

## APPENDIX B1 : LIST OF ICT SERVICES AND DEFINATIONS

### 1. A LIST OF IT SERVICES FOR RFB 1183/2022

ICN. No	Description
<b>ICT Management Services</b>	
81112011-0001	ICT Management - Technical Management
81112011-0002	ICT Management - Functional Support Management
81112011-0003	ICT Management - Contract Management
81112011-0004	ICT Management - Program Management
81112011-0005	ICT Management - Project Management
81112011-0006	ICT Management - Project Administration Support
81112011-0007	ICT Management - ICT Governance and Compliance
81112011-0008	ICT Management - Document Configuration
81112011-0009	ICT Management - Quality Management
<b>Business Planning and Development</b>	
81112011-0010	Business Planning and Development - ICT Strategic Consulting
81112011-0011	Business Planning and Development - Business Analysis
81112011-0012	Business Planning and Development - Business Process Architecture
81112011-0013	Business Planning and Development - Information Systems Architecture
81112011-0014	Business Planning and Development - Information Architecture
81112011-0015	Business Planning and Development - Information Technology Architecture
81112011-0016	Business Planning and Development - Business Modelling
81112011-0017	Business Planning and Development - Enterprise Architecture
<b>Business Solutions Delivery Services</b>	
81112011-0018	Business Solutions Delivery - System Analysis and Design
81112011-0019	Business Solutions Delivery - Business Solution Development
81112011-0020	Business Solutions Delivery - Business Solution Certification/Accreditation
81112011-0021	Business Solutions Delivery - Business Solution Maintenance
81112011-0022	Business Solutions Delivery - Specialised - Business Intelligence
81112011-0023	Business Solutions Delivery - Specialised - Geographic Information Management
81112011-0024	Business Solutions Delivery - Specialised - Document and Image Management
81112011-0025	Business Solutions Delivery - Specialised - Knowledge Management
81112011-0026	Business Solutions Delivery - Application Configuration Management
81112011-0027	Business Solutions Delivery - Service Delivery (SLA) Management
81112011-0028	Business Solutions Delivery - Capacity Planning and Availability Management
<b>Information Security Services</b>	
81112011-0029	Information Security - Security Architecture
81112011-0030	Information Security - Business Continuity Consultancy
81112011-0031	Information Security - Policy Development and Implementation
81112011-0032	Information Security - Specialised - Access Control

81112011-0033	Information Security - Specialised - Identity Management
81112011-0034	Information Security - Specialised - Physical and Environmental Security
81112011-0035	Information Security - Specialised - Communication and Operations Security
81112011-0036	Information Security - Specialised - Application Security
81112011-0037	Information Security - Business Solution Compliancy
Business Solution Implementation Services	
81112011-0038	Business Solution Implementation - Application / ICT/COTS Training
81112011-0039	Business Solution Implementation - Training Development and Accreditation
81112011-0040	Business Solution Implementation - Organisational Change Management
81112011-0041	Business Solution Implementation - Data Management
81112011-0042	Functional Application Support/COTS/ICT Services
81112011-0043	Business Solution implémentation - ICT Infrastructure Acquisition Management
81112011-0044	Business Solution Implementation - Operational Procedure Development
Applications Development Service	
81112011-0045	Applications Development Services – Analysis Services
81112011-0046	Applications Development Services – AI, IoT, DevOps and Integration Provisioning Services
ICT Services Support Management	
81112011-0047	ICT Services Support Management - Service Management Centre
81112011-0048	ICT Services Support Management - Service Level Management
81112011-0049	ICT Services Support Management - Problem Management
81112011-0050	ICT Services Support Management - Incident Management
81112011-0051	ICT Services Support Management - ICT Configuration Management
81112011-0052	ICT Services Support Management - Performance and Capacity Management
81112011-0053	ICT Services Support Management - Change and Release Management
Data Centre Services	
81112011-0054	Data Centre - Data Centre Architecture Planning and Design
81112011-0055	Data Centre - Disaster Recovery and Business Continuity
81112011-0056	Data Centre – Printing
81112011-0057	Data Centre - Software Support and Maintenance
81112011-0058	Data Centre - Database Support and Maintenance
81112011-0059	Data Centre - Data Centre Operations
Communication Network	
81112011-0060	Communication Network - WAN/VPN Planning and Design
81112011-0061	Communication Network - WAN/VPN Development and Implementation
81112011-0062	Communication Network - WAN/VPN Maintenance
81112011-0063	Communication Network - Network Monitoring and Management
81112011-0064	Communication Network - Internet/Intranet Hosting
81112011-0065	Communication Network – Telecommunication
LAN and Desktop	
81112011-0066	LAN and Desktop - LAN Planning and Design
81112011-0067	LAN and Desktop - LAN Support
81112011-0068	LAN and Desktop - LAN and Desktop Support

Planning and Organisation	
81112011-0069	Architecture and Governance Services
81112011-0070	Functional Application Support Services

## 2. APPENDIX B2 : DEFINATIONS

1. ICT MANAGEMENT SERVICES
The ICT Management Services portfolio consists of services traditionally related to the technical or functional governance of an ICT domain, but with specific reference to the human effort related to such management or administrative activities.
1.1 Technical Management Services: ICN no. 81112011-0001
Technical Management Services will typically be used for the management or supervising of application development, application maintenance, or any technical domain within the ICT environment. The service will typically be called for when one or more technical expertise is required with specific technical experience of proficiencies, as independent resources in an advisory or specific execution role. Any skill combinations may be called for in terms of this service, but services will typically relate to the technical management, inclusive of project and program management.
1.2 Functional Support Management Services: ICN no. 81112011-0002
Functional Support Management Services relates to the management or supervising of teams and individual responsible to functionally support of business solutions, applications or specific software products. Functional support can range from the effective utilisation of such product, training, data capturing, up to the physical operation of such products. The service will typically be called for when one or more managers are required with background in functional support services, as independent resources in an advisory or specific execution role.
1.3 Contract Management Services: ICN no. 81112011-0003
Often within technical environments dedicated staff is assigned to Contract Management Services. This service will normally relate to the management of supplier/Client contracts and related service level agreement (SLAs) or even internal operational level agreements (OLAs). Experience that will be called in terms of this service will relate to the compilation of such contracts, SLAs and OLAs, definition of service metrics and/or the monitoring of performance indicators.
1.4 Programme Management Services: ICN no. 81112011-0004
Programme management services are the centralized coordinated management of a programme to achieve the programme's strategic benefits and objectives. In addition, it allows for the application of several broad management themes to help ensure the successful accomplishment of the programme. These themes are: benefits management, stakeholder management, and program governance. Program management focuses on achieving the benefits aligned with the portfolio and, subsequently, organisational objectives.
Management of multiple projects by means of a programme allows for optimised or integrated cost, schedules, or effort; integrated or dependent deliverables across the programme, delivery of incremental benefits, and optimisation of staffing in the context of the overall programme's needs. Programme management focuses on these projects interdependencies and determines the optimal pacing for the programme. This enables appropriate planning, scheduling, executing, monitoring, and controlling of the projects within the programme.
1.5 Project Management Services: ICN no. 81112011-0005

Project Management Services can consist of the services of project managers to oversee ICT projects or specific portions thereof. Project Management is the application of knowledge, skills, tools and techniques to project activities to meet the predefined project requirements according to the organisational standards. The Project Management service entails the planning, organizing, securing, managing, leading, and controlling resources to achieve specific goals. The primary challenge of project management is to achieve all of the project goals and objectives while honouring the preconceived constraints. The primary constraints are scope, time, quality and budget.

The services may call for certified staff, but may also include any other skill sets related to the execution of projects in assistance, coordinating or advisory perspective, to cover the full spectrum of related services or any independent portions thereof. Skills set in this service group may include project management toolset experts or project management methodology experts to assist with defining, auditing or improving project management tools, standards and processes.

#### 1.6 Project Administration Support Services: ICN no. 81112011-0006

Project Support Services may consist of any support service that is used in executing of ICT projects where such capability is required in a full time or part time capacity to ensure the successful execution of the project. Project Support entails general project office coordination support to the Project Manager and or Programme Manager in order to ensure smooth running of project. To track and report project status, administer schedule, administer meetings, administer Project Office and resolve administrative issues that arise during project execution in order to ensure that coordinating and reporting is streamlined. It also includes maintenance of project documentation in order to ensure proper and accurate quality management and baseline change controls through consistent and accurate configuration processes.

#### 1.7 ICT Governance and Compliance Services: ICN no. 81112011-0007

The delivery and execution of ICT related services are subject to standards and policies and other regulatory frameworks to ensure its successful completion, interoperability, acceptance and/or certification. Skills sets required in this regard may be any specialist of any ICT discipline, proficient in one or more of the following governance principles in an advisory or execution role:

- (a) Statutory Frameworks e.g. Act's, Regulations, Prescripts
- (b) Policies Frameworks e.g. Security Policy, MISS, Open Standards Policy;
- (c) Governance Frameworks e.g. COBIT, PMBOK;
- (d) Best Practice Implementations e.g. ITIL; and
- (e) Accreditation /Certification e.g. SAQA, PMI, ISO.

#### 1.8 Document Configuration Services: ICN no. 81112011-0008

Configuration services would normally, in basic form, consist of managing documents and other ICT deliverables, where effective version control and traceability of such items are of vital importance. This is not to be confused with Asset Configuration or Software Configuration. These services may consist of the following:

- a) document management in electronic or manual format;
- b) document configuration management i.e. adhering layout or methodology, standards and version control;
- c) language editing; and
- d) document production, reproduction and distribution.

#### 1.9 Quality Management Services: ICN no. 81112011-0009

Quality Management Services are normally associated with the certification of any ICT business (or portion thereof) in terms of ICT industry best practices, e.g. ISO certification, ITIL certification and PMBOK certification. Besides the initial certification, this service is normally also associated with the auditing of the consistent execution of ICT processes within such certified frameworks with the explicit intension to remain compliant and to constantly improve on such services. Quality Management services can also be applied from a good practise perspective, without the requirement for formal certification.

### 2 Business Planning and Development

The Business Planning and Development portfolio consists of services and skills sets related to the analysis and modelling of business processes, services and information entities, to form part of enterprise, departmental or business process specific architectures to define the ICT operational requirements. The methodologies that need to be applied and the skill sets combinations will be defined in the respective task directives.

#### 2.1 ICT Strategic Consulting: ICN no. 81112011-0010

ICT Strategic Consulting normally consist of advice and consultation on both short- and long-term business objectives of an organisation, identifying how Information and Communication Technologies (ICT) can help resolve immediate needs, while helping the organisation achieve its long-term goals and improve its long-term performance.

Tasked with the development of a strategic ICT plan, such plan would contain key ICT objectives tied to the organisation's business strategy, and a detailed plan of action required to achieve those objectives.

- a) A typical strategic consulting process includes the following stages:
- b) strategic business analysis, identifying business structure and key business processes (what the system is and what the system does);
- c) system architecture design, determining key components of a new system and principles of their collaboration;
- d) system implementation plan, defining a set of major projects to be completed, with timeframes; and
- e) execution of the system implementation plan, executing the projects and ensuring achievement of organisational objectives.
- f) ICT strategic consulting may:
- g) use formal frameworks or methodologies to identify problems or suggest more effective or efficient ways of performing business tasks; and
- h) involve the identification and cross-fertilization of best practices, analytical techniques, change management and coaching skills, technology implementations, strategy development or even the simple advantage of an outsider's perspective.

ICT Strategic Consulting Services identifies and quantifies business value through improvement in business and operational efficiencies and helps transform business by creating new business opportunities through ICT.

## 2.2 Business Analysis Services: ICN no. 81112011-0011

Business Analysis Services would normally be used to analyse business needs, to help identify business problems and propose solutions, using the discipline of business analysis.

Traditionally Business Analysts would develop functional design specifications and are usually involved in improving business processes. They assess the impact of change on business areas and can review and redesign business processes. The Business Analyst liaises between the business side of an enterprise and the ICT function or external Service Providers.

Key profile/skills requirements include:

- a) Business Analysts should have background knowledge of the subject to make the requirements gathering efficient, or at least have the skills to apply logical analytical thought to a business issue. This kind of investigation is also known as domain analysis;
- b) Business Analysts provides expertise in the modelling of business processes; conduct as-is/to-be business processes, is instrumental in the business process re-engineering (BPR) and involved in the change management exercise;
- c) IT capabilities, understanding of what systems can and cannot do;
- d) feasibility studies including analysis around how realistic the requirements are in terms of effort, time and costs;
- e) skills required to successfully execute the business analysis process include
  - I. communication skills;
  - II. understanding a variety of technologies and platforms (Client/server and mainframe);
  - III. entity-relationship diagrams and relational database concepts;
  - IV. object-oriented technologies (Rational Rose, object-oriented analysis, object-oriented design, object-oriented programming); and
  - V. the SDLC;
- f) techniques that a Business Analyst uses to gather and document requirements (existing systems and/or processes) will be based on departmental standards; and
- g) the Business Analyst needs to have the ability to assemble, analyze and evaluate data and to be able to make appropriate and well-reasoned recommendations and decisions to support the business stakeholders and the project team.

## 2.3 Business Process Architecture Services: ICN no. 81112011-0012

Business Process Architecture typically is a process architecture in a written or diagrammatic summary of the value chains and business processes supported by a given organisation.

A good process architecture shows how value chains and business processes are related to each other and to the strategic goals of the organisation.

It establishes processes that links business strategy to Information Technology systems development to ensure business value. It combines process/workflow, functional, organisational and data/resource views with underlying metrics such as costs, cycle times and responsibilities to provide a foundation for analysing value chains, activity-based costs, bottlenecks, critical paths and inefficiencies.

Business Architecture is the expression of the enterprise's key business strategies and their impact on business functions and processes. Business Architecture aims to:

- a) define the business events, owners and stakeholders of each business process, as well as the interconnection of the processes, both internal and external;
- b) consists of current and future state models of business functions, processes and information value chains;
- c) documents the organisation's mission, objectives, and goals;
- d) documents the business functions structure, core business procedures, processes and activities; and
- e) uses functional decomposition diagrams, capabilities and organisational models.

#### 2.4 Information Systems Architecture Services: ICN no. 81112011-0013

This Information Systems Architecture Service will provide for compiling a coherent vision of an organisation's current and target information provision. The information systems architecture will typically make explicit, all the elements of the information provisioning systems and their mutual relationships, their relationships with the business architecture and the ICT-architecture, and the reasons for these ties. The resultant architecture will make recommendations in relation to information functions and structures. These choices are documented in the form of principles, standards and models.

#### 2.5 Information Architecture Services: ICN no. 81112011-0014

Information Architecture (IA) refers to data modelling and the analysis and design of the information within the system, concentrating on entities and their interdependencies. IA models the information requirements of an organisation, driven by the Business Architecture, for the total enterprise and per subject area, independent of organisation and technology.

The Information Architect is responsible to perform the necessary analysis and design tasks related to developing an enterprise information architecture aligned with a set of technology competencies. Information Architect is responsible for defining the EIA process and leads the effective integration of this process with other related business and processes.

IA is expressed as a high-level map or information value chain, relating the specific business functions to information needs by describing the key artefacts of business events. IA provides logical models of the business's entities (the categories of relevant and related people or things about which the organisation needs to retain information and elements) and the elements (the smallest artefact of data that the business deals with). IA models the key information flow between business events and between business processes, both internal and external (including conceptual schemas, process flow diagrams, information flow diagrams, association matrices of current and future enterprise information requirements). IA guides the applications development and facilitates integration and sharing of data.

#### 2.6 Information Technology Architecture Services: ICN no. 81112011-0015



ICT Architecture Services refers to the performance of the analysis and design tasks related to the development of technology architectures that is aligned with Client requirements according to the accepted Process Information Technology Architecture models and guides the infrastructure component of the enterprise's ICT deployment.

It provides the framework and an underlying set of rules and descriptions that govern how complimentary components can together provide an infrastructure base upon which applications can be built, ported and integrated in order to support the business processes of the enterprise. The infrastructure component architectures include the architectures for the computing platform, the network, infrastructure software, middleware and database architecture.

#### 2.7 Business Modelling Services: ICN no. 81112011-0016

This service will consist of modelling the Client's business as defined by its key strategies, stakeholders, mission, functions, processes and organisational structures both for current and future state on a project/initiative. Modelling the hierarchical analysis of the key functions, sub-functions, and associated information required in support of the organisation's major activities that provides a framework for developing the information architecture and establishing the information systems development plan.

Business Process Modelling is the process that links business strategy to ICT systems development to ensure business value. It combines process/workflow, functional, organisational and data/resource views with underlying metrics such as costs, cycle times and responsibilities to provide a foundation for analysing value chains, activity-based costs, bottlenecks, critical paths and inefficiencies.

This service caters for the capturing of business models only, to formalise other analysis service and/or the actual gathering of the information. Departmental modelling standards must be adhered to.

#### 2.8 Enterprise Architecture Services: ICN no. 81112011-0017

EA Services is the practice of applying a comprehensive and rigorous method for describing a current and future structure and behaviour for an organisation's processes, information systems, personnel and organisational subunits, so that they align with the organisation's core goals and strategic direction. It relates broadly to the practice of business optimisation in that it addresses business architecture, performance management, organisational structure and process architecture as well.

In terms of information systems, the EA is a strategic information asset base that defines the overall structure of the business, the information and technologies necessary to support the business, and the transitional processes (i.e. migration plans and configuration management) necessary for implementing new technologies in response to changing business needs. It provides a framework and foundation upon which an organisation can use ICT to address business objectives and gain competitive advantage.

Practice of EA involves developing an architecture framework to model and describe the following:

- the "as-is" (current state);
- the "to-be" (desired future state); and
- the "migration plans" to guide the enterprise from the current state so the desired future state.

### 3 BUSINESS SOLUTIONS DELIVERY SERVICES

The business solution delivery will encompass all disciplines within the solution development/delivery lifecycle, from design to implementation phases. The service can consist of any one or more or all of the services as listed, but related to the business solution delivery.

3.1 Systems Analysis and Design Services: ICN no. 81112011-0018
The System Analysis and Design Services will encompass those skill sets associated with the formulation of functional and/or technical design specifications for ICT solutions. Such specifications will normally be done within the user requirement specifications and in compliance to the Information Technology; information and business architectures defined for the solution.
3.2 Business Solution Development: ICN no. 81112011-0019
Business Solution Development is defined as the physical development, customisation, integration or packaging of an ICT solution, using a predefined technical architecture framework and performed within the application development toolsets and standards. Skill sets required for this group will vary based on the methodology applied for the solution development and the specific technology applied.
3.3 Business Solution Certification/Accreditation: ICN no. 81112011-0020
Certain business or ICT solutions require certification in terms of compliance to applicable standards, norms or practises, or may require accreditation by specific external bodies, committees, etc., before such solutions can be operationalised. The service may require the involvement of a number of specialists, specialising of specific component of the solution or the support practise in a whole, but mainly focussed on the technical correctness of the solution, rather than the educational/business value thereof.
3.4 Business Solution Maintenance: ICN no. 81112011-0021
Following the successful deployment of the business solutions, such solution needs to be maintained in the production state. Maintenance activities can range from software corrective, perfective or adaptive maintenance, data maintenance, database maintenance, user maintenance, utilisation monitoring etc. Skills sets in this group will vary, based on the nature of the maintenance required and can call for a permanent capacity or <i>ad hoc</i> involvement based on the policies of the Clients.
Specialised Business Solutions
In the area of specialised business solutions, the focus is in obtaining resources with specific expertise, experience or capabilities, rather than with a focus on a specific skill set. The list of specialised business solutions can be very extensive as the specific functional domain knowledge is combined with the technical disciplines. The following services are therefore a generic approach to current commonly used areas of expertise but the exact expertise required would be defined when the task directives are issued.
3.5 Specialised Business Intelligence Services: ICN no. 81112011-0022
This service will consist of people specialising in the analysis of business information and/or specialising in the packaging of such business information to realise the business value thereof. Expertise can range from data warehousing, statistical analysis, to mere information valuation based on operational business knowledge. This skills group will focus on the presentation of the business information on knowledge level and to group such intelligence based on the business value and business impact.
3.6 Specialised Geographic Information Management Services: ICN no. 81112011-0023
The Geographic Information Management Services have been available for a number of years, especially with Government departments being dependent on the information for their operational existence. The wider availability and commercialisation of spatial data and the recent establishment of governing bodies for information sources and standards within Government, has exponentially increased the availability of GIS data sets and assets. With the availability the demand for such resources has increased considerably, and with it the requirement for skilled resources specialising in the acquisition, decomposition and analysis of spatial data into usable layers of information.
3.7 Specialised Document and Image Management Services: ICN no. 81112011-0024

<p>Enterprise Content Management (ECM) has become an integral part of the management of business units and departments, in support of business operations, to enable interfacing with external stakeholders and to ensure compliance to appropriate legislation.</p> <p>The acquisition of information sources into digital mediums and the indexing of such information for reference purpose has become a specialised field. The service will range from the initial consultancy on ECM strategy to the development thereof within a file plan inclusive of back-scanning with a managed workflow defined.</p>
<p>3.8 Specialised Knowledge Management Services: ICN no. 81112011-0025</p>
<p>The basic information management requirements of most departments have grown to a level where information needs to be converted into knowledge databases. Fuelled by staff turnover and as source of business process improvement initiatives, Knowledge Management Services has become a much-specialised field. Services can range from analysing information, repacking it, to publishing it in a meaningful structured manner.</p>
<p>3.9 Application Configuration Management Services: ICN no. 81112011-0026</p>
<p>Application Configuration Management Services centre on the version control of application software in the development, test and production domains. Although increasingly managed by embedded functional offered by most IDE, the actual release management and versioning control in most application/business solution environments remains a challenge, especially for legacy systems.</p>
<p>3.10 Service Delivery (SLA) Management: ICN no. 81112011-0027</p>
<p>After the initial development and implementation of business applications, an ongoing cycle of corrective and improvement initiatives are launched to ensure that such business applications stay in step with actual business changes. Whereas Service Support Management focuses on the operational reaction times to requests, the Service Delivery (SLA) Management focuses in the committed service levels define to ensure that application change requests are dealt with in the contracted manner by the technical teams.</p>
<p>3.11 Capacity Planning and Availability Management: ICN no. 81112011-0028</p>
<p>From a business application perspective, regular interventions are required to ensure that sufficient processing and storage capacity is acquired to ensure the operational availability of business solutions. Capacity planning will involve estimating data growth in relation to transaction volumes in a three to five-year framework.</p>
<p><b>4 INFORMATION SECURITY SERVICES</b></p>
<p>4.1 Security Architecture Services: ICN no. 81112011-0029</p>
<p>Security Architecture Services focus of the definition of technical and information security controls within an architecture that will ensure the protection of such information source against illegal intrusion by unauthorised users. Spanning the application, processing and communication domains, security architecture will define the required policies standard and procedures that need to be followed within a set technology framework.</p>
<p>4.2 Business Continuity Consultancy Services: ICN no. 81112011-0030</p>
<p>This service will encapsulate the following activities to define and implement a comprehensive Business Continuity plan that will include:</p> <ul style="list-style-type: none"> <li>(f) Impact Analysis due to ICT system unavailability and the definition of remedial actions;</li> <li>(g) development of DRP;</li> <li>(h) maintenance documentation of the DRP plans; and</li> <li>(i) testing of the DRP plans from a business perspective.</li> </ul>
<p>4.3 Policy Development and Implementation Services: ICN no. 81112011-0031</p>

Guided by the applicable Information Security legislation and the MISS, departments are responsible to define and implement their own security policies.

This Policy Development and Implementation Services will cater for the consultancy services in terms of the definition of the policies and the initial implementation thereof.

Policies shall be defined within the ISS architecture that will govern the planning and acquisition phases of the systems life cycle, as well as during the change management in the operational phase. The ISS architecture shall specify and verify the framework of technical security mechanisms that is used to implement the security policies throughout all phases of the development life cycle. The documented information security architecture shall specify a set of security mechanisms and supporting standards that can be implemented by system developers. Though the security architecture can address security requirements for individual systems, the objective is to identify generic security requirements across departments and to design generic security mechanisms that can be utilised in a wide range of systems.

- ISS policy awareness sessions should be conducted to ensure that all business managers understand the key elements of information security, why it is needed and their personal responsibilities in information security.
- ISS policy monitoring controls should be established to oversee the implementation and the compliance to the policy.

#### Specialised Security Services

Within the Information Security domain certain areas of expertise exist that may function independently or is monitored independently, depending on the already implemented policy and standards implemented in a domain.

#### 4.4 Specialised Access Control Services: ICN no. 81112011-0032

This service will cater for the analysis and implementation of ICT based access control solutions, including local and remote access to business solutions.

Activities within this service would typically include:

- a) definition and monitoring of operating system access control setting and procedures;
- b) application specific access controls and procedures;
- c) user specific access controls and procedures, including user administration (registration, passwords and deregistering);
- d) business process access controls and procedures (segregation of duties);
- e) services access controls and procedures; and
- f) data level access controls and procedures.

#### 4.5 Specialised Identity Management: ICN no. 81112011-0033

The service of Identity Management revolves around the unique identification and repetitive confirmation of user identification within business process controls.

This service will include the research, development and maintenance (assurance) of identity management mechanisms to ensure that personal identification can be confirmed.

This area of expertise would typically focus on:

- a) single sign-on environments for business applications;
- b) biometrics identification of application users (hardware and related software);
- c) user authentication based on biometric identification;
- d) business process specific authentication requirements (e.g. Biometric confirmation for cancellation of sensitive business events);
- e) assessment and reporting on illicit user representation/events; and
- f) Public Key Identification and certification.

#### 4.6 Specialised Physical and Environmental Security: ICN no. 81112011-0034

Physical and environmental security addressed the access to data centres and other premises where business information or ICT systems are operated.

Typical activities related to this service may be to:

- a) perform the risk analysis on current security controls;
- b) assess vulnerabilities and quality assurance processes;
- c) perform health checks on implemented policies and controls;
- d) provide risk assessment governance support (procedures and standards); and
- e) perform regular risk analysis reports functions.

#### 4.7 Specialised Communication and Operations Security: ICN no. 81112011-0035

This service will focus on security related to the communication network and within the operations domain.

Responsibilities may include the following:

- a) install and manage anti-virus products based on departmental standards. Interfaces with the SITA GCCN may require adherence to some additional SITA standards;
- b) install and manage web filtering products;
- c) install and manage mail filtering products;
- d) install and manage Public Key Infrastructure; and
- e) develop and manage processes, procedures and policies.

#### 4.8 Specialised Application Security Services: ICN no. 81112011-0036

This service will include the defining and implementing application specific security controls. Application security may vary based on business requirements ranging from classification of systems and information, to technology specific constraints/enablers.

Application Security Services will focus on the establishment of procedures and standards per technological domain and may oversee the consistence of implementation of such controls.

#### 4.9 Business Solution Compliancy Services: ICN no. 81112011-0037

The Business Solution Compliance Service will focus on the compliancy of business solutions (hardware, software and combinations thereof) to the departmental security policies and standards. Activities may include the following:

- a) install Intrusion Detection/Prevention Systems or devices;
- b) conduct investigations for compliance;
- c) continuously monitor security compliance;
- d) conduct network audits;
- e) conduct network and/or application penetration tests;
- f) install and maintain public domains on security networks;
- g) presents specialist security training to developers and users;
- h) research and evaluation of security products; and
- i) network/computer security incident response and incident management

## 5 BUSINESS SOLUTION IMPLEMENTATION SERVICES

Following the development of business solutions, such implementation of the applications into the operational departments may require a dedicated project or a continuous support service from the departmental personnel or dedicated resources appointed for such services.

With the deployment of the applications various preparatory actions are required, ranging from site preparation, to process refinement/changes and the people aspect.

### 5.1 Application/ICT/COTS Training: ICN no. 81112011-0038

Application, ICT and COTS training in broader terms has evolved with the emerging of new technologies and methodologies.

Whilst concepts like e-learning are increasing in popularity, with continued training where end users may be familiar with the basic business application solutions, new business solutions that impact business process, may be better served with conventional classroom training.

This group will cater for all training interventions in terms of the actual training of end users, which may range from basic computer literacy training, commercial software training or customised/developed business application.

### 5.2 Training Development and Accreditation: ICN no. 81112011-0039

The specialist area of training development has evolved to improve on the success rate of training interventions. With various speciality areas in developing training material, preparing training methodologies and continually improving techniques, certain standards have been set for the training industry. In order to receive recognition on the credibility of training presented of training material used, formal accreditation by SAQA is required on training courses and material used at formal training sessions. Formal NQF ratings will be given to accredited training interventions.

The correct preparation of system values during the staging phase of deployments often determines the accuracy of business rules applicable to the applications. The conversion of historic data and the migration of existing data sources are often underestimated, leading to invalid baseline for trend analysis or other information required during operations or decision-making processes.

### 5.3 Organisational Change Management Services: ICN no. 81112011-0040

This service focuses on the organisational changes required in preparing for the deployment of new business solutions. Ranging from the basic awareness campaigns and marketing of solutions, change agents are often required to also assist in influencing cultures and perceptions in the organisation. The traditional job security concerns and resistance to change has proven to prolong the deployment periods for applications, if not managed properly.

Skills sets required to manage change will differ per deployment, per user community and per complexity basis of the business application.

#### 5.4 Data Management Services: ICN no. 81112011-0041

This service focuses on the management of data during the implementation of a new solution. In the instance where there is data from a previous solution to be moved to a replacing solution, it is important to be able to draw up Data Management and Data Migration strategies, Data Migration and Management plans, and to execute the migration of data between old and a new solution. Skills sets required to manage change will differ per deployment and per complexity of the business application.

#### 5.5 Functional Application Support/COTS/ICT Services: ICN no. 81112011-0042

Application, ICT and COTS configuration and implementation in broader terms has evolved with the emerging of new technologies and methodologies. Various technologies/services exist that satisfies a high degree of business requirements.

The type of functions performed to implement a COTS type of solution are:

Procurement:

- Analysis:
  - Requirement gathering
  - Solution specification
  - Business case development
  - Tender specification development
  - Contracting
- Functional activities:
  - Planning
  - Analysis
  - Design
  - Customisation and configuration
  - Infrastructure design
  - Implementation planning
  - Implementation
  - Rollout
  - Support and maintain

The types of skills required for implementing COTS type of solutions are:

- Business Analysts to analyse, specific the requirements, and business process mapping
- COTS Architects to architect the solution, security, and infrastructure
- Systems Analysts design the solution and technical specifications
- COTS configuration consultants
- COTS software developers to customise the product
- COTS infrastructure configuration consultants to install and configure the software
- Testers
- Change Management consultants

Skills required to successfully execute the COTS implementation process include:

- Communication skills
- Understanding a variety of technologies and platforms (client/server and mainframe)
- Understand the SDLC of the COTS implementation methodology
- Understand the release management process

5.6 ICT Infrastructure Acquisition Management: ICN no. 81112011-0043



Planning for the deployment of any business application always coincides with a reassessment of the technical capacity of the ICT infrastructure required, especially in terms of network bandwidth and end user equipment. Although this is a formal deliverable of most development methodologies, executing such planned acquisition will require a dedicated capacity for a period in time.

#### 5.7 Operational Procedure Development: ICN no. 81112011-0044

During the transition phase of any new business application, operational procedures need to be developed and often integrated in terms of on-line help functions as part of the software solutions. Operational procedures also need to be constantly updated as the systems evolve and business benefits materialise in terms of business process improvements.

### 11.6 Applications Development Service

#### 6.1 Analysis Services: ICN no. 81112011-0045

Analysis Services analyse business and data needs, to help identify business and data problems and propose solutions, using the discipline of business and data analysis.

##### 6.1.1 Business Analyst: ICN no. 81112011-0045

Business Analyst develop functional specifications, logical design products and are usually involved in improving business functions. They assess the impact of change on business areas and can review and redesign business processes. The Business Analyst liaises between the business side of an enterprise and the ICT function or external Service Providers.

Key profile/skills requirements include:

- a) Business Analysts defines the data problem that provides the required context for the work that must be completed;
- b) Business Analysts should have background knowledge of the subject to make the requirements gathering efficient, or at least have the skills to apply logical analytical thought to a business issue. This kind of investigation is also known as domain analysis;
- c) Business Analysts provides expertise in the modeling of business processes; conduct as-is/to-be business processes, is instrumental in the business process re-engineering (BPR) and involved in the change management exercise;
- d) IT capabilities, understanding of what systems can and cannot do;
- e) feasibility studies including analysis around how realistic the requirements are in terms of effort, time and costs;
- f) skills required to successfully execute the business analysis process include
  - i. communication skills;
  - ii. understanding a variety of technologies and platforms (Client/server and mainframe);
  - iii. entity-relationship diagrams and relational database concepts;
  - iv. object-oriented technologies (Rational Rose, object-oriented analysis, object-oriented design, object-oriented programming); and
  - v. the SDLC;
- g) techniques that a Business Analyst uses to gather and document requirements (existing systems and/or processes) will be based on departmental standards; and

the Business Analyst needs to have the ability to assemble, analyse and evaluate data and to be able to make appropriate and well-reasoned recommendations and decisions to support the business stakeholders and the project team.

##### 6.1.2 Data Analyst : ICN no. 81112011-0045

The Data Analyst liaises between the business side of an enterprise and the ICT function or external Service Providers.

Key profile/skills requirements include:

- a) Data Analysts defines the data problem that provides the required context for the work that must be completed;
- b) Data Analysts should have background knowledge of the subject to make the requirements gathering efficient, or at least have the skills to apply logical analytical thought to a business issue. This kind of investigation is also known as domain analysis;
- c) Data Analysts provides expertise in the modeling of data, systems validation rules, data flows, report design, content for websites, data access control, and systems integration;
- d) IT capabilities, understanding of what systems can and cannot do;
- e) feasibility studies including analysis around how realistic the requirements are in terms of effort, time and costs;
- f) skills required to successfully execute the data analysis process include
  - i. communication skills;
  - ii. understanding a variety of technologies and platforms (Client/server and mainframe);
  - iii. entity-relationship diagrams and relational database concepts;
  - iv. object-oriented technologies (Rational Rose, object-oriented analysis, object-oriented design, object-oriented programming); and
  - v. the SDLC;
- g) techniques that a Data Analyst uses to gather and document requirements (existing systems and/or processes) will be based on departmental standards; and

the Data Analyst needs to have the ability to assemble, analyse and evaluate data and to be able to make appropriate and well-reasoned recommendations and decisions to support the business stakeholders and the project team.

6.2 AI, IoT, DevOps and Integration Provisioning Services: ICN no. 81112011-0046

The Applications Development Service – AI, IoT, DevOps and Integration Provisioning Services section provide the following services:

- Artificial intelligence solutions development services
- Internet of things solutions development services
- Integration solution development services
- DevOps solution development services
- Applications database development services

The above services cover various technologies, frameworks, methodologies, and practices targeting various government operating environments. The type of functions performed by the software developers or applications database administrators are:

- Procurement:
  - Solution specification
  - Tender specification development
  - Tender evaluations
- Functional activities:
  - Planning
  - Technical design and infrastructure specifications
  - Software development
  - Software quality assurance
  - Unit testing
  - Participate in software components testing
  - Participating in software integration testing
  - Deployment planning
  - Product packaging and deployment
  - Post production support and maintenance

The types of skills required for implementing COTS type of solutions are:

- Software developers
- Technical writers

## 7 ICT Service Support Management

ICT Service Support Management focuses on the operational support of business applications, ensuring the operational availability of such capability through all elements that may influence the unavailability of the applications for a period in time. The services range from corrective to proactive incident management, depending on the contracted support levels required.

7.1 Service Management Centre Services (Service Desk) : ICN no. 81112011-0047

<p>Service Management Centres offers telephony support to all users of business applications, from first line support in terms of direct interventions available to rectify problems, to remote desktop support or the dispatching of technicians for onsite support.</p> <p>Depending on the placement of the service management centres in relation to the user base, remote support may be availed in order reduce reaction times. A strong focus will also be on establishing proactive monitoring capabilities.</p> <p>The group will not cater for the establishment of such call centre capability, but rather the contracting of skill sets in support of existing facilities.</p>
<p>7.2 Service Level Management: ICN no. 81112011-0048</p>
<p>Service Level Management within the service management centre consists primarily of the monitoring of performance of SMC Operators in relation to the services level as contracted to with such a centre. Measuring and monitoring calls from receipt to conclusion, service level management will address exceptions, escalations and reporting on performance.</p>
<p>7.3 Problem Management: ICN no. 81112011-0049</p>
<p>For each service request received, a proper root cause analysis must be done to determine the position of such problem within the value chain of the larger service delivery.</p> <p>Recommendations will be made for preventative measures to be implemented and resolutions will be published to a knowledge base for future reference. In addition to reactive analysis, the problem management services will also address the proactive identifying of areas that can impact on current service support as well as the analysis of trends that could highlight improvement areas.</p>
<p>7.4 Incident Management: ICN no. 81112011-0050</p>
<p>For all incidents reported via the service management centre, incident management aims to restore of such ICT services with minimal disruption on business.</p> <p>Mainly responsible to monitor and track requests in line with predetermined SLAs to effectively and efficiently improve service delivery to the customer.</p> <p>Incident Management also facilitates escalation management in line with predetermined SLAs. Provides online management and operational reports to facilitate corrective and preventative action.</p>
<p>7.5 ICT Configuration Management: ICN no. 81112011-0051</p>
<p>This service will consist of the integration of ICT assets and the configuration of such asset configuration info into the Service Management Centre or Help Desk systems.</p> <p>Resources will be responsible to establish and to maintain records with respect to relationships between ICT elements involving hardware, software and associated applications. Specialised skills in terms of networks, desktop and application knowledge will be required.</p>
<p>7.6 Performance and Capacity Management: ICN no. 81112011-0052</p>
<p>Performance and Capacity Management is directly related to the business requirements by ensuring that sufficient capacity is available at all times and is involved in incident resolution and problem identification for those difficulties relating to capacity issues.</p> <p>Capacity management should also be actively involved in evaluating all changes, as a change could very easily have an adverse effect on the capacity and hence performance of the system. This includes managing the cumulative effect on capacity of changes over a period of time.</p> <p>Performance management's aim is to enable meeting service level commitments for support levels, transaction volumes, turn-around times, and resilience and response times.</p>
<p>7.7 Change and Release Management: ICN no. 81112011-0053</p>

Change and Release Management will cater for the analysis and communication of the impact of any changes to hardware, software and applications that will influence the formal operational availability and functionality of services. Changes will normally be centrally defined, evaluated and approved prior to implementation. Change management may be managed through Cross Functional Change Advisory Boards if fulltime resources in all disciplines are not secured.

## 8 DATA CENTRE SERVICES

Data Centres Services encapsulates the hosting of mainframe, servers, printers, network front-end processors and other peripherals in a controlled environment. The controlled environment includes the physical security of such environment, the infrastructure support in terms of temperature control, fire prevention, disaster recovery and other mechanisms to secure such operating environment. Services in this group include all disciplines required to establish, maintain and operate such data centres. This service will not cater for the outsourcing of such capacity, but merely securing certain groups of skills for the operation of such data centres.

### 8.1 Data Centre Architecture Planning and Design: ICN no. 81112011-0054

The planning and design of Data Centre Architectures and the maintenance thereof will address the following key components, which will vary in terms of the complexity depending on the business requirements for the operational capability:

- a) data centre processing requirements;
- b) centralised data processing services;
- c) hardware and software configuration;
- d) maintenance procedures for hardware according to the OEM specifications;
- e) data centre environmental and occupational safety plans;
- f) definition of physical security management; and
- g) to define data security management controls for all production data.

### 8.2 Disaster Recovery and Business Continuity: ICN no. 81112011-0055

The Disaster Recovery and Business Continuity Service will include the following consultancy services:

- a) development and/or maintenance on an extensive mainframe disaster recovery plan designed to recover the functionality of the Data Processing Centre and to re-establish according to the priority list of the disaster recovery plan in the event of the loss, up to the end of the capacity used for disaster recovery;
- b) development a disaster recovery procedure for the midrange and mainframe applications;
- c) planning and execution of bi-annual disaster recovery exercise to ascertain whether application recovery procedure can be practically implemented within the specified requirements and time constraints; and
- d) facilitating the integration of the DRP plans and procedures with other DRP plans (e.g. Network) to form a holistic DRP capability.

### 8.3 Printing Services: ICN no. 81112011-0056

This Printing Services group will consist of the processing of large batch related printing services, consisting of the following:

- a) large batch job printing services (e.g. reports, pay sheets);
- b) forms design for pre-printed stationary of predefined communication media;
- c) sorting and despatching of printed material;

- d) coordination of maintenance on all lasers and line printers; and
- e) control over face-value forms.

#### 8.4 Software Support and Maintenance: ICN no. 81112011-0057

Software Support and Maintenance services is focused on the operating software and will include the following key services:

- a) maintaining software configuration records;
- b) maintaining software version control;
- c) implementing new versions of the operating systems (including planning operating system installation, testing, adaptation, training, deployment and adaptation of standards or procedures);
- d) providing back up recovery of the operating systems;
- e) controlling the operating system's configuration;
- f) configuring and installing third party products; and
- g) optimising the operating systems.

#### 8.5 Database Support and Maintenance: ICN no. 81112011-0058

The Database Support and Maintenance service will consist of two key components, being Application DBA services and DBMS support services. Mutually exclusive the typical services in each grouping are as follows:

DBA application support:

- a) support and consultation to development staff throughout the application development cycle;
- b) modelling and normalising data contained in the DBMS;
- c) physical design of databases according to database and environmental constraints and the implementation thereof;
- d) creating and maintenance of a data dictionary;
- e) monitoring and advise on the effective use of the DBMS and related tools; and
- f) optimising the database access.

DBMS support:

- a) installation, testing, tuning and deploying version and revision of DBMS software;
- b) maintaining, revising and upgrading DBMS software;
- c) providing back-up and recovery mechanisms;
- d) managing the database administration;
- e) verifying database designs prior to implementation;
- f) providing first line technical support to application development staff and operational staff; and
- g) implementing technical manual guidelines for system migration and development activities.

#### 8.6 Data Centre Operations: ICN no. 81112011-0059

This group of services will ensure the optimal availability of mainframe, midrange servers and peripheral devices, including the applications and operating software of such devices.

Typical associated tasks will include:

- a) scheduling/planning of operational and batch tasks and the monitoring thereof;
- b) workload balancing for optimal performance of processors;
- c) development of job control software;
- d) operating and monitoring of storage media (local and remote);
- e) operating and routing of line- and laser print output;
- f) performing of housekeeping procedures; and
- g) identify, evaluate, escalate and respond to hardware, software and application software errors and problems.
- h) Skills sets may include the actual operating staff, supervisors, production planning and management resources.

## 9 COMMUNICATION NETWORK SERVICES

All services associated to the GCCN and contracted VPNs must be rendered by SITA as intended in the SITA Act and in terms of existing agreements.

SITA tenders were published for the establishment and maintenance of most services related to communication networks. The following tenders (or related replacement tenders) must be used to acquire the services of contractors for the services as intended in terms of engagement models of such tenders:

- a) Networking design, data and voice cabling installation, extension and maintenance thereof on the local area networks.
- b) LAN and WAN Maintenance.
- c) Supply and Installation of LAN and WAN Equipment.

This group of services is intended for the sole use of the Client who has not transferred their private telecommunications networks and value-added network services to SITA.

This group will therefore consist of services related to the maintenance support services and management of already established wide area networks, virtual private networks, telecommunication services and related services offered in such domain.

This category caters for appointing certain grouped skills with a focus of managing the contracting of services and service delivery of suppliers in terms of Tenders as per par a up to c above (or replacement tender), or to manage inalienable functions within the ambit of the service group.

Services secured through this tender may not constitute a potential conflict of interest with suppliers appointed in terms of tenders as per par a up to c above.

### 9.1 WAN/VPN Planning and Design: ICN no. 81112011-0060

<p>This service will cater for the appointment of specialists in the planning and design of WAN or VPN, to work in consultation or in a quality assurance capacity with suppliers appointed in terms of tender(s) as reference under Table 11. 8 par a – b above.</p> <p>Services may include:</p> <ul style="list-style-type: none"> <li>a) providing consulting services;</li> <li>b) planning and design of network solutions;</li> <li>c) formulation of infrastructure provisioning strategies; and</li> <li>d) monitor external trends in technology solutions.</li> </ul>
<p>9.2 WAN/VPN Development and Implementation: ICN no. 81112011-0061</p>
<p>This service will cater for appointing specialists for the management of WAN and VPN development and implementation services. This service will focus on the specifications for contracting and in quality assurance capacity with suppliers appointed in terms of replacement tenders.</p>
<p>9.3 WAN/VPN Maintenance Services: ICN no. 81112011-0062</p>
<p>The WAN/VPN Maintenance Service will cater for appointing specialists for the management of WAN and VPN maintenance services. This service will focus on the specifications for contracting and in quality assurance capacity with suppliers appointed in terms of replacement tender.</p>
<p>9.4 Network Monitoring and Management Services: ICN no. 81112011-0063</p>
<p>This service will cater for the appointment of specialists for the monitoring of the utilisation of the network hardware and software. In consultation with the WAN/VPN planning Architects and other network specialists, this service will focus on the interaction and assurance capacity with suppliers appointed in terms of replacement tenders.</p>
<p>9.5 Internet/Intranet Hosting Services: ICN no. 81112011-0064</p>
<p>In most business solutions areas the development and/or hosting of Internet and Intranet services are dealt with within the Network domain. The hosting, monitoring and the management of the service are done via the converged communications environments. This service does not cater for the development of Internet and Intranet solutions, but merely the hosting of such business solutions within the secure data centre domains.</p>
<p>9.6 Telecommunication Services: ICN no. 81112011-0065</p>
<p>This service will cater for the appointment of specialists in the planning, design and maintenance of Telecommunication Services which include VoIP technologies, IP Telephony, PABX, Telephone Management Systems, to work in consultation or in a quality assurance capacity with suppliers appointed in terms of tender 385 or 439 or replacement tender.</p> <p>Services may include:</p> <ul style="list-style-type: none"> <li>a) providing consulting services;</li> <li>b) planning and design of voice related solutions;</li> <li>c) formulation of Voice infrastructure provisioning strategies;</li> <li>d) maintenance and support of Telecommunication environment; and</li> <li>e) monitor external trends in technology solutions.</li> </ul>
<p>10 LAN AND DESKTOP SERVICES</p>



The logical grouping of LAN and Desktop services is aimed at providing end user support in terms of the optimal performance and availability of network connected and unconnected workstations, as well as the maintenance of such network infrastructure.

SITA tenders were published for the supply, establishment and maintenance LANs and desktop. The following tenders (or related replacement tenders) must be used to acquire the services of contractors for the services as intended in terms of engagement models of such tenders:

- a) Networking design, data and voice cabling installation, extension and maintenance thereof on the local area networks.
- b) LAN and WAN Maintenance.
- c) Supply and Installation of LAN and WAN equipment.
- d) Seat Management Services for lease or outright purchase of end user workstations.

Services secured through this tender may not constitute a potential conflict of interest with suppliers appointed in terms of tender as per par a up to c above.

#### 10.1 LAN Planning and Design: ICN no. 81112011-0066

This service relates to designing and planning LAN architectures based on user requirements, with associated Change Management, Capacity Management, Availability Management, Configuration Management, LAN Service Continuity Management, Service Support Plans and Security Management.

Designs will include Integration planning, LAN Management Tools, Database Management and quality assurance; establishing service improvement initiatives as part of local area network management functions, to ensure the improvement of the service.

#### 10.2 LAN Support Services: ICN no. 81112011-0067

This service addresses the operational control and management of LAN services, it's components and configurations.

Key activities include:

- a) installation, de-installation, distribution, configuration, re-configuration, housekeeping and preventative maintenance, inventory and asset management under control of Configuration Management process;
- b) management of all LAN Event Lifecycle and Event reporting including, logging and analysis;
- c) workload scheduling and management, output and printer scheduling management, secure control and distribution of electronic and physical output media, fail-over testing and disaster recovery testing;
- d) storage and information management, system backup and recovery and database management and administration;
- e) management and control of operational security which involves the control and management of access to all operational infrastructure both physically and logically, security monitoring by detection and containment of all intrusion attempts or unauthorised access, logging, management and reporting of all security events and exceptions;
- f) management of supporting operational processes which include the management of operational documentation, information logging and collection, information analysis and scripting; and
- g) pro-active operational management by reviewing operations process for efficiency, effectiveness and compliance, operational tuning, internal or external audits.

#### 10.3 LAN and Desktop Support Services: ICN no. 81112011-0068

This service will consist of hardware diagnostics and software maintenance and support services for ICT LAN and desktop infrastructure equipment and related peripherals, as well as the support services related to installing hardware and software including:

- a) operation and delivery of local services to agreed service levels;
- b) local user liaison, training and support providing local coordination for support services;
- c) local equipment support;
- d) control of access to local equipment and services;
- e) maintenance of local documentation and procedures;
- f) configuration management and change management of all distributed ICT infrastructure components;
- g) logging, reporting, filtering and correlation of local events, incidents and problems;
- h) liaison for users on all major deployments of new or updated services, assisting with the deployment where necessary with any on-site activities; and
- i) maintenance and monitoring of local security procedures.

## 11 Planning and Organisation

### 11.1 Architecture and Governance Services: ICN no. 81112011-0069

The Architecture and Governance Services section perform advice, consultation, architecture, and governance activities that enables applications development, implementation, and maintenance service delivery.

Tasked with planning, architecting and governing relating to solutions delivery, the key ICT services tied to the Planning and Organisation strategy performed by Architecture and Governance Services are:

- a) Business Architecture
- b) Applications Solution Architecture
- c) Information and Data Architecture
- d) SOA, API, and Integration Architecture
- e) Technical Architecture
- f) Application Security Architecture
- g) DevOps Architecture
- h) Systems Engineering
- i) Technical writing

### 11.2 Functional Application Support Services: ICN no. 81112011-0070

Functional Application Support Services relates to the management/supervising of teams and individuals responsible to functionally support business solutions, applications or specific software products. Functional support can range from the effective utilisation of such product, training, data capturing, up to the physical operation of such products. The service will typically be called for when one or more managers or resources are required with background in functional support services, as independent resources in an advisory or specific application support role.