SFIA FOUNDATION

Skills Framework
for the Information Age

Framework reference SFIA version 3

Skill definitions in categories, subcategories and skills

Framework summary

Category	Subcategory	Skill	Code
Strategy and planning	Information strategy	Information management	IRMG
	Advice and guidance	Consultancy	CNSL
		Technical specialism	TECH
	Business/IS strategy and planning	Research	RSCH
		Innovation	INOV
		Business process improvement	BPRE
		Strategic application of information systems	STPL
		Business risk management	BURM
		Information security	SCTY
		Information assurance	INAS
	Technical strategy and planning	Systems architecture	ARCH
		Emerging technology monitoring	EMRG
		Continuity management	COPL
		Software development process improvement	SPIM
		Network planning	NTPL
		Methods and tools	METL
Development	Systems development	Systems development management	DLMG
		Data analysis	DTAN
		Systems design	DESN
		Network design	NTDS
		Database design	DBDS
		Programming/software development	PROG
		Safety engineering	SFEN
		Web site specialism	WBSP
		Systems testing	TEST
	Human factors	Systems ergonomics	HCEV
		Content creation	DOCM
		Non-functional needs analysis	UNAN
		Usability evaluation	USEV
		Human factors integration	HFIN
	Installation and integration	Systems integration	SINT
		Porting/software integration	PORT
		Systems installation/decommissioning	HSIN
Business change	Business change management	Business analysis	ANAL
		Programme management	PGMG
		Project management	PRMG
		Business process testing	BPTS
		Change implementation planning and management	CIPM
		Organisation design and implementation	ORDI
		Benefits management	BENM
	Relationship management	Stakeholder relationship management	RLMT
Service provision	Infrastructure	Configuration management	CFMG
		Change management	CHMG
		Capacity management	CPMG
		Systems software	SYSP
		Security administration	SCAD
		Radio frequency engineering	RFEN
		Availability management	AVMT
		Financial management for IT	FMIT
	Operation	Data protection	DPRO
		Application support	ASUP
		Management and operations	COPS
		Network control and operation	NTOP
		Database administration	DBAD
		Service level management	SLMO
	User support	Network support	NTAS
		Problem management	PBMG
		Service desk and incident management	USUP

Category	Subcategory	Skill	Code
Procurement and management support	Supply management	Procurement	PROC
		Supplier relationship management	SURE
	Quality	Quality management	QUMG
		Quality assurance	QUAS
		Quality standards	QUST
		Compliance audit	COMP
		Safety assessment	SFAS
	Resource management	Project office	PROF
		Asset management	ASMG
		Information System coordination	ISCO
		Client services management	CSMG
		Professional development	PDSV
		Resourcing	RESC
Ancillary skills	Education and training	Education and training management	ETMG
		Training materials creation and maintenance	TMCR
		Education and training delivery	ETDL
	Sales and marketing	Account management	ACMG
		Marketing	MKTG
		Selling	SALE
		Sales support	SSUP

The purpose of SFIA

The right people with the right skills in the right place at the right time.

The Skills Framework for the Information Age (SFIA) provides a common reference model for the identification of the skills needed to develop effective information systems (IS) making use of information technologies (IT). It is a simple and logical two dimensional framework consisting of areas of work on one axis and levels of responsibility on the other.

The overall purpose of SFIA is to assist organisations employing IT professionals to

- reduce IT project risk
- retain staff
- make recruitment effective
- enhance the effectiveness and efficiency of the IT function

by developing the right skills, by deploying them to best effect and by providing appropriate development and career paths for IT professionals.

SFIA uses a common language and a sensible, logical structure that can be used to facilitate the processes of skills development in all businesses using or providing Information Technology. It is easily understood by:

- IT professionals and their managers in industry and Government
- HR managers, professionals and training staff
- non-technical managers
- lecturers and curriculum planners in education and training organisations

How SFIA works

The Skills Framework for the Information Age provides a clear model for describing IT practitioners' skills. It is constructed as a two-dimensional matrix.

Skills in categories and subcategories

SFIA categories

- Strategy & planning
- Development
- Business change
- Service provision
- Procurement and Management support
- Ancillary skills

One axis presents the whole set of SFIA skills. These are defined in a way that makes them easily recognisable in the workplace: the practical nature of the descriptions means that they can effectively be used to construct an organisation's internal competency framework.

The skills are grouped for convenience into categories which are further broken down into subcategories.

The categories and subcategories are purely for the convenience of the SFIA user: they form a navigation aid. For example, SFIA does not claim to be offering a standard definition of the term 'Business change management', nor is it suggesting that this should be the title of a business role or job. It is simply a convenient heading under which to group certain related skills (business analysis, programme management, project management etc).

Levels in SFIA

SFIA levels

- 7 set strategy, inspire, mobilise
- 6 initiate, influence
- 5 ensure, advise
- 4 enable
- 3 apply
- 2 assist
- 1 follow

The other axis defines the different levels of responsibility and accountability exercised by IT practitioners. Each of seven generic levels – from new entrant to strategist level – is defined in terms of autonomy, influence, complexity and business skill.

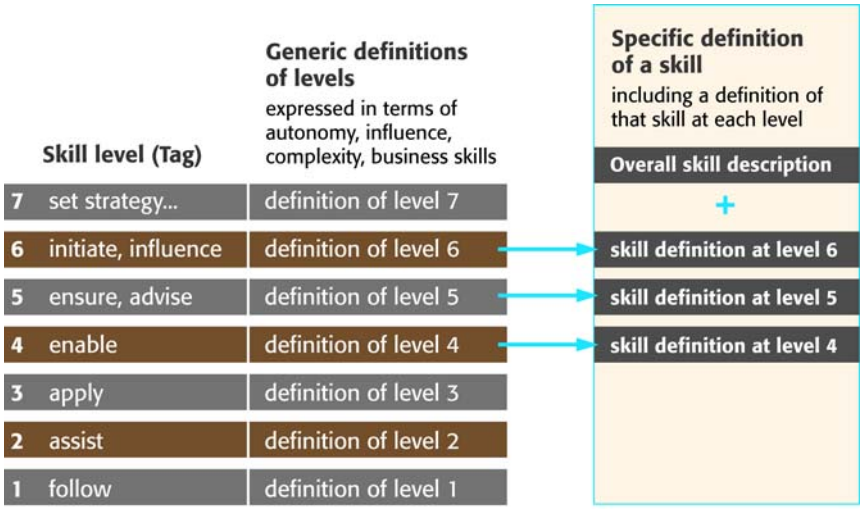
The matrix shows the complete set of skills used by IT practitioners. For each skill at each level, SFIA provides a clear description of the level of competence required. The matrix is not fully populated; many skills are not practised at every level of responsibility.

The full definitions of the levels of responsibility are given on page 7.

How the professional skills map on to the Framework

Each professional skill is recognised at several levels, though typically less than the seven which the matrix allows for.

As well as the overall description of the skill, there is a specific definition for each 'skill-at-a-level'. These map on to the framework as shown in the diagram below.

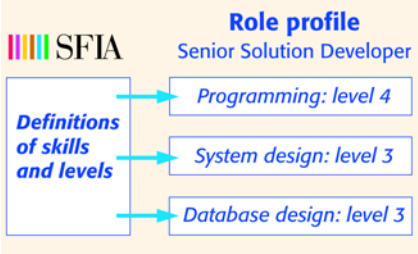


How SFIA is used

Primarily, SFIA is a model that allows the various skills management processes to refer to the same set of competency definitions.

SFIA allows the organisation to describe what individuals are capable of and/or what their jobs require. It does not say what their jobs are called; nor does it prescribe what the roles or jobs should consist of: that is a matter for the organisation.

Business roles



An organisation using SFIA normally identifies the various professional roles that need to be present in order for the business to work successfully. This applies whether the organisation is an IT product or service provider, or whether it is primarily a user of IT products and services. The next step is to define those roles in a set of role profiles containing descriptions of the skills required (as provided by SFIA), together with other information according to the organisation's HR standards. Each role profile would normally consist of more than one level.

The role profiles are then used (in conjunction with specific technological or application experience) as the basis for assigning people to projects. They are also used for assessment (how well people match the profile) and development (what actions are necessary for professionals to meet the requirements of the profile, or to achieve the next level).

Flexibility

Typically, a role profile would specify SFIA skills that are not all at the same level. For example, an organisation might recognise the role of Principal Software Engineer, having the skill of *Programming/software development level 5*, but having the skill of *Software development process improvement level 6*.

SFIA does not dictate how the responsibilities should be distributed in an organisation.

Levels of responsibility

Generic levels

This section describes the standard levels of responsibility and accountability used in the framework.

The underlying structure of the framework ensures that the definitions of professional skills are defined in a way that makes their different levels recognisably distinct.

Core competencies

The nature of these generic definitions makes them suitable for use as the basis of core competencies.

An organisation that already has a set of core competencies my wish to use them in combination with SFIA's professional skills. The organisation will still benefit from the sensible spacing of levels that the framework provides.

Existing levels

It may be required to map SFIA's professional skills on to an established structure of levels within an organisation. In that case, the generic levels can be used as a transition aid in order to establish the basis of the mapping.

Level 1: *follow*

Autonomy

Works under close supervision. Uses little discretion. Expected to seek guidance in unexpected situations.

Influence

Interacts with department.

Complexity

Performs routine activities in a structured environment. Requires assistance in resolving unexpected problems.

Business skills

Uses basic information systems and technology functions, applications, and processes. Demonstrates an organised approach to work. Capable of learning new skills and applying newly acquired knowledge. Basic oral and written communication skills. Contributes to identifying own development opportunities.

Level 2: *assist*

Autonomy

Works under routine supervision. Uses minor discretion in resolving problems or enquiries. Works without frequent reference to others.

Influence

Interacts with and may influence department. May have some external contact with customers and suppliers. May have more influence in own domain.

Complexity

Performs range of varied work activities in variety of structured environments.

Business skills

Understands and uses appropriate methods tools and applications. Demonstrates a rational and organised approach to work. Awareness of health and safety issues. Identifies and negotiates own development opportunities. Sufficient communication skills for effective dialogue with colleagues. Able to work in a team. Able to plan, schedule and monitor own work within short time horizons. Can absorb technical information when it is presented systematically and apply it effectively.

Level 3: *apply*

Autonomy

Works under general supervision. Uses discretion in identifying and resolving complex problems and assignments. Specific instruction is usually given and work is reviewed at frequent milestones. Determines when problems should be escalated to a higher level.

Influence

Interacts with and influences department/project team members. Frequent external contact with customers and suppliers. In predictable and structured areas may supervise others. Decisions may impact work assigned to individual/phases of project.

Complexity

Broad range of work, sometimes complex and non routine, in variety of environments.

Business skills

Understands and uses appropriate methods tools and applications. Demonstrates analytical and systematic approach to problem solving. Takes initiative in identifying and negotiating appropriate development opportunities. Demonstrates effective communication skills. Contributes fully to the work of teams. Can plan, schedule and monitor own work (and that of others where applicable) competently within limited time horizons and according to health and safety procedures. Is able to absorb and apply new technical information. Is able to work to required standards and to understand and use the appropriate methods, tools and applications. Appreciates wider field of information systems, how own role relates to other roles and to the business of the employer or client.

Level 4: *enable*

Autonomy

Works under general direction within a clear framework of accountability. Substantial personal responsibility and autonomy. Plans own work, to meet given objectives and processes.

Influence

Influences team, and specialist peers internally. Influences customers at account level and suppliers. Some responsibility for work of others and allocation of resources. Participates in external activities related to specialisation. Decisions influence success of projects and team objectives.

Complexity

Broad range of complex technical or professional work activities, in a variety of contexts.

Business skills

Selects appropriately from applicable standards, methods, tools and applications and use. Demonstrates analytical and systematic approach to problem solving. Communicates fluently orally and in writing and can present complex technical information to both technical and non-technical audiences. Is able to plan, schedule and monitor work activities in order to meet time and quality targets and in accordance with health and safety procedures. Is able to absorb rapidly new technical information and apply it effectively. Good appreciation of wider field of information systems, its use in relevant employment areas and how it relates to the business activities of the employer or client. Maintains awareness of developing technologies and their application and takes some responsibility for personal development..

Level 5: *ensure, advise*

Autonomy

Works under broad direction. Full accountability for own technical work or project/supervisory responsibilities. Receives assignments in the form of objectives. Establishes own milestones, team objectives and delegates assignments. Work is often self-initiated.

Influence

Influences organisation, customers, suppliers and peers within industry on contribution of specialisation. Significant responsibility for the work of others and for the allocation of resources. Decisions impact on success of assigned projects i.e. results, deadlines and budget. Develops business relationships with customers.

Complexity

Challenging range and variety of complex technical or professional work activities. Work requires application of fundamental principles in a wide and often unpredictable range of contexts. Understands relationship between specialism and wider customer/ organisational requirements.

Business skills

Advises on the available standards, methods, tools and applications in own area of specialisation and can make correct choices from alternatives. Can analyse, diagnose, design, plan, execute and evaluate work to time, cost and quality targets. Communicates effectively, formally and informally, with colleagues, subordinates and customers. Demonstrates leadership. Clear understanding of the relationship between own area of responsibility/specialisation to the employing organisation and takes customer requirements into account when making proposals. Takes initiative to keep skills up to date. Maintains awareness of developments in the industry. Can analyse user requirements and advise users on scope and options for operational improvement. Demonstrates creativity and innovation in applying solutions for the benefit of the user.

Level 6: *initiate, influence*

Autonomy

Has defined authority and responsibility for a significant area of work, including technical, financial and quality aspects. Establishes organisational objectives and delegates assignments. Accountable for actions and decisions taken by self and subordinates.

Influence

Influences policy formation on contribution of specialisation to business objectives. Influences significant part of own organisation and influences customer or suppliers and industry at senior management level. Decisions impact work of employing organisations, achievement of organisational objectives and financial performance. Develops high-level relationships with customers, suppliers and industry leaders.

Complexity

Highly complex work activities covering technical, financial and quality aspects and contributing to formulation of IS strategy. Work involves creative application of wide range of technical and/or management principles.

Business skills

Can absorb complex technical information and communicate effectively at all levels to both technical and non-technical audiences. Is able to assess and evaluate risk and to understand the implications of new technologies. Demonstrates clear leadership skills and the ability to influence and persuade. Has a broad understanding of all aspects of information systems and deep understanding of area(s) of specialisation. Understands and communicates the role and impact of information systems in the employing organisation. Takes initiative to keep both own and subordinates' skills up to date and to maintain awareness of developments in the information systems industry.

Level 7: *set strategy, inspire, mobilise*

Autonomy

Has authority and responsibility for all aspects of a significant area of work, including policy formation and application. Is held fully accountable for actions taken and decisions made, both by self and subordinates.

Influence

Decisions critical to organisational success. Influences developments within information systems industry at highest levels. Advances exploitation of information systems within one or more organisations and/or the advancement of knowledge. Develops long-term strategic relationships with customers and industry leaders.

Complexity

Leads on formulation and application of strategy. Work involves application of highest level management and leadership skills. Has deep understanding of information systems industry and emerging technologies and implications for the wider business environment.

Business skills

Full range of strategic management and leadership skills. Understands, explains and presents complex technical ideas to both technical and non-technical audiences at all levels up to the highest in a persuasive and convincing manner. Has a broad and deep knowledge coupled with equivalent knowledge of the activities of those businesses and other organisations who use and exploit information systems. Is able to understand and communicate the potential impact of emerging technologies on organisations and individuals and can analyse the risks of using or not using such technologies. Takes initiative to keep both own and subordinates' skills up to date and to maintain awareness of developments in the IS industry and, in own area(s) of expertise.

Skills

Categories and subcategories

The skills in SFIA are grouped into categories and subcategories for the convenience of users.

It is not proposed that these equate to jobs or areas of personal responsibility. The grouping is intended to assist people who are incorporating SFIA skills in role profiles or job descriptions, or who are building an organisation's IT competency framework.

Inevitably, there are alternative approaches which would also work well. However, in this version of SFIA the prime factor in determining the grouping is the function being carried out. For this reason, management skills that relate to particular functions have been listed with those functions.

Layout

The skill definitions are presented within their categories and subcategories.

Each skill definition consists of the following:

Skill code

An abbreviated reference code. Example: *INSE*

Skill name

The name used for normal reference purposes. Example: *Information security*

Overall description

A broad definition of this skill, without any reference to the levels at which it might be practised. Example:

> The management of, and provision of expert advice on, the selection, design, justification, implementation and operation of information security controls and management strategies to maintain the confidentiality, integrity, availability, accountability and relevant compliance of information systems.

Level descriptions

Definitions of the skill for each of the levels at which it is practised. These are referred to as tasks. However their phrasing facilitates their use as professional competencies. Example:

Level 5 Conducts security risk assessments for business applications and computer installations; provides authoritative advice and guidance on security strategies to manage the identified risk. Investigates breaches of security, and recommends appropriate control improvements. Interprets security policy and contributes to development of standards and guidelines that comply with this.

Index of skill definitions

Skill definitions

Strategy & planning

Information strategy

Information management (IRMG)

The overall management of information, as a fundamental business resource, to ensure that the information needs of the business are met. Encompasses development and promotion of the strategy and policies covering the design of information structures and taxonomies, the setting of policies for the sourcing and maintenance of the data content, the management and storage of electronic content and the analysis of information structure (including logical analysis of data and metadata). Includes overall responsibility for compliance with regulations, standards and codes of good practice relating to information and documentation records management, information assurance and data protection.

Level 4 Takes responsibility for the accessibility, retrievability and protection of electronic information. Provides advice on the transformation of information from one format/medium to another, where appropriate. Maintains and implements information handling procedures. Ensures the availability, integrity and searchability of information through the application of formal data structures and protection measures. Identifies and complies with relevant organisational policies and procedures. Ensures that information is presented effectively.

Level 5 Takes responsibility for planning effective electronic information storage, sharing and publishing within the organisation. Maintains and communicates the organisation's information management strategy. Devises and implements electronic document and record systems, including classification, retrieval and retention processes. Maintains an inventory of information subject to data protection legislation. Reviews new business proposals and provides specialist advice on information management, including advice on and promotion of collaborative working. Responsible for ensuring compliance with organisational policies and procedures and overall information management strategy.

Level 6 Maintains and communicates the organisation's strategy for managing information, ensuring that uniformly recognised and accepted data definitions are developed and applied throughout the organisation. Models the processes and information required to support the organisation and devises corresponding data structures and architectures. Identifies the impact of any relevant statutory, internal or external regulations on the organisation's use of information.

Level 7 Establishes and communicates the organisation's information management strategy, developing it as an integrated part of the business strategy. Ensures that the organisation's business processes are correctly modelled and that the data architectures to support these are put in place, taking into account any relevant statutory, internal or external regulations.

Advice and guidance

Consultancy (CNSL)

The provision of advice, assistance and leadership in any area associated with the planning, procurement, provision, delivery, management, maintenance or effective use of information systems and their environments. The consultancy can deal with one specific aspect of IT and the business, or it can be wide ranging and address strategic business issues.

Level 5 Provides well-informed advice, typically within a specific technical specialism, ensuring that it is properly understood and appropriately exploited, to enhance the effectiveness of significant activities.

Level 6 Manages provision of specialist knowledge over a range of topics including the role of IT in the business; in own areas of expertise provides advice and guidance influencing the effectiveness of the organisation's business processes.

Level 7 Takes responsibility for a significant consultancy business, including business development, sales to major clients, account management and managing the delivery of consultancy services over a wide range of topics, including the role of IT in the business.

Technical specialism (TECH)

The management and provision of expert advice on a specific technical specialism. Examples of specialism can be any technology, technique, method, product or application area.

Level 5 Maintains knowledge of specific technical specialisms, provides detailed advice regarding their application, executes specialised tasks. The specialism can be any area of information or communication technology, technique, method, product or application area.

Level 6 Maintains an in-depth knowledge of specific technical specialisms and provides expert advice regarding their application. Can supervise specialist technical consultancy. The specialism can be any aspect of information or communication technology, technique, method, product or application area.

Level 7 Provides organisational leadership and guidelines to promote the development and exploitation of technical knowledge in the organisation.

Business/information systems strategy and planning

Research (RSCH)

The advancement of knowledge in one or more fields of information technology by innovation, experimentation, evaluation and dissemination, carried out in pursuit of a predetermined set of research goals.

Level 3 Within given research goals, builds on and refines appropriate outline ideas for research, i.e. evaluation, development, demonstration and implementation. Uses available resources to gain an up-to-date knowledge of any relevant field within information technology. Reports on work carried out and may contribute sections of material of publication quality.

Level 4 Contributes to research goals and builds on and refines appropriate outline ideas for research, i.e. evaluation, development, demonstration and implementation. Uses available resources to gain an up-to-date knowledge of any relevant field within information technology. Reports on work carried out and may contribute significant sections of material of publication quality. Contributes to research plans and identifies appropriate opportunities for publication and dissemination of research findings.

Level 5 Agrees research goals and generates original and worthwhile ideas in a specialised field within information technology. Develops, reviews and constructively criticises ideas, possibly leading a small research team, making necessary observations and tests and carrying them through to a full practical demonstration, wherever viable and feasible. Presents papers at conferences and writes journal papers of publication quality and/or presents reports, of an equivalent technical standard, to research clients.

Level 6 Sets research goals, makes effective proposals for the investment of funds in research projects, plays a major role in the development of the employing organisation's research policy and supervises the work of a research function. Gains an appreciation of current research work over a substantial area of information technology and takes a leading part in professional activities outside own employing organisation.

Innovation (INOV)

The capability to recognise and exploit business opportunities provided by IT (for example, the Internet), to ensure more efficient and effective performance of organisations, to explore possibilities for new ways of conducting business and organisational processes and to establish new businesses.

Level 6 Recognises potential strategic application of IT and initiates investigation and development of innovative methods of exploiting IT assets, to the benefit of organisations and the community. Plays an active role in improving the interface between the business and IT.

Business process improvement (BPRE)

The identification of new and alternative approaches to performing business activities. The analysis of business processes, including recognition of the potential for automation of the processes, assessment of the costs and potential benefits of the new approaches considered and, where appropriate, management of change and assistance with implementation.

Level 5 Analyses business processes; identifies alternative solutions, assesses feasibility and recommends new approaches. Contributes to evaluating the factors that must be addressed in the change programme. Helps establish requirements for the implementation of changes in the business process.

Level 6 Analyses business processes; identifies alternative solutions, assesses feasibility and recommends new approaches, typically seeking to exploit technology components. Evaluates the financial, cultural, technological, organisational and environmental factors that must be addressed in the change programme. Establishes requirements for the implementation of significant changes in organisational mission, business functions and process, organisational roles and responsibilities and scope or nature of service delivery.

Level 7 Identifies, proposes, initiates and leads significant improvement programmes, taking responsibility for the quality and appropriateness of the work performed and the realisation of measurable business benefits. Modifies existing process improvement approaches and/or develops new approaches to achieving improvement.

Strategic application of information systems (STPL)

The development or review of an information systems strategy to support an organisation's business goals and the development of plans to drive forward and manage that strategy. Working with others to embed the strategic management of information systems as part of the management of the organisation.

Level 5 Contributes to the creation or review of an information systems strategy which meets the requirements of the business. Develops plans to drive forward the strategy, taking advantage of available technology opportunities.

Level 6 Leads the creation or review of an information systems strategy which meets the requirements of the business. Identifies the business benefits of alternative strategies. Develops enterprise-wide information architecture and processes which ensure that the strategic application of technology is embedded in the management of the organisation. Ensures compliance between business strategies and technology directions.

Level 7 Directs the creation or review of an information systems strategy to support the strategic requirements of the business. Identifies the business benefits of alternative strategies. Directs development of enterprise-wide information architecture and processes which ensure that the strategic application of technology is embedded in the management of the organisation. Ensures compliance between business strategies and technology directions.

Business risk management (BURM)

The planning and implementation of organisation-wide processes and procedures for the management of operational risk.

Level 5 Carries out risk assessment within a defined functional or technical area of business. Uses consistent processes for identifying potential risk events, quantifying and documenting the probability of occurrence and impact on the business. Refers to domain experts for guidance on specialised areas of risk, such as architecture and environment. Coordinates the development of countermeasures and contingency plans.

Level 6 Plans and manages the implementation of organisation-wide processes and procedures, tools and techniques for the identification, assessment and management of risk inherent in the operation of business processes and of potential risks arising from planned IT-enabled change.

Information security (SCTY)

The management of, and provision of expert advice on, the selection, design, justification, implementation and operation of information security controls and management strategies to maintain the confidentiality, integrity, availability, accountability and relevant compliance of information systems.

Level 3 Applies and maintains specific security controls as required by organisational policy and local risk assessments to maintain confidentiality, integrity and availability of business information systems. Determines when security issues should be escalated to a higher level. Demonstrates effective communication of security issues to business managers and others.

Level 4 Conducts security risk assessments for defined business applications or IT installations in defined areas and provides advice and guidance on the application and operation of elementary physical, procedural and technical security controls (e.g. the key controls defined in BS7799).

Level 5 Conducts security risk assessments for business applications and computer installations; provides authoritative advice and guidance on security strategies to manage the identified risk. Investigates breaches of security and recommends appropriate control improvements. Interprets security policy and contributes to development of standards and guidelines that comply with this.

Level 6 Develops a corporate information security policy, standards and guidelines. Prepares and maintains organisational strategies that address the evolving business risk and information control requirements. Operates as a focus for IT security expertise for the organisation, working effectively with strategic organisational functions such as legal experts and technical support to provide authoritative advice and guidance on the requirements for security controls.

Information assurance (INAS)

The protection of systems and information in storage, processing, or transit from unauthorised access or modification. Denial of service to unauthorised users; or the provision of service to authorised users. Includes those measures necessary to detect, document and counter threats to the integrity of stored information, such as the application of firewalls and intrusion detection systems (IDS).

Level 3 Applies procedures to enhance resilience to unauthorised access. Recognises when an IT network/system has been attacked, can take immediate action to limit damage and escalates event to higher authority.

Level 4 Investigates suspected attacks and recommends remedial action.

Level 5 Develops procedures and implements the application of firewalls and IDS to improve network/system resilience.

Level 6 Protects and defends information and information systems by ensuring availability, integrity, authentication, confidentiality and non-repudiation. Provides for restoration of information systems by ensuring that protection, detection and reaction capabilities are incorporated.

Technical strategy and planning

Systems architecture (ARCH)

The specification of systems architectures, identifying the components needed to meet the present and future requirements, both functional and non-functional (such as security) of the business as a whole, and the interrelationships between these components. The provision of direction and guidance on all technical aspects of the development of, and modifications to, information systems to ensure that they take account of relevant architectures, strategies, policies, standards and practices and that existing and planned systems and IT infrastructure remain compatible.

Level 5 Uses appropriate tools, including logical models of components and interfaces, to contribute to the development of systems architectures. Produces detailed component specifications and translates these into detailed designs for implementation using selected products. Within a business change programme, assists in the preparation of technical plans and cooperates with business assurance and project staff to ensure that appropriate technical resources are made available. Provides advice on technical aspects of system development and integration (including requests for changes, deviations from specifications, etc.) and ensures that relevant technical strategies, policies, standards and practices are applied correctly.

Level 6 Leads development of architectures for complex systems, ensuring consistency with specified requirements agreed with both external and internal customers. Takes full responsibility for the balance between functional, service quality and systems management requirements within a significant area of the business. Establishes policy and strategy for the selection of systems architecture components and coordinates design activities, promoting the discipline to ensure consistency. Ensures that appropriate standards (corporate, industry, national and international) are adhered to. Within a business change programme, manages the target design, policies and standards, working proactively to maintain a stable, viable architecture and ensure consistency of design across projects within the programme.

Emerging technology monitoring (EMRG)

The identification of new and emerging hardware, software and communication technologies, products, methods and techniques and the assessment of their relevance and potential value to the organisation. The promotion of emerging technology awareness among staff and business management.

Level 5 Monitors the market to gain knowledge and understanding of currently emerging technologies. Identifies new and emerging hardware and software technologies and products based on own area of expertise, assesses their relevance and potential value to the organisation, contributes to briefings of staff and business management.

Level 6 Coordinates the identification and assessment of new and emerging hardware, software and communication technologies, products, methods and techniques. Evaluates the likely relevance of these for the business. Provides regular briefings to staff and business management.

Continuity management (COPL)

The provision of service continuity planning and support. This includes the identification of information systems that support critical business processes, the assessment of risks to those systems' availability, integrity and confidentiality and the coordination of planning, designing, testing and maintenance procedures and contingency plans to address exposures and maintain agreed levels of continuity. This function should be performed as part of, or in close cooperation with, the function that plans business continuity for the whole organisation.

Level 4 Provides input to the service continuity planning process and implements resulting plans.

Level 5 Owns the service continuity planning process and leads the implementation of resulting plans. Coordinates the identification by specialists across the organisation of information and communication systems that support the critical business processes, and the assessment of risks to the availability, integrity and confidentiality of those systems. Evaluates the critical risks associated with these systems and identifies priority areas for improvement. Coordinates the planning, designing, testing of maintenance procedures and contingency plans to address exposure to risk and ensure that agreed levels of continuity are maintained.

Software development process improvement (SPIM)

The provision of advice, assistance and leadership in improving the quality of software development, by focusing on process definition, management, repeatability and measurement. The facilitation of improvements by changing approaches and working practices, typically using recognised models such as the Capability Maturity Model Integration (CMMI), or the Software Process Improvement and Capability dEtermination Model (SPICE).

Level 5 Develops and maintains a detailed knowledge of software process improvement. Contributes effectively to identifying new areas of software process improvement within the organisation. Carries out software process improvement assignments, justified by measurable business benefits.

Level 6 Plans and manages the evaluation of software processes. Identifies, proposes and initiates software process improvement activities within the organisation, devising solutions. Takes action to exploit opportunities that will have a measurable effect on operational effectiveness, with associated benefits to the business.

Level 7 Identifies, proposes, initiates and leads significant improvement programmes, taking responsibility for the quality and appropriateness of the work performed and the realisation of measurable business benefits. Modifies existing software process improvement approaches and/or develops new approaches to achieving improvement.

Network planning (NTPL)

The creation and maintenance of overall network plans, encompassing the communication of data, voice, text and image, in the support of an organisation's business strategy. This includes participation in the creation of service level agreements and the planning of all aspects of infrastructure necessary to ensure provision of network services to meet such agreements.

Level 5 Creates and maintains network plans for own area of responsibility, contributes to setting service level agreements and plans the infrastructure necessary to provide the network services to meet such agreements.

Level 6 Creates and maintains overall network plans to support the organisation's business strategy, agrees service level agreements with customers and plans all aspects of the infrastructure necessary to ensure provision of network services to meet such agreements.

Methods and tools (METL)

Ensuring that appropriate methods and tools for the planning, development, operation, management and maintenance of systems are adopted and used effectively throughout the organisation.

Level 4 Provides expertise and support on use of methods and tools.

Level 5 Promotes and ensures use of appropriate techniques, methodologies and tools.

Level 6 Sets direction and leads in the introduction and use of techniques, methodologies and tools, to match overall business requirements (both current and future), ensuring consistency across all user groups.

Development

Systems development

Systems development management (DLMG)

The management of resources in order to plan, estimate and carry out programmes of systems development work to time, budget and quality targets and in accordance with appropriate standards.

Level 5 Agrees, with business management, systems development projects that support the organisation's objectives and plans. Ensures that management is both aware of and able to provide the required resources, and that available resources are properly utilised and accounted for. Monitors and reports on the progress of systems development projects, using appropriate quality assurance processes to ensure that projects are carried out in accordance with agreed standards, methods and procedures.

Level 6 Identifies and manages resources necessary for all stages (planning, estimation, execution) of individual systems development projects to ensure that technical, financial and quality targets are met.

Level 7 Sets strategy for resource management within systems development, authorises allocation of resources for programmes of systems development projects and maintains an overview of the contribution of the programmes to organisational success.

Data analysis (DTAN)

The provision of specialist expertise and practical assistance in the investigation, evaluation and interpretation of data in order to ensure its coherence, availability, accuracy and security to meet information and communication systems requirements.

Level 2 Applies data analysis and data modelling techniques to establish, modify or maintain a data structure and its associated components (entity descriptions, relationship descriptions, attribute definitions).

Level 3 Applies data analysis, data modelling and quality assurance techniques, based upon a detailed understanding of business processes, to establish, modify or maintain data structures and associated components (entity descriptions, relationship descriptions and attribute definitions). Advises database designers and other application development team members on the details of data structures and associated components.

Level 4 Investigates corporate data requirements and applies data analysis, data modelling and quality assurance techniques, to establish, modify or maintain data structures and their associated components (entity descriptions, relationship descriptions, attribute definitions). Provides advice and guidance to database designers and others using the data structures and associated components.

Level 5 Sets standards for data analysis tools and techniques, advises on their application and ensures compliance. Manages the investigation of corporate data requirements and coordinates the application of data analysis and data modelling techniques, based upon a detailed understanding of the corporate information requirements, in order to establish, modify or maintain data structures and their associated components (entity descriptions, relationship descriptions, attribute definitions).

Systems design (DESN)

The specification and design of information systems, their components and architecture to meet defined business needs.

Level 2 Undertakes the complete design of simple applications using simple templates and tools. Assists as part of a team on the design of components of larger systems. Produces detailed designs including, for example, physical data flows, file layouts, common routines and utilities, program specifications or prototypes and backup, recovery and restart procedures.

Level 3 Specifies user/system interfaces and translates logical designs into physical designs taking account of target environment, performance requirements and existing systems. Produces detailed designs and documents all work using required standards, methods and tools, including prototyping tools where appropriate.

Level 4 Recommends/designs structures and tools for systems which meet business needs. Delivers technical visualisation of proposed applications for approval by customer and execution by system developers. Translates logical designs into physical designs and produces detailed design documentation. Maps work to user specification and removes errors and deviations from specification to achieve user-friendly processes.

Level 5 Specifies and designs large or complex systems. Selects appropriate design standards, methods and tools and ensures that they are applied effectively. Reviews others' system design to ensure selection of appropriate technology, efficient use of resources and integration of multiple systems and technology. Establishes policy for selection of architecture components. Evaluates and undertakes impact analysis on major design options. Ensures that the system architecture balances functional, service quality and systems management requirements.

Level 6 Controls system design practice within an enterprise or industry architecture. Influences industry-based models for the development of new technology applications. Develops effective implementation and procurement strategies, consistent with business needs.

Network design (NTDS)

The production of network designs and design policies, strategies, architectures and documentation, covering voice, data, text, e-mail, facsimile and image, to support business requirements and strategy. This may incorporate all aspects of the communications infrastructure, internal and external, mobile, public and private, Internet, intranet and call centres.

Level 5 Produces outline system designs and specifications and overall architectures, topologies, configuration databases and design documentation of networks and networking technology within the organisation. Specifies user/system interfaces, including validation and error correction procedures, processing rules, access, security and audit controls, recovery routines and contingency procedures. Translates logical designs into physical designs.

Level 6 Takes responsibility for major aspects of network specification and design within the organisation. Produces network design policies, philosophies and criteria covering connectivity, capacity, interfacing, security, resilience, recovery, access and remote access.

Database design (DBDS)

The specification, design and maintenance of structures for information storage and access to support business information needs.

Level 2 Translates and implements simple development project requirements into physical database structures. Assesses proposed changes to object and data structures and implements these changes in physical databases. Assists in database management system support activities for operational database systems.

Level 3 Develops specialist knowledge of database concepts, object and data modelling techniques and design principles. Translates object and data models into appropriate database schemas within design constraints. Interprets installation standards to meet project needs and produces database components as required. Evaluates potential solutions, demonstrating, installing and commissioning selected products.

Level 4 Develops and maintains specialist knowledge of database concepts, object and data modelling techniques and design principles and a detailed knowledge of database architectures, software and facilities. Analyses data requirements to establish, modify or maintain object/data models. Evaluates potential solutions, demonstrating, installing and commissioning selected products.

Level 5 Maintains and applies up-to-date, specialist knowledge of database concepts, object and data modelling techniques and design principles and a detailed knowledge of the full range of database architectures, software and facilities available. Analyses data requirements to establish, modify or maintain a data model. Takes account of specialist requirements (e.g. geocoding for geographic information systems). Interprets the model into an appropriate database schema within set policies. Demonstrates, installs and commissions selected products.

Level 6 Sets strategies for effective use of database technology, taking account of the complex interrelations between hardware and software. Provides specialist expertise in the development, use or operation of database management system tools and facilities. Provides expert knowledge in the selection, provision and use of database architectures, software and facilities, typically taking responsibility for a team of technical staff.

Programming/software development (PROG)

The design, creation, testing and documenting of new and amended programs from supplied specifications in accordance with agreed standards.

Level 2 Designs, codes, tests, corrects and documents simple programs and assists in the implementation of software which forms part of a properly engineered information or communications system.

Level 3 Designs, codes, tests, corrects and documents moderately complex programs and program modifications from supplied specifications, using agreed standards and tools. Conducts reviews of supplied specifications, with others as appropriate.

Level 4 Designs, codes, tests, corrects and documents large and/or complex programs and program modifications from supplied specifications using agreed standards and tools, to achieve a well-engineered result. Takes part in reviews of own work and leads reviews of colleagues' work.

Level 5 Sets standards for programming tools and techniques, advises on their application and ensures compliance. Takes technical responsibility for all stages in the software development process. Prepares project and quality plans and advises systems development teams. Assigns work to programming staff and monitors performance, providing advice, guidance and assistance to less experienced colleagues as required.

Safety engineering (SFEN)

The application of appropriate methods to assure safety during all lifecycle phases of safety-related system developments, including maintenance and reuse. These include safety hazard and risk analysis, safety requirements specification, safety-related system architectural design, formal method design, safety validation and verification and safety case preparation.

Level 3 Assists with the collection of safety assurance evidence, undertaking all work in accordance with agreed safety, technical and quality standards, using appropriate methods and tools. Documents the results of hazard and risk analysis activities.

Level 4 Contributes to the identification, analysis and documentation of hazards and to the capture, evaluation and specification of safety requirements. Analyses and documents safety validation results. Contributes to the development and maintenance of project safety assurance plans and gathers safety assurance evidence for safety case preparation.

Level 5 Identifies and analyses hazards and contributes to the identification and evaluation of risk reduction measures, ensuring that these are adequately documented. Specifies safety-related systems architectures up to the highest safety integrity levels. Develops and maintains project safety assurance plans, monitors compliance and ensures that safety assurance evidence is gathered for safety case preparation.

Level 6 Takes full responsibility for hazard analysis and risk assessment, safety-related system architectural design, safety assurance planning and compliance and safety case preparation on systems up to the highest safety integrity levels. Takes responsibility for the safety-related aspects of multiple complex or high safety integrity level projects, providing effective leadership to team members.

Web site specialism (WBSP)

The design, creation, testing, implementation and support of new and amended collections of pages of information on the world wide web or an intranet or extranet.

Level 2 Uses defined tools, templates and standards to design, create and test simple, well-engineered web pages with specified content and layout. Obtains and analyses web site usage data and presents it effectively.

Level 3 Liaises with clients/users to clarify details of requirements specifications. Designs, creates and tests moderately complex, well-engineered web pages with specified content and layout, including basic web interfaces to new or existing applications. Uses appropriate tools to make finished web material available on intranet or Internet.

Level 4 Designs the content and appearance of complex web pages in collaboration with clients/users. Creates and tests complex, well-engineered web pages with specified content and layout. Uses agreed tools and techniques to provide moderately complex web interfaces to new or existing applications.

Level 5 Selects appropriate tools, templates and standards for the creation of advanced web sites, appropriate to customer expectations (differentiating, for example, between needs such as optimisation and ease of modification). Sets design and coding standards, taking into account bandwidth and browser compatibility issues. Takes responsibility for project management of web site assignments, including design of the overall information structure and graphical style for substantial, complex or high-profile web sites.

Systems testing (TEST)

The planning, design, management, execution and reporting of tests, using appropriate testing tools and techniques and conforming to agreed standards, to ensure that new and amended systems, together with any interfaces, perform as specified.

Level 2 Interprets and executes simple test cases, recording and reporting outcomes.

Level 3 Creates simple test cases and test scripts. Interprets and executes moderately complex test scripts, mapping back to predetermined criteria, recording and reporting outcomes.

Level 4 Produces test scripts and procedures to test new and amended software. Interprets, executes and documents complex test scripts using agreed methods and standards. Reviews test results and modifies tests if necessary. Produces reports on system quality and metrics on test cases.

Level 5 Coordinates and manages planning of the system and acceptance tests within a development project or programme and coordinates the execution of these plans. Provides authoritative advice and guidance on any aspect of test planning and execution.

Level 6 Takes responsibility for the management of the testing activities within a development project or programme. Manages all risks associated with the testing and takes preventative action when any risks become unacceptable. Assesses and advises on the practicality of testing process alternatives. Identifies improvements to the process and assists in their implementation.

Human factors

Systems ergonomics (HCEV)

The iterative development of the allocation of function (between the human, machine and organisational elements of systems), user interaction and job design. Optimisation of accessibility and usability, based on user requirements, the context of use, relevant ergonomics knowledge and feedback from evaluations of prototypes.

Level 3 Applies ergonomics tools and methods to allocate functions and design user interaction and users' jobs.

Level 4 Specifies how to use ergonomics tools and methods to allocate functions and design user interaction and users' jobs.

Level 5 Advises what ergonomics tools and methods to use in order to allocate functions and design user interaction and users' jobs.

Level 6 Is responsible for organisational commitment to high standards in human factors. Specifies ergonomics standards and methods to meet organisational objectives.

Content creation (DOCM)

The planning, design and creation of information content, to be delivered electronically or otherwise. This includes managing the quality assurance and publication process.

Level 2 Develops an understanding of publications support activities such as drafting, illustrating, printing, etc. Develops a broad understanding of technical publication concepts, tools and methods and the way in which these are implemented. Works with colleagues and clients to create new sections of technical documentation through all stages of the publication process as support literature.

Level 3 Designs individual documentation plans for documentary items. Organises reviews of draft material. Manages the configuration of documentary items and documentation project files, within own area of responsibility. Organises final review and testing of documentary items.

Level 4 Determines the documentation needs of users. Designs individual documentation plans. Creates drafts for review of information format and content. Organises the production and distribution of approved documentary items. Manages the configuration of documentary items and documentation project files, within own area of responsibility.

Level 5 Develops standards and procedures to support documentation strategy. Designs overall support information package plans. Manages small teams of authors, ensuring that they are aware of and work to relevant standards. Advises on appropriate documentation formats and documentation systems to satisfy requirements. Organises reviews of draft material.

Level 6 Develops strategies for the delivery of support information, including preferred media, rules for format of content, and reprographics strategy if relevant. Manages documentation projects, ensuring that adequate procedures, standards, tools and resources are in place and implemented to ensure the appropriate quality of material developed by document content creators within the organisation.

Non-functional needs analysis (UNAN)

The establishment, clarification and communication of non-functional requirements for usability and utility, for example screen design/ layout, response times, capacity, resilience. The analysis of the characteristics of users and their tasks and the technical, organisational and physical environment in which products or systems will operate.

Level 3 Applies tools and methods to identify the non-functional requirements of users, their characteristics and tasks and the technical, organisational and physical environment in which the product or system will operate.

Level 4 Selects and uses tools and methods to establish, clarify and communicate the non-functional requirements of system users, their characteristics and tasks and identifies the technical, organisational and physical environment in which complex products or systems will operate.

Level 5 Advises on tools and methods to be used and clarifies and communicates the non-functional requirements of system users, their characteristics and tasks and the technical, organisational and physical environment in which products or systems will operate.

Usability evaluation (USEV)

Assessment of the usability (including health and safety and accessibility) of new or existing products or services (including prototypes). Methods include user trials, expert review, survey and analysis.

Level 2 Assists in the preparation for evaluations and in the operation of the test environment. Maintains the test environment.

Level 3 Performs, analyses and documents evaluations according to a plan, excluding expert reviews.

Level 4 Plans and performs all types of evaluation. Interprets and presents the results of evaluations.

Level 5 Advises on what to evaluate and the type of evaluation. Ensures that the results of evaluations are understood by system developers.

Human factors integration (HFIN)

Achievement of optimum levels of product or service usability, by ensuring that project and enterprise activities take account of the user experience.

Level 5 Advises on achievement of usability (including health and safety and accessibility) for IT products and services.

Level 6 Is responsible for organisational commitment to high standards in all aspects of the interaction between users and deployed technology – the user experience.

Level 7 Acts to influence the perception of the enterprise, in relation to ergonomics and the user experience of deployed IT products and systems, and to ensure that this is addressed in future design.

Installation and integration

Systems integration (SINT)

The incremental and logical integration and testing of components and/or subsystems and their interfaces in order to create operational systems.

Level 2 Produces software builds from software source code. Conducts tests as defined in an integration test specification, records the details of any failures and carries out fault diagnosis relating to simple failures, reporting the results of the diagnosis in a clear and concise manner.

Level 3 Defines the integration build and produces a build definition for generation of the software. Accepts software modules from software developers and produces software builds for loading onto target hardware from software source code. Configures the hardware environment, produces integration test specifications, conducts tests and records the details of any failures. Carries out and reports fault diagnosis relating to moderately complex problems.

Level 4 Defines the integration build, accepts software modules from software developers and produces software builds for loading onto the target environment. Configures the hardware environment, produces integration test specifications and conducts tests, recording details of any failures and carrying out fault diagnosis.

Level 5 Designs and builds integration components and interfaces. Leads practical implementation work under the technical direction of the system designer/architect. May contribute to the overall design of the solution. May define the technical criteria for product/component selection. Contributes to decisions about tools, methods and approaches.

Level 6 Sets standards, strategies and procedures across the development lifecycle in the areas of systems integration and testing and ensures that practitioners adhere to them. Manages resources to ensure that the systems integration function operates effectively.

Porting/software integration (PORT)

The integration of software products into existing software environments to produce new platform-specific versions of the software products.

Level 3 Assists in the configuration of software and equipment and systems testing of platform-specific versions of one or more software products. Documents faults, implements resolutions and retests to agreed standards.

Level 4 Configures software and equipment and tests platform-specific versions of one or more software products. Reports the outcome of the testing and identifies potential improvements to the process and to the software products according to agreed designs and standards.

Level 5 Leads a team, providing expert technical knowledge in the systems testing of platform-specific versions of the software products on varying platforms. Provides specialist guidance information to the support, systems testing and quality assurance functions to assist in improving procedures.

Level 6 Ensures the availability of hardware, software and resources for the systems testing of platform-specific versions of one or more software products. Defines configurations required for testing with reference to agreed testing standards. Evaluates new developments in the organisation and the industry and advises senior management on potential growth, problem areas and resourcing needs. Ensures adherence to agreed standards and good practice.

Systems installation/decommissioning (HSIN)

The installation, testing, implementation or decommissioning and removal of cabling, wiring, equipment, hardware and appropriate software, following plans and instructions and in accordance with agreed standards. The testing of hardware and software components, resolving malfunctions found and recording the results. The reporting of details of hardware and software installed so that configuration management records can be updated.

Level 1 Following agreed procedures, performs simple installations, replaces consumable items, checks the correct working of installation, documents and reports on work done.

Level 2 Installs or removes hardware and/or software, using supplied installation instructions and tools. Conducts tests and corrects malfunctions, calling on help from more experienced colleagues if required. Documents the results in accordance with agreed procedures. Assists with the evaluation of change requests. Contributes, as required, to investigations of problems and faults concerning the installation of hardware and/or software and confirms the correct working of installations.

Level 3 Installs or removes hardware and/or software, using supplied installation instructions and tools including, where appropriate, handover to client. Conducts tests, corrects malfunctions and documents the results in accordance with agreed procedures. Reports the details of all hardware/software items that have been installed and removed so that configuration management records can be updated. Provides assistance to users in a professional manner following agreed procedures for further help or escalation of request. Maintains accurate records of user requests, contact details and outcome. Contributes to the development of installation procedures and standards.

Level 4 Undertakes routine installations and de-installations of items of hardware and/or software. Takes action to ensure that targets are met within established safety and quality procedures, including, where appropriate, handover to client. Conducts tests of hardware and/or software using supplied test procedures and diagnostic tools. Corrects malfunctions, calling on other experienced colleagues and external resources if required. Documents details of all hardware/software items that have been installed and removed so that configuration management records can be updated. Develops installation procedures and standards and schedules installation work. Provides specialist guidance and advice to less experienced colleagues to ensure that best use is made of available assets and to maintain or improve the installation service.

Level 5 Takes responsibility for installation projects, providing effective team leadership, including information flow to and from the customer interface during project work. Develops and implements quality plans and method statements. Monitors effectiveness of installation and ensures that appropriate recommendations for change are made.

Business change

Business change management

Business analysis (ANAL)

The methodical investigation, analysis, review and documentation of all or part of a business in terms of business functions and processes, the information used and the data on which the information is based. The definition of requirements for improving any aspect of the processes and systems and quantification of potential business benefits. The creation of viable specifications and acceptance criteria in preparation for the construction of information and communication systems.

Level 3 Investigates operational requirements and problems, contributing to improvements in automated and non-automated components of new or changed processes. Assists in defining acceptance tests for automated systems.

Level 4 Investigates operational requirements and problems, seeking effective business solutions through improvements in automated and non-automated components of new or changed processes. Assists in the analysis of the underlying issues arising from investigations into requirements and problems and identifies available options for consideration. Works with clients/users in defining acceptance tests.

Level 5 Takes responsibility for investigative work to determine requirements and specify effective business processes, through improvements in information systems, data management, practices, procedures, organisation and equipment. Applies and monitors the use of required modelling and analysis tools, methods and standards. Conducts investigations at a high level for strategy studies, requirements specifications and feasibility studies. Defines, plans and justifies (in business terms) projects to develop/implement automated and non-automated components of new or changed processes.

Level 6 Takes full responsibility for business process analysis within a significant segment of an organisation where the advice given and decisions made will have a measurable impact on the profitability or effectiveness of the organisation. Establishes the contribution that technology can make to business objectives, defining strategies, drawing up requirements specifications, conducting feasibility studies, producing high-level and detailed business models, preparing business cases, overseeing development and implementing solutions, taking into account as necessary any implications of systems considered. Guides senior management towards accepting change brought about through process automation.

Programme management (PGMG)

The identification, planning and coordination of a set of related projects within a programme of business change, to manage their interdependencies in support of specific business strategies. Maintains a strategic view over the set of projects, providing the framework for implementing business initiatives, or large-scale change, by achieving a vision of the outcome of the programme. The vision, and the means of achieving it, may change as the programme progresses.

Level 6 Plans, directs and coordinates activities to manage and implement interrelated projects from contract/proposal initiation to final operational stage; plans, schedules, monitors and reports on activities related to the programme. Leads the programme teams in determining business requirements and translating requirements into operational plans. Determines, monitors and reviews all programme economics to include programme costs, operational budgets, staffing requirements, programme resources and programme risk. Ensures that the programme is managed to realise business benefits and that programme management is informed by an awareness of current technical developments.

Level 7 Aligns the objectives for information systems activities with business change objectives and authorises the selection and planning of all related projects and activities. Plans, directs and coordinates activities to manage and implement complex interrelated projects from contract/proposal initiation to final operational stage. Plans, schedules, monitors and reports on activities related to the programme. Leads the programme teams in determining business requirements and translating requirements into operational plans. Determines, monitors and reviews all programme economics, including programme costs, operational budgets, staffing requirements, programme resources and programme risk, ensuring that there are appropriate and effective governance arrangements, supported by comprehensive reporting. Evaluates changes to programme management practices and initiates improvement to organisation practices.

Project management (PRMG)

The management of projects, typically (but not exclusively) involving the development and implementation of business processes to meet identified business needs, acquiring and utilising the necessary resources and skills, within agreed parameters of cost, timescales and quality.

Level 4 Defines, documents and carries out small projects, actively participating in all phases. Identifies, assesses and manages risks to the success of the project. Prepares realistic project and quality plans and tracks activities against the plans, providing regular and accurate reports to stakeholders as appropriate. Monitors costs, timescales and resources used and takes action where these deviate from agreed tolerances. Ensures that own projects are formally closed and, where appropriate, subsequently reviewed, and that lessons learned are recorded.

Level 5 Takes responsibility for the definition, documentation and satisfactory completion of small- to medium-scale projects. Identifies, assesses and manages risks to the success of the project. Ensures that realistic project and quality plans are prepared and maintained and provides regular and accurate reports to stakeholders as appropriate. Ensures that quality reviews occur on schedule and according to procedure. Manages the change control procedure and ensures that project deliverables are completed within planned cost, timescale and resource budgets and are signed off. Provides effective leadership to the project team and takes appropriate action where performance deviates from agreed tolerances.

Level 6 Takes responsibility for the definition, documentation and successful completion of complex projects, ensuring that realistic project, quality and risk plans are prepared and maintained and that a change control procedure is in place. Monitors and controls resources, revenue and capital costs against the project budget and manages expectations of all project stakeholders.

Level 7 Sets organisational strategy governing the direction and conduct of project management. Authorises the management of large-scale projects. Leads project planning, scheduling, controlling and reporting activities for strategic, high-impact, high-risk projects. Manages risk and sees that solutions to problems are implemented in line with change control processes.

Business process testing (BPTS)

The planning, design, management, execution and reporting of business process tests and usability evaluations. The application of evaluation skills to the assessment of the ergonomics, usability and fitness for purpose of defined processes. This includes the synthesis of test tasks to be performed (from statement of user needs and user interface specification), the design of an evaluation programme, the selection of user samples, the analysis of performance and inputting results to the development team.

Level 4 Specifies and develops test scenarios to test that new/redesigned processes deliver improved ways of working for the end user at the same time as delivering efficiencies and planned business benefits. Records and reports test results. Uses test plans and outcomes to specify user instructions.

Level 5 Designs and manages tests of new/updated processes. Specifies test environment for whole lifecycle testing (e.g. using a model office concept). Manages the selection/creation of relevant scenarios for testing and ensures that tests reflect realistic operational business conditions. Ensures that tests and results are documented, reported to stakeholders and are available for specification of user instructions.

Level 6 Is responsible for organisational commitment to high standards in human factors. Specifies ergonomics standards and methods to meet organisational objectives. Sets the policy and standards for business process testing. Manages the design and execution of business process tests, usability evaluations, network and business trials, confidence tests.

Change implementation planning and management (CIPM)

Defining and managing the process of deploying and integrating IT capabilities into the business in a way that is sensitive to, and fully compatible with, business operations.

Level 5 Creates business readiness plan, taking into consideration IT deployment, data migration, capability deployment (training and engagement activities) and any business activities required to integrate new processes or jobs into the 'business as usual' environment. Determines the readiness levels of business users with regard to upcoming changes; uncovers readiness gaps and creates and implements action plans to close the gaps prior to going live. Assists the user community in the provision of transition support and change planning and liaises with the project team. Reports progress on business readiness targets, business engagement activity, training design and deployment activities, key operational metrics and return to productivity measures. Defines the series and sequence of activities to bring stakeholders to the required level of commitment, prior to going live.

Level 6 Ensures that there is a business perspective on how the new technical capabilities will be delivered to the business, including planning around key business cycles, selecting appropriate customers for migration, etc. Initiates the business implementation plan, including all the activities that the business needs to do to prepare for new technical components and technologies. Drives sites to deliver site implementation plans and align with the overall plan. Tracks and reports against these activities to ensure progress. Defines and manages the activities to ensure achievement of the business case after delivery. Outlines key business engagement messages that need to take place throughout the programme/project.

Organisation design and implementation (ORDI)

The design of organisation structure, role profiles, culture, performance measurement, competencies and skills, to support strategies for change and for training to enable the change. Identification of key attributes of the culture and key principles and factors for addressing location strategy.

Level 5 Conducts business impact assessment to identify how the changes from the 'as-is' processes, systems and structures to the 'to-be' processes, systems and structures impact specific organisations and roles. Outlines how the organisational structure, jobs, teams and roles need to change to enable the future business processes. Aligns existing jobs/organisational structures to new processes.

Level 6 Anticipates major changes affecting the organisation and mobilises resources to implement changes. Advises business managers about the implications of planned IT-enabled change on the business, on processes and on customers. Initiates the definition of new organisation boundaries and creates future organisation design, including location strategy and number of locations required. Outlines performance measurement objectives and the high-level implementation approach.

Benefits management (BENM)

Monitoring for the emergence of anticipated policy benefits (typically specified as part of the business case for a change programme or project). Action (typically by the programme management team) to optimise the business impact of individual and combined benefits.

Level 5 Identifies mechanisms by which benefits can be delivered and measured and plans to activate these mechanisms at the required time. Monitors outcomes against what was predicted in the business case and ensures that operational managers and staff are informed and involved throughout the change programme and fully prepared to exploit the new operational business environment once it is in place. Coordinates personnel from different disciplines and with different viewpoints and leads activities required in the realisation of the benefits of each part of the change programme.

Level 6 Promotes the change programme vision to staff at all levels of the business operation, brings order to complex situations and keeps a focus on business objectives. Works with senior people responsible for the line business operation to ensure that maximum improvements are made in the business operations as groups of projects deliver their products into operational use. Maintains the business case for funding the programme and confirms the continuing business viability of the programme at regular intervals.

Relationship management

Stakeholder relationship management (RLMT)

The coordination of relationships with and between key stakeholders, during the design, management and implementation of business change.

Level 5 Develops and manages one or more defined communication channels and/or stakeholder groups. Initiates communications between stakeholders, acting as a single point of contact for defined groups. Facilitates open communication and discussion between stakeholders. Captures and disseminates technical and business information. Facilitates the business change decision-making processes and the planning and implementation of change.

Level 6 Initiates and influences relationships with and between key stakeholders. Acts as a single point of contact for senior stakeholders and influencers. Supports effective business change by building relationships with and between senior strategists, planners, designers and operational business partners. Initiates procedures to improve relations and open communications with and between stakeholders. Initiates and has management oversight of processes to manage and monitor relationships including lessons learned and the feedback loop to and from business change teams.

Service provision

Infrastructure

Configuration management (CFMG)

The systematic management of information relating to the documentation, software, hardware and firmware assets of an organisation. This will involve identification and appropriate specification of all configuration items (CIs). Required information will relate to storage, access, problem reporting and change control of CIs. Application of status accounting and auditing, often in line with acknowledged external criteria such as ISO 9000, throughout all stages of the CI life history.

Level 3 Applies tools, techniques and processes for administering information (such as the tracking and logging of components and changes) related to CIs.

Level 4 Administers CIs and related information. Applies tools, techniques and processes for administering CIs and related information, ensuring protection of assets and components from unauthorised change, diversion and inappropriate use.

Level 5 Manages CIs and related information. Applies and maintains tools, techniques and processes for managing CIs and ensuring that related information is complete, current and accurate.

Level 6 Manages CIs and related information. Investigates and implements tools, techniques and processes for managing CIs and ensuring that related information is complete, current and accurate.

Change management (CHMG)

The management of all changes to the components of a live infrastructure, from requests for change (RFC) through to implementation and review, to support the continued availability, effectiveness and safety of the infrastructure.

Level 3 Develops, documents and implements changes based on RFC. Applies change control procedures.

Level 4 Assesses, analyses, develops, documents and implements changes based on RFC.

Level 5 Develops implementation plans for dealing with more complex requests for change, evaluates risks to the integrity of the infrastructure inherent in proposed implementations, seeks authority for those activities, undertakes review of effectiveness of change implementation, suggests improvement to organisational procedures governing change management. Leads the assessment, analysis, development, documentation and implementation of changes based on RFC.

Level 6 Sets the organisation's policy for the management of change in live services and ensures that the policy is reflected in practice.

Capacity management (CPMG)

The management of the capability and functionality of hardware, software and network components to meet current and predicted needs in a cost-effective manner. This will include dealing with both long-term changes and short-term variations in the level of demand.

Level 4 Monitors infrastructure capacity and initiates actions to resolve any shortfalls according to agreed procedures.

Level 5 Drafts and maintains policy, standards and procedures for infrastructure capacity management. Ensures the correct implementation of standards and procedures. Reviews information systems to identify any capacity issues and specifies any required changes.

Level 6 Develops strategies for providing sufficient infrastructure capacity to meet business needs. Ensures that the policy and standards for capacity management are fit for purpose and current and are correctly implemented. Reviews new business proposals and provides specialist advice on capacity issues.

System software (SYSP)

Specialist technical expertise in the installation and maintenance of system software such as operating systems, data management products, office automation products and other utility software.

Level 3 Uses system management software and tools to collect agreed performance statistics. Carries out agreed system software maintenance tasks.

Level 4 Reviews system software updates and identifies those that merit action. Tailors system software to maximise hardware functionality. Installs and tests new versions of system software. Investigates and coordinates the resolution of potential and actual service problems. Prepares and maintains operational documentation for system software. Advises on the correct and effective use of system software.

Level 5 Evaluates new system software, reviews system software updates and identifies those that merit action. Ensures that system software is tailored to maximise hardware functionality. Plans the installation and testing of new versions of system software. Investigates and coordinates the resolution of potential and actual service problems. Ensures that operational documentation for system software is fit for purpose and current. Advises on the correct and effective use of system software.

Security administration (SCAD)

The authorisation and monitoring of access to IT facilities or infrastructure in accordance with established organisational policy. Includes the investigation of unauthorised access, compliance with data protection and performance of other administrative duties relating to security management.

Level 3 Investigates minor security breaches in accordance with established procedures. Assists users in defining their access rights and privileges and operates agreed logical access controls and security systems. Maintains agreed security records and documentation.

Level 4 Investigates identified security breaches in accordance with established procedures and recommends any required actions. Assists users in defining their access rights and privileges and administers logical access controls and security systems. Maintains security records and documentation.

Level 5 Drafts and maintains the policy, standards, procedures and documentation for security. Reviews information systems for actual or potential breaches in security. Ensures that all identified breaches in security are promptly and thoroughly investigated. Ensures that any system changes required to maintain security are implemented. Ensures that security records are accurate and complete.

Level 6 Develops strategies for ensuring the security of automated systems. Ensures that the policy and standards for security are fit for purpose, current and correctly implemented. Reviews new business proposals and provides specialist advice on security issues and implications.

Radio frequency engineering (RFEN)

The deployment, integration, calibration, tuning and maintenance of radio frequency (RF) and analogue elements of IT systems.

Level 2 Assists with setting up, tuning and functional checks of RF/analogue elements. Resolves faults down to line replaceable unit (LRU) level or escalates according to given procedures. Carries out user confidence checks and escalates faults according to given procedures.

Level 3 Deploys, sets up, tunes and calibrates RF/analogue elements following maintenance schedules and using appropriate tools and test equipment. Incorporates hardware/firmware modifications. Interprets automatic fault/performance indications and resolves faults down to discrete component level or escalates according to given procedures.

Level 4 Investigates and resolves system-wide fault conditions using a wide range of diagnostic tools and techniques. Reconfigures equipment to circumvent temporary outages.

Level 5 Develops maintenance schedules and procedures. Approves equipment upgrades and modifications. Monitors system performance, recommends equipment modifications and changes to operating procedures, servicing methods and schedules.

Level 6 Specifies RF equipment performance requirements and sets maintenance policy.

Availability management (AVMT)

The overall control and management of services and their availability to ensure that all services meet all of their agreed availability targets.

Level 4 Contributes to the availability management process and its operation and performs defined availability management tasks. Analyses service and component availability, reliability, maintainability and serviceability. Ensures that services and components meet and continue to meet all of their agreed performance targets and service levels.

Level 5 Provides advice, assistance and leadership associated with the planning, design and improvement of service and component availability, including the investigation of all breaches of availability targets and service non-availability, with the instigation of remedial activities.

Level 6 Sets strategy and develops plans, policies and processes for the design, monitoring, measurement, reporting and continuous improvement of service and component availability, including the development and implementation of new availability techniques and methods.

Financial management for IT (FMIT)

The overall financial management, control and stewardship of the IT assets and resources used in the provision of IT services, ensuring that all governance, legal and regulatory requirements are complied with.

Level 4 Monitors and maintains all required financial records for compliance and audit to all agreed requirements. Assists all other areas of IT with their financial tasks, especially in the areas of identification of process, service, project and component costs and the calculation and subsequent reduction of all IT service, project, component and process failures.

Level 5 Monitors and manages IT expenditure, ensuring that all IT financial targets are met and examining any areas where budgets and expenditure exceed their agreed tolerances. Assists with the definition and operation of effective financial control and decision making, especially in the areas of service, projects and component cost models and the allocation and apportionment of all incurred IT costs.

Level 6 Sets strategy and develops plans, policies and processes for the accounting, budgeting and, where applicable, charging of IT resources and services, including the definition of cost models and charging models. Sets, negotiates, agrees and manages all financial budgets and targets, ensuring that there is adequate funding for all IT targets and plans, especially to meet development and capacity needs.

Operation

Data protection (DPRO)

The development and implementation of policies, procedures, working practices and training to comply with the requirements of legislation regulating the holding, use and disclosure of personal information such as, in the UK, the Data Protection Act, Computer Misuse Act, Freedom of Information Act.

Level 5 Creates and maintains an inventory of data that is subject to data protection legislation. Prepares and reviews notification of registration details and submits to the data protection authorities. Drafts and maintains the policy, standards and procedures for complying with data protection legislation. Reviews information systems for compliance with data protection legislation and specifies any required changes. Ensures that access requests and complaints are dealt with according to approved procedures.

Level 6 Develops strategies for complying with data protection legislation. Ensures that the policy and standards for compliance with data protection legislation are fit for purpose, current and correctly implemented. Reviews new business proposals and provides specialist advice on data protection compliance issues. Acts as the organisation's contact for the data protection authorities.

Application support (ASUP)

The provision of application maintenance and support services. Support may be provided both to users of the systems and to service delivery functions. Support typically takes the form of investigating and resolving problems and providing information about the systems. It may also include monitoring their performance. Problems may be resolved by providing advice or training to users about an application's functionality, correct operation or constraints, by devising work-arounds, correcting faults, making general or site-specific modifications, updating system documentation, manipulating data, or defining enhancements – often in close collaboration with the system's developers.

Level 2 Assists in the investigation and resolution of problems relating to applications. Assists with specified maintenance procedures.

Level 3 Identifies and resolves problems with applications, following agreed procedures. Uses application management software and tools to collect agreed performance statistics. Carries out agreed applications maintenance tasks.

Level 4 Maintains application support processes and checks that all requests for support are dealt with according to agreed procedures. Uses application management software and tools to investigate problems, collect performance statistics and create reports.

Level 5 Drafts and maintains procedures and documentation for applications support. Manages application enhancements to improve business performance. Ensures that all requests for support are dealt with according to set standards and procedures.

Management and operations (COPS)

The management and operation of the IT infrastructure (typically hardware, software and communications) and the resources required to plan for, develop, deliver and support properly engineered IT services and products to meet the needs of a business. Includes preparation for new or changed services, management of the change process and maintenance of regulatory, legal and professional standards, management of performance of systems and services in relation to their contribution to business performance and management of bought-in services including, for example, public network, virtual private network and outsourced services.

Level 1 Contributes, under instruction, to system operation.

Level 2 Carries out agreed operational procedures of a routine nature. Contributes to maintenance, installation and problem resolution.

Level 3 Carries out agreed operational procedures. Contributes to the implementation of maintenance and installation work. Identifies operational problems and contributes to their resolution.

Level 4 Provides technical expertise to enable the correct application of operational procedures. Contributes to the planning and implementation of maintenance and installation work. Identifies operational problems and contributes to their resolution. Provides appropriate information to specialists, users and managers.

Level 5 Takes responsibility for the design, procurement, installation, upgrading, operation, control, maintenance and effective use of IT components and monitors their performance. Provides technical management of an IT operation, ensuring that agreed service levels are met and all relevant procedures are adhered to. Schedules and supervises all maintenance and installation work. Ensures that operational problems are identified and resolved. Provides appropriate status and other reports to specialists, users and managers. Ensures that operational procedures and working practices are fit for purpose and current.

Level 6 Identifies and manages resources needed for the planning, development and delivery of specified information and communications systems services and products. Influences senior-level customers and project teams through change management initiatives, ensuring that professional standards are maintained. Takes full responsibility for budgeting, estimating, planning and objective setting. Plans and manages implementation of processes and procedures, tools and techniques for monitoring and managing the performance of automated systems and services, in respect of their contribution to business performance and benefits to the business, where the measure of success depends on achieving clearly stated business/financial goals and performance targets. Monitors performance and takes corrective action where necessary.

Level 7 Sets strategy for management of resources, including corporate telecommunications functions, and promotes the opportunities that technology presents to the employing organisation, including the feasibility of change and its likely impact upon the business. Authorises allocation of resources for the planning, development and delivery of all information systems services and products. Responsible for IT governance (the rules and regulations under which an IT department functions and the mechanisms put in place to ensure compliance with those rules and regulations). Authorises organisational policies governing the conduct of management of change initiatives and standards of professional conduct. Maintains an overview of the contribution of programmes to organisational success. Inspires creativity and flexibility in the management and application of IT. Sets strategy for monitoring and managing the performance of IT-related systems and services, in respect of their contribution to business performance and benefits to the business.

Network control and operation (NTOP)

The day-to-day support, operation and control of all equipment within an IT network infrastructure. Includes data backup and restore, production of network performance statistics, provision of network diagnostic information and site surveys.

Level 3 Carries out agreed network configuration, installation and maintenance. Uses standard procedures and tools to carry out defined system backups, restoring data where necessary. Uses network management tools to collect and report on network load and performance statistics. Contributes to network problem resolution.

Level 4 Uses network management tools to determine network load and performance statistics. Creates reports and proposals for improvement. Checks that problems are managed in accordance with agreed standards and procedures. Contributes to the investigation and diagnosis of network problems, working with users, other staff and suppliers as appropriate. Implements agreed network changes and maintenance routines.

Level 5 Takes responsibility for significant aspects of the installing, upgrading, operation, control, maintenance and effective use of local and wide area networks for the communication of data, voice, text or images. Manages the network to provide agreed levels of service and data integrity. Ensures that network performance and traffic is monitored and reviewed. Controls the investigation, diagnosis and resolution of network problems.

Level 6 Takes overall responsibility for the installation, upgrading, control and maintenance of local and wide area networks for the communication of data, voice, text or images. Ensures that the network is managed to provide agreed levels of service and data integrity. Ensures that network performance and traffic is monitored and reviewed. Ensures that network problems are resolved.

Database administration (DBAD)

The installation, configuration, upgrade, administration, monitoring and maintenance of physical databases.

Level 2 Assists in database support activities.

Level 3 Uses database management system software and tools to collect agreed performance statistics. Carries out agreed database maintenance and administration tasks.

Level 4 Uses database management system software and tools to investigate problems and collect performance statistics and create reports. Carries out routine configuration/installation and reconfiguration of database and related products.

Level 5 Drafts and maintains procedures and documentation for databases. Manages database configuration including installing and upgrading software and maintaining relevant documentation. Contributes to the setting of standards for database objects and ensures conformance to these standards. Monitors database activity and resource usage. Optimises database performance and plans for forecast resource needs.

Service level management (SLMO)

The planning, implementation and control of service provision. This includes negotiation, implementation and monitoring of service level agreements, and the ongoing management of operational facilities to provide the agreed levels of service, seeking continuously and proactively to improve service delivery.

Level 2 Monitors and logs the actual service provided, compared to that required by service level agreements.

Level 3 Monitors, gathers and reports service level information to ensure compliance with service level agreements.

Level 4 Performs defined tasks to monitor service delivery and maintains records of relevant information. Analyses service delivery records against agreed service levels on a regular basis to identify actions required to maintain or improve levels of service and initiates or reports these actions.

Level 5 Ensures that service delivery meets agreed service levels. Creates and maintains a catalogue of available services. Determines service level requirements and negotiates and agrees service levels. Diagnoses service delivery problems to identify actions required to maintain or improve levels of service. Initiates or refers required actions. Establishes and maintains operational methods, procedures and facilities in assigned area of responsibility and reviews them regularly for effectiveness and efficiency. Ensures that service delivery is monitored and all relevant information is recorded and analysed.

Level 6 Ensures that a catalogue of available services is created and maintained and that service level agreements are complete and cost effective. Ensures that service delivery is monitored effectively and that identified actions to maintain or improve levels of service are implemented. Ensures that operational methods, procedures, facilities and tools are established, reviewed and maintained. Negotiates with relevant parties in respect of disruptions and major amendments to the provision of services. Reviews service delivery to ensure that targets are met and prepares proposals to meet forecast changes in the level or type of service.

Level 7 Sets strategies for service delivery that support the strategic needs of the client organisation, authorises allocation of resources for monitoring service delivery arrangements, provides leadership within the industry on the identification of future trends (e.g. technical, market, industrial, socioeconomic, legislative), develops relationships with customers at the highest level to identify potential areas of mutual commercial interest for future development, maintains an overview of the contribution of service delivery arrangements to organisational success.

User support

Network support (NTAS)

The provision of network maintenance and support services. Support may be provided both to users of the systems and to service delivery functions. Support typically takes the form of investigating and resolving problems and providing information about the systems. It may also include monitoring their performance. Problems may be resolved by providing advice or training to users about the network's functionality, correct operation or constraints, by devising work-arounds, correcting faults, or making general or site-specific modifications.

Level 2 Assists in investigation and resolution of network problems. Assists with specified maintenance procedures.

Level 3 Identifies and resolves network problems following agreed procedures. Uses network management software and tools to collect agreed performance statistics. Carries out agreed network maintenance tasks.

Level 4 Maintains the network support process and checks that all requests for support are dealt with according to agreed procedures. Uses network management software and tools to investigate problems, collect performance statistics and create reports.

Level 5 Drafts and maintains procedures and documentation for network support. Ensures that all requests for support are dealt with according to set standards and procedures.

Problem management (PBMG)

The resolution of incidents and problems throughout the information system lifecycle, including classification, prioritisation and initiation of action, documentation of root causes and implementation of remedies.

Level 4 Monitors actions to investigate and resolve incidents and problems in systems and services. Assists with the implementation of agreed remedies and preventative measures.

Level 5 Ensures that appropriate action is taken to investigate and resolve incidents and problems in systems and services. Ensures that such incidents and problems are fully documented within the relevant reporting systems. Coordinates the implementation of agreed remedies and preventative measures.

Service desk and incident management (USUP)

The receipt of problem reports and the coordination of appropriate and timely responses, including channelling requests for help to appropriate functions for resolution, monitoring progress and keeping users apprised of progress.

Level 1 Receives and handles requests for support following agreed procedures. Promptly allocates calls as appropriate. Maintains relevant records.

Level 2 Receives and handles requests for support following agreed procedures. Responds to common requests for support by providing information to enable problem resolution and promptly allocates unresolved calls as appropriate. Maintains records and advises relevant persons of actions taken.

Level 3 Receives and handles requests for support following agreed procedures. Responds to requests for support by providing information to enable problem resolution and promptly allocates unresolved calls as appropriate. Maintains records and advises relevant persons of actions taken.

Level 4 Ensures that requests are handled according to agreed procedures. Ensures that documentation of the supported components is available and in an appropriate form for those providing support. Creates and maintains support documentation.

Level 5 Ensures that the inventory of components to be supported is complete and current. Drafts and maintains policy, standards and procedures for the help desk. Schedules the work of the help desk staff to meet agreed service levels.

Procurement & management support

Supply management

Procurement (PROC)

The management of, or provision of advice on, the procurement of goods and services.

Level 5 Clarifies specifications for key products and services. Investigates the technical and commercial options for fulfilling the requirements, including possible sources of supply, and agrees the preferred options and potential suppliers with the business. Ensures that suppliers are approved in accordance with company procedures. Manages the tender, evaluation and acquisition process with expert assistance as required. Negotiates with preferred suppliers, drafts contracts and technical schedules, develops acceptance procedures and criteria. Places contracts. Implements, maintains and disseminates procurement strategy, policy, standards, methods and processes.

Level 6 Leads the procurement process, from clarifying a specification to placing contracts, including identifying opportunities for business improvement. Ensures that the implementation of procurement strategies and evaluation criteria are in line with procurement legislation. Where no corporate policy exists, establishes procurement strategy, policy, standards, methods and processes. Agrees and meets budgets for the procurement of products and services.

Supplier relationship management (SURE)

On behalf of a client organisation, the sourcing and management of external suppliers to ensure successful delivery of products and services.

Level 3 Acts as the routine contact point between organisation and supplier. Collects and reports on supplier performance data.

Level 4 Monitors supplier performance, collects performance data and investigates problems. Resolves or escalates problems.

Level 5 Maintains a broad understanding of the commercial IT environment, how the organisation sources, deploys and manages external partners and when it is appropriate to use in-house resources. Develops and manages contracts with suppliers to meet key performance indicators and agreed targets. Is responsible for the liaison between the organisation and designated suppliers. Ensures that supplier performance is properly monitored and regularly reviewed. Advises on policy and procedures covering the selection of suppliers, tendering and procurement.

Level 6 Influences policy and procedures covering the selection of suppliers, tendering and procurement. Deploys highly developed commercial skills to source and manage external partners, engaging with professionals in other related disciplines (e.g. procurement specialists, lawyers) as appropriate. Is responsible for the management and maintenance of the relationship between the organisation and the supplier. Is well acquainted with the key performance indicators and contractual obligations and publishes performance and service improvement results. Leads regular review meetings for major contracts and suppliers. Contributes to, or is responsible for, negotiation of major contracts.

Level 7 Develops and deploys mechanisms that lead to positive relationships between the business and suppliers and is responsible for the overall management and development of the commercial relationships. Is the ultimate point of escalation for issues or problems. Determines policy and procedures covering the selection of suppliers, tendering and procurement. Is responsible for deployment and review of acquisition processes, and for negotiating major contracts.

Quality

Quality management (QUMG)

The management of, or provision of advice on, the application of appropriate quality and/or environmental management and process improvement techniques to any aspect of a function or process. The achievement of, and maintenance of compliance to, national and international standards, as appropriate.

Level 5 Advises on the application of appropriate quality and/or environmental management techniques. Facilitates improvements to processes by changing approaches and working practices, typically using recognised models.

Level 6 Prioritises areas for quality and/or environmental improvement in the light of the strategy, wider business objectives and advice from colleagues. Initiates the application of appropriate quality management techniques in these areas. Initiates improvements to processes by changing approaches and working practices, typically using recognised models. Achieves and maintains compliance against national and international standards, as appropriate. Identifies and plans systematic corrective action to reduce errors and improve the quality of the systems and services, by examination of the root causes of problems.

Level 7 Sets the quality strategy, for approval and adoption by business management. Measures the achievement of the quality policy in terms of meeting the organisation's needs and objectives and reviews it as necessary. Plans, resources (either directly or indirectly) and monitors the internal quality audit schedule. Defines and reviews quality and environmental systems. Ensures that adequate technology, procedures and resources are in place to support the quality system.

Quality assurance (QUAS)

The process of ensuring that the agreed quality standards within an organisation are adhered to and that best practice is promulgated throughout the organisation.

Level 3 Uses appropriate methods and tools, in the development, maintenance, control and distribution of quality and environmental standards. Makes technical changes to quality and environmental standards, according to documented procedures. Distributes new and revised standards.

Level 4 Investigates and documents the internal control of specified aspects of automated or partly automated processes and assesses compliance with the relevant standard. Takes responsibility for the control, distribution and filing of quality standards. Creates procedures and standards, according to documented processes. Identifies changes required to quality and/or environmental standards as a result of an audit or changes to current practice and takes responsibility for ensuring that they are made.

Level 5 Undertakes communication and training activities to update and refresh colleagues' knowledge on quality standards and the implication of revisions. Uses quality standards to review past performance and plan future activities. Identifies opportunities for maintaining and updating quality standards in the light of emerging best practice. Monitors and reports on the outputs from the quality assurance and audit processes. Advises on the development, maintenance, control and distribution of quality and environmental standards and ensures that this process supports organisational objectives.

Level 6 Develops organisational commitment to ongoing quality and environmental improvement by ensuring that the quality assurance process is robust and is based on the best industry practice. Considers implications of emerging technological developments, economic and social trends, etc. Reviews the audit process to ensure that it continues to meet needs of the standards.

Quality standards (QUST)

The development, maintenance, control and distribution of quality standards.

Level 2 Distributes new and revised quality standards and maintains department and quality group documentation.

Level 3 Controls, updates and distributes new and revised quality standards.

Level 4 Controls, updates and distributes new and revised quality standards, including technical changes.

Level 5 Takes responsibility for the control, update and distribution of quality standards and advice on their use.

Compliance audit (COMP)

The independent, third-party assessment of the conformity of any activity, process, deliverable, product or service with the criteria of specified standards, such as BS EN ISO 9000/14000, local standards, best practice or other documented requirements. May relate to, for example, asset management, network security tools, firewalls and Internet security, real-time systems and application design.

Level 3 Collects and collates evidence as part of a formally conducted and planned audit of activities, processes, products or services. Examines records as part of specified testing strategies for evidence of compliance with management directives, or the identification of abnormal occurrences.

Level 4 Plans programmes to audit activities, processes, products or services. Collects, collates and examines records as part of specified testing strategies for evidence of compliance with management directives or the identification of abnormal occurrences. Analyses evidence collated and drafts part, or all, of formal reports commenting on the conformance found to exist in the audited part of an information systems environment.

Level 5 Evaluates and independently appraises the internal control of automated business processes, based on investigation evidence and assessments undertaken by self or team. Ensures that independent appraisals follow agreed procedure and advises others on the audit process. Provides advice to management on ways of improving the effectiveness and efficiency of their control mechanisms. Compliance activity can include safety assessments of the design, testing and validation and verification methods used in given safety-related systems. Involves the identification and evaluation of associated risks and how they can be reduced.

Level 6 Specifies organisational procedures for the internal or third-party assessment of an activity, process, product or service, against recognised criteria such as BS EN ISO 9000/14000. Manages audits of automated processes. Agrees the terms of reference, prepares detailed plans, arranges interviews and obtains copies of documents. Identifies areas of risk and specifies interrogation programmes. Conducts interviews and reviews documents, processes and performance. Where required, provides day-to-day team direction, taking responsibility for team performance. Recommends changes in processes and control procedures based on audit findings. This can include the assessment of safety-related software systems to determine compliance with standards and required levels of safety integrity. Involves the establishment, maintenance and management of the safety assessment framework and practices that support wider business objectives. Provides general and specific advice and authorises the issue of formal reports to management on the effectiveness and efficiency of control mechanisms.

Level 7 Ensures that there is planned audit coverage across the organisation and liaises with executives to ensure that this coverage is relevant and understood. Agrees the terms of reference for audits with clients. Plans audits, assembling other auditors and specialists as required. Briefs audit teams. Reviews documents, processes and performance, conducts interviews with client staff and others directly and indirectly involved in audits. Draws conclusions, prepares recommendations and presents audit findings. Leads and manages audit teams. Reports to the most senior level on the findings, relevance and recommendations for improvement arising as a result of the totality of audit coverage.

Safety assessment (SFAS)

The assessment of safety-related software systems to determine compliance with standards and required levels of safety integrity. This involves making professional judgements on software engineering approaches, including the suitability of design, testing, and validation and verification methods, as well as the identification and evaluation of risks and the means by which they can be reduced. The establishment, maintenance and management of an assessment framework and practices may also be included.

Level 5 Participates in assessments up to IEC 61508 Safety Integrity level 3 and undertakes safety analyses on initial designs using HAZOPS, FMEA or similar methods.

Level 6 Leads assessments up to IEC 61508 Safety Integrity level 4 or participates in any level of assessment. Determines assessment methods, techniques and tools that are to be used as appropriate to the integrity levels of the assessments undertaken.

Resource management

Project office (PROF)

The provision of support and guidance on project management processes, procedures, tools and techniques to programme and project managers and their teams. The use of project management software. The development, production and maintenance of time, resource, cost and exception plans. The tracking and reporting of progress and performance of projects, including those performed by third parties under contract. The maintenance of programme and/or project files. The servicing of project control boards, project assurance teams and quality review meetings. The analysis of performance and the maintenance of metric data and estimating models. The administration of project change control, including use of configuration management systems.

Level 2 Assists with the compilation of project management reports. Maintains programme and project files from supplied actual and forecast data.

Level 3 Uses recommended project control solutions for planning, scheduling and tracking projects. Sets up project files, compiles and distributes reports. Provides administrative services to project control boards, project assurance teams and quality review meetings. Provides guidance on project management software, procedures, processes, tools and techniques.

Level 4 Uses and recommends project control solutions for planning, scheduling and tracking projects. Sets up and provides detailed guidance on project management software, procedures, processes, tools and techniques. Supports project control boards, project assurance teams and quality review meetings. Provides basic guidance on individual project proposals.

Level 5 Advises on the available standards, procedures, methods, tools and techniques. Evaluates project performance and recommends changes where necessary. Contributes to reviews and audits of project and programme management to ensure conformance to standards.

Asset management (ASMG)

The management of the inventory of IT assets (hardware, software, network and user knowledge) held within an organisation, aiming to optimise the total cost of ownership, by minimising operating costs, improving investment decisions and capitalising on potential opportunities.

Level 5 Controls IT assets in one or more significant areas, ensuring that administration of the acquisition, storage, distribution, movement and disposal of assets are carried out. Produces and analyses registers and histories of authorised assets and verifies that all these assets (including secure master copies of software, documentation, data, licenses and agreements for supply, warranty and maintenance) are in a known state and location and that there are no unauthorised assets such as unlicensed copies of software.

Level 6 Promotes the continuing economic and effective provision of services, ensuring that all changes to assets and services are appropriately and accurately controlled and recorded. Provides information and advice on issues such as maintenance of hardware assets, licensing of software and legal obligations such as compliance with the Data Protection Act. Promotes awareness of and commitment to asset control, ensuring that the consequences of decisions to obtain, change or continue the possession or use of an asset, system or service are appropriately understood.

Information systems coordination (ISCO)

Typically within a large organisation in which the information strategy function is devolved to autonomous units, or within a collaborative enterprise of otherwise independent organisations, the coordination of information strategy matters where the adoption of a common approach (such as shared services) would benefit the organisation.

Level 6 Maintains an awareness of the global needs of the organisation and promotes the benefits that a common approach to IT deployment will bring to the business as a whole, among information strategy and business management. Coordinates the promotion, development, acquisition and implementation of information systems and services in close liaison with those responsible for management and strategy.

Level 7 Establishes, maintains and communicates the organisation's strategy for managing information and the policies, standards, procedures and methods necessary to implement the strategy. Coordinates the promotion, development, acquisition and implementation of information systems and represents information strategy issues on behalf of the entire organisation with general management and external bodies.

Client services management (CSMG)

Management and control of one or more client service functions, including strategy, support for business development, quality of service and operations.

Level 5 Carries out day-to-day management of the client services function. Defines service levels for client services staff and monitors performance. Takes responsibility for specification, agreement and application of client services standards and for the resolution of clients' service problems.

Level 6 Sets the strategic direction and takes responsibility for the full range of client service functions, including organisational frameworks for complaints, service standards and operational agreements. Defines service levels, standards and the monitoring process for client services staff. Gives technical leadership to operational staff and takes responsibility for business continuity and legal compliance.

Professional development (PDSV)

The responsibility for facilitating the professional development of IT practitioners, including initiation, monitoring, review and validation of individual training and development plans in line with organisational or business requirements, counselling of participants in all relevant aspects of their professional development, identification of appropriate training/development resources, liaison with external training providers and evaluation of the benefits of professional development activities.

Level 5 Determines the required outcomes for training or development, from organisational development needs and the training strategy. Mentors assigned practitioners, ensuring alignment with a predetermined statement of required development outcomes. Assists each practitioner with the creation of development plans based on the outcome statements. Ensures that each practitioner records progress and validates practitioners' records at the end of each cycle of planned development, ensuring that achievements and enhanced capabilities are recorded and referenced to the outcome statements. Contributes to practitioners' performance appraisals.

Level 6 Determines organisational development needs in line with business needs and strategic direction. Generates development strategies to achieve required change and monitors progress.

Resourcing (RESC)

The management or provision of advice on any aspect of acquiring IT resources: internally or externally recruited practitioners, permanent or temporary, full time or part time, specialist or generalist, employees or consultants/contractors.

Level 5 Conducts job analyses, prepares job descriptions and person specifications and prepares selection and evaluation criteria for candidates. Manages recruitment campaigns. Locates and selects possible agencies and other suppliers, negotiating terms and conditions and placing orders with them, ensuring that all obligations are met in accordance with the agreed terms and timescales. Reviews candidate details, manages selection processes and ensures that account is taken of relevant statutory or external regulations, standards and codes of good practice. Ensures that all relevant parties are informed of the results of interviews and other decisions and assists in the negotiation of terms and conditions of service.

Level 6 Takes responsibility for the recruitment and resourcing of IT practitioners, advising on the policy for recruitment and resourcing and ensuring integration with strategic human resources plans. Ensures that expert support is provided as and when required, including interviewing of applicants for senior posts. Audits and assesses the ongoing success and effectiveness of the process, including retention analysis, media and supplier assessment, customer satisfaction and selection methods validation. Prepares manpower requirements forecasts.

Ancillary skills

Education and training

Education and training management (ETMG)

The overall management responsibility for the development and provision of education or training covering relevant SFIA skills and levels.

Level 5 Manages the provision of education or training.

Level 6 Identifies the education programme and delivery mechanisms needed to grow staff skills in line with business needs and future strategy. Manages the development and provision of education or training, taking account of strategic aims of the employing organisation.

Training materials creation and maintenance (TMCR)

The creation of training materials for use by teachers or students covering any subject within the scope of SFIA.

Level 4 Authors and customises training materials to deliver agreed outcomes.

Level 5 Specifies the content and structure of training to deliver agreed outcomes.

Education and training delivery (ETDL)

The teaching of knowledge and techniques and skills training relevant to SFIA content.

Level 3 Delivers existing teaching or training materials to a variety of audiences using a range of instructional techniques.

Level 4 Customises and delivers teaching or training to a variety of audiences using a range of instructional techniques.

Level 5 Customises and delivers specialist teaching or training to specialist audiences using a range of instructional techniques.

Sales and marketing

Account management (ACMG)

On behalf of an organisation supplying IT products and/or services, the coordination of marketing, selling and delivery activities to one or more customer organisations to achieve satisfaction for the customer and an acceptable business return for the supplier; assistance to the customer organisation to ensure that it gains maximum benefit from the products and services supplied and available.

Level 5 Oversees the organisation's sales activities to ensure that they are aligned with corporate marketing objectives. Approves sales proposals and targets. Negotiates with customer representatives at the most senior level on both technical and commercial issues. Develops and implements organisational sales policy and strategy and contributes significantly to the development of marketing strategy. Initiates the implementation of development/change in services, products and systems.

Level 6 Builds relationships with key senior staff in the customer organisation in order to increase business opportunities. Advises them on the selection of systems and technology to meet their business objectives. Manages junior colleagues in their dealings with customer organisations; initiates procedures to improve service to and relationships with customers. Oversees the management and planning of business opportunities.

Marketing (MKTG)

The research, analysis and stimulation of potential or existing markets for IT products and services, both to provide a sound basis for their development and to generate a satisfactory flow of sales enquiries.

Level 3 Works with technical and non-technical customer representatives to identify needs and sales opportunities. Selects from and uses marketing tools appropriate to a project. Maintains a database of marketing information. Conducts market research. Contributes to marketing plans.

Level 4 Maintains effective internal and external business relationships. Plans and conducts market research. Investigates and analyses customer dynamics and uses research to inform marketing plans. In telecommunications especially, this includes plans for customer loyalty. Organises marketing events and drafts marketing support materials such as brochures and mailshots.

Level 5 Manages marketing campaigns within specified budgets to meet specified objectives. Develops and maintains successful internal and external business relationships. Manages and monitors market research, analysis and the marketing planning process. Takes overall responsibility for the production of marketing materials and staging of events. Finds innovative solutions to marketing problems. Uses experience to make informed recommendations to senior management. In telecommunications especially, this includes focusing on customer loyalty and market segmentation to attract and retain customers.

Level 6 Makes strategic decisions regarding marketing plans and the planning process. Determines and oversees the overall marketing strategy for the organisation to meet its business objectives. In telecommunications especially, this includes strategies for customer loyalty and market segmentation to attract and retain customers.

Selling (SALE)

The identification of sales prospects, the development of customer interest, and the preparation, execution and monitoring of sales of any IT product or service into an external or internal market.

Level 4 Responds to existing sales leads and looks for new leads. Makes sales presentations. Collects and uses market information in order to meet the organisation's sales objectives. Maintains effective customer relationships, both during the selling process and after the conclusion of sales agreements, to ensure customer satisfaction. Monitors and reports on performance, customer satisfaction, market intelligence and competitors.

Level 5 Designs and implements sales plans and campaigns. Plans, monitors and controls the work of sales teams. Develops and maintains effective customer relationships at more senior levels to prospect for new sales leads. Maintains customer contact during the selling process and after the conclusion of sales agreements to ensure customer satisfaction. Contributes to the development and training of sales teams. Uses experience to make informed recommendations to senior management.

Level 6 Oversees the organisation's sales activities to ensure that they are aligned with corporate marketing objectives. Approves sales proposals and targets. Negotiates with customer representatives at the most senior level on both technical and commercial issues. Develops and implements organisational sales policy and strategy and contributes significantly to the development of marketing strategy. Initiates the implementation of development/change in services, products and systems.

Sales support (SSUP)

The provision of technical advice and assistance to the sales force, sales agents, reseller/distributor staff, prospective or actual users of products or services (collectively – the customers), either in support of customer development or sales activity or in fulfilment of sales obligations.

Level 1 Able to communicate effectively with customers by telephone and provide information about products and services. Seeks assistance from colleagues for the resolution of more complex customer service queries and complaints. Can use databases to retrieve and enter data.

Level 2 Communicates effectively with customers by telephone and in person. Assists in the provision of customer service, including technical advice and guidance, such as on features, operational requirements, integration, and portability of systems, and information on updates. Assists in devising solutions to customer requirements and solves straightforward problems. Demonstrates, installs and upgrades hardware/software systems, products and services.

Level 3 Provides customer service, including technical advice and guidance, such as on features, operational requirements, integration, portability of information and telecommunications systems. At this level the products will usually be complex and in-depth support will be provided, both to customers and to those delivering IT services. Helps customers to clarify their requirements and documents the conclusions reached. Progresses delivery of products and services. Demonstrates, installs, commissions and upgrades hardware/software systems, products and services. Diagnoses and resolves relatively complex problems.

Level 4 Helps customers to clarify their needs and requirements, devises solutions and assesses their feasibility and practicality. Demonstrates technical feasibility by producing physical or simulation models. Produces estimates of cost and risk and initial project plans to inform sales proposals. Resolves complex problems and assists less experienced staff.

Level 5 Takes responsibility for ensuring that customers are assisted and advised properly. Ensures that reliable cost, effort and risk estimates and project plans are produced. Manages all sales support activities, taking full responsibility for the technical content of bids and sales proposals. Establishes metrics to provide data on performance and help with the continuous improvement of customer service and sales support activities.

Level 6 Oversees the organisation's customer service activities to ensure that they are aligned with corporate objectives and policy. Approves proposals and initiates the implementation of development activity in customer services and systems.

SFIA
Skills Framework
for the Information Age

The SFIA Foundation

The SFIA Foundation exists to own, promote, develop and maintain the Skills Framework for the Information Age; to encourage the adoption of SFIA; to facilitate its use; and to enable the delivery of quality services based on SFIA.

SFIA is owned by The SFIA Foundation, a not-for-profit body. The members of The Foundation are UK organisations in the field of Information Technology: British Computer Society, e-skills UK, The IEE (Institution of Electrical Engineers) and IMIS (Institute for the Management of Information Systems).

Our purpose is to maintain SFIA as the generally accepted standard and tool for all IT skills measurement, development, deployment and debate.

This will serve the interests of employers of Information Technology professionals, the professionals themselves and many other groups, including training companies and other service providers, education and the government.

Contacting The Foundation

The SFIA Foundation is happy to hear from organisations planning the use of SFIA. Information about Accredited SFIA Consultants is available on the SFIA website.

The Foundation operates an accreditation scheme for consultants and partners: details may be found on the SFIA website.

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