

SFIA 9 – a framework for AI & Machine learning skills

The global skills and competency framework for the digital world

AI/ML foundations

AI and data literacy		1	2	3	4	5	6	7
Artificial intelligence (AI) and data ethics	AIDE			3	4	5	6	
Learning design and development	TMCR		2	3	4	5		
Content design and authoring	INCA	1	2	3	4	5	6	
Learning delivery	ETDL		2	3	4	5		
Competency assessment	LEDA		2	3	4	5	6	

AI/ML strategy, architecture and innovation		1	2	3	4	5	6	7
Strategic planning	ITSP				4	5	6	7
Enterprise and business architecture	STPL					5	6	7
Solution architecture	ARCH				4	5	6	
Information management	IRMG			3	4	5	6	7
Information systems coordination	ISCO						6	7
Emerging technology monitoring	EMRG				4	5	6	
Formal research	RSCH	2	3	4	5	6		
Innovation management	INOV				5	6	7	
Methods and tools	METL	2	3	4	5	6		
Consultancy	CNSL				4	5	6	7
Specialist advice	TECH				4	5	6	

Building the AI/ML models		1	2	3	4	5	6	7
Data science	DATS		2	3	4	5	6	
Formal research	RSCH		2	3	4	5	6	
Emerging technology monitoring	EMRG				4	5	6	
Machine learning	MLNG	2	3	4	5	6		
Numerical analysis	NUAN				4	5	6	7
High-performance computing	HPCC				4	5	6	7

AI/ML governance and risk management		1	2	3	4	5	6	7
Stakeholder relationship management	RLMT				4	5	6	7
Governance	GOVN						6	7
Risk management	BURM		2	3	4	5	6	7
Continuity management	COPL		2	3	4	5	6	
Information and data compliance	PEDP					4	5	6
Artificial intelligence (AI) and data ethics	AIDE			3	4	5	6	

AI/ML education and automation

Learning and development		1	2	3	4	5	6	7
Learning design and development	TMCR		2	3	4	5		
Learning delivery	ETDL		2	3	4	5		
Competency assessment	LEDA		2	3	4	5	6	

Automate, Assist, Augment		1	2	3	4	5	6	7
Methods and tools	METL		2	3	4	5	6	
Innovation management	INOV					5	6	7
Business process improvement	BPRE		2	3	4	5	6	7
Specialist advice	TECH				4	5	6	
Risk management	BURM		2	3	4	5	6	7
Professional development	PDSV					4	5	6
Performance management	PEMT					4	5	6
Employee experience	EEXP					4	5	6
Job analysis and design	JADN			3	4	5		

AI/ML specialists need specialised skills in areas like machine learning, data engineering and data science, as well as a range of other skills that are reusable in the wider organisational context.

For professionals outside of the AI/ML domain, a foundational understanding of AI/ML principles is necessary, complementing their role-specific knowledge. They need the skills for their own specialism and the know-how to apply AI/ML concepts within their roles. E.g., for data analysis, decision-making, automation, product development, and strategic planning.

If you can't find a skill you are looking for, try the full SFIA framework.

AI/ML system development and engineering

Software development and testing for AI/ML systems		2	3	4	5	6	7
Programming/software development	PROG		2	3	4	5	6
Software design	SWDN		2	3	4	5	6
Software configuration	PORT		2	3	4	5	6
Functional testing	TEST	1	2	3	4	5	6
Non-functional testing	NFTS	1	2	3	4	5	6
User experience design	HCEV		2	3	4	5	6
User experience evaluation	USEV		2	3	4	5	6

ML operations and service management		1	2	3	4	5	6	7
Infrastructure operations	ITOP	1	2	3	4	5		
System software administration	SYSP		2	3	4	5		
Configuration management	CFMG		2	3	4	5	6	
Release management	RELM		2	3	4	5	6	
Asset management	ASMG		2	3	4	5	6	
Capacity management	CPMG		2	3	4	5	6	
Availability management	AVMT			3	4	5	6	
Incident management	USUP	1	2	3	4	5	6	
Problem management	PBMG		2	3	4	5		
Service level management	SLMO		2	3	4	5	6	7
Service catalogue management	SCMG		2	3	4	5		
Service acceptance	SEAC			3	4	5	6	

Hardware and embedded systems		1	2	3	4	5	6	7
Hardware design	HWDE		2	3	4	5	6	
Real-time/embedded systems development	RESD		2	3	4	5	6	

Data science, engineering and analytics		1	2	3	4	5	6	7
Data science	DATS		2	3	4	5	6	
Data analytics	DAAN		2	3	4	5	6	7
Data engineering	DENG		2	3	4	5	6	
Machine learning	MLNG		2	3	4	5	6	
Numerical analysis	NUAN				4	5	6	7
High-performance computing	HPCC				4	5	6	7
Database design	DBDS		2	3	4	5		
Data management	DATM		2	3	4	5	6	
Data modelling and design	DTAN		2	3	4	5		

AI/ML security and compliance

Information security and assurance for the use of AI/ML		3	4	5	6	7	
Information security	SCTY	2	3	4	5	6	7
Information assurance	INAS	2	3	4	5	6	7
Security operations	SCAD	1	2	3	4	5	6
Vulnerability assessment	VUAS	2	3	4	5		
Penetration testing	PENT	2	3	4	5	6	

Quality and measurement		1	2	3	4	5	6	7
Quality management	QUMG		2	3	4	5	6	7
Quality assurance	QUAS		2	3	4	5	6	
Measurement	MEAS		2	3	4	5	6	

Safety and compliance		1	2	3	4	5	6	7
Safety engineering	SFEN		2	3	4	5	6	
Safety assessment	SFAS				4	5	6	

SFIA provides a structured and consistent approach to defining AI/ML skills.

Each skill is clearly described, supplemented by guidance notes, and detailed level-by-level practice descriptions that align with the framework's 7 levels of responsibility. This uniform structure ensures ease of navigation and understanding, seamlessly integrating professional skills with behavioural factors to outline comprehensive role expectations. The consistent detail across all levels ensures robustness, allowing for precise skills and competency assessment.

The clarity in describing the nuances of AI/ML roles at every responsibility level makes it invaluable for developing and benchmarking AI/ML capabilities within an organisation.

AI/ML implementation and project management

Business analysis and process optimisation		1	2	3	4	5	6	7
Business situation analysis	BUSA		2	3	4	5	6	
Feasibility assessment	FEAS		2	3	4	5	6	
Business process improvement	BPRE		2	3	4	5	6	7
Requirements definition and management	REQM		2	3	4	5	6	
User acceptance testing	BPTS		2	3	4	5	6	
User research	URCH		2	3	4	5	6	

Supplier and contract management		1	2	3	4	5	6	7
Sourcing	SORC		2	3	4	5	6	7
Supplier management	SUPP		2	3	4	5	6	7
Contract management	ITCM		2	3	4	5	6	7

Project and change management for AI/ML initiatives		2	3	4	5	6	7
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 control	CHMG	2	3	4	5	6	
Organisational change management	CIPM	2	3	4	5	6	

Organisational management for AI/ML

Organisational design and workforce planning		1	2	3	4	5	6	7
Organisation design and implementation	ORDI			3	4	5	6	7
Job analysis and design	JADN			3	4	5		
Workforce planning	WFPL				4	5	6	
Resourcing	RESC		2	3	4	5	6	
Performance management	PEMT				4	5	6	

Financial management		1	2	3	4	5	6	7
Investment appraisal	INVA				4	5	6	
Financial analysis	FIAN			2	3	4	5	6
Budgeting and forecasting	BUOF			2	3	4	5	6
Cost management	COMG			2	3	4	5	6

Generic attributes

Attributes		1	2	3	4	5	6	7
Autonomy	AUTO	1	2	3	4	5	6	7
Complexity	COMP	1	2	3	4	5	6	7
Influence	INFL	1	2	3	4	5	6	7
Knowledge	KNGE	1	2	3	4	5	6	7

Business skills/Behavioural factors		1	2	3	4	5	6	7
Collaboration	COLL	1	2	3	4	5	6	7
Communication	COMM	1	2	3	4	5	6	7
Improvement mindset	IMPM	1	2	3	4	5	6	7
Creativity	CRTY	1	2	3	4	5	6	7
Decision-making	DECM	1	2	3	4	5	6	7
Digital mindset	DIGI	1	2	3	4	5	6	7
Leadership	LEAD	1	2	3	4	5	6	7
Learning and development	LADV	1	2	3	4	5	6	7
Planning	PLAN	1	2	3	4	5	6	7
Problem-solving	PROB	1	2	3	4	5	6	7
Adaptability	ADAP	1	2	3	4	5	6	7
Security, privacy and ethics	SCPE	1	2	3	4	5	6	7

SFIA Levels of responsibility		SFIA Level 1 Follow	SFIA Level 2 Assist	SFIA Level 3 Apply	SFIA Level 4 Enable	SFIA Level 5 Ensure, advise	SFIA Level 6 Initiate, influence	SFIA Level 7 Set strategy, inspire, mobilise
SFIA's attributes of Autonomy, Influence and Complexity are the key to determining level of impact, responsibility and accountability. Click the SFIA level to find the details.		Performs routine tasks under close supervision, follows instructions, and requires guidance to complete their work. Learns and applies basic skills and knowledge.	Provides assistance to others, works under routine supervision, and uses their discretion to address routine problems. Actively learns through training and on-the-job experiences.	Performs varied tasks, sometimes complex and non-routine, using standard methods and procedures. Works under general direction, exercises discretion, and manages own work within deadlines. Proactively enhances skills and impact in the workplace.	Performs diverse complex activities, supports and guides others, delegates tasks when appropriate, works autonomously under general direction, and contributes expertise to deliver team objectives.	Provides authoritative guidance in their field and works under broad direction. Accountable for delivering significant work outcomes, from analysis through execution to evaluation.	Influences the organisation significantly, makes high-level decisions, shapes policies, demonstrates thought leadership, fosters collaboration, and accepts accountability for strategic initiatives and outcomes.	Operates at the highest organisational level, determines overall organisational vision and strategy, and assumes accountability for overall success.