

# LEVELLED NICE ROLES

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Using SFIA's levels of responsibility and NICE to support cybersecurity role and job levelling

# The long track record of cybersecurity in SFIA

## SFIA updates

2000	First iteration of SFIA addressed information security with 3 skills	2000 SFIA v1
2000-2011	Refinement of the 3 information security skills via regular SFIA framework updates	2000-11 SFIA v2 - v5
2015	Extended cyber/information security coverage to 5 skills	2015 SFIA v6
2018	A complete review of coverage. Updates for the 5 cyber/information security skills. Security	2018 SFIA v7
<b>Supporting cybersecurity in industry for 20+ years on the SFIA framework and its ecosystem</b>		
2021	Coverage extended – now 9 cyber/information security specialist skills and Security responsibilities explicitly included in 41 other (non-specialist) skills. SFIA generic attributes for security updated.	2021 SFIA v8
2021	Refreshed mapping of NICE and NIST for SFIA v8. Published illustrative skills profiles for employers covering cyber/information security roles alongside 18 other industry role families	
2023	Developed levelled cyber/information roles based on the 53 NICE Work roles and separately for the 11 European Cybersecurity Skills Framework (ECSF) roles	
2023-24	Review industry requirements cyber/information security in SFIA to prepare for SFIA 9. Open and transparent consultation with global SFIA users and taking account of industry developments and updates to industry frameworks.	SFIA v9 Planned for Q3/Q4 2024

# NICE roles and SFIA for employers

## NICE workforce roles

- a common lexicon that describes cybersecurity work and workers regardless of where or for whom the work is performed.
- cybersecurity workforce assessment and planning,
- identification of critical gaps in cybersecurity staffing and capabilities;
- determining position responsibilities and creating job descriptions when hiring
- providing staff training and career development

## SFIA builds on these by adding...

### SFIA levels

- a proven (over 20+ years) framework for employers to designing jobs and organizational structures in a variety of professional disciplines.
- A clear and structured approach to defining and differentiating roles, responsibilities, and skill sets across an organization.

### Cyber security as ‘part of everybody’s job’

- Cyber security specialists (in their role) need non-cyber-specialist skills too ...
- Non-cyber-specialists need sufficient and appropriate cyber knowledge to perform their roles ...

### One framework for all

- a broader set of skill and competency definitions to support all your organization’s digital, data and technology roles
- enabling internal mobility to help fill cybersecurity vacancies

The NICE work roles reference 71 of SFIA’s professional skills.  
In total there are 121 professional skills in SFIA 8.

# SFIA – designed for flexibility

**Tailor to your  
organization design**

**Support for flexible  
career paths and role  
definitions– common  
language for all roles**

**Integrates  
professional skills  
and behaviours/soft  
skills**

**Mapping to a broad  
range of industry  
frameworks**

**Tailoring the NICE  
roles to SFIA levels**

# SFIA – designed for flexibility

## Tailor to your organization design

- Your functions, your teams and your job design
- Your job titles and pre-fixes for career pathing
- Your sourcing strategy / your mix of in-house and third-party cybersecurity capabilities
- Design a new operating model and/or align to current roles and teams
- Align SFIA defined skills and competencies to your own technical architecture and toolset

## Support for flexible career paths and role definitions– common language for all roles

- specialist cybersecurity roles,
- roles where cybersecurity is part of their overall responsibilities
- one framework for all of your digital, data and technology roles – enabling internal mobility to help fill cybersecurity vacancies

## Integrate professional skills and behaviours/soft skills

- SFIA supports the need for individuals and organizations to embed secure working practices into everything they do.
- This means that everyone needs to be aware of security and make it an accepted part of every-day working and management practices.

## Mapping to a broad range of industry frameworks such as:

- NIST CSF, NICE, ITIL, COBIT,
- Role frameworks – Australian Public Service roles, NICE, UK DDaT, EU ICT roles, ECSF
- SWEBOK, BABOK

## Tailoring the NICE roles to SFIA levels

- The spreadsheet provides guidance on the likely levels of roles for each NICE Work Role
- Use the spreadsheet as an input to help you refine and adjust existing roles or change role and skill levels to fit your own organization design and career paths
- The NICE Work Roles and SFIA frameworks offer flexibility and serve as a starting point for creating job profiles

# Navigating the levelled roles

We describe SFIA levels using 5 generic attributes

- Autonomy, influence, complexity, business skills and knowledge

Names and descriptions of work roles are from NICE.

- There are 53 NICE work roles

>>>> Increasing responsibility, accountability, and impact <<<<

		1 Follow	2 Assist	3 Apply	4 Enable	5 Ensure, advise	6 Initiate, influence	7 Set strategy, inspire, motivate
Excel rows can be expanded using the + to reveal full SFIA content.								
Hyperlinks link to SFIA website for full content for skills descriptions, skill level description and generic attributes.								
Expand for complete set of attributes describing SFIA levels								
Illustrative job family	NICE Work Roles							
Infosec/Cybersecurity	Executive Cyber Leadership							7
Infosec/Cybersecurity	Information Systems Security Manager					5	6	
Infosec/Cybersecurity	Communications Security (COMSEC) Manager					5	6	
Infosec/Cybersecurity	Cyber Policy and Strategy Planner						6	
Infosec/Cybersecurity	Research & Development Specialist			3	4	5		
Infosec/Cybersecurity	Secure Software Assurance			4	4	5		
NICE role definition:	Analyzes the security of new or existing computer applications, software, or specialized utility programs and provides actionable results.							
Indicative SFIA skills	<a href="#">Vulnerability Assessment VUS</a> <a href="#">Penetration Testing PCH</a>			3	4	5		
Infosec/Cybersecurity	Information Systems Security Developer			3	4	5		
Infosec/Cybersecurity	Systems Security Analyst			3	4	5		
NICE role definition:	Responsible for the analysis and development of the integration, setting, operation, and maintenance of systems security.							
Indicative SFIA skills	<a href="#">Information Security ICT</a> <a href="#">Information Systems Security ISS</a> <a href="#">Vulnerability Assessment VUS</a> <a href="#">Tools TAT</a> <a href="#">Penetration Testing PCH</a>			3	4	5		
Infosec/Cybersecurity	Cyber Defense Analyst		2	3	4	5		
NICE role definition:	Uses data collected from a variety of cyber defense tools (e.g., IDS alerts, firewalls, network traffic logs) to analyze events that occur within their environments for the purpose of mitigating threats.							
Indicative SFIA skills	<a href="#">Threat Intelligence TH</a> <a href="#">Penetration Testing PCH</a>		2	3	4	5		
Infosec/Cybersecurity	Cyber Defense Infrastructure Support Specialist	1	2	3	4	5		
Infosec/Cybersecurity	Cyber Defense Incident Responder	2	3	4	5			

Levels based on SFIA's 7 levels

- We extracted short succinct descriptions from SFIA's comprehensive level descriptions.

The yellow bars demonstrate indicative levels for the NICE roles

Blue bars are indicative SFIA professional skills at each role level

- A full definition of the SFIA professional skills is available at every level.
- Each skill has a succinct description and guidance notes to help users navigate the framework.

The NICE work roles reference 71 of SFIA's professional skills. In total there are 121 professional skills in SFIA 8.

# Leverage the benefits of SFIA levels

→ → → Increasing responsibility, accountability and impact → → →

1. Follow	2. Assist	3. Apply	4. Enable	5. Ensure, advise	6. Initiate, influence	7. Set strategy, inspire, mobilise
Performs routine tasks under close supervision, follows instructions, and requires guidance to complete their work.	Provides assistance to others, works under general supervision, and uses their discretion to address routine problems.	Performs varied tasks, sometimes complex and non-routine, using methodical approaches. Works under general direction, exercises discretion, and manages own work within deadlines.	Performs diverse complex activities, supports and supervises others, works autonomously under general direction, and contributes expertise to deliver team objectives.	Provides expert guidance in their specialty and works under broad direction. Accountable for achieving workgroup objectives and managing work from analysis to execution and evaluation.	Has significant organizational influence, makes high-level decisions, shapes policies, demonstrates leadership, and accepts accountability in key areas..	Operates at the highest organizational level, determines overall policy and strategy, and assumes accountability for overall success.

- ❑ SFIA levels offer a practical tool for designing jobs and organizational structures and career pathways
- ❑ They provide a clear and structured approach to defining roles, responsibilities, and skill sets.
- ❑ SFIA levels show incremental differences, allowing for career progression and individual growth within roles.
- ❑ Each SFIA level focuses on responsibility, accountability, and impact required in a role.
- ❑ Understanding SFIA levels helps identify necessary competencies.
- ❑ Ensuring the right people are in the right roles contributes to overall organizational success.

# We have mapped each NICE role to SFIA levels

Prototype



→ → → Increasing responsibility, accountability and impact → → →

An organization selects the applicable roles and levels based on their own organization design and context.

1. Follow	2. Assist	3. Apply	4. Enable	5. Ensure, advise	6. Initiate, influence	7. Set strategy, inspire, mobilise
Performs routine tasks under close supervision, follows instructions, and requires guidance to complete their work.	Provides assistance to others, works under general supervision, and uses their discretion to address routine problems.	Performs varied tasks, sometimes complex and non-routine, using methodical approaches. Works under general direction, exercises discretion, and manages own work within deadlines.	Performs diverse complex activities, supports and supervises others, works autonomously under general direction, and contributes expertise to deliver team objectives.	Provides expert guidance in their specialty and works under broad direction. Accountable for achieving workgroup objectives and managing work from analysis to execution and evaluation.	Has significant organizational influence, makes high-level decisions, shapes policies, demonstrates leadership, and accepts accountability in key areas..	Operates at the highest organizational level, determines overall policy and strategy, and assumes accountability for overall success.

Executive Cyber Leadership						7
IS Security Manager				5	6	
Security control assessor		3	4	5		
Software developer	2	3	4	5		
Secure software assessor		3	4	5		
Security architect			4	5	6	
System Administrator	1	2	3	4		

The SFIA levels reflect the expected impact of the role.



# We also mapped each NICE role to SFIA skills and levels

→ → → Increasing responsibility, accountability and impact → → →

1. Follow	2. Assist	3. Apply	4. Enable	5. Ensure, advise	6. Initiate, influence	7. Set strategy, inspire, mobilise
Performs routine tasks under close supervision, follows instructions, and requires guidance to complete their work.	Provides assistance to others, works under general supervision, and uses their discretion to address routine problems.	Performs varied tasks, sometimes complex and non-routine, using methodical approaches. Works under general direction, exercises discretion, and manages own work within deadlines.	Performs diverse complex activities, supports and supervises others, works autonomously under general direction, and contributes expertise to deliver team objectives.	Provides expert guidance in their specialty and works under broad direction. Accountable for achieving workgroup objectives and managing work from analysis to execution and evaluation.	Has significant organizational influence, makes high-level decisions, shapes policies, demonstrates leadership, and accepts accountability in key areas..	Operates at the highest organizational level, determines overall policy and strategy, and assumes accountability for overall success.

Illustrative job family      NICE Work role

Infosec/Cybersecurity	Security control assessor	3	4	5	
NICE role definition	Analyzes the security of new or existing computer applications, software, or specialized utility programs and provides actionable results.				
Indicative SFIA skills	<a href="#">Vulnerability assessment VUAS</a>	2	3	4	
	<a href="#">Penetration testing PENT</a>	2	3	4	

Blue bars are indicative SFIA professional skills at each role level

- A full definition of the SFIA professional skills is available at every level.
- Each skill has a succinct description and guidance notes to help users navigate the framework.

# Tailoring - Map NICE roles to your real-world jobs

Organizations should tailor jobs to meet their specific needs.

## Understanding your organization's needs

- includes an understanding of the organization's structure, the industry it operates within, and the specific cybersecurity challenges it faces.

## Reviewing the NICE framework

- Understand the various roles and their definitions. This involves mapping the organization's needs to the roles defined within the framework.

## Identifying relevant roles

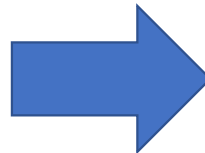
- Identify roles needed to handle the cybersecurity challenges faced by your organization.

## Combining roles to form jobs

- In many cases, a single job might require an employee to handle tasks associated with multiple NICE roles.
- This combination is based on the similarities in the roles, the interconnectedness of the tasks, and the organization's preferences.

## Refining and reviewing

- Review to ensure that they meet the organization's needs and do not leave any cybersecurity challenges unattended.



These are illustrative examples.  
 The specific jobs/roles within an organization could vary based on the organization's specific needs and structure.  
 The NICE framework is flexible and adaptable to a wide range of organizational needs.



Your organization's jobs	Associated NICE roles
Cybersecurity Risk Analyst	Cyber Defense Analyst, Vulnerability Assessment Analyst, Systems Security Analyst, Threat/Warning Analyst
Cybersecurity Software Engineer	Software Developer, Systems Developer, Secure Software Assessor, Systems Security Analyst
Cybersecurity Database Administrator	Database Administrator, Data Analyst
CISO/Cybersecurity Manager	Cyber Policy and Strategy Planner, Information Systems Security Manager, Executive Cyber Leadership
Cybersecurity Systems Administrator	System Administrator, Network Operations Specialist, Systems Security Analyst, Technical Support Specialist



# Tailoring - Use SFIA levels to create a job architecture

As before, jobs vary from organization to organization and should be tailored to meet your specific needs.

## Understand the SFIA Levels

- Start by understanding the SFIA levels and what they represent. This includes the responsibilities, abilities, and accountability associated with each level.

## Analyse the roles/jobs

- Consider their responsibilities, the complexity of their tasks, their level of independence, and their impact on the organization.

## Map the jobs/roles to SFIA Levels

- Map each role to an appropriate SFIA level.
- The same job/role might be performed at different levels depending on the complexity of the tasks and the level of responsibility.

## Consider career progression

- Consider the potential for career progression. This might involve creating multiple levels of the same job, each associated with a different SFIA level.

## Use descriptive prefixes

- Typically used to distinguish between different levels of the same job. These prefixes should provide an indication of the level of responsibility and complexity associated with the job.

## Review and adjust

- Continually review and adjust the job architecture as needed. This could be in response to changes within the organization or updates to the SFIA framework.

The SFIA levels and prefixes are suggestions and should be adapted to fit the specific needs and structure of your organization.

The same job might be associated with different SFIA levels in different organizations based on factors like the complexity of the tasks and the level of responsibility.



Jobs	SFIA Levels	Your organization's prefixes
Risk Analyst	3-5	Entry-level, Analyst, Senior
Software Engineer	2-5	Entry-level, Engineer, Senior, Lead
Database Administrator	2-5	Entry-level, Administrator, Senior, Lead
IS Security Manager	5-7	Manager, Head of, CISO
Systems Administrator	1-5	Entry-level, Administrator, Senior, Lead, Manager





# Tailoring – NICE-based jobs in your job architecture

→ → → Increasing responsibility, accountability and impact → → →

Map jobs based on your own organization design and context.

1. Follow	2. Assist	3. Apply	4. Enable	5. Ensure, advise	6. Initiate, influence	7. Set strategy, inspire, mobilise
Performs routine tasks under close supervision, follows instructions, and requires guidance to complete their work.	Provides assistance to others, works under general supervision, and uses their discretion to address routine problems.	Performs varied tasks, sometimes complex and non-routine, using methodical approaches. Works under general direction, exercises discretion, and manages own work.	Performs diverse complex activities, supports and supervises others, works autonomously under general direction, and contributes expertise to the organization.	Provides expert guidance in their specialty and works under broad direction. Accountable for achieving workgroup objectives and managing work from analysis to implementation.	Has significant organizational influence, makes high-level decisions, shapes policies, demonstrates leadership, and accepts accountability in key areas..	Operates at the highest organizational level, determines overall policy and strategy, and assumes accountability for overall success.

The SFIA levels reflect the required impact of the roles.

Job family	Generic Job	1	2	3	4	5	6	7
Cybersecurity	CISO							CISO
	IS Security Manager					Manager	Head of	
	Risk analysts			Entry level	Analyst	Senior analyst		
Software engineering	Software engineer		Entry level	Engineer	Senior	Lead		
Data and analytics	Database administrator		Entry level	Administrator	Senior	Lead		
Infrastructure & operations	System Administrator	Entry level	Administrator	Senior	Lead	Manager		

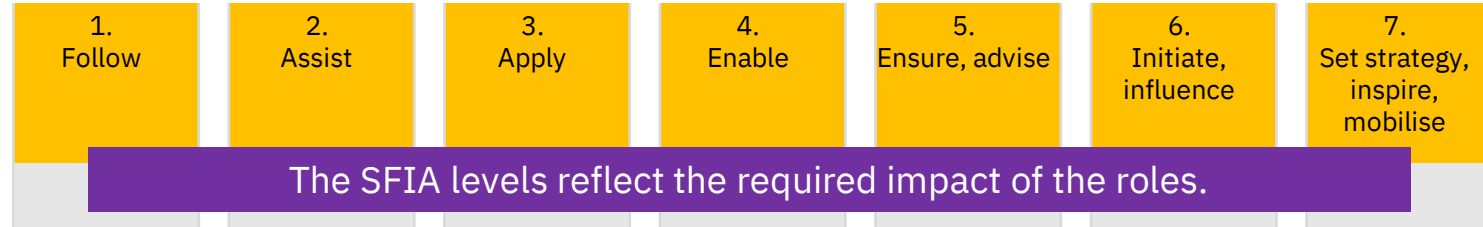
# Tailoring – extend the job architecture for all your roles

Prototype



→ → → Increasing responsibility, accountability and impact → → →

Cybersecurity career paths are integrated with other digital, data, and technology



Job Area	Generic Job	1. Follow	2. Assist	3. Apply	4. Enable	5. Ensure, advise	6. Initiate, influence	7. Set strategy, inspire, mobilise
	CISO							CISO
Cybersecurity	IS Security Manager					Manager	Head of	
	Risk analysts			Entry level	Analyst	Senior analyst		
Software engineering	Software engineer		Entry level	Engineer	Senior	Lead		
	Test analyst	Entry level	Junior	Analyst	Senior	Manager		
Data and Analytics								
Infrastructure operations								
Business analysis	Business analyst			Analyst	Senior	Lead	Principal	
Architecture	Enterprise architecture					Architect	Principal	Chief
	Solution architecture				Architect	Lead	Principal	
	Project management				Associate	Project Mgr	Senior	
Project delivery	Portfolio management					Portfolio Mgr	Lead	Director
	Program management					Program Mgr	Senior	Director

Illustrative SFIA levels support all of your digital, data and technology roles

SFIA - one framework for all

# Tailoring – fine tune SFIA skills and skill levels

Use the generic mapping to get you started

Network Operations Specialist	
NICE Role definition	Plans, implements, and operates network services/systems, to include hardware and virtual environments.
Indicative SFIA skills and levels	<a href="#">System software SYSP</a> <a href="#">Network support NTAS</a> <a href="#">Systems installation and removal HSIN</a> <a href="#">Testing TEST</a>

	2	3	4
		3	4
	2	3	4
	2	3	4
	2	3	4



Tailor SFIA skills and/or SFIA levels to your job design

Your job name

Your job definition and your career steps

Entry-level	Network engineer	Senior
2	3	4
2	3	4
1	2	3

The SFIA framework provides... detailed industry-proven descriptions of skills & competencies which are needed for your jobs and roles

Employers are best placed to... design & name jobs/roles, provide career pathways, create job descriptions

# SFIA – designed for flexibility

**Tailor to your  
organization design**

**Support for flexible  
career paths and role  
definitions– common  
language for all roles**

**Integrates  
professional skills  
and behaviours/soft  
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**Mapping to a broad  
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**Tailoring the NICE  
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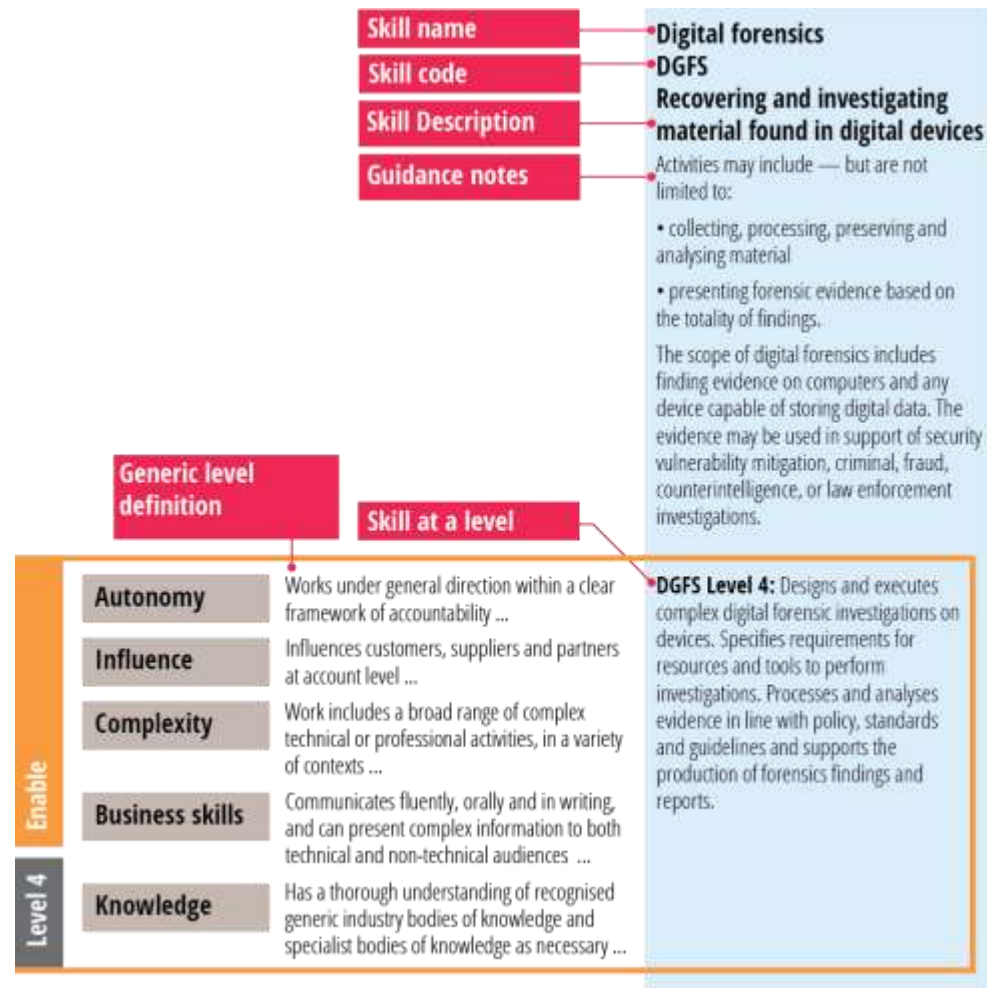
# APPENDIX

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How SFIA works



# SFIA's skills and generic attributes work together



The levels of responsibility, and specifically their generic attributes, are used together with the professional skills to describe overall competence.

Each skill description comprises

- an overall definition of the skill,
- some guidance notes and
- a description of the skill at each of up to seven levels at which the skill might be exercised.

These descriptions provide a detailed definition of what it means to practice the skill at each level of responsibility.

# Sample of one of the 121 SFIA skill/competency descriptions

## Vulnerability assessment VUAS

- Identifying and classifying security vulnerabilities in networks, systems and applications and mitigating or eliminating their impact.

### Guidance notes

Activities may include — but are not limited to:

- cataloguing and classifying information and technology resources (assets and capabilities) to support vulnerability assessment
- assigning quantifiable value, rank order and importance to information and technology resources
- identifying and analysing the vulnerabilities of each resource — manually or using automated tools and information sources
- prioritising, scoring and ranking the risk associated with vulnerabilities
- business impact assessment
- mitigating or eliminating the vulnerabilities.
- Vulnerability assessment tools include web application scanners, protocol scanners and network scanners.

## Vulnerability assessment: Level 2

Undertakes low-complexity routine vulnerability assessments using automated and semi-automated tools. Escalates issues where appropriate. Contributes to documenting the scope and evaluating the results of vulnerability assessments.

## Vulnerability assessment: Level 3

Follows standard approaches to perform basic vulnerability assessments for small information systems. Supports creation of catalogues of information and technology assets for vulnerability assessment.

## Vulnerability assessment: Level 4

Collates and analyses catalogues of information and technology assets for vulnerability assessment. Performs vulnerability assessments and business impact analysis for medium complexity information systems. Contributes to selection and deployment of vulnerability assessment tools and techniques.

## Vulnerability assessment: Level 5

Plans and manages vulnerability assessment activities within the organization. Evaluates and selects, reviews vulnerability assessment tools and techniques. Provides expert advice and guidance to support the adoption of agreed approaches. Obtains and acts on vulnerability information and conducts security risk assessments, business impact analysis and accreditation on complex information systems.

# Illustration of alignment to SFIA generic attributes

## Skill name, description guidance notes

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## Specific level descriptions

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## Generic SFIA level description

### Level 2: Assist

Provides assistance to others, works under general supervision, and uses their discretion to address routine problems.

### Level 3: Apply

Performs varied tasks, sometimes complex and non-routine, using methodical approaches. Works under general direction, exercises discretion, and manages own work within deadlines.

### Level 4 Enable

Performs diverse complex activities, supports and supervises others, works autonomously under general direction, and contributes expertise to deliver team objectives.

### Level 5 Ensure, advise

Provides expert guidance in their specialty and works under broad direction. Accountable for achieving workgroup objectives and managing work from analysis to execution and evaluation.

# The 5 generic attributes describe ...

## Autonomy

- your responsibility for planning your own work and the work of others
- the amount of discretion you have in how you do your work
- the scope and remit of your decision-making
- the level of direction you receive to achieve expected results
- tasks/goals delegated to you or by you to others

## Influence

- who you work with and the impact of your influence in achieving work outcomes
- the impact of decisions you are responsible or accountable for making or advising on

## Complexity

- the complexity of tasks and activities you perform
- the scope and level of complexity in problem solving and creativity
- the context and characteristics of the situation in which you work

## Business skills

- communication, leadership, execution performance, creativity, planning, learning and professional development

## Knowledge

- the development and application of knowledge you apply to deliver work
- the scope and context of the knowledge you apply
- developing your own knowledge and supporting others to develop knowledge
- your role and expected impact in sharing knowledge

# We describe the 5 generic attributes at 7 different levels

Increasing responsibility, accountability and impact

SFIA levels	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
Guiding phrase	Follow	Assist	Apply	Enable	Ensure, advise	Initiate, influence	Set strategy, inspire, mobilise

Generic attributes

AUTONOMY	Demonstrating increasing levels of <b>autonomy</b> – the level of ownership and accountability for results in the workplace
INFLUENCE	Demonstrating increasing levels of <b>influence</b> – the level of positive impact with colleagues, clients, suppliers, partners, managers, leaders and the industry as a whole
COMPLEXITY	Demonstrating the ability to perform work of increasing <b>complexity</b> – the scale and impact of the issues, opportunities, tasks and processes addressed in the workplace
BUSINESS SKILLS	Demonstrating increasing <b>business skills</b> and <b>positive behaviours</b> – operating effectively with the required level of impact in the workplace
KNOWLEDGE	Demonstrating increased responsibility for developing and applying <b>knowledge</b> to achieve individual and organizational objectives in the workplace

# Generic attributes

## Increasing responsibility, accountability and impact

Level 1 – Follow	Level 2 - Assist	Level 3 – Apply	Level 4 - Enable	Level 5 – Ensure, advise	Level 6 – Initiate, influence	Level 7 – Set strategy, inspire, mobilise
<p><b>Autonomy</b> Works under close direction. Uses little or no authority. Expected to seek guidance in unexpected situations.</p>	<p><b>Autonomy</b> Works under routine direction. Uses little or no authority. Determines when to seek guidance.</p>	<p><b>Autonomy</b> Works under general direction. Receives and has work reviewed at agreed milestones.</p>	<p><b>Autonomy</b> Works under general direction within a defined area. Exercises substantial personal responsibility.</p>	<p><b>Autonomy</b> Works under broad direction. Work is for meeting allocated technical and/or business objectives.</p>	<p><b>Autonomy</b> Has defined authority and accountability over a significant area of work, including technical and business objectives.</p>	<p><b>Autonomy</b> At the highest organizational level, has authority over all aspects of a significant area of work, including policy formation and implementation.</p>
<p><b>Influence</b> Minimal influence. May work alone or with limited support.</p>	<p><b>Influence</b> Interacts with and may influence internal and external contact with customers, suppliers and other stakeholders.</p>	<p><b>Influence</b> Interacts with and influences colleagues and other stakeholders. Makes decisions which impact routine work.</p>	<p><b>Influence</b> Influences customers, suppliers and other stakeholders which influence the success of projects.</p>	<p><b>Influence</b> Influences organization, customers, suppliers and other stakeholders. Makes contribution of own specialism. Make decisions which impact routine work.</p>	<p><b>Influence</b> Influences policy and strategy formation and implementation. Internal and external customers, suppliers and other stakeholders.</p>	<p><b>Influence</b> Inspires the organization, and influences developments within the industry at the highest levels. Makes decisions critical to organization...</p>
<p><b>Complexity</b> Performs routine activities in a structured environment. Resolves unexpected problems. Participates in the resolution of complex issues.</p>	<p><b>Complexity</b> Performs a range of work activities in a structured environment. May apply creative solutions to routine issues.</p>	<p><b>Complexity</b> Performs a range of work, sometimes in a structured environment. Applies a methodical approach to problem solving.</p>	<p><b>Complexity</b> Work includes a broad range of complex tasks. Investigates, develops and implements solutions.</p>	<p><b>Complexity</b> Implements and executes policies across an extensive range and variety of complex tasks.</p>	<p><b>Complexity</b> Contributes to the development and implementation of complex work activities. Performs highly complex work activities.</p>	<p><b>Complexity</b> Applies the highest level of leadership to the formulation and implementation of strategy. Performs extensive strategic leadership in the organization.</p>
<p><b>Business skills</b> Has sufficient oral and written communication skills to work with immediate colleagues. Uses basic systems and tools, applications and use applications and tools for the Learning and professional development opportunities. Security, privacy and ethics – understands standards.</p>	<p><b>Business skills</b> Has sufficient oral and written communication skills to work with colleagues and internal users/customers. Understands and uses appropriate methods and processes. Demonstrates a rational and organized approach to problem solving. Has sufficient digital skills for their role. Learning and professional development opportunities. Security, privacy and ethics – fully understands standards.</p>	<p><b>Business skills</b> Demonstrates effective oral and written communication skills. Understands and effectively applies a range of methods and processes. Demonstrates judgement and a systematic approach to problem solving. Effectively applies digital skills and experience. Learning and professional development opportunities. Security, privacy and ethics – fully understands standards.</p>	<p><b>Business skills</b> Communicates fluently, orally and in writing. Information to both technical and non-technical colleagues, users/customers, suppliers and other stakeholders. Selects appropriately from, and assesses standards, methods, tools, applications and processes. Demonstrates an awareness of risk and opportunity. Maximises the capabilities of applications and tools.</p>	<p><b>Business skills</b> Demonstrates leadership in operational improvement. Assesses and evaluates risk. Takes all requirements into account. Shares own knowledge and experience. Advises on available standards, methods and processes relevant to group specialism(s) and customer requirements. Understands... <b>Knowledge</b> Is fully familiar with recognised industry standards, and knowledge of the business.</p>	<p><b>Business skills</b> Demonstrates leadership in organizational improvement. Understands and communicates the impact of technology. Manages and mitigates organizational risk. Balances the requirements of proposed changes. Promotes a learning and growth culture. Leads on compliance with relevant legislation and working practices to protect the organization. <b>Knowledge</b> Has developed business knowledge of the organization and those of suppliers, customers and other stakeholders.</p>	<p><b>Business skills</b> Has a full range of strategic management and leadership skills. Communicates the potential impact of emerging practices and technologies on organizations and individuals and assesses the risks of using or not using such practices and technologies. Establishes governance to address business risk. Ensures proposals align with the strategic direction of the organization. Fosters a learning and growth culture across the organization. Assess the impact of legislation and accreditation. <b>Knowledge</b> Has established a broad and deep business knowledge including the activities and practices of own organization and a broad knowledge of the industry.</p>

# Illustration of SFIA levels in the workplace

Increasing responsibility, accountability and impact

SFIA levels	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
Guiding phrase	Follow	Assist	Apply	Enable	Ensure, advise	Initiate, influence	Set strategy, inspire, mobilise
<b>Delivery</b>	Service delivery and operational support Task execution			Process/practice management		Sets policy Leads execution	
<b>Individual contribution</b> (typically requiring mastery of a professional field/area of expertise )	Learning your profession		Practicing your profession		Mastering your profession Subject matter expert		
				<b>For people managers</b>			
				Supervisor /Team lead	First-line management	Senior management	
<b>Leadership</b>	Personal leadership			Operational leadership and advice		Strategic leadership and advice organizational leadership	



# SFIA Level progression

Increasing responsibility, accountability and impact

SFIA levels	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
Guiding phrase	Follow	Assist	Apply	Enable	Ensure, advise	Initiate, influence	Set strategy, inspire, mobilise

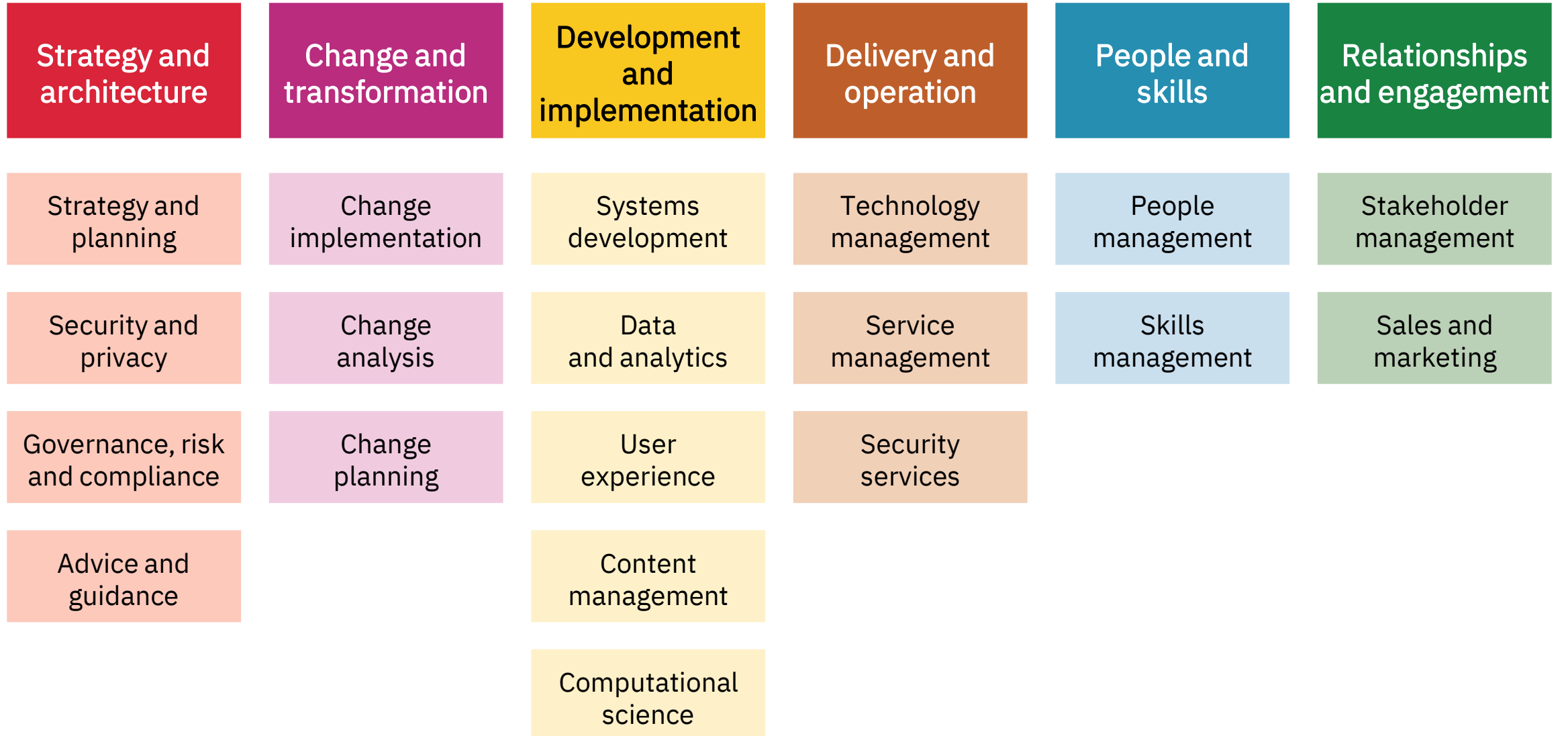
- Careers don't follow a straight path from level 1 to 7
- People gain experience by applying knowledge & skills in the workplace
- Higher SFIA levels represent different responsibilities, not "better"
- Demonstrating SFIA skills & competencies depends on work offered by employers
- Professional development & career paths are determined by personal goals, potential, and more
- Managers & organizations play a role in enabling learning & development



# Career paths and professional development

- ❑ The opportunity to demonstrate SFIA skills & competencies at a particular level is determined by the type and level of work offered by employers.
- ❑ Individual professional development and career paths are determined by factors such as...
  - personal life goals and interests, potential, learning mindset, consistent delivery of work objectives.
- ❑ Professional development and career paths at work are enabled by managers and organizations providing opportunities and encouraging learning and development.

# SFIA skills cover a wide – and evolving – range of professional activities



# SFIA professional skills

## SFIA 8 Summary Chart

The global skills and competency framework for the digital world

Strategy and architecture						
Strategy and planning						
Strategic planning	ITSP				5	6 7
Information systems coordination	ISCO				6	7
Information management	IRMG			4	5 6 7	
Enterprise and business architecture	STPL			5	6 7	
Solution architecture	ARCH			4	5 6	
Innovation	INOV			5	6 7	
Emerging technology monitoring	EMRG			4	5 6	
Research	RSCH	2	3	4	5 6	
Demand management	DEMM			5	6	
Investment appraisal	INVA			4	5 6	
Financial management	FMIT			4	5 6	
Measurement	MEAS			3	4 5 6	
Sustainability	SUST			4	5 6	
Continuity management	COPL	2	3	4	5 6	
Security and privacy						
Information security	SCTY			3	4 5 6 7	
Information assurance	INAS			3	4 5 6 7	
Personal data protection	PEDP			5	6	
Vulnerability research	VURE			3	4 5 6	
Threat intelligence	THIN	2	3	4	5 6	
Governance, risk and compliance						
Governance	GOVN				6 7	
Risk management	BURM			3	4 5 6 7	
Audit	AUDT			3	4 5 6 7	
Quality management	QUMG			3	4 5 6 7	
Quality assurance	QUAS			3	4 5 6	
Advice and guidance						
Consultancy	CNSL			4	5 6 7	
Specialist advice	TECH			4	5 6	
Methods and tools	METL			3	4 5 6	

Change and transformation						
Change implementation						
Portfolio management	POMG				5	6 7
Programme management	PGMG				6	7
Project management	PRMG			4	5 6 7	
Portfolio, programme and project support	PROF	2	3	4	5 6	
Change analysis						
Business situation analysis	BUSA			3	4 5 6	
Feasibility assessment	FEAS			3	4 5 6	
Requirements definition and management	REQM	2	3	4	5 6	
Business modelling	BSMO	2	3	4	5 6	
Acceptance testing	BPTS	2	3	4	5 6	
Change planning						
Business process improvement	BPRE			5	6 7	
Organisational capability development	OCDV			5	6 7	
Organisation design and implementation	ORDI			4	5 6 7	
Organisational change management	CIPM			3	4 5 6	
Benefits management	BENM			5	6	

Development and implementation						
Systems development						
Product management	PROD			3	4 5 6	
Systems development management	DLMG			5	6 7	
Systems and software life cycle engineering	SLEN			4	5 6 7	
Systems design	DESN			3	4 5 6	
Software design	SWDN	2	3	4	5 6	
Network design	NTDS			3	4 5 6	
Hardware design	HWDE			3	4 5 6	
Programming/software development	PROG	2	3	4	5 6	
Systems integration and build	SINT	2	3	4	5 6	
Testing	TEST	1	2	3	4 5 6	
Software configuration	PORT			3	4 5 6	
Real-time/embedded systems development	RESO	2	3	4	5 6	
Safety engineering	SFEN			3	4 5 6	
Safety assessment	SFAS			4	5 6	
Radio frequency engineering	RFEN	2	3	4	5 6	
Animation development	ADEV			3	4 5 6	
Data and analytics						
Data management	DATM			4	5 6	
Data modelling and design	DTAN	2	3	4	5	
Database design	DBDS			3	4 5	
Data engineering	DENG	2	3	4	5 6	
Database administration	DBAD	2	3	4	5	
Data science	DATS	2	3	4	5 6 7	
Machine learning	MLNG	2	3	4	5 6	
Business intelligence	BINT	2	3	4	5	
Data visualisation	VISL			3	4 5	
User experience						
User research	URCH			3	4 5 6	
User experience analysis	UNAN			3	4 5	
User experience design	HCEV			3	4 5 6	
User experience evaluation	USEV	2	3	4	5 6	
Content management						
Content authoring	INCA	1	2	3	4 5 6	
Content publishing	ICPM	1	2	3	4 5 6	
Knowledge management	KNOW	2	3	4	5 6 7	
Computational science						
Scientific modelling	SCMO			4	5 6 7	
Numerical analysis	NUAN			4	5 6 7	
High-performance computing	HPCC			4	5 6 7	

Relationships and engagement						
Stakeholder management						
Sourcing	SORC	2	3	4	5 6 7	
Supplier management	SUPP	2	3	4	5 6 7	
Contract management	ITCM			3	4 5 6	
Stakeholder relationship management	RLMT			4	5 6 7	
Customer service support	CSMG	1	2	3	4 5 6	
Business administration	ADMN	1	2	3	4 5 6	
Sales and marketing						
Marketing	MKTG			2	3 4 5 6	
Selling	SALE			3	4 5 6	
Sales support	SSUP	1	2	3	4 5 6	

Delivery and operation						
Technology management						
Technology service management	ITMG				5	6 7
Application support	ASUP			2	3 4 5	
IT infrastructure	ITOP	1	2	3	4 5	
System software	SVSP			3	4 5	
Network support	NTAS			2	3 4 5	
Systems installation and removal	HSIN	1	2	3	4 5	
Configuration management	CFMG			2	3 4 5 6	
Release and deployment	RELM			3	4 5 6	
Storage management	STMG			3	4 5 6	
Facilities management	DCMA			3	4 5 6	
Service management						
Service level management	SIMO	2	3	4	5 6 7	
Service catalogue management	SCMG			3	4 5	
Availability management	AVMT			4	5 6	
Capacity management	CPMG			4	5 6	
Incident management	USUP			2	3 4 5	
Problem management	PBMG			3	4 5	
Change control	CHMG			2	3 4 5 6	
Asset management	ASMG			2	3 4 5 6	
Service acceptance	SEAC			4	5 6	
Security services						
Security operations	SCAD	1	2	3	4 5 6	
Vulnerability assessment	VUAS			2	3 4 5	
Digital forensics	DCFS			3	4 5 6	
Penetration testing	PENT			3	4 5 6	

People and skills						
People management						
Performance management	PEMT			4	5 6	
Employee experience	EEXP			4	5 6	
Organisational facilitation	OFCL			4	5 6	
Professional development	PDSV			4	5 6	
Workforce planning	WFPL			4	5 6	
Resourcing	RESC			3	4 5 6	
Skills management						
Learning and development management	ETMG			3	4 5 6 7	
Learning design and development	TMCR			3	4 5	
Learning delivery	ETDL			2	3 4 5	
Competency assessment	LEDA			3	4 5 6	
Certification scheme operation	CSOP			2	3 4 5 6	
Teaching	TEAC			2	3 4 5 6 7	
Subject formation	SUBF			4	5 6 7	

**Levels of responsibility**

The SFIA Framework describes seven levels of increasing responsibility, accountability and impact from Level 1, the lowest, to Level 7, the highest.

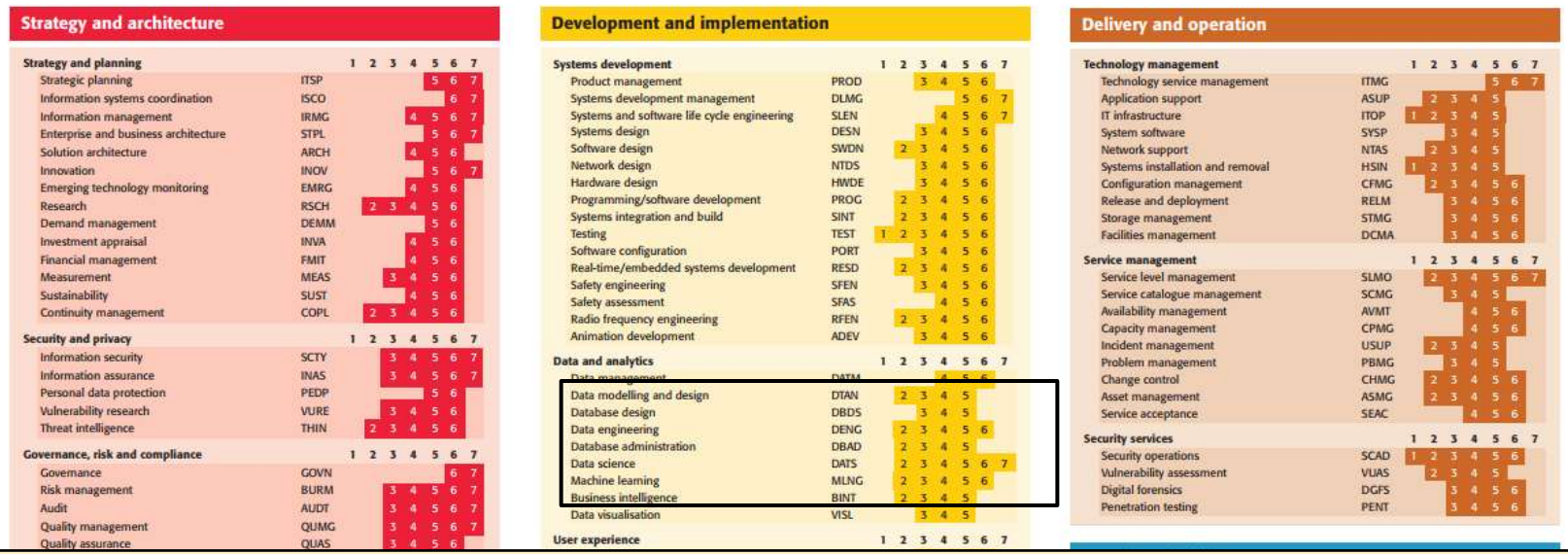
Each of the seven levels is labelled with a guiding phrase to summarise the level of responsibility.

- Level 1 - Follow
- Level 2 - Assist
- Level 3 - Apply
- Level 4 - Enable
- Level 5 - Ensure, advise
- Level 6 - Initiate, influence
- Level 7 - Set strategy, inspire, mobilise

# SFIA professional skills

## SFIA 8 Summary Chart

The global skills and competency framework for the digital world



Data management	Developing and implementing plans, policies, and practices that control, protect and optimise the value of data assets.	4	5	6			
Data modelling and design	Developing models and diagrams to represent and communicate data requirements and data assets.	2	3	4	5		
Database design	Specifying, designing and maintaining mechanisms for storing and accessing data.		3	4	5		
Data engineering	Designing, building, operationalising, securing and monitoring data pipelines and data stores.	2	3	4	5	6	
Database administration	Installing, configuring, monitoring, maintaining and improving the performance of databases and data stores.	2	3	4	5	6	
Data science	Applying mathematics, statistics, data mining and predictive modelling techniques to gain insights, predict behaviours and generate value from data.	2	3	4	5	6	7
Machine learning	Developing systems that learn through experience and by the use of data.	2	3	4	5	6	



# The full professional skills definition

Each skill description comprises an **overall definition of the skill**, some **guidance notes** and a **description of the skill at each of up to seven levels** at which the skill might be exercised.

These descriptions provide a detailed definition of what it means to practise the skill at each level of responsibility.

SFIA 8: The framework reference | Skills

## Data science DATS

Applying mathematics, statistics, data mining and predictive modelling techniques to gain insights, predict behaviours and generate value from data.

**Guidance notes**

Data science is typically used for analysing high volume, high velocity and high variety data (numbers, symbols, text, sound and image). Activities may include – but are not limited to:

- integrating methods from mathematics, statistics and probability modelling using specialised programming languages, tools and techniques
- sourcing and preparing data for analysis
- identifying, validating and exploiting internal and external data sets generated from a diverse range of processes
- developing forward-looking, predictive, real-time, model-based insights to create value and drive effective decision-making
- finding, selecting, acquiring and ingesting data sources;
- integrating and cleaning data to make it fit for purpose
- developing hypotheses and exploring data using models and analytics sandboxes
- refining requirements, validating, training and evolving models over time to discover deeper insights, make predictions, or generate recommendations.
- using advanced analytic techniques including – but not limited to – data/text mining, machine learning, pattern matching, forecasting, visualisation, semantic analysis, sentiment analysis, network and cluster analysis, multivariate statistics, graph analysis, simulation, complex event processing, neural networks.

**Level 2**  
Under guidance, applies given data science techniques to data. Analyses and reports findings and remediates simple issues, using algorithms implemented in standard software frameworks and tools.

**Level 3**  
Applies existing data science techniques to new problems and datasets using specialised programming techniques. Selects from existing 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 conforming to agreed standards.

148

SFIA 8: The framework reference | Skills

**Level 4**  
Investigates the described problem and dataset to assess the usefulness of data science and analytics solutions. Applies a range of data science techniques and uses specialised programming languages. Understands and applies rules and guidelines specific to the industry, and anticipates risks and other implications of modeling. Selects, acquires and integrates data for analysis. Develops data hypotheses and methods and evaluates analytics models. Advises on the effectiveness of specific techniques based on project findings and comprehensive research. Contributes to the development, evaluation, monitoring and deployment of data science solutions.

**Level 5**  
Plans and drives all stages of the development of data science and analytics solutions. Provides expert advice to evaluate the problems to be solved and the need for data science solutions. Identifies what data sources to use or acquire. Specifies and applies appropriate data science techniques and specialised programming languages. Reviews the benefits and value of data science techniques and tools and recommends improvements. Contributes to developing policy, standards and guidelines for developing, evaluating, monitoring and deploying data science solutions.

**Level 6**  
Leads the introduction and use of data science and analytics to drive innovation and business value. Develops organisational policies, standards, and guidelines for data science and analytics. Sets direction and leads in the introduction and use of data science and analytics techniques, methodologies and tools. Leads the development of organisational capabilities for data science and analytics. Plans and leads strategic, large and complex data science initiatives to generate insights, create value and drive decision-making.

**Level 7**  
Directs the creation and review of a cross-functional, enterprise-wide approach and culture for generating value from data science and analytics. Drives the identification, evaluation and adoption of data science and analytics capabilities to transform organisational performance. Leads the provision of the organisation's data science and analytics capabilities. Ensures that the strategic application of data science and analytics is embedded in the governance and leadership of the organisation. Aligns business strategies, enterprise transformation and data science and analytics strategies.

149

# Professional skills and generic attributes work together.

## Increasing responsibility, accountability and impact in Data science

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

Level 1 – Follow	Level 2 - Assist	Level 3 – Apply	Level 4 - Enable	Level 5 – Ensure, &	Level 6 – Initiate,	Level 7 – Set strategy, inspire, mobilise
<p>Generic attributes (summarized)</p> <p>Works under close direct supervision with limited discretion and influence.</p>	<p><b>Generic attributes</b></p> <p>Works under routine direction of immediate colleagues.</p>	<p><b>Generic attributes</b></p> <p>Works under general direction and monitors own work. Initiates work.</p>	<p><b>Generic attributes</b></p> <p>Has substantial personal responsibility for decisions which impact on organizational objectives.</p>	<p><b>Generic attributes</b></p> <p>Responsible for delivering on organizational objectives under broad supervision and influential advice in special circumstances.</p>	<p><b>Generic attributes</b></p> <p>Accountable for action in a significant area of work and strategy formation.</p>	<p><b>Generic attributes (summarized)</b></p> <p>Accountable at the highest organizational level, Makes decisions critical to organizational success.</p>
<p><b>Data science is not defined at Level 1</b></p>	<p><b>Data science: Level 2</b></p> <p>Under guidance, applies data science techniques to data.</p> <p>Analyses and reports findings on simple issues, using algorithms and standard software frameworks.</p>	<p><b>Data science: Level 3</b></p> <p>Applies existing data science problems and datasets using programming techniques.</p> <p>Selects from existing data science models and prepares data to be used in models.</p> <p>Evaluates the outcomes of data science models. Identifies opportunities to train and improve the data they use.</p> <p>Publishes and reports on findings to meet customer needs and agreed standards.</p>	<p><b>Data science: Level 4</b></p> <p>Investigates the description of data science to assess the usefulness of analytics solutions.</p> <p>Applies a range of data science techniques using specialised programming. Understands and applies specific to the industry and other implications.</p> <p>Selects, acquires and integrates data for analysis. Develops data science methods and evaluates their effectiveness. Advises on the effectiveness of techniques based on previous comprehensive research.</p> <p>Contributes to the development, monitoring and deployment of data science solutions.</p>	<p><b>Data science: Level 5</b></p> <p>Plans and drives all stages of data science and analytics solutions. Provides expert advice on data science problems to be solved using data science solutions. Identifies and uses or acquires data science solutions.</p> <p>Specifies and applies data science techniques and specialisms and languages.</p> <p>Reviews the benefits and costs of data science techniques and tools and recommends improvements. Contributes to policy, standards and governance, evaluating, monitoring and deploying data science solutions.</p>	<p><b>Data science: Level 6</b></p> <p>Leads the introduction of data science and analytics to drive organizational value.</p> <p>Develops organizational data science and guidelines for data science and analytics.</p> <p>Sets direction and leads the use of data science and analytics methodologies and tools and development of organizational data science and analytics capabilities.</p> <p>Plans and leads strategic data science initiatives to create value and drive organizational success.</p>	<p><b>Data science: Level 7</b></p> <p>Directs the creation and review of a cross-functional, enterprise-wide approach and culture for generating value from data science and analytics.</p> <p>Drives the identification, evaluation and adoption of data science and analytics capabilities to transform organizational performance. Leads the provision of the organization’s data science and analytics capabilities.</p> <p>Ensures that the strategic application of data science and analytics is embedded in the governance and leadership of the organization.</p> <p>Aligns business strategies, enterprise transformation and data science and analytics strategies.</p>

# SFIA describes skills – not roles or jobs

- ❑ SFIA defines individuals' skills and job requirements.
- ❑ organizations decide what their own roles/jobs are called and what responsibilities and skills they need.
  - This provides the flexibility demanded by industry and business
- ❑ It is common for a job/role to specify SFIA skills that are not all at the same level.
- ❑ Individuals may possess SFIA skills at varying levels, reflecting their experience.

# SFIA describes skills – not roles or jobs

## People

The SFIA framework provides...

A common language to describe the skills and competencies of individuals.

Employers...

- support assessment and development of skills and competencies

Individuals...

- assess their own skills and competencies & plan and execute their personal development

## The work people do

The SFIA framework provides...

Detailed descriptions of skills & competencies which are needed for jobs and roles

Employers...

- design & name jobs/roles, provide career pathways, create job descriptions

Individuals...

- use their skills & competencies to deliver their work objectives



# SFIA Describes skills – not roles or jobs

## SFIA skills for a Solution developer (example)

### Definitions of SFIA skills and levels

Programming/software development

System design

Database design

#### Level 3 – Apply

##### Generic attributes (summarized)

Performs varied tasks, sometimes complex and non-routine, using methodical approaches. Works under general direction, exercises discretion, and manages own work within deadlines.

System design: level 3

Database design: level 3

#### Level 4 - Enable

##### Generic attributes (summarized)

Performs diverse complex activities, supports and supervises others, works autonomously under general direction, and contributes expertise to deliver team objectives.

Programming/software development: level 4

