



Government of Canada

Profile of Information Technology (IT) Services



**Chief Information Officer Branch
Enterprise Architecture and Standards Division**

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Profile of GC IT Services

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Forward

The Government of Canada (GC) spends approximately \$4.95B on information technology (IT) per year¹. GC IT Services and their related capabilities are delivered by GC IT Service Provider organizations, with accountable mandates for IT Programs to address the recognized needs of eligible target user groups, using appropriate service management and delivery processes.

As highlighted in the report - Strategies for Improving IT and its Management, Information Technology Services Review² - "over time, departments have each developed their own ways of organizing IT services and their own nomenclature for describing them". The resulting variances have made it virtually impossible to plan, budget, measure, report and communicate IT Service descriptions consistently across Government and its IT communities of interest.

In addressing this issue, the report recommends that TBS lead the development of a "Whole of Government Technical Architecture Aligned to a GC Enterprise Architecture", with a series of suggested next steps, such as: complete an IT services catalogue (now called a Profile); Finalize a common nomenclature; develop GC class architectures (business, information, solution and technology); and develop whole of government Key Performance Indicators (KPIs) for IT Services;

In support of these objectives, the **Profile of GC IT Services** presented outlines: the most common sets of GC IT services for five main IT service groups; a common GC IT Services Program Framework comprised of a common process model for planning, acquiring, delivering, supporting and evaluating common GC IT Services; and a proposed common cost model for GC IT Services.

The Profile of GC IT Services presented is based upon an in-depth knowledge and analysis of IT across the GC IT Community of Practice, sound industry best practices for IT Programs / Services, and is aligned with the concepts and models offered by the Governments of Canada Strategic Reference Models³ (GSRM).

As a GC TBS guideline, the draft Profile of GC IT Services provides an enterprise view and reference point for GC's IT Programs that supports the development of consistent IT service descriptions, more detailed IT service catalogues of IT Service Providers (as required), as well as the basis for common planning, design and communications of GC IT Services across government.

As part of the TBS Chief Information Officer Branch (CIOB) mission, the Enterprise Architecture and Standards Division is publishing the draft Profile of GC IT Services as part of its role in leading the development, publishing and use of GC reference models, profiles, architectural principles and standards.

Definitions

TBS Guidelines. A TBS guideline provides information, guidance, advice or explanation. Guidance is based on sound management practices that officials should take into account when carrying out their duties.

Profile. As a TBS guideline for enterprise architecture, a profile provides best practice advice, guidance and explanations for a particular GC domain; offers best practice models for the GC domain that may evolve into a TBS Standard (i.e. reference model); represents in-depth knowledge of the domain's GC community of practice typically informed by sound industry best practices.

¹ (Public Accounts 2003/04)

² Expenditure Review Committee Report - Strategies for Improving IT and its Management, Information Technology Services Review (TBS CIOB March 2005)

³ Business Transformation Enablement Program, Executive Overview (Treasury Board Secretariat September 2004)

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Profile of GC IT Services

1.0 Introduction

1.1 Purpose of Document

The **Profile of GC IT Services** presented outlines:

- A GC context for IT Services in line with the GSRM provider and public programs;
- The most common sets of GC IT services for five main IT service groups;
- A common GC IT Services Program Framework comprised of a common process model for planning, acquiring, delivering, supporting and evaluating common GC IT Services; and
- A common cost model proposed for GC IT Services.

The most common sets of GC IT services are presented for five main IT service groups: Distributed Computing, Application Development and Maintenance, Production and Operations Computing, Telecommunications Network – Data & Voice, and IT Security.

GC IT Services are planned, acquired, built, delivered, supported and evaluated upon a common process model for IT Services. The structure of this process model for IT, as presented, is similar to all GSRM provider programs and consists of three process groups: Program management processes; Service delivery processes; and Service support processes.

In addition, a common cost model for GC IT Services is presented which offers a template planning and budgeting the direct and indirect costs of GC IT Programs.

As a GC TBS guideline, the Profile of GC IT Services provides an enterprise view and reference point for GC's IT Programs that supports the development of consistent IT service descriptions, more detailed IT service catalogues of IT Service Providers (as required), as well as the basis for common planning, design and communications of GC IT Services across government. Over time, the Profile presented may evolve into a program area standard reference model, as part of the GSRM.

In addition, the Profile of GC IT Services can help support the achievement of several other key ERC recommendations for GC IT Programs by providing a framework for developing more detailed standardizing IT Service catalogues, the design of strategic key performance indicators (KPIs) for IT Programs, and advancing a common GC IT reference model.

1.2 Approach

The Profile of GC IT Services is the result of a collaborative effort of the CIOB's Enterprise Stewardship and Internal Services Strategies Division (ESISS) and Enterprise Architecture and Standards Division (EASD).

The Profile of GC IT Services presented is based upon an in-depth knowledge and analysis of IT across the GC IT Community of Practice, sound industry best practices for IT Programs / Services, and is aligned with the concepts and models offered by the Governments of Canada Strategic Reference Models⁴ (GSRM).

The initial draft Profile was derived from an analysis and synthesis of several key GC studies and a literature review of the relevant best practices, listed below.

- The process for developing a framework describing IT Services first began with the Horizontal Review on Common Infrastructure and Service Delivery (CISD) reported in December 2003.

⁴ Business Transformation Enablement Program, Executive Overview (Treasury Board Secretariat September 2004)

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- Complementing the CISD study, the results of a multi-department IT Overview Assessment (ITOA) study, provided a provisional set of standardized definitions of IT services, based on world-wide best practices researched by industry experts Gartner Inc.
- The government-wide ERC study refined descriptions from the CISD and ITOA studies for the government-wide survey and report on IT Services, with a broad base of government-wide consultations including departments, agencies, and CIO Council.
- The draft Profile of IT Services as presented was derived from an analysis of the CISD, ITOA, ERC studies; the Business Case for Enterprise IT Services (PWGSC, 2004); and a selected literature review of relevant best practices on IT Services.
- The draft Profile of IT Services was then vetted with IT industry analysts from MetaGroup Consulting Inc. (now part of Gartner Inc.).

A Working Group (G) mandated by the GC IT/IM Management Board (IMB) have provided valuable insights and advise on various aspects of IT Services during the course of developing the Profile of GC IT Services – Version 1.0 as presented (see Annex for IMB WG). In addition, a high-level summary of the GC IT Services Profile has been presented for communications and general feedback to the GC CIOC.

Following the endorsement and direction of the IMB, the next steps for advancing the Profile of GC IT Services will engage the GC IT Community at large, with implementation tasks including: broad communications, workshops; testing; as well as implementation consulting and alignment with other GC planning and budgeting vehicles, such as the GC Program Activity Architecture (PAA).

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2.0 Profile - GC IT Services and Program Framework

2.1 GSRM GC Program / Services Context – in brief

Programs and Services are two of the key concepts defined in the Governments of Canada Strategic Reference Models⁵, or GSRM – and defines⁶ them as:

- A Program is “an accountable mandate to address recognized needs of eligible target groups and to achieve specified outcomes by producing service outputs using resources”. Programs are either Provider or Public facing.
- A Service is “a means, administered by a *program*, of producing a valued output (i.e. service output) to address one or more target group needs”. A service requires “a set of service processes (and resources) that produces and delivers one service output”.

Figure 1 – GSRM: Key Concepts



Public programs deliver outcomes directly to public target groups (e.g. National Critical Infrastructure Protection is a public program providing public safety outcomes to Canadians). Provider programs deliver benefits to public target groups indirectly by enabling public programs and other provider programs to operate more efficiently and effectively.

In view of this GSRM context, a **GC IT Program** is a Provider Program with “an accountable mandate to address recognized needs of eligible target groups and to achieve specified outcomes by producing service outputs using resources. It follows that an **IT Service** is a “means, administered by a GC IT Program, of producing a valued output (i.e. service output) to address one or more target group needs.

⁵ Business Transformation Enablement Program, Executive Overview (Treasury Board Secretariat September 2004)

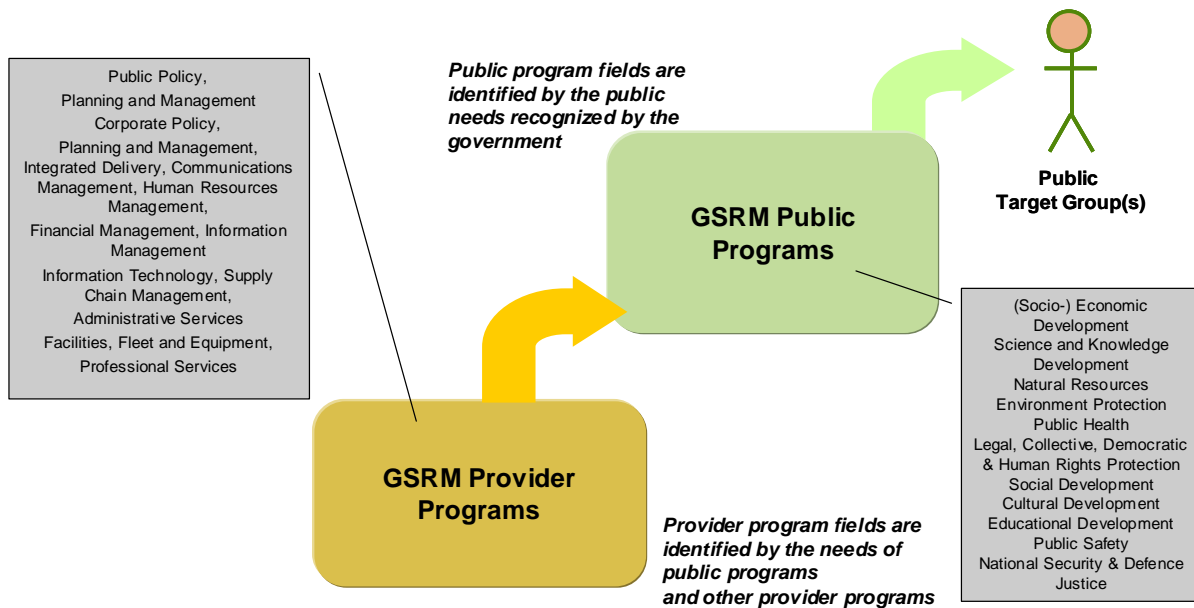
⁶ Business Transformation Enablement Program, Glossary (Treasury Board Secretariat, September 2004)

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2.2 GC IT Services as Provider Program – in brief

The GC IT Services presented in this Profile are associated with the GSRM **Provider Program** Field for Information Technology. Importantly, as a Provider Program, GC IT Services support the needs of all other Provider and Public programs by enabling them to operate more efficiently and effectively.

Figure 2 – GSRM: Provider and Public Programs Top Model



As shown in the Annex, the GSRM also provides descriptions for 19 **standard service types** and the service output type associated with each, including:

Funds; Resources; Transport; Advisory Encounter; Matches, Referrals & Linkages; New Knowledge; Advocacy and Promotional Encounters; Recreational & Cultural Encounters; Educational & Training Encounters; Care & Rehabilitation Encounters; Periods of Agreement; Periods of Permission; Periods of Protection; Findings; Interventions; Rulings & Judgements; Penalties & Periods of Sanction; Rules; and Implemented Changes.

In view of these, most service outputs provided by an IT Program and associated IT Services are aligned with **“IT Resources” service output types**, given the characteristics and capabilities offered by IT Services.

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2.3 GC IT Services - in brief

The Profile of GC IT Services as highlighted in Table 1, outlines the most common sets of GC IT services for five main IT service groups: Distributed Computing, Application Development and Maintenance, Production and Operations Computing, Telecommunications Network – Data & Voice, and IT Security.

Table 1 - Summary Profile of GC IT Services

GC IT Services Groups	GC IT Services
Distributed Computing	Standard Desktop and Office Productivity Suite
	Electronic Messaging and Workgroup (Collaboration) Services
	GC Corporate Administrative / Program-Specific Applications
	File/Print Service
	Remote Desktop Delivery Service
Application Development & Maintenance	Applications Development and Maintenance Services
	Deployment Services
	Integration Services
	Engineering and Testing Services
	Certification/Release Services
Production and Operations Computing	Utility Computing Services
	Dedicated Application Hosting & Management Services
	Facilities Management Services
Telecommunications (Data and Voice)	Network Management and Operations Services
	Traffic and Transmission Services
	Inter and Intra Data Centre Network Services
	Community Connectivity Services
	Voice Network Services
	Call Center Services
IT Security	Physical Environment Services
	Identification, Authentication, Authorization Services
	Detection, Response, Recovery, Audit Services
	Perimeter Defence Services

The common sets of GC IT Services comprising each of the five main IT Service Groups are described in the Section 3.0.

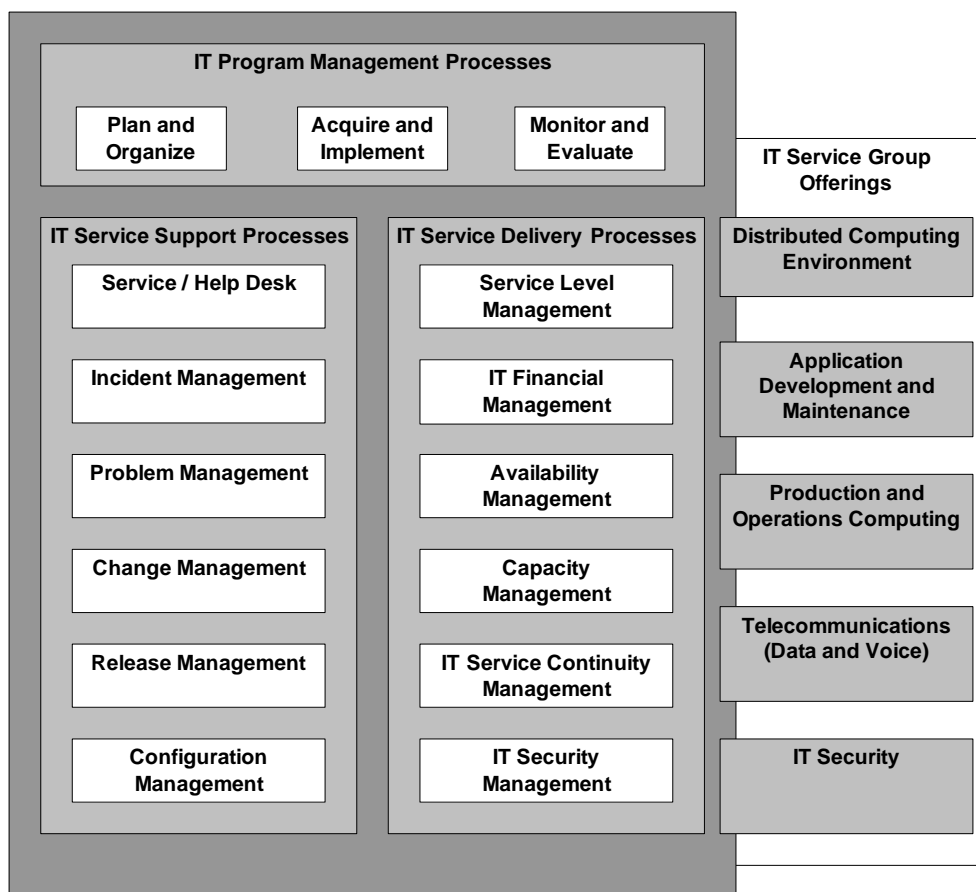
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2.4 GC IT Services Program Framework - in brief

GC IT Services are planned, acquired, built, delivered, supported and evaluated upon a common process model for IT Services. The structure of this process model for IT, as presented, is similar to all GSRM provider programs and consists of three process groups, as shown below:

- IT Program management processes⁷;
- Service delivery processes⁸; and
- Service support processes.

Figure 3 – Process Model for GC IT Services Programs



The common GC IT processes comprising the GC IT Services Program Framework shown above, along with additional information and a proposed IT cost model are described in the Section 4.0.

⁷ Program Management processes adopted from COBIT

⁸ Service Delivery and Service Support, Service Security processes adopted from ITIL

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3.0 Profile - GC IT Services

3.1 Distributed Computing Services

Distributed Computing Services includes the provision and support of workstation hardware (e.g. PC, notebook) and the set of capabilities that support office productivity suites, email and calendaring, browser, anti-virus and common utilities, etc. This service group also provides the capabilities that support work group communications, corporate administrative and program-specific applications, directory services, file and print services, remote access services, local network operating systems, locally attached peripherals, and the local interconnectivity provided through Local Area Network (LAN) technologies.

- **Standard Desktop and Office Productivity Suite:** provides the set of capabilities that support the underlying capabilities to access and use IT systems, including: the physical hardware (desktop computer, notebook computer, PDA), the Operating System, Internet Browser, Corporate Portal: and standardized office suites for word processing, spreadsheets, presentations, databases, and standard utilities such as anti-virus, security, data handling tools, and client-side printing utilities.
- **Electronic Messaging and Workgroup (Collaboration) Services:** provides the set of capabilities that support e-mail, scheduling services, and workgroup applications and includes: internal and external e-mail transmission/receipt, government-wide calendaring/scheduling; and the capabilities for workgroup collaboration facilities such as controlled public-access/shared folders, workgroup information sharing, bulletin boards, electronic forums, and community of interest workspaces; as well as a Logical Access Directory Service that provides the set of capabilities that support identity/group-based privileges to users who require access to Distributed Computing systems, data and/or printers.
- **GC Corporate Administrative / Program-Specific Application Services:** provides the set of capabilities that support program-specific and corporate administrative applications enabling service delivery, administration, management, information management and decision-making activities; within a distributed computing environment.
- **File/Print Service:** provides the set of capabilities that support user/group access for the storage, retrieval and protection of office-type documents such as word processing, spreadsheets, presentations, and data files; and shared workgroup folders. The Print service acts as the “server-side” of the printing service and provides the capabilities for handling all “local” print requests submitted from desk top applications.
- **Remote Desktop Delivery Service:** provides the set of capabilities that support remote end-users with complete access to the standard Distributed Computing Desktop components, applications and data via access over a Secure Remote Access, Dial-in or wireless service.

3.2 Application Development and Maintenance Services

Application Development and Maintenance Services includes the provision and support for application development services that create new or enhanced functionality in support of program-specific and corporate / administrative services (e.g. finance, materiel, human resources). The Application Development and Maintenance Service provides the set of capabilities that support: all hardware, software and services related to applications development, maintenance, testing, and transfer to Production and Operations Computing services for pre-production and production operations. These include, for example: operating systems(s), tools, languages, compilers, databases, training aids, test and development servers, peripherals particular to the development and maintenance environment; as well as development and maintenance of custom web applications, custom-built applications, and

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customized front ends and testing of commercial off-the-shelf (COTS) enterprise applications (e.g. SAP, PeopleSoft, RDIMS, etc.).

- **Applications Development Services:** provides the set of capabilities to create new functionality for custom-developed or packaged applications. Application Development services frequently serve to integrate or link internal or external business processes. These services may include conversion applications to run on different platforms or technical environments. Application development services include planning, definition, design, specification, acquisition, programming, integration, testing, implementation, documentation, reporting and management activities necessary to build and deliver the application software functionality as specified by the client statement of work.
- **Deployment Services:** provides the set of capabilities that support the implementation and rollout of new applications or infrastructure. Service activities may include hardware or software procurement, configuration, tuning, staging, installation, interoperability testing, user testing and acceptance, and user / client group training.
- **Integration Services:** provides the set of capabilities that support the detailed design, implementation and management services that link applications (custom or pre-packaged) to each other or with the established or planned IT infrastructure. Service activities include project planning, project management, detailed design or implementation of application programming interfaces.
- **Engineering and Testing Service:** provides the set of capabilities that support a consolidated and managed facility for a base-lined engineering lab services conducting development and configuration testing of new software / hardware products, or troubleshooting and patching of exist software, or hardware destined for the Production and Operations Computing environment. This service also provides the ability using “loading” equipment to simulate load/traffic onto base infrastructure such as hardware/software, network, switches and firewalls.
- **Certification/Release Service:** provides the set of capabilities that support the Post-development/Pre-production test environment which ensures that any new product being deployed into the Production environment operates properly, will not affect the installed infrastructure and data and is supportable in it’s release state. The Release service ensures that a product has been successfully certified, by Production and Operations Computing environment for release to the production environment in a coordinated and integrated manner.

3.3 Production and Operations Computing Services

The Production and Operations Computing Services includes the provision and support for the enterprise’s day-to-day operations and production application system and database computing environments (midrange and mainframe), including web application hosting environments, regardless of where they reside in the enterprise (centralized or within the business unit). In addition, this service group enables web-hosting environments within the Intranet, Internet, and Extranet environments.

- **Utility Computing Services** involve deploying repeatable processes, procedures, and customized support options to run highly available, scalable, reliable, secure and manageable systems. It also provides the set of capabilities that support program-specific and corporate administrative application systems. Utility Computing Services includes **midrange computing** services that provide the set of capabilities that support server and storage environments supporting smaller and mid-range program-specific and targeted corporate administrative application systems. In addition, Utility Computing Services includes **mainframe computing** services that provide the set of capabilities that support all mainframe hardware, software and support services environments.

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Specifically, Utility Computing Services encompass: hardware and operating software systems infrastructure operations, database and application system specific storage and servers management, data and applications (production, pre-production) configuration, centralized storage, backup and recovery, including disaster recovery, security management, firewalls, virus detection and control, software distribution / updates; hardware upgrades / extensions, centralized print and distribution services, sizing and scalability on demand, including load balancing and reliability, system installs, moves, adds and changes (IMACs), system maintenance, troubleshooting and repair, performance monitoring, adjusting, control and system / user account administration, asset inventory, license management.

- ***Dedicated Application Hosting & Management Services:*** provides the set of capabilities that support the operation and management for specific / dedicated technical environment that enable client area business applications with services configured specifically to their particular needs.
- ***Facilities Management Services:*** provides the set of capabilities that support facilities management services (data centre) including, for example: the end to end management of physical complexes including, the heating, ventilation and cooling systems, environmental controls, uninterrupted power supplies, diesels, conditioned power, power distribution, physical security, cabling, equipment racking, etc.

(Note. File/print, LAN communications and messaging (e-mail) servers specifically are provided as part of the Distributed / Desktop Computing Services.

3.4 Telecommunications (Data and Voice) Network Services

The Telecommunications Network services group includes both data and voice services. Data network services include the provision and ongoing support of multi-platform, multi-protocol electronic data and communications networks, which includes all software as well as wiring, switches, hubs, routers and all other hardware required to support data communications between computing devices. The voice communication services include the provision of local and long-distance services globally, as well as fax services, voice mail, video-conferencing, secure voice and other related services, which include all carrier software and hardware environments.

- ***Network Management and Operations Services:*** Network Management and Operations Services involve managing the acquisition, implementation, operation and maintenance for all network hardware and software, while providing monitoring and reporting services. As well, services include the provision, support, management, administration and troubleshooting of wide-area, campus-area and local-area data communications services for all global locations. Specifically this service set provides the capabilities that support network systems management, bandwidth management, managing router tables, IP addresses, managing PBXs, managing voice-mail systems, voice-mail user account administration, hardware and operating software systems for network infrastructure operations, backup and recovery, including disaster recovery, software distribution / updates hardware upgrades / extensions, system installs, moves, adds and changes (IMACs), system maintenance, troubleshooting and repair, performance monitoring, adjusting, and control and finally network system / user account administration, asset inventory.
- ***Traffic and Transmission Services:*** provides the set of capabilities that support all data and voice network traffic originating from distributed computing devices, switches, routers and other network devices, including virtual private network (VPN) devices, CSU/DSUs and other network devices. Transmission facilities include private circuits, frame relay, dedicated Internet connections, public broadband Internet connections, private and public Internet-based VPNs, satellite, microwave and dial-up.

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- **Inter and Intra Data Centre Network Services:** provides the set of capabilities that support interconnectivity translation of network elements between transmission facilities and computing facilities. The Data Centre network infrastructure provides 7/24 access points to multiple Data Centre services such as, Storage Area Internetworking, Disaster/Recovery, Shared and Dedicated Database Server farms, Mid-Range Facilities, Security Perimeters and Web Hosting. It also includes all network infrastructures within a data center. Examples include multiplexers, switches, bridges, routers, Protocol converters, VPN gateways, modems, etc
- **Community Connectivity Services:** provides the set of capabilities that support client access connectivity where the user communities are connected to the Data Centre Network Infrastructure via various types of networks such Virtual Private Networks, Wide Area Networks, Campus-Area, Local-Area and Virtual Area Networks, Metropolitan Area Networks and Remote Access Networks. It includes all client end and hand-held access devices such as, Cell phones, PDA's, Kiosks, Blackberries etc
- **Voice Network Services:** provides the set of capabilities that support long distance, inter-campus, private network (i.e., internally managed across a corporate facility) and virtual network (i.e. external service provider managed) components along with providing the set of capabilities that support the software and hardware for a virtual voice, secure voice and a private voice network. Voice Network Services also provides the set of capabilities that support the community connectivity devices such as Telephones, Pagers, PDA's, Blackberry Units, Cell phones, etc. Furthermore, Voice Network Services provide the set of capabilities that support long distance public virtual network via switched (PSTN), point-to-point video conferencing, dedicated access lines or software-defined networks (SDN, V-net and VPN); including PBX's and tandem switch equipment located at a backbone site and used exclusively for movement of voice network traffic to or from other network sites, satellite and microwave equipment.
- **Call Centre Services:** Call Centre Services provide the capability to enable Canadians to communicate, by telephone, instant message or video, with a government service agent or with an automated self-service system. The underlying infrastructure to support these services will include systems such as Interactive Voice Response (IVR), Private Branch Exchange (PBX), Centrex, automated Call Distribution (ACD), toll-free phone numbers, telephones and headsets, and call center management and monitoring systems.

3.5 IT Security Services

IT Security Services is concerned with applying “safeguards to preserve the confidentiality, integrity, availability, intended use and value of electronically stored, processed or transmitted information”. It is also concerned with safeguards applied to the assets used to gather, process, receive, display, transmit, reconfigure, scan, store or destroy information electronically (*copied from GSP/MITTS*).

- **IT Environment Protection Services:** provides the set of capabilities that support physical security measures to reduce the risk of unauthorized access to information, IT assets, and facilities. This would include the protection and disposal of sensitive IT media in appropriate containers designed to resist fire, environmental damage, and unforeseen hazards (for both on-site and off-site storage). Also included would be the use of TEMPEST protection to ensure emanations by radiated signals do not contain compromising information. IT Environment Protection Services also involves personnel identification provided by the set of capabilities that support establishing trust in personnel and others, who require access to government facilities, systems, and networks; including security requirements for personnel screening.

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- **Identification, Authentication and Authorization Services:** provides the set of capabilities that support obtaining information about those parties attempting to log on to a system or application for security purposes and the validation of those users. Privileges and access control mechanisms and their management are provided to support the granting of abilities to users or groups of users of a computer, application or network and support the confirmation of authority to enter a computer system, application or network.

Components of the service typically include: access management, authentication, delegated administration, directory services, trusted identities, password management, provisioning, privilege management, self-service, and single sign-on. In practice, it may leverage a PKI Infrastructure that is a system of digital certificates, certification authorities, and other registration authorities that verify and authenticate the validity of each party involved in an electronic transaction.

Also included are the non-repudiation services that provide the set of capabilities to prevent an individual or entity from denying having performed a particular action related to data by making available historical records of actions related to any transaction.

- **Secure Communications Services:** provides the set of capabilities to secure communications based on the sensitivity (confidentiality, integrity, and availability) requirements of the information. Cryptographic mechanisms such as encryption are used to protect the confidentiality of voice and data communications. Cryptographic protection also involves the use of digital signatures to provide a set of capabilities that verify the authenticity of the data against unauthorized modification, deletion, creation and replication. Cryptographic security advice, guidance and technical services are provided to assure that sensitive and classified information is afforded an appropriate level of protection.

Secure communications requires the use of a trusted and robust Key Management infrastructure. Key Management services such as operation of the Classified Canadian Electronic Key Management System (CCEKMS) and GoC Public Key Infrastructure are provided to ensure a source of trusted cryptographic keying material.

- **Perimeter Defence, Detection, Response, Recovery and Audit Services:** provides the set of capabilities that support network security services at network boundaries including firewall, intrusion detection systems, anti-viral and anti-vandal gateways, content filtering, anti-spam gateways, malicious code defence software, and a secure area for application security services (DMZ).

The set of capabilities that support the detection of unauthorized access or entrance into computer systems is also provided as part of this service. It provides the capabilities that support monitoring, analysis, network mapping and collection of alarms, events, and/or incidents. Incident response services provides the set of capabilities that support responding effectively to an incident and/or attack by mitigating the effects of such incidents on systems and networks and reporting incidents to all levels of authority within the enterprise. Incident reporting provides the set of capabilities that support communicating the incident specifics, including impact and the response. Audit trail capture and analysis provides the set of capabilities that support the identification and monitoring and post-analysis of activities within an application or system.

It also provides the Information Infrastructure Protection services that include the activities typically associated with Network Vulnerability Assessments, analysis of threat agents, tools, techniques or technical trends, incident analysis support and training and awareness.

Expanded and includes services outlined in TBS Policy - Operational Security Standard: Management of Information Technology Security (MITS), April 2004; Part III – Technical and operation safeguards, Section 16, 17 18

Profile of GC IT Services

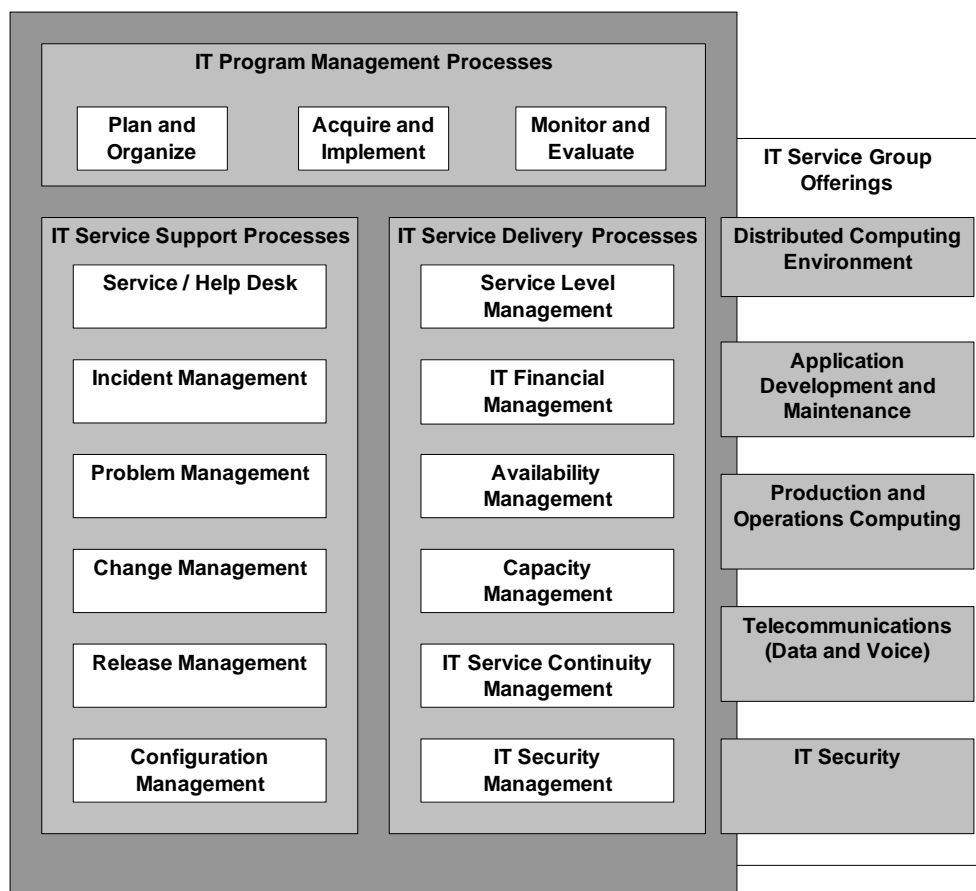
4.0 Profile - GC IT Services Program Framework

Overview

The GC IT Services identified above are the services seen by IT consumers. These services are planned, acquired, built, delivered, supported and evaluated upon a common process model for IT Services. As shown in Figure 3 (and presented earlier), the structure of this process model for IT is similar to all GSRM provider programs and consists of three process groups:

- **Program management processes**—manage the direction, acquisition and investment, as well as the overall performance of the program;
- **Service delivery processes**—provide the service specific planning, provisioning, delivery, and decommissioning processes for the services provided by the program;
- **Service support processes**—provide the support processes common to all services delivered by the program.

Figure 3 – Process Model for GC IT Services Programs



Profile of GC IT Services

In the case of IT services, this program structure lends itself to the use of widely recognized international best practices offered by (a) Control Objectives for Information and related Technology (COBIT) and (b) IT Infrastructure Library for Service Management (ITIL).

COBIT provides an industry best practice reference model of common IT management and governance processes within four groups: Plan and Organise, Acquire and Implement, Deliver and Support, and Monitor and Evaluate. ITIL provides a framework of common IT processes for the Service Delivery and Support processes (IT Service Management Framework).

While service delivery and service support processes are defined in both COBIT and ITIL reference models, ITIL is most recognized as a de facto standard for IT Service Delivery and IT Service Support processes.

In view of the above, the program structure for GC IT Services described below adopts:

- the **ITIL** framework for *IT Service Support and IT Service Delivery* processes, and
- the **COBIT** framework for *IT Program Management processes* (i.e. plan, acquire, monitor/evaluate).

The processes for IT Service Delivery, IT Service Support and IT Program Management for GC IT Services, as shown in Figure 3, are described next.

4.1 IT Service Delivery Processes

This group of service delivery processes focuses on service specific planning, provisioning, delivery, continuity, security and decommissioning processes for the services provided by the program⁹.

- **Service Level Management.** Service level management involves the processes of planning, coordinating and reporting on Service Level Agreements (SLAs) between the IT Service Provider and customer / client group; and the ongoing reviewing of service achievements to ensure that service levels and quality are consistently delivered and maintained.
- **IT Financial Management.** IT Financial Management involves three main processes - budgeting, IT accounting and charging – to ensure the cost-effective stewardship of IT Assets and resources used in providing IT Services. Charging is an optional activity and is dependant on the charging policy of the organisation as a whole.
- **Availability Management.** Availability Management is concerned with the design, implementation, measurement and management of IT infrastructure availability to ensure the stated business requirements for availability are consistently met, according to agreed levels.
- **Capacity Management.** Capacity Management is the focal point for all IT performance and capacity issues. Capacity Management aims to optimize the amount of capacity needed to deliver a consistent level of current and future services.
- **IT Service Continuity Management.** IT Service Continuity Management involves undertaking a systematic approach to the creation of a plan and or set of procedures (which are updated and tested regularly) used to prevent, cope with and recover from the loss of critical services for extended periods, in line with business continuity plans.
- **IT Security Management.** IT Security Management processes involve organizing the collection, storage, handling, processing and management of data and services in such a way that the Integrity, Availability, and Confidentiality business conditions are satisfied.

⁹ The service delivery and the service security process described here have been adopted from ITIL.

Profile of GC IT Services

4.2 IT Service Support Processes

The group of service support processes focuses on the day-to-day operational services common to all IT services. They include service / help desk processes which interact directly with IT program customers, however, the value contribution of these processes to the IT services is more indirect than that of the service delivery processes and this is indicated in figure 3 by placing these “behind” the service delivery processes¹⁰.

- **Service / Help Desk.** The Service Desk is the single contact point within the IT provider organization for all end-users to seeking assistance and support for IT services and/or related problems, incidents, questions, and complaints.
- **Incident Management.** The primary goal of the Incident Management process is to restore normal service as quickly as possible following loss of service, and to minimize the adverse impact on business operations, thus ensuring that the best possible levels of service quality and availability are maintained.
- **Problem Management.** The goal of Problem Management is to minimize the adverse impact of Incidents and Problems on the business that are caused by errors within the IT Infrastructure, and to prevent recurrence of Incidents related to these errors.
- **Change Management.** The goal of Change Management is to ensure that standardized methods and procedures are used for the efficient and prompt handling of all Changes, to minimize the impact of change-related Incidents and improve day-to-day operations.
- **Release Management.** Release Management is very closely linked with Configuration Management and Change Management, and undertakes the planning, design, build, and testing of hardware and software to ensure that all aspects of a Release, both technical and non-technical, are considered together.
- **Configuration Management.** Configuration Management covers the identification of all significant components within the IT Infrastructure and recording details of these components in the Configuration Management Database (CMDB).

4.3 IT Service Program Management Processes

This group of program management functions is dedicated to managing the direction, investment, and overall performance of the program. The IT Service Program Management processes fall into three groups¹¹:

- **Plan and Organize.** This grouping sets the direction and objectives for the IT services program. This function also includes the processes required to manage the resources common to the program. Processes within this group include: Define a strategic IT plan; Define the enterprise architecture¹²; Determine technological direction; Define the IT processes, organisation and relationships; Manage the IT investment; Communicate management aims and direction¹³; Manage IT human resources; Manage quality; Assess and manage IT risks; and Manage projects.
- **Acquire and Implement.** This grouping develops and/or acquires and implements IT solutions and their enhancements or maintenance. Processes in this group include: Identify automated solutions; Acquire and maintain application software; Acquire and maintain technology

¹⁰ The service support processes described here have been adopted from ITIL.

¹¹ The program management processes have been adopted from COBIT.

¹² This process is referred to as information architecture in COBIT. Generalized to better adapt to the GC EA framework.

¹³ This process includes development and promulgation of administrative policies, procedures, and standards

Profile of GC IT Services

infrastructure; Enable operation and use (including User Training); Procure IT resources; Manage Program changes; and Install and accredit solutions and changes.

- **Monitor and Evaluate.** This grouping monitors and evaluates the overall effectiveness of an IT services program. Processes in this group include: Monitor and evaluate IT performance; Monitor and evaluate internal control; Ensure regulatory compliance; and Provide IT governance.

4.4 GC IT Services Cost Reporting Model

Table 2 outlines a common cost model for GC IT Services, which offers a template planning and budgeting the direct and indirect costs of GC IT Programs and associated GC IT Services.

In brief, the following discusses how the GC IT Program Service cost model may be applied:

- The model shown could be applied for three main views of budget – Direct Costs, Indirect Costs and as a view of Expected / Actual Savings Realized. Minimally, there will be a view of Direct Costs.
- Costs may be allocated by common IT Processes (the rows) or by IT Services (the columns).
- For those IT Program budgeting by IT Services (columns), costs could be allocated to selected IT processes (rows) using an allocation formula.
- On the other hand, for those IT Programs budgeting by IT Process (rows), costs could be allocated to selected IT Services (columns) using an allocation formula.
- For an IT Process (rows) that generally contributes to more than one IT Service, costs could be allocated to the applicable IT Services (columns) using an allocation formula.
- Types of IT Program costs budgeted and reported will include: capital, operating and maintenance, and salaries.
- Depending on the desired level of budgeting details for an IT Program - budgets and reports may provide a next level breakdown of costs, such as: hardware, software, people, external services / contracts, facility, accommodation.
- Indirect Costs are those incurred in the course of providing products / services, but which cannot be traced directly to a program or service because it has been incurred for a number of programs or services.
 - For those IT Programs budgeting Indirect IT costs, a table view of indirect costs could include, for example: pro-rated portions of a department's overall costs for operating facilities, fixed assets, corporate services (e.g. finance, human resources, materiel, ...).
 - In some organization's, the total of overhead costs are distributed across their respective programs, including the IT Program, using a pre-determined formula.

Profile of GC IT Services

Table 2 – IT Services Program Cost Model Matrix (***)

IT Services Groupings	Distributed Computing				Application Development & Maintenance				Production and Operations Computing			Telecommunications			IT Security			Total				
	Standard Desktop and Office Productivity Suite	Electronic Messaging and Workgroup Services	GC Corporate Administrative / Program Specific Applications	File / Print Service	Remote Desktop Delivery Service	Application Deployment and Maintenance Services	Deployment Services	Integration Services	Engineering and Testing Services	Certification / Release Services	Utility Computing Services	Dedicated Application Hosting & Management Services	Facilities Management Services	Network Management and Operations Services	Inter Data Centre Network Services	Traffic and Transmission Management Services	Voice Network Services		Physical Environment Services	Identification, Authentication, Authorization Services	Detection, Response, Recovery, Audit Services	Perimeter Defence Services
IT Service Program Management Processes																						
IT Program Management (1)																						
Plan & Organize																						
Acquire & Implement																						
Monitor & Evaluate																						
IT Service Delivery																						
Service Level Management																						
Service Finance																						
Service Availability Management																						
Service Capacity																						
Service Continuity																						
Service Security																						
IT Service Support																						
Service / Help Desk																						
Incident Management																						
Problem Management																						
Change Management																						
Release Management																						
Configuration Management																						

(1) See descriptions for processes comprising Plan and Organize, Acquire & Implement, and Monitor and Evaluate
 (2) *** This template can be applied to create a Direct Cost View table, Indirect Cost View, as well as Expected / Actual Savings Realized

Annex

References / Documents Reviewed

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GSRM Top Model: IT Service Output Type – “Resources”

		Service Output Types																		
		Supply capacity to act			Enhance capability to act				Facilitate & influence action			Regulation action				Core				
		Funds	(Units of) Resource	New Knowledge	Care & Rehabilitation Encounters	Educational & Training Encounters	Recreational & Cultural Encounters	Movements	Advisory Encounters	Matches, Referrals & Linkages	Advocacy and Promotional Encounters	Periods of Agreement	Periods of Permission	Findings	Rulings & Judgements	Penalties & Periods of Sanction	Periods of Protection	Interventions	Rules (laws, policies, strategies, plans,...)	Implemented changes
Public Program Fields	(Socio-)Economic Development																			
	Science and Knowledge Development																			
	Natural Resources Development																			
	Environmental Protection																			
	Public Health																			
	Legal, Collective, Democratic & Human Rights Protection																			
	Social Development																			
	Cultural Development																			
	Educational Development																			
	Public Safety																			
	Justice																			
	National Security & Defense																			
	Provider Program Fields	Public Policy, Planning and Management Services																		
Corporate Policy, Planning and Management Services																				
Integrated Delivery Services																				
Communications Management Services																				
Human Resources Management Services																				
Financial Management Services																				
Information Management & Technology Services																				
Supply Chain Management Services																				
Administrative Services																				
Facilities and Assets Management Services																				
Professional Services																				