advises on the use of data visualisation approaches for different purposes and contexts to satisfy requirements. Develops plans to meet user needs.
- Collaborates with stakeholders to identify key insights and create compelling narratives that effectively communicate the story behind the data to drive decision-making processes.

EXPLORATORY DATA ANALYSIS (EXP)

Exploratory data analysis (EDA) is a crucial step in the data analysis process. It involves examining datasets to summarise their main characteristics, often using visual methods.

Incorporating SFIA: Business Intelligence (BINT); Data analytics (DAAN)

P Foundation

Level 1 – Follows

- Understands basic concepts and purpose of exploratory data analysis, assisting with simple data summaries and visualisations.
- Recognises the role of exploratory data analysis in understanding data but requires guidance to interpret findings accurately.

Level 2 – Assists

- Assists with basic exploratory data analysis using established techniques to identify patterns, trends, and outliers in data.
- Follows instructions to perform basic descriptive statistics (such as mean, median, mode) and create basic visualisation tools to summarise data insights (such as generating histograms, scatter plots, and bar charts) as needed.
- Begins to interpret data patterns and discuss initial findings, making basic connections to project objectives.

P Intermediate

Level 3 – Applies

- Conducts exploratory data analysis independently on more complex datasets, using a range of statistical techniques to uncover insights and relationships.
- Develops a variety of visualisations and uses summary statistics to interpret data quality, distributions, and relationships.
- Identifies and investigates anomalies in data and data analysis outputs and develops and tests theories to explain identified anomalies.
- Draws meaningful insights from exploratory data analysis, identifying trends and outliers that inform next steps in analysis, and communicates these effectively to stakeholders.

P Advanced

Level 4 – Enables

- Leads exploratory data analysis for cross-functional data analysis projects, applying advanced statistical techniques (such as correlation analysis, clustering) to uncover deeper insights.
- Develops customised visualisations that enhance understanding of complex datasets, tailoring insights to support specific project goals.
- Advises on exploratory data analysis best practices, enhancing data quality and refining hypotheses, and aligning analysis with broader business objectives.

Level 5 – Ensures, Advises

- Undertakes highly complex exploratory data analysis activities.
- Utilises sophisticated techniques (such as dimensionality reduction, anomaly detection) to extract strategic insights from diverse and highly complex data sources.
- Advises on new trends and innovations relating to exploratory data analysis and develops skills in these where relevant.
- Provides thought leadership in exploratory data analysis, educating, coaching and mentoring others to enhance analytical depth and fostering a data-driven culture that prioritises insightful, action-oriented exploration.

L Tactical leadership

Level 6 – Initiates, Influences

- Establishes organisational standards for exploratory data analysis, implementing highly advanced methodologies and tools to optimise data exploration across projects.