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Investing in information and communications technology: information and communications strategy for the United Nations Secretariat

Report of the Secretary-General

Summary

The present report, submitted in accordance with paragraph 3 of section II of General Assembly resolution 60/283, provides the information and communications technology (ICT) strategy for the United Nations Secretariat. The strategy serves as the Organization-wide agreement on the future direction of ICT. The report builds upon the significant progress made since the launching of the ICT strategy in 2002, and seeks to extend this achievement in order to meet the strategic ICT needs of the Secretariat over the next three to five years.

Based upon a collaborative planning process, which included interviews with the Organization's executive leadership and surveys directed at United Nations personnel and permanent missions, the strategic ICT needs of the Secretariat have been identified and summarized into four broad categories of institutional driver: knowledge-sharing and collaboration; improvement of and support for internal Secretariat operations; communications and infrastructure; and overall ICT management. These institutional drivers, together with technological drivers comprising emerging technology trends, provide the basis for the overall vision of a strong ICT for a better United Nations.

The strategy for realizing the ICT vision spans five cross-cutting priority areas: ICT management structure; strategic programme delivery; service and performance management; global architecture and standards; and financial control and reporting. Changes will be made in these areas to establish a global, transparent and high-performing ICT environment. In addition, three strategic programmes of high

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Organization-wide value, which correspond to the identified institutional drivers, are proposed to achieve the vision: (a) knowledge management; (b) resource management; and (c) infrastructure management. Implementation plans for each strategic programme are presented in the report.

A management framework which supports the effective implementation of the ICT strategy and programmes is also presented in the report. Core elements of the management structure include management oversight committees, advisory bodies, the Chief Information Technology Officer, the Office of Information and Communications Technology and other ICT units of the Secretariat. The key functions and responsibilities of each component and the relationships among them are outlined, along with an organizational structure of the Office of Information and Communications Technology and the reporting relationships between that Office and other ICT units throughout the world. The overall plan and proposed timeline for implementing the management framework are also submitted for consideration.

Finally, organizational benefits expected upon the implementation of the strategy are presented, along with the key success factors required to ensure the successful realization of the ICT vision.

Contents

I. Introduction

1. The rapid growth of global networks and wireless communications has combined with major advances in technology to create opportunities for the United Nations to achieve a global and integrated Secretariat. Information and communications technology (ICT) can enable the Organization to be effective and efficient in carrying out its work and adapt to changing environments. By strategically harnessing the power of such technology, the Organization can accelerate the realization of its mission and meet growing commitments in an increasingly knowledge-based and interconnected global society.

2. Significant progress has been made towards the realization of effective and efficient ICT operations in all offices of the Secretariat since the launching of the ICT strategy in 2002. Today, all offices of the Secretariat apply uniform ICT standards and have reached similar levels of technological capabilities. However, the disparate development of ICT systems — driven largely by departmental, regional and local needs (without a coherent Organization-wide ICT vision, strategy and architecture, uniform standards and a management structure) — has been neither effective nor cost-efficient. The absence of overall strategic management of ICT investments and operations has largely contributed to the current gaps and deficiencies reported by the Secretary-General (A/60/846/Add.1). ICT units in the Secretariat are highly fragmented and often operate in isolation from one another. Strategic ICT capabilities of the Secretariat lag behind those of other organizations owing to systemic under-investment for Organization-wide purposes. As a result, the Secretariat has not been able to take full advantage of ICT in a manner that enables the entire Organization to benefit from the opportunities that it offers.

3. Recognizing the strategic importance of ICT as a critical reform instrument, the General Assembly, in section II of its resolution 60/283, decided to establish the post of Chief Information Technology Officer at the level of Assistant Secretary-General in the Executive Office of the Secretary-General, and requested the Secretary-General to: (a) submit the comprehensive report on investing in ICT with a view to maximizing its value to the global Secretariat; (b) rejustify the level and resource requirements for the post of Chief Information Technology Officer; and (c) provide information on the functions, responsibilities, structures and staffing requirements of the envisaged ICT organization and its relationship with other ICT units in the Secretariat. The Chief Information Technology Officer assumed his duties late in August 2007 and, pending submission of a comprehensive report to the General Assembly at its second resumed sixty-second session, the Secretary-General provided a status report on efforts to develop the ICT strategy (A/62/502).

4. The present report provides the comprehensive ICT strategy for the medium term (3-5 years), which lays the groundwork for maximizing the value of ICT across the global Secretariat, and the management framework needed to successfully implement that strategy. The strategy outlined in the report serves as the Organization-wide agreement on the future direction of ICT. It provides the foundation for achieving a comprehensive vision by enhancing existing ICT efforts and launching new ICT initiatives that will assist the achievement of Secretariat-wide goals. The resources required for implementation of the strategy will be requested once specific project proposals have been fully developed by the Chief Information Technology Officer and appropriate stakeholders. Project proposals will be evaluated as regards their conformity with the strategy and will be approved by

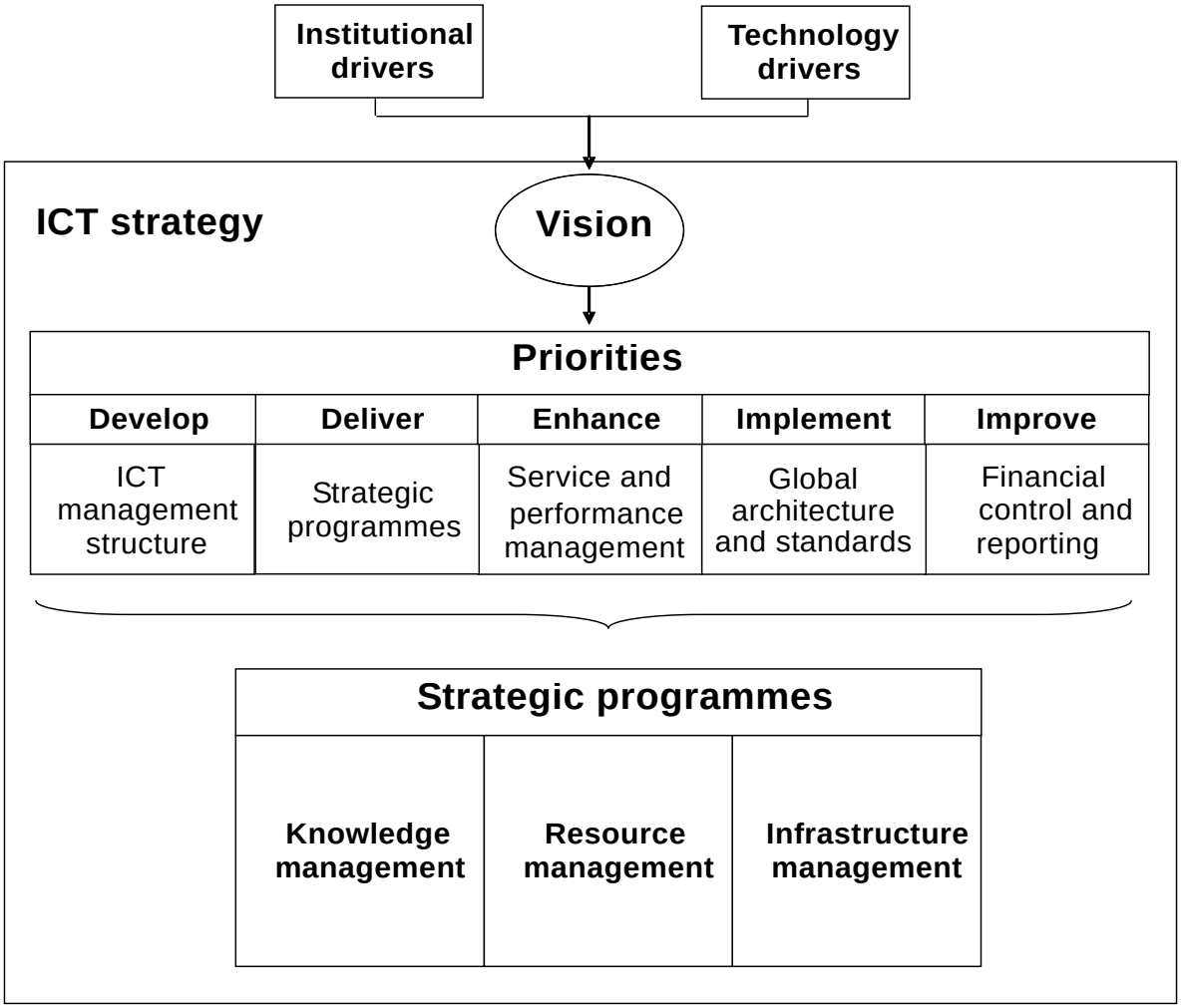
ICT management oversight committees, subject to the availability of overall resources and organizational priorities.

II. Information and communications technology strategy

A. Planning process

5. The strategic planning process began with a broad-based exercise aimed at identifying the key ICT needs of the global Secretariat. These organizational needs ("institutional drivers") are combined with technological trends and market developments ("technological drivers") to produce the ICT vision for the Secretariat. To realize this vision, a strategy encompassing five cross-cutting priority areas is proposed: (a) ICT management structure; (b) strategic programme delivery; (c) service delivery and performance management; (d) global and standards architecture; and (e) financial control and reporting. In turn, a set of three strategic programmes carries out the overall ICT strategy (see fig. 1). The management framework that enables the effective implementation of the overall vision is described in section III of the present report.

Figure 1
Information and communications technology strategy



6. The development of the ICT strategy rests upon obtaining a firm understanding of the mission, programme direction and objectives of the Secretariat and of the priorities of stakeholders. To this end, the planning team — the Chief Information Technology Officer and his advisers — undertook a series of strategic planning activities, including executive interviews, an Organization-wide ICT survey, discussions with permanent missions and technology research. The results of these activities are described below.

7. **Executive interviews**. The planning team conducted 36 interviews with executive staff in December 2007 and January 2008 (see annex I). The 28 interviews with staff of Headquarters departments, offices away from Headquarters and regional commissions, focused specifically on organizational challenges and how ICT added value over the medium term. The remaining 8 interviews with senior staff from United Nations funds, programmes and other organizations focused on harmonization and opportunities for working together in the future.

8. **Organization-wide ICT survey**. On 10 January 2008, the Chief Information Technology Officer launched the first Secretariat-wide ICT survey conducted at the United Nations. The purpose of the survey was to gauge the level of satisfaction of United Nations personnel with 12 core ICT services and to identify major areas for improvement. The survey generated 5,015 responses, with over 1,500 write-in comments from across the global Secretariat. Results (see annex III) showed that overall user satisfaction is around 71 per cent, below the 80 per cent target generally set for user satisfaction. However, at the organizational level (i.e., departments, offices and field missions), the gap in overall user satisfaction was 20 per cent (ranging between 62 and 82 per cent), indicating that some ICT units are providing ICT services that meet user needs substantially better than others.

9. The five top-rated ICT services were basic office automation software (79 per cent), computer equipment and related support (76 per cent), telephone equipment and related support (79 per cent), e-mail services (74 per cent), and the performance and reliability of the Internet (73 per cent). The lowest ratings were given to training related to ICT technologies and services (62 per cent), remote access to United Nations applications (64 per cent), United Nations common application software (66 per cent), mobile equipment and related support (67 per cent), and the ability to find information on United Nations websites and in document repositories (67 per cent). The gap between most satisfactory service (basic office automation software) and least satisfactory (training) was 17 per cent.

10. **Input from permanent missions**. The Chief Information Technology Officer consulted with permanent missions to the United Nations based in New York, both directly and through the Ad Hoc Open-ended Working Group on Informatics of the Economic and Social Council, to gather their views on ICT services. The Chief Information Technology Officer participated in the first meeting of the Working Group on 14 February, briefing its members on the ICT strategic planning process. The Working Group launched a survey to gauge overall user satisfaction with the ICT services currently available to permanent missions.

11. **Technology research**. Extensive research on current technology trends and market developments in the ICT industry was conducted by teams of ICT staff. Advice from technology industry experts, such as the Gartner Group, provided information on technology trends, and market developments and the forecasts needed to develop the ICT strategy.

12. **Strategic planning retreat**. A three-day strategic planning retreat was held the first week of February 2008, with over 25 senior ICT managers in attendance. Participants analysed the results of the above-mentioned strategic planning activities. Discussions at the retreat resulted in the identification of key institutional and technological drivers that form the basis of the ICT strategy. The identified drivers, further delineated in annex II, are as follows:

(a) Institutional drivers:

(i) Knowledge-sharing and collaboration;

(ii) Improvement of internal operations;

(iii) Communications and infrastructure;

(iv) Management of ICT;

(b) Technological drivers:

(i) Mega-trend towards connecting everyone;

(ii) Convergence of technologies;

(iii) Increased intensity and velocity of information-sharing;

(iv) Knowledge management tools.

B. Vision

13. The vision of the Secretary-General is for a stronger United Nations for a better world; the new ICT vision is for strong ICT for a better United Nations. The vision translates into three broad goals, to be achieved over the forthcoming three to five years:

(a) Work: ICT to be aligned with the mission and work programmes of the Secretariat;

(b) People: United Nations personnel and their stakeholders to connect and share knowledge anytime, anywhere;

(c) Resources: institutional resources to be efficiently deployed and utilized.

C. Priorities

14. To achieve the ICT vision, the strategy will encompass the five cross-cutting priority areas of ICT management structure, strategic programme delivery, service delivery and performance management, global architecture and standards, and financial control and reporting.

15. **ICT management structure**. A major element of the strategy is the creation of a new global management structure that achieves coherence and eliminates the duplication and fragmentation of ICT that currently exist across the Secretariat. Only by bringing the mechanisms for the delivery of major ICT services under a single, united structure can the Organization take advantage of economies of scale and eliminate redundant operations. Implementing a new structure which comprises programme-based centres of excellence and a global service delivery model will strengthen organizational ownership of ICT while simultaneously improving ICT effectiveness and efficiency. This will, across the Organization, positively impact upon the quality of ICT customer services, preserve local ICT support and lower the overall cost of providing ICT services.

16. **Strategic programme delivery**. ICT should effectively support the work programmes of the Secretariat. Increasing the alignment of ICT with substantive activities means that ICT must be more responsive to programme units so that changes to work programmes or priorities are quickly reflected in the ICT activities. In turn, this means increasing the programme ownership of ICT strategic programmes such that substantive organizational needs directly drive strategic ICT actions. To achieve near-term wins, value-added products and services will be quickly implemented, while strategic programmes progress over the long term. Potential projects include a Secretariat-wide ICT service catalogue and a portal dedicated to Member States.

17. **Service delivery and performance management**. In accordance with the Secretary-General's proposed accountability framework (see A/62/701 and Corr.1), ICT will help to develop an open environment which allows access to the timely and reliable information that contributes to effective decision-making. To increase both efficiency and effectiveness, a new results-based measurement framework will be implemented; the framework will permit objective tracking of key measures of performance and enable improved management of ICT resources in order to enhance service delivery. To support this effort, the strategy calls for increasing the capacities of ICT staff across the board by enhancing staff skills and adjusting the span of control of ICT management to further improve organizational effectiveness.

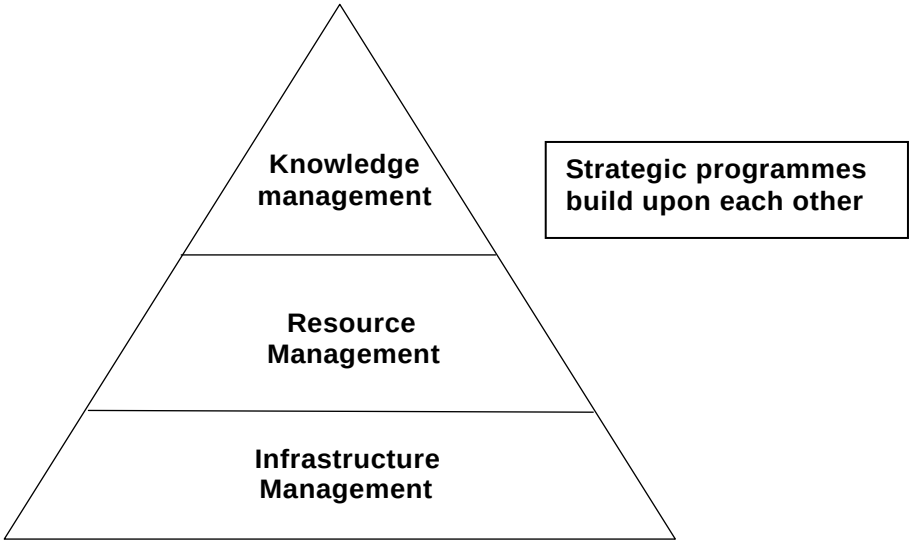
18. **Global architecture and standards**. Establishing an Organization-wide, service-oriented architecture and strong technical standards will enable the consolidation of ICT assets, systems and services on a global scale. This will drive down unit costs, lower maintenance costs, reduce deployment time and enable a high level of business process integration among systems. Additional efforts will be made to establish Secretariat-wide guidelines for adopting open-source solutions.

19. **Financial control and reporting**. To maximize the value of ICT, a global financial framework will be established. This will allow the Office of Information and Communications Technology to enforce financial discipline and accountability for all spending on ICT. Emphasis will be placed on determining and reducing fixed operating costs through consolidation, improvements in efficiency and centralized purchasing with a view to making more funds available for discretionary programmes. New projects will be carefully scrutinized to determine whether they are adding the value to the Organization. Each main ICT initiative, irrespective of funding source, will be reviewed by the Office of Information and Communications Technology and management oversight committees.

D. Strategic programmes

20. The ICT strategy for the Secretariat will be carried out through a set of strategic programmes. These programmes consist of three broad categories of initiatives that build upon one another. The infrastructure management programme provides the foundation for the essential ICT services employed globally by the Secretariat; the resource management programme builds upon the infrastructure management programme to create, process and store information on the Organization's resources and enable their effective and efficient management; and the knowledge management programme depends upon the aforementioned two programmes to provide an enabling environment for capturing, managing and sharing the Organization's information assets (see fig. 2). Detailed information on these programmes is presented in section IV below.

Figure 2
Strategic programmes



III. Information and communications technology management framework

A. Overview

21. Information and communications technology is maturing and taking on a new shape as expanding worldwide communications technology increasingly facilitates its global management and the global operations of the Organization as a whole. International standards and the availability of open-source software are increasingly relevant to the Organization's ICT portfolio and service delivery model. Economies of scale foster consolidation of ICT infrastructure, especially as technologies standardize and converge; basic user needs (voice, data, image etc.) are the same throughout the world. It is within this context that ICT management must continue to adapt and change.

22. The processes associated with ICT decision-making and its underlying organizational structures come together under the broad concept of ICT management. The ICT management framework clarifies how decisions are made, who is accountable and how ICT activities are coordinated within the Secretariat. The framework presented in the present report ensures that key stakeholders take on the appropriate roles and responsibilities to guide, clearly and effectively, the management of the Organization's activities and resources. At present, ICT personnel worldwide number almost 3,800 (see annex IV). ICT management is therefore also about how the Organization can manage this significant level of resources efficiently.

23. As the long-term success of the Organization's mission depends increasingly upon ICT, decision-making related to ICT becomes more critical. According to a

study from a premier consulting firm, organizations with high-performing ICT management share the following traits: clearly differentiated organizational strategies; clear organizational objectives for ICT investments; high-level executive participation in ICT management; stable ICT management, with few changes from one year to the next; well-functioning, formal exception processes; and formal communication methods.[1]

24. On the basis of the previous reports of the Secretary-General and resolutions of the General Assembly as well as best practices in ICT management, the following five key principles serve as the foundation for developing the ICT management framework for the Secretariat: (a) organizational strategy drives ICT investments for better outcomes; (b) Chief Information Technology Officer responsible for the overall direction and performance of ICT activities in the Organization; (c) the Office of Information and Communications Technology provided with sufficient authority and resources to manage significant ICT activities that affect the entire Organization; (d) a sensible balance maintained between centralization and decentralization of ICT functions; and (e) ICT units and staff are centres of excellence for innovation. These principles are described in detail in a previous report of the Secretary-General (A/62/502, sect. III).

B. Design considerations

25. To develop an ICT-effective management framework, a number of important design considerations have been taken into account. These include: (a) the definition of ICT; (b) decision rights and advisory rights; (c) balance between effectiveness and efficiency; and (d) a strong centralized ICT organization. These can be explained as follows:

(a) *Definition of ICT*. Since ICT activities are continually evolving, it is important to clearly define ICT within the context of the United Nations. For the purposes of the present report, ICT activities are defined as those associated with the development, implementation and management of processes and technologies that enable the effective management of electronic information including data, documents, websites and multimedia objects (i.e., voice, data and image);

(b) *Decision rights and advisory rights*. There are two types of rights often given to entities involved in decision-making. Entities with decision rights participate in decision-making and have the authority to make decisions, while entities with advisory rights do not have authority to make decisions but provide advice or input. The assignment of decision rights and advisory rights provides the foundation for an effective decision-making system within the ICT management framework;

(c) *Balance between effectiveness and efficiency*. Effectiveness is the ability to achieve stated goals or objectives, measured in terms of both output and impact. Efficiency is the ability to maintain the same level of output with fewer resources or to produce a higher level of output with the same resources. The work programmes carried out by the Secretariat must be delivered successfully, but at the same time resources must also be allocated and utilized efficiently;

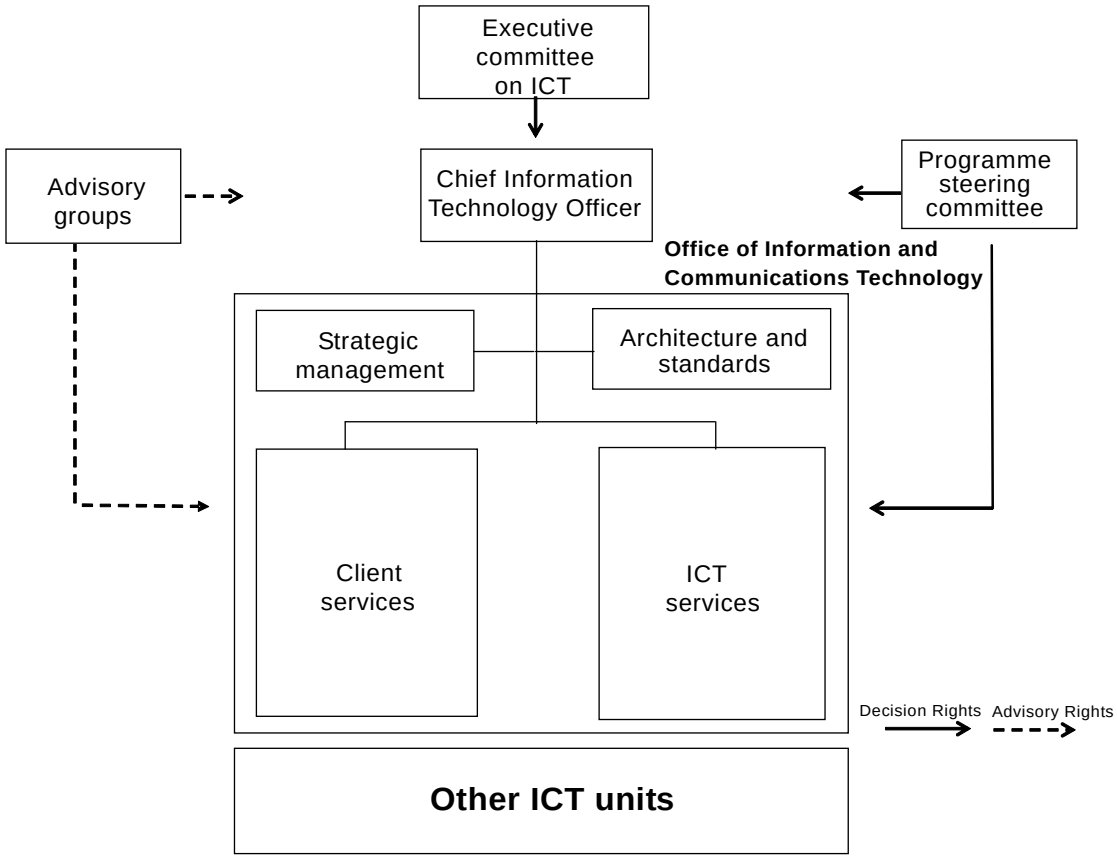
[1] M. Broadbent and P. Weill, “Effective IT Governance: By Design”, *Gartner EXP Premier* report, Gartner, Inc.,January 2003.

(d) *Strong centralized ICT organization*. Centralization of ICT services provides an opportunity to remedy the high level of fragmentation that currently exists within ICT services. A strong, central ICT organization with sufficient authority, accountability and resources is required to effectively administer ICT policies, architecture and standards, and to manage the strategic programmes and common services that affect the entire Organization.

C. Organizational structure

26. The core elements of the ICT organizational structure are as follows: (a) management oversight committees; (b) advisory bodies; (c) the Chief Information Technology Officer; (d) the Office of Information and Communications Technology; and (e) other ICT units. These organizational elements (see fig. 3) are described below.

Figure 3
Information and communications technology: organizational structure



Management oversight committees

27. To guide ICT work programmes and services, a two-tiered oversight structure will be established, consisting of an executive committee and three steering committees as follows:

(a) An executive committee, the highest-level decision making body on major ICT matters will decide overall ICT strategy and priorities. The committee will comprise the Deputy Secretary-General (chair), a small number of senior managers at the level of Under-Secretary-General, from both substantive and support areas, and the Chief Information Technology Officer (ex officio member). The committee will meet on a quarterly basis to review ICT strategy and programme performance and to determine investment portfolio and management priorities, as needed;

(b) Steering committees will decide on ICT investment priorities, projects and other investments at the programme level. It is expected that three steering committees, one for each of the strategic programmes, will be established. These steering committees will each comprise five or six staff members at the Under-Secretary-General or Assistant Secretary-General level and the Chief Information Technology Officer (ex officio member). One of the senior managers or the Chief Information Technology Officer will chair each steering committee, which will meet on a regular or as-needed basis. The strategic management unit of the office of information and communications technology will serve as the secretariat of the committees and, in particular, as the project management office (see para. 38). The project management office will submit business cases for each major project, with the support of the Chief Information Technology Officer and a project sponsor. The appropriate steering committees will make a final decision on implementation and ensure that the project corresponds to the programme strategy and is to be carried out within the level of resources allocated by the executive committee on information and communications technology.

Advisory bodies

28. To provide appropriate advice and input for ICT investments and services, existing and new advisory groups will be utilized. The Secretariat-wide Advisory Group on Information and Communications Technology will be established and will comprise staff members at the D-1/D-2 level, representing each department, office or field mission. The Advisory Group will provide feedback on ICT programmes and services. Members of the Advisory Group will also receive periodic briefings from the Office of Information and Communications Technology on ICT matters. Member States and the Ad Hoc Open-ended Working Group on Informatics will also provide feedback on the ICT services available to delegates. The existing group of executive officers will advise the Office of Information and Communications Technology, as needed.

Chief Information Technology Officer

29. The Chief Information Technology Officer will be responsible for the overall direction and performance of ICT activities in the Organization. The Chief Information Technology Officer will be provided with sufficient central authority and resources to oversee ICT activities in the United Nations Secretariat throughout the world. The key functions and responsibilities of the Chief Information Technology Officer are to:

(a) Provide strategic vision and leadership in the management of information and technology for the global Secretariat;

(b) Act as the principal representative of the Secretary-General in regard to issues of technology and information management;

(c) Provide advice to the executive committee on information and communications technology, in the capacity of permanent member of the committee;

(d) Promulgate policies and standards on ICT matters;

(e) Participate in the ICT steering committees which guide major ICT initiatives;

(f) Oversee ICT project implementation and change management processes throughout the Organization;

(g) Head the Office of Information and Communications Technology which is responsible for carrying out strategic ICT activities and for providing shared services affecting the entire Organization;

(h) Oversee, through appropriate delegation, ICT operations and investments in all offices of the Secretariat;

(i) Monitor and improve the effectiveness of the ICT management framework;

(j) As the principal representative of the Secretary-General for ICT, further coordination and cooperation among the organizations of the United Nations system in that regard.

30. The broad scope of the functions of the Chief Information Technology Officer encompasses developing a Secretariat-wide strategy and leading in its implementation. To carry out these responsibilities effectively, the post of Chief Information Technology Officer has been established at the level of Assistant Secretary-General, reporting to the Deputy Secretary-General. This relationship enables the Chief Information Technology Officer to build stronger partnerships with senior managers of departments and offices and to assume a more strategic and transformational role within the executive management team (e.g., Management Committee) for the benefit of the entire Organization. Justification for this level of authority is based on best practice in both the public and private sectors, whereby the chief information officer commonly reports directly to top management.

31. The Chief Information Technology Officer will increasingly play a critical role in reforming and modernizing the Secretariat. This transformational change requires clear authority and the direct support of the Secretary-General. The direct reporting relationship of the Chief Information Technology Officer within the Executive Office of the Secretary-General, along with increased access to the senior leadership team, provides a strong framework for implementing systemic reforms and will help to mitigate and overcome the effects of organizational silos and cultural resistance to change.

32. This reporting relationship enables a better strategic alignment of ICT with substantive activities and allows for the more effective implementation of institution-wide changes. A number of international organizations (e.g., World Bank) have already adopted this approach. The Secretariat should lead by example in adopting this best practice in ICT leadership. The reporting relationship is also in accordance with the expressed intent of the General Assembly which, in resolution 60/283, decided to establish the post of Chief Information Technology Officer in the

Executive Office of the Secretary-General. In response to the Secretary-General's proposal in 2007 to place the Chief Information Technology Officer in a new Office of Information and Communications Technology to be established in the Department of Management (see A/61/765), the Advisory Committee on Administrative and Budgetary Questions found insufficient justification for the proposal to reverse the decision of the General Assembly, considering it important that the appointee be given the opportunity to contribute to the formulation of the organizational structure of the Office for which he or she would be responsible (A/61/804, paras. 4-5).

Office of Information and Communications Technology

33. The Office of Information and Communications Technology (see fig. 4), headed by the Chief Information Technology Officer, will be provided with the critical resources to manage significant ICT activities that affect the entire Organization. Without the proper authority and adequate resources under its direct management, the Office must constantly negotiate for cooperation and/or the resources to carry out strategic activities, resulting in ineffective and fragmented implementation of ICT strategy and programmes. Therefore, to carry out its mandate effectively, the Office is established as an independent unit, reporting directly to the Executive Office of the Secretary-General.

34. The new ICT strategy has identified three broad areas of critical needs, knowledge management, resource management and infrastructure management, which must be addressed in a coherent manner across the Secretariat. This involves working collaboratively with all substantive and support organizational units in the Secretariat. In this regard, the Office of Information and Communications Technology must be independent so as to maintain objectivity and neutrality in the handling of supporting ICT administration, such as policy, architecture and standards, budgeting and performance management.

35. The main functions of the Office of Information and Communications Technology are to set overall strategic ICT directions for the Organization, plan and coordinate Secretariat-wide ICT activities, and provide enterprise systems and infrastructure (see fig. 4). More specifically, its functions include:

(a) Developing the ICT strategy for the Secretariat and coordination of its implementation;

(b) Reviewing budgets from all funding sources for all ICT initiatives and operations of the Secretariat;

(c) Monitoring, measuring and evaluating the performance of ICT units against established goals, objectives and budgetary targets, utilizing accountability frameworks as appropriate (see para. 46);

(d) Setting the technological direction and architecture for the Organization;

(e) Planning and developing all organization-wide ICT applications, including, inter alia, an enterprise resource planning system and other major systems;

(f) Planning and developing the overall infrastructure architecture encompassing the communications networks and data centres of the Organization;

(g) Using the Organization's global presence and ICT infrastructure to develop and operate Secretariat-wide applications and infrastructure in order to maximize benefits and cost-effectiveness;

(h) Undertaking, in collaboration with other ICT units, ICT research and development activities;

(i) Overseeing the assessment and management of ICT risks for the Organization;

(j) Developing and maintaining the information security policy of the Organization and monitoring compliance across operational units;

(k) Managing the implementation of disaster recovery and business continuity plans for the Organization;

(l) Coordinating ICT human resources management programme and activities, including staff development and mobility of all ICT staff in the global Secretariat;

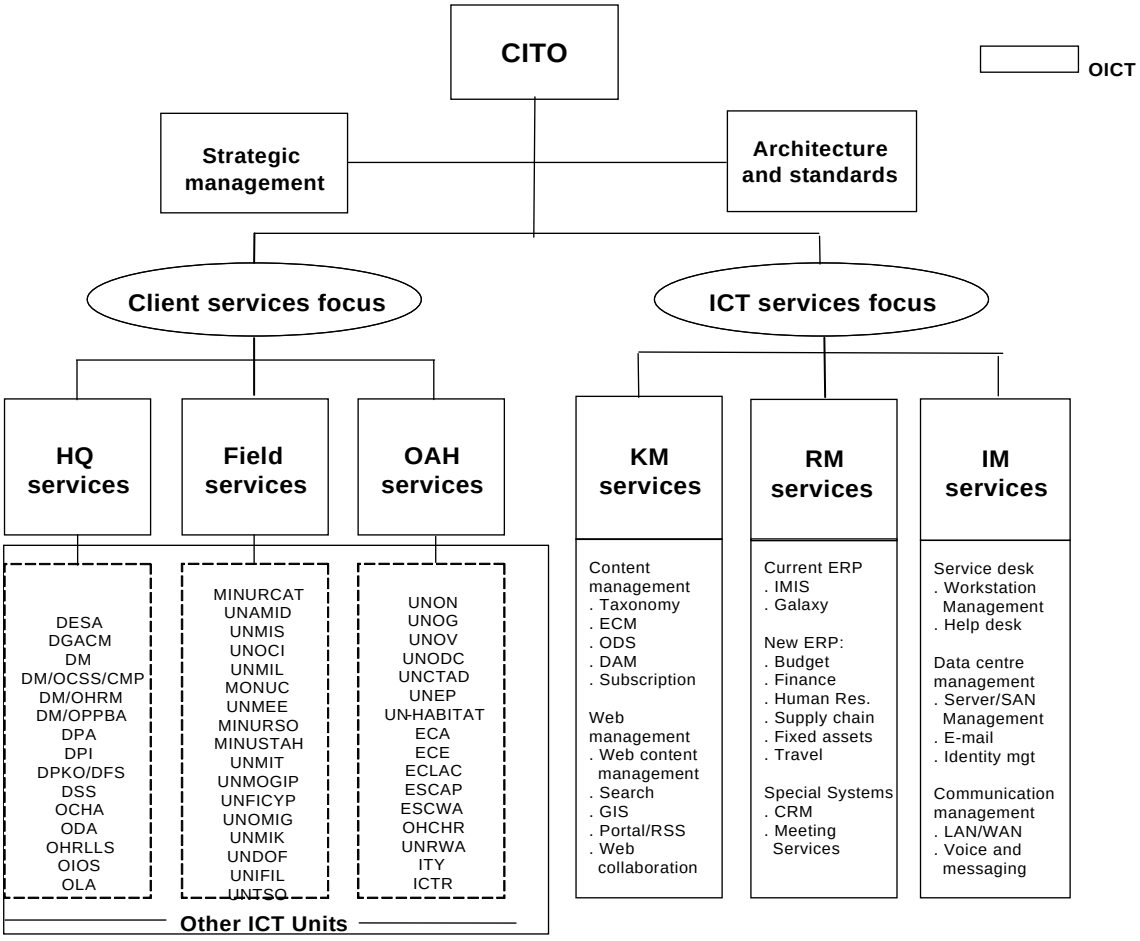
(m) Providing business consulting and project management methodologies and services to all ICT units;

(n) Monitoring, measuring and evaluating the performance and strategic alignment of all projects and investment initiatives in the ICT project portfolio of the global Secretariat;

(o) Establishing ICT vendor management policies; reviewing and monitoring purchasing and contract renewal activities;

(p) Implementing quality assurance processes to ensure that all policies, processes and standards are in compliance.

Figure 4
Information and communications technology units of the Secretariat



Abbreviations: CITO, Chief Information Technology Officer; CRM, customer relationship management; DAM, digital asset management; ECM, enterprise content management; ERP, enterprise resource planning; GIS, geographic information system; IM, infrastructure management; IMIS, Integrated Management Information System; KM, knowledge management; LAN/WAN, local area network/wide area network; OAH, Offices away from Headquarters; ODS, Official Document System; OICT, Office of Information and Communications Technology; RM, resource management; RSS, rich site summary; SAN, storage area network.

Ed. note: RSS = format for sharing content among different websites; SAN = high-speed subnetwork of shared storage devices, which works in a way that makes all storage devices available to all servers on a LAN or WAN; GIS = information management systems tied to geographic data; CRM = functions and programmes used to connect with customers/facility of integrating every aspect of IT that relates to the customer.

36. In this model, the Office of Information and Communications Technology leads the implementation of ICT strategic programmes and provides centralized shared services (e.g., core applications, network infrastructure, service desks etc.) to all organizational units in the Secretariat and potentially to other United Nations organizations. Many United Nations organizations have already implemented this shared services model and, according to the leading ICT consulting firm (Gartner, Inc.), there is a strong global trend towards the recentralization of ICT operations.

Gartner reports that over 90 per cent of large organizations have centralized their ICT operations to take advantage of efficiency gains resulting from streamlining, standardization and consolidation of similar systems and services.

Strategic management unit

37. The strategic management unit will oversee the functional requirements of the Office of Information and Communications Technology, including overall management of the implementation of the ICT strategy, as well as Secretariat-wide ICT planning. Budget formulation, expenditure monitoring and ICT staff career development are also included among its functions.

38. Within the strategic management unit, a project management office is established to provide business consulting and project management services, including portfolio management, process re-engineering, business-case development and project reviews. The development of all new ICT projects, whether customized systems or the result of acquisitions of software packages, regardless of their source of funding, is subject to review by the project management office. The review process is intended to ensure proper strategic direction and coherence across the Organization. Project assessment, including benefit analysis and return on investment, are also examined. However, the ultimate authority for assigning priorities to and approving major ICT projects resides with the executive committee on information and communications technology, the appropriate steering committees and the Chief Information Technology Officer. To help review a project proposal, the project management office ensures that a standard business case is prepared for each project, facilitates the presentation of the case by its sponsor to the Chief Information Technology Officer for endorsement and, subsequently, with the support of the Chief Information Technology Officer, its submission to the appropriate steering committee for approval.

Architecture and standards unit

39. The architecture and standards unit will coordinate Secretariat-wide technology planning and assessment activities, and be responsible for developing and maintaining overall ICT architecture, goals, principles and standards (technology and process). In addition, it will oversee the development of the Organization’s information security policy, serve as the centre of excellence in ICT quality control management, and ensure compliance and assume responsibility for planning and coordinating the Organization-wide disaster recovery and business continuity activities. This unit will also undertake technology research and development efforts, in collaboration with other ICT units.

40. To meet the objective of closely aligning business requirements with ICT services, two additional sets of units will be established, with the goal of providing client services and ICT services. These units, together with the other core components, complete the organizational structure of the Office of Information and Communications Technology. Each of these functional components will address a fundamental need in managing and delivering ICT programmes and services to the Secretariat.

ICT services units

41. This area comprises three functional units which, together, define many of the fundamental ICT activities noted as critical to the operation of the Organization, namely, infrastructure management, resource management and knowledge management. The responsibilities of the units are as follows:

(a) *Knowledge management services*. This unit has the responsibility for overseeing efforts to capture and share the Secretariat's most important asset: its knowledge base. It oversees the work on content management and web management. Through the development and management of tools such as Web-based services, collaborative environments and document repositories, this unit will enhance the Organization's ability to gather, store and deliver these valuable resources. Included in the unit's mandate is responsibility for improving information management policies, architecture and standards for all information; also included is oversight of search facilities, archives and all electronic repositories;

(b) *Resource management services.* This unit works closely with departments across the Organization to develop tools and techniques to improve institutional policies and work processes for the effective management of financial, human and other resources. It comprises a project team focused on the development of a new enterprise resource planning system, a support service that will maintain the Integrated Management Information System (IMIS) and other existing systems. In addition, a team to implement service-delivery and workflow-based applications is included. All systems development activities, ranging from financial management to conference services, require a dedicated team of knowledgeable and talented software and business professionals. The resource management unit brings them together to construct and manage these critical applications;

(c) *Infrastructure management services.* This unit forms the basis for all other ICT services, and consists of the tools and techniques required to plan, build and manage the global ICT environment. Reporting to the Chief Information Technology Officer, this unit not only develops the Secretariat-wide infrastructure architecture, but operates the global service desk and oversees the central data centres that house and safeguard all Secretariat-wide data. In addition, this unit is responsible for a range of hardware and software-related services, including desktop computing, and for providing global data and voice communications services. The infrastructure management services literally form the backbone of the Organization's ability to operate, and the unit has the mandate to deliver these services wherever United Nations personnel are located.

Client services

42. While providing core technological capabilities to the Organization remains the foundation of all ICT activities, the effective delivery of services requires close alignment with all departments, offices and missions. To achieve this, the Office of Information and Communications Technology comprises three other structures dedicated to maintaining this close organizational association. Each structure contains a cluster of local ICT units, namely, New York-based services, offices away from headquarters, and field services. Each unit is led by a senior client services manager who reports directly to the Chief Information Technology Officer. These client services units are accountable and responsible to their respective organizational units for the full range of ICT programmes and services available.

The professionals who serve in this capacity must build strong relationships with their clients to ensure the strategic alignment of ICT to substantive work programmes and to ensure continuous customer satisfaction for all of the departments within their purview.

Other ICT units

43. The ICT strategy recognizes that not all ICT programmes and services are best delivered from a central location, and that some local ICT units provide common services to other institutions. In these instances, a complementary governance mechanism at the duty station level will be defined and implemented. Establishing a careful balance between Secretariat-wide activities and those at and among departments will help to ensure that ICT services are delivered efficiently and effectively. A significant level of authority will remain with local ICT units. The objective is to centralize resources within the Office of Information and Communications Technology for initiatives that impact upon the entire Secretariat while empowering departmental ICT units to focus on their own unique requirements. The goal is to avoid the current fragmentation of ICT without creating excessive layers of management. Achieving this balance requires a close working relationship between the Office of Information and Communications Technology and the heads of other ICT units, as well as a combination of both management oversight and advisory structures.

44. Client services managers are responsible for working with local ICT managers to identify enterprise needs, determine local participation requirements and ensure that adequate resources are available to support enterprise-wide initiatives. They will work with local ICT managers to plan, prepare and review local ICT budgets with the Office of Information and Communications Technology, coordinate human resources activities, synchronize local and enterprise project portfolios, coordinate issues related to policy, standards and architecture, balance resources with demand and ensure a customer-based and integrated approach to the delivery of projects that span multiple strategic programmes. At the ICT strategic planning retreat held in February, extensive discussions were held on the roles and responsibilities between the Office of Information and Communications Technology and other ICT units (a matrix that captures the proposed roles and responsibilities arising from the discussion will be made available in a separate document).

45. The heads of local ICT units will continue to report directly to their existing supervisors in their respective organizations. However, they will also be accountable for the implementation of Organization-wide ICT strategy, policies and standards, as directed by the Office of Information and Communications Technology. Local ICT managers will liaise with one of the three client services units of the Office of Information and Communications Technology but may engage directly with the Chief Information Technology Officer on all urgent and substantial ICT matters. Local ICT managers will become members of a Secretariat-wide ICT leadership council, chaired by the Chief Information Technology Officer, and will meet several times each year to discuss ICT strategy, performance and management issues. The group will also hold regular videoconferences to coordinate ICT activities across the board.

46. Finally, to ensure that local ICT managers perform at the expected level, a formal mechanism will be established between the Office of Information and

Communications Technology and the managers to monitor the quality of service, strategic alignment, and compliance with Secretariat-wide policies and procedures.

IV. Implementation plan

A. Approach

47. The ICT strategy will allow the Secretariat to reduce the current high level of fragmentation in ICT activities and deliver more effective and efficient ICT work programmes and services. The strategy will also permit the Secretariat to take advantage of synergies among various ICT efforts and of economies of scale, resulting in a global ICT organization that effectively supports the work of the Secretariat. Each strategic programme, along with a time frame for implementation and organizational benefits, is presented in section B below.

48. It is expected that the implementation of the ICT strategy will take place over three to five years, subject to management priorities and the availability of resources and other support. The strategy will be implemented through close coordination of work among all relevant parties, including management oversight committees, advisory bodies, user organizations and the global ICT organization. Key implementation activities will include the establishment of new management structures, extensive business analysis to develop programme objectives and scope, and assignment of priorities at the programme and project levels.

49. To carry out the ICT strategy and effectively achieve programme objectives, the following activities will be undertaken during the implementation phase:

(a) Establishment of an executive committee on information and communications technology;

(b) Establishment of steering committees for the knowledge management, resource management and infrastructure management programmes;

(c) Establishment of a project management office and a new investment management and business case process;

(d) Completion of an inventory and assessment of existing ICT assets;

(e) Creation of an interim financial management model;

(f) Development of new business cases and investment proposals;

(g) Completion of inventory and assessment of existing project portfolio;

(h) Review and prioritization of both existing and proposed projects by each steering committee;

(i) Review, prioritization and approval of initiatives and projects by the executive committee;

(j) Rebalancing exercise to align resources with highest priority projects and initiatives;

(k) Creation of a staffing plan and proposal to meet resource needs beyond rebalancing of existing staff and contractors.

50. The following principles will be applied during the implementation:

(a) *Organization-focused ICT investments*. All ICT endeavours (apart from infrastructure projects) will be considered business projects rather than technology projects. As such, justification and prioritization of ICT programmes and projects will be based on inputs from user and ICT organizations. In particular, the steering committees for knowledge management and resource management programmes will play an important role in the planning, development and implementation of programmes and projects under their purview;

(b) *Modular and phased implementation*. Significant efforts will be made to break down a strategic programme into smaller projects or efforts so that a set of specific capabilities can be deployed in a phased manner in order to achieve the early realization of benefits. This approach will also allow the Secretariat to better manage implementation risks and project costs;

(c) *Time-boxing approach*. This is an iterative development approach that enables functionality to be delivered in parts. Each iteration is completed in a time box of fixed duration. Functionality to be delivered is adjusted to fit the time box. This is an effective way to manage risks and reduce product delivery time. The ICT strategy will utilize this approach, when appropriate, in implementing development projects;

(d) *Fast-track initiatives*. While carrying out long-term strategic programmes and projects, the ICT strategy will make every effort to implement technical solutions as quickly as possible. This approach will require frequent monitoring of service levels so as to maintain a high level of customer satisfaction throughout the development life cycle;

(e) *Provision of reliable ICT services during strategic change*. It is important to ensure that all existing ICT projects and services are carried out in an efficient and reliable manner. Significant attention must be paid to ensuring the provision of reliable ICT services during this period and to minimizing the impact on existing projects and services.

B. Implementation of the strategy

51. To ensure strict alignment with institutional drivers, as described in previous sections and in detail in annex II, three programmes are identified which are implemented by directly corresponding ICT service units in the Office of Information and Communications Technology. Each programme is a group of initiatives comprising what ICT will do, in accordance with the strategy and utilizing the management framework, to achieve the vision that has been articulated in response to the drivers. Each programme has a focus, rationale and proposed time frame (see tables 1-3).

52. Once the ICT strategy and the management framework are established, they will be put into operation to identify, rationalize, detail (cost and schedule), justify and assign priorities among the initiatives for each programme. For each identified initiative, a business case will be developed, under the guidance of the project management office of the strategic management unit, to present concisely costs, benefits and return on investment. Collectively, the initiatives will be rationalized by the project management office to eliminate duplication, ensure the conformance

of standards and make use of comparable measures for resource requirements and realization of benefits. The business cases for the initiatives can then be transparently considered by the steering committees and prioritized for implementation by ICT units, including new investments and/or the redirection of existing resources.

53. Estimated initiation time frames are included for each strategic programme. Time frames are based on views and priorities expressed during the organization-wide interview process and on discussions with other stakeholders and ICT service providers. The selection of initiatives and time frames for their implementation will be determined by the executive committee on ICT and the steering committees, subject to Organization-wide prioritization and availability of resources.

Knowledge management programme

54. The goal of the knowledge management programme is to provide an effective collaborative environment in which United Nations personnel and stakeholders capture, share and own the substantive knowledge relevant to their expertise. For example, the Secretariat is host to a number of in-house experts and the knowledge management programme will provide the tools to take advantage of expertise both within the Organization and among all stakeholders. In addition, all personnel generate and contribute to areas of expertise (both substantive and administrative); such contributions should be retained after they leave. Likewise, the operations of the Secretariat often generate knowledge as a by-product (e.g., in the conduct of a field mission or humanitarian effort). Similarly, specific functions of the Organization, such as the work of the international tribunals, create a legacy of knowledge based upon legal precedence, which can and should be made more easily available to relevant communities of practice and to the international research community at large. Processes, best practice and lessons learned can be more uniformly kept and made accessible with the help of knowledge management tools and policies.

55. By taking advantage of both mature and leading-edge knowledge management technologies in the market, such as collaborative applications (e.g., wikis, weblogs and other Web 2.0 tools) and visualization applications, such as geographic information systems, the knowledge management programme will facilitate organizational innovation and provide United Nations personnel and stakeholders with the ability to fully apply the knowledge they produce. This programme will also support such initiatives as search tools to help locate relevant information quickly and easily and the analytical tools that support good decision-making.

56. This programme will provide the enabling policies, work processes, standards and technological tools for knowledge management activities, while departments and offices provide and own substantive content. For example, a new approach to the public website of the United Nations will be one of the key initiatives under the knowledge management programme, effectively transforming the site into a knowledge-sharing platform that will serve all stakeholders throughout the world. Collaborative efforts to establish the website, http://www.un.org, as the gateway for finding information on the substantive and support activities of the United Nations are currently under way and include the involvement of the Chief Information Technology Officer in a web governance committee that is to be chaired by the Department of Public Information. Other potential projects include Secretariat-wide

information management policies and standards, implementation of web-content management and document management systems, knowledge-sharing and collaborative networks, and web-based tools for permanent missions.

57. Benefits include providing United Nations substantive programmes, Member States and the global public with access to relevant, easy-to-find information on specific issues. Overall, improved information management policies, standards, processes and infrastructure support an environment in which the United Nations becomes an authoritative knowledge broker, most notably within the scope of its three main pillars: peace and security, development and human rights.

58. Table 1 summarizes the goals, objectives, potential strategic initiatives, proposed time frame and organizational benefits associated with creation of the knowledge management programme.

Table 1
Knowledge management programme

Focus, rationale and time frame of the resource management programme		
Goal		
Provide an effective collaborative environment in which United Nations personnel and their stakeholders capture, share and own the substantive knowledge relevant to their expertise.		
Objectives:		
• Retain institutional knowledge • Facilitate and enhance knowledge-sharing and collaboration • Improve organization, accessibility and usability of information • Utilize open-source solutions where appropriate		• Improve websites and web-content management • Improve and enhance analytical and decision support capabilities • Improve information management policies and processes
Strategic initiatives	*Time frame*[a]	*Organizational benefits*
Digitization		
Digitize paper documents in conjunction with the capital master plan.	Near term	Loss of institutional memory during the capital master plan process is averted. Costs and risks associated with hard-copy storage are reduced.
Portal for Member States		
Implement a portal to provide Member States with the tools to locate, use and exchange information and data.	Near term	A portal dedicated to Member States will provide timely, up-to-date information and data specific to the needs of delegations.

Information management policy		
Establish Secretariat-wide information management policies, processes and standards. Includes security, taxonomy, retention etc.	Near term	Consistent, secure and up-to-date content and data. Data formats are universally accessible and shareable.
Web content management		
Transform the United Nations website, http://www.un.org, into a rich, multimedia knowledge-sharing platform. Provide for consistent user interface, robust search and improved content management.	Near term	The United Nations website, http://www.un.org, is the established gateway for finding information on substantive, administrative and operational activities of the United Nations.
Create a collaborative and sharing environment		
Introduce enhanced tools for collaboration and for sharing of information.	Near term	The necessary technical and policy components for knowledge-sharing are established and the enabling environments are available for use.
Data gateway (UNData)		
Promote and support a UN system-wide gateway for sharing statistical information.	Near term	United Nations statistical data are consistent, accessible and easy to share. The environment makes it easier for entities outside the United Nations to share statistical data with the Organization.
Web content management, Secretariat-wide		
Migrate other Secretariat-wide websites (iSeek, United Nations online Network of Regional Institutions for Capacity-building in Public Administration and Finance (UNPAN), My UN etc.), to the new web-content management environment.	Near to medium term	Secretariat-wide websites are easy to update, have a common look and feel and provide United Nations staff and the global public with information on substantive programmes that is easy to locate and up to date.
Digital asset management		
Implement advanced digital asset management capabilities.	Near to medium term	Digital resources are easily accessible and available for repurposing. Web publishing is improved. Communication is enhanced and reaches a wider audience.
Document management		
Implement a Secretariat-wide content management facility to manage official documents, records and business correspondence. Design and implement workflow and processes. Migrate content from the Official Document System and other content repositories.	Near to medium term	Enhanced search capability and faster retrieval of unstructured documents within content repositories. Document security, integrity and version control are improved. Document storage requirements (cost and space) are reduced.

Enterprise portal		
Implement an enterprise portal facility to enable user interface customization, simplify access and provide a single sign-on capability.	Near to medium term	Integrated and comprehensive portal technologies allow users to access the most relevant information more quickly.
Enterprise search		
Implement an enterprise search engine to improve accessibility to information across all media types.	Near to medium term	Enables quick search and retrieval of information contained in databases, websites, and internal and external data repositories.
Archives and record management		
Enhance institutional record management and archival capabilities.	Near to medium term	Institutional knowledge is retained and preserved. Capital master plan project is used to improve archival processes.
Knowledge hubs		
Create knowledge hubs for specific communities of practice, regional groups, specialized thematic areas etc.	Near to medium term	United Nations substantive programmes, Member States and the global public have access to information on specific issues that is relevant and easy to find. The United Nations becomes an authoritative knowledge broker.

[a] Near term refers to one to two years and medium term to three to five years. Actual delivery time frames will be determined by the steering committee for the knowledge-management programme and subject to Organization-wide prioritization and the availability of resources.

Resource management programme

59. The resource management programme will focus resources from throughout the United Nations Secretariat on a set of cross-cutting, mission-critical initiatives. The goal of the programme is to support management reform by improving performance, accountability and transparency and to enable the rapid mobilization of resources. Specifically, the programme will improve the Organization's ability to manage, effectively and efficiently, human, financial and physical resources. To achieve these goals, work processes will be streamlined to improve the operational performance of the Organization.

60. The programme will provide the facilities to conduct these operations, including specific capabilities to support the logistical and other critical and time-sensitive needs that are characteristic of them. Another important objective of this programme is to provide improved support for decision-making by linking programmes and operations with resource data. By establishing transparent access and providing timely information, better management of programmes can result. Sample projects for this programme include a talent management system, a procurement system, an employee self-service portal, enterprise identity management and a strategic decision support system.

61. Benefits include increased operational effectiveness, improved accountability, especially of senior managers, compliance with best practice and standards such as

the International Public Sector Accounting Standards, and enhanced transparency in the utilization of financial, human and other resources. The Secretariat will realize substantial efficiency gains on the part of administrative support staff and a productivity gain on the part of the staff at large owing to the automation of administrative work. In addition, the new resource management systems will result in substantial cost savings as a result of the elimination of redundant information technology systems and the consolidation of purchasing activities.

62. Table 2 summarizes the goals, objectives, potential strategic initiatives, proposed time frame and organizational benefits associated with creation of the resource management programme.

Table 2
Resource management programme

Focus, rationale and time frame of the resource management programme		
Goal		
Support management reform by providing institutional capabilities for effectively managing human, financial and physical resources.		
Objectives		
• Increase transparency, accountability and results • Improve administrative policies, processes and coordination • Manage resources more efficiently • Make informed decisions based on reliable and timely data • Utilize open-source solutions where appropriate		• Increase staff learning and capacity-building • Improve delivery of services, including conference services • Enhance staff security • Strengthen deployment capabilities and effective support for field operations
Strategic initiatives	*Time frame*[a]	*Organizational benefits*
Resource management		
Implement enterprise resource management, which will include human resource administration and talent management, financial management and logistical and supply chain management.	Near term	Improved management of financial, human and other resources.
Enterprise portfolio management system		
Implement applications to create, manage and align the ICT project and investment portfolio with the business strategy.	Near term	ICT projects and investments are aligned with departmental/office goals and objectives. Improved business case process as regards approval and prioritization of projects.

Conference and meeting management		
Implement a comprehensive system that will provide integrated documentation, translation and logistical support for United Nations meetings and conferences.	Near term	Improved management of meetings and of document creation, translation, dissemination and workflow in relation to meetings and conferences.
Customer relationship management		
Implement a service-level management process to improve the delivery of information technology services and to comply with the Information Technology Infrastructure Library (ITIL) and international standards for service delivery. Implement a global request management system to improve the delivery of ICT and facility services. Provide customer self-service capabilities where appropriate. Implement an integrated contact, meeting, trip, and event management and scheduling system for the Office of the Secretary-General.	Near term	Improved responsiveness, timeliness, efficiency and quality of ICT and facility services. Higher customer satisfaction and consistent customer experience across service providers and channels. Transparent access to performance management data enabling monitoring and improvement of service levels. Productivity gains through process re-engineering and adoption of best practices.
Security system		
Improve and implement comprehensive staff and facility security systems. Implement a global United Nations laissez passer system to issue and track United Nations passports. Create a single Organization-wide view of travel document data.	Near to medium term	Increased security of staff at duty stations and while on travel. Improved ability to locate staff and notify others in case of emergency. Compliance with audit recommendations of the Office of Internal Oversight Services.
Decision support system		
Implement business intelligence tools, including advanced analytics, predictive modelling and ad hoc reporting. Provide managers and staff with easy access to transactional data at the departmental and organizational level.	Near to medium term	More timely and fact-based decision-making. Enhanced transparency and managerial accountability.
Space management		
Implement computer-aided facilities management software to support global real estate and space management	Medium term	Reduced planning time and increased support for data analysis activities. Reduced moving and operating costs. Space utilization is optimized.

[a] Near term refers to one to two years and medium term to three to five years. Actual delivery time frames will be determined by the steering committee for the resource management programme and subject to Organization-wide prioritization and the availability of resources.

Infrastructure management programme

63. The goal of the infrastructure management programme is to strengthen the global ICT infrastructure to support effectively Secretariat programmes and operations throughout the world. This requires the consolidation and standardization of infrastructure components to enable their more predictable and efficient management on a global basis. To be effective, personnel at all duty stations require a readily available and highly performing ICT infrastructure which provides the basic services for the other ICT programmes of resource management and knowledge management. With a consistent, manageable, global infrastructure, the Secretariat can harmonize activities with other United Nations organizations and external partners. Specifically, the global Secretariat network will be strengthened and remote access capability will be improved. To ensure the continued operation of the global Secretariat during disasters or other organizational interruptions and to assist in the protection of resources, including information assets and personnel, a comprehensive set of plans will address each location and the enterprise as a whole, especially in regard to the ICT aspects of business continuity and disaster recovery.

64. The services related to infrastructure will be consolidated and extended globally, and will provide a service desk for the entire Organization operating 24 hours a day, seven days a week. The global scope of infrastructure will make it feasible to uniformly adopt international standards related to service management, that is, the International Organization for Standardization (ISO) standard 20000 for information technology service management, which defines an integrated process for delivering managed services to meet organizational requirements. Other best practices and international standards will be implemented globally, for example, the ISO 27000 series for information security management, which encompasses security control objectives and a recommended set of specific security controls.

65. These improvements to infrastructure will allow United Nations personnel to communicate anytime, anywhere, enable support to be provided around the clock by a global help desk and provide enhanced videoconferencing services. This is made possible by a global communications network that is robust and reliable, providing common services for the Secretariat and for other United Nations organizations in the future. New investments in ICT infrastructure, to be set forth in ICT standards and policies, will promote green technologies, in conformity with the Secretary-General’s greening initiatives.

66. Table 3 summarizes the goals, objectives, potential strategic initiatives, proposed time frame and organizational benefits associated with creation of the infrastructure management programme.

Table 3
Infrastructure management programme

Focus, rationale and time frame of the infrastructure management programme		
Goal		
Strengthen global ICT infrastructure to support effectively the programmes and operations carried out by the Secretariat throughout the world.		
Objectives		
• Improve network connectivity and performance • Improve ICT service desk support • Improve mobile and remote access capabilities • Provide effective crisis management and business continuity	• Provide enhanced videoconferencing facilities • Enhance information security and privacy • Improve ICT service delivery • Utilize open-source solutions where appropriate	
Strategic initiatives	*Time frame*[a]	*Organizational benefits*
Identity management		
Create an authenticated directory of United Nations personnel.	Near term	Streamlined access to information, applications, facilities and services etc.
Remote access and mobility		
Provide staff with the ability to access the United Nations system from home and while travelling.	Near term	Increased access to information and services in the field. Higher staff productivity. Promotion of work/life balance.
Disaster recovery business continuity		
Provide disaster recovery capabilities and business continuity plan.	Near term	Improved preparedness in cases of natural or man-made disaster. Minimal disruption to critical United Nations operations and services.
Internet protocol (IP) telephony for Headquarters and offices away from Headquarters		
Replace conventional telephone system with an IP-based telephone system.	Near term	Provide a more cost-effective telephone system with more flexible managerial capabilities.

Infrastructure rationalization		
Continue consolidation, standardization and streamlining of communications and information technology infrastructure.	Near term	More efficient operation of infrastructure.
Green technology		
Issue policy guidelines for the procurement, use and disposition of technology equipment.	Near term	Compliance with the Secretary-General's greening initiatives and increased contributions by the Secretariat to addressing global environmental issues.
Videoconferencing		
Increase the use of videoconferencing and improve capabilities.	Near to medium term	Decrease travel time and costs, and contribute to broader United Nations greening initiatives.
Global service desk		
Establish an around-the-clock global help desk.	Near to medium term	Provide consistent, cost-effective support services to users anytime, anywhere. Improved provision of services.
Bandwidth (connectivity)		
Provide improved connectivity to all United Nations departments and offices.	Near to medium term	Ability of United Nations personnel to carry out their work more effectively and efficiently.

[a] Near term refers to one to two years and medium term to three to five years. Actual delivery time frames will be determined by the steering committee for the infrastructure management programme and subject to Organization-wide prioritization and the availability of resources.

C. Implementation of the management framework

67. Implementation of the proposed new ICT organizational structure will require careful planning and preparation to ensure that operational risks are managed and that all ICT staff are fully engaged during the restructuring process. The Advisory Committee on Administrative and Budgetary Questions has stated that the Chief Information Technology Officer should head an office which would integrate the Information Technology Service of the Department of Management and the Information and Communications Technology Division of the Department of Field Support (at that time known as the Communication and Information Technology Service of the Department of Peacekeeping Operations), and provide Secretariat-wide leadership, including for information technology functions of offices away from Headquarters (A/62/7/Add.31, para. 36) and that the Organization would

benefit greatly by having in place a more centralized approach to managing ICT initiatives and operations (A/60/7, para. VIII.47).

68. In accordance with the expressed intent of the General Assembly, steps have been taken to establish the Office of Information and Communications Technology as an independent unit reporting and accountable directly to the Executive Office of the Secretary-General. It is proposed that the Office of Information and Communications Technology be established through the integration of existing resources from the Information Technology Services Division of the Department of Management and the Information and Communications Technology Division of the Department of Field Support, which together comprise approximately 433 staff and contractors. Accordingly, the Office of Information and Communications Technology would manage all of the related ICT facilities in New York along with the commensurate budgetary allocations, as well as relevant ICT staff, data centres and information-related facilities at the United Nations Logistics Base (UNLB), in Brindisi, Italy.

69. The main rationale for the integration of staff and facilities is to provide the Office of Information and Communications Technology with the critical resources to plan, develop and manage strategic ICT activities that affect the entire Organization. Integration of the two main ICT units at United Nations Headquarters and UNLB will provide a larger base of ICT systems and support structures which can then serve as a critical mass for carrying out Secretariat-wide ICT programmes and services. In addition, the ICT facilities at UNLB are strategic assets for the Organization and will soon become the global hub for a number of Secretariat-wide programmes. These include hosting of enterprise systems (e.g., knowledge-sharing systems and enterprise resource planning system), global connectivity, business continuity operations, centralized service desks etc. It is envisaged that the new management framework (see table 4) will be implemented in two phases over a 12-month period.

70. During phase I (July-December 2008), the Office of Information and Communications Technology will review the structures and resources of the Information Technology Services Division and the Information and Communications Technology Division with a view to integrating their structures. Proposals to this effect will be submitted to the General Assembly at its sixty-third session. Management oversight committees and advisory bodies will be formed and strategic programmes will be formally launched. In line with this proposal and ongoing programme activities, structural reviews of all ICT units throughout the world will be conducted to rationalize and harmonize ICT operations and structures. Coordination and reporting relationships between the Office of Information and Communications Technology and other ICT units will be fully defined. An ICT budget and financial management processes will be established. A change management programme will be initiated to improve ICT communication with all stakeholders during the transition. ICT-wide performance management standards will be developed to measure the performance of ICT units against strategic and operational objectives.

71. During phase II (January-June 2009), the Office of Information and Communications Technology will implement the results of structural reviews in all ICT units, as approved by the General Assembly. At the same time, the structures within the Office will be further optimized to support more effectively ICT strategic

programmes and services. The formal reporting relationships between the Office and other ICT units will be put into effect. The Office will also establish overall management oversight of ICT staff and facilities at UNLB and delegate appropriate ICT operations to the Department of Field Support. The centralized project portfolio will be updated to include additional projects under way in departments, offices and missions. A longer-term road map will be developed for the strategic programmes. The global service management framework will also be completed.

Table 4
Management framework for the implementation of the information and communications technologies strategy

Management framework for information communications technologies		
Goal		
Implementation of the ICT strategy in two phases: phase I (July-December 2008) and phase II (January-June 2009).		
Objectives		
• Establish the Office of Information and Communications Technology • Develop reporting relationships between the Office of Information and Communications Technology and other ICT units • Form management oversight committees and advisory bodies • Develop ICT financial management and performance management standards		
Key activities	*Time frame*	*Deliverables*
Establishment of the Office of Information and Communications Technology		
Create the Office of Information and Communications Technology by integrating the Information Technology Services Division of the Department of Management and the Information and Communications Technology Division of the Department of Field Support at United Nations Headquarters.	July-Dec 2008	Fully developed internal structures staff assignments and staff recruitment. Issuance of the Secretary-General's bulletin on the Office of Information and Communications Technology.
Establishment of management oversight committees and advisory bodies		
Develop the terms of reference, structure and memberships of the Secretariat bodies that will formally oversee and advise the Office of Information and Communications Technology.	July-Dec 2008	Adoption of administrative policies and guidelines, as necessary, for the establishment of the Secretariat bodies. Initial memberships of bodies and leadership roles agreed, and formation meetings completed.

Undertake structural reviews of all ICT units		
Perform operational reviews of ICT units in departments at United Nations Headquarters, offices away from Headquarters and in the field.	July-Dec 2008	Recommendations made for each department, office and field mission on organizational and other changes to improve the effectiveness and efficiency of ICT operations and align them with those of the Office of Information and Communications Technology.
Create ICT performance management framework		
Develop measurement standards, benchmarks and reporting systems to track the performance of ICT units.	July-Dec 2008	Development of an ICT performance management framework that will provide transparent and timely access to information on ICT performance in relation to United Nations strategic and operational objectives and to industry norms.
Develop budgetary and financial management framework		
Design ICT global budgetary process and templates. Centralize purchasing demand and procurement activities.	July-Dec 2008	Improved ICT investment governance process and standardized business case format. Set of budget formulation and financial reporting templates created. Estimate impact of ICT initiatives on the programme budget for the biennium 2010-2011.
Establish institutional oversight of ICT activities at UNLB		
Transition management of ICT assets at Brindisi and Valencia (proposed) to the Office of Information and Communications Technology proceeds.	Jan-June 2009	The Office of Information and Communications Technology oversees and manages data centres at Brindisi. Operational control of communications facilities is delegated to the Department of Field Support.
Implement result of structural reviews		
Improve organizational structure for the Office of Information and Communications Technology and other ICT units.	Jan-June 2009	Rationalized and harmonized ICT organizational structures.

V. Organizational benefits

72. When fully implemented, the new ICT strategy will result in significant and measurable improvements in the internal work of the Secretariat, in the delivery of its services to Member States and other stakeholders, and in the strengthening of relations with external organizations and the public.

A. Improved effectiveness

73. The implementation of the new ICT strategy will enhance the overall effectiveness of the Secretariat. Enhanced effectiveness will be seen in a number of ways, including improvements in institutional memory, agility, accessibility, transparency and accountability:

(a) *Institutional memory*. A key goal of the knowledge management programme is to develop a stronger, richer, more readily shared environment of knowledge for the Secretariat throughout the world. This will enable the Organization to be more effective in the development and delivery of the programmes and services that support all three of the United Nations pillars: development, human rights, and peace and security;

(b) *Agility*. The Secretariat will be more agile and able to respond more quickly and proactively to changes throughout the world. Enhanced collaboration and streamlined document management processes supported by ICT will expedite substantive work, the management of documents and the sharing of knowledge across organizational units and geographical boundaries. The introduction of portal technology will provide relevant, timely information to staff members' desktops. Intergovernmental processes and policy development work will be expedited as the Secretariat shifts from paper-based to electronic methods of accessing, managing and disseminating documents and data;

(c) *Accountability*. The resource management programme will support the accountability architecture under discussion and improve decision-making by linking substantive programmes and operations with accurate and up-to-date resource data. The resource management programme will improve the accountability of managers and staff by implementing performance management tools to support the results-based management framework while ensuring compliance with best practice and international standards, such as the International Public Sector Accounting Standards;

(d) *Accessibility*. The ICT strategy will yield further enhancements in the accessibility of people and information. The infrastructure management programme will improve global connectivity and identity management so that Secretariat personnel will have ready and reliable access to information and people, around the clock, regardless of where they are. At the same time, new tools for the delivery of information will provide staff with seamless access to a full array of pertinent information, internal and external, as required. Communication among delegations, Member States, members of committees and their constituencies will be enhanced, and they will be able to engage in policy discussions using secure, Internet-based collaborative tools and discussion forums. Similarly, the overhauling of the financial information systems used by the Secretariat and the introduction of data warehouse technology will expand access to financial data by authorized users;

(e) *Transparency*. ICT will continue to be a major enabler of the efforts of the Secretariat to increase its openness and to collaborate and communicate more effectively with Member States and other stakeholders. New technologies will support the rapid dissemination and effective repurposing of information using a wide range of high-quality electronic and print media. As a result, other international institutions, private sector organizations, the press, non-governmental organizations and the general public will gain a better understanding of the work of the Secretariat through greater access to United Nations websites, such as http://www.un.org, electronic archives and electronic discussion forums. The implementation of an enterprise portfolio management system and ICT budgetary framework will facilitate financial transparency of the ICT investment portfolio and enable project performance reporting to the stakeholders.

B. Increased efficiency

74. The implementation of the new ICT strategy will increase the overall effectiveness of the Secretariat. Efficiency improvements will enable the Secretariat to provide services and deliver programmes in a more timely and cost-effective way. More specifically, the ICT strategy will contribute to organizational efficiency by increasing staff productivity and by helping the Secretariat reduce or avoid costs:

(a) *Productivity*. Each of the three strategic programmes contains features that will increase staff productivity while also yielding benefits for Member States and the public. For example, the infrastructure management programme will introduce new data centre technologies to ensure the continuing operations of the Secretariat through the availability of the global network and core application systems in cases of disaster or major disruption at United Nations locations. Initiatives to improve secure connectivity, from remote sites and home, will benefit the staff by increasing the flexibility of work arrangements and ensuring the continuity of Secretariat operations in emergencies. The knowledge management programme will enable staff to produce key outputs in less time, at reduced cost and of a higher quality, by making information easier to create, find and reuse. It will also provide staff members with a single point of access to all of the information relevant to their work, significantly reducing the time and effort required to locate and retrieve documents and data. At the same time, new content management and web-publishing technologies will streamline and automate the labour-intensive tasks involved in dissemination to a variety of internal and public audiences. The resource management programme uses ICT to enhance productivity by reducing the burden of time-consuming, low value-added administrative activities, thus enabling staff to spend more time on the substantive work of the Secretariat. The wide availability of self-service capabilities will eliminate labour-intensive manual processes and further raise staff productivity and satisfaction;

(b) *Cost reduction and avoidance*. Closer alignment of technology investments with the needs of the Secretariat will result in a more efficient allocation of human and financial resources. It will also generate cost savings attributable to more efficient decision-making and shorter project cycle times, as well as cost savings due to the online aggregation of products and services purchased by the various units across the world. The new approaches will focus on improving the management of ICT programmes while strengthening current processes for prioritizing projects and ensuring that they are implemented in a cost-

effective manner. The new management structure will centralize demand for ICT products and services, enforce financial discipline and accountability for ICT spending, and generate significant cost savings through the consolidation and standardization of global ICT assets and services. Taking advantage of economies of scale will enable cost savings to be made throughout the Secretariat in a number of areas, including application development, global network connectivity, and procurement of ICT products and services.

VI. Key factors for success

75. To ensure the success of the ICT strategy and programmes, the following conditions must exist or be provided:

(a) *Senior management support*. Senior management support for the ICT programmes is by far the most important factor for the success of any ICT strategy. While every effort can be made to align and integrate ICT activities with the work programmes of the Secretariat, the active involvement of senior management in and its support for strategic programmes are critical to achieving success;

(b) *Budgetary resources for strategic investments*. An adequate level of resources is needed to overcome past, systemic under-investment. Similarly, a multi-year ICT budgetary framework is required to effectively to support strategic investments;

(c) *Streamlined policies, processes and support structures*. Simplifying and streamlining administrative policies, processes and support structures throughout the Organization is important in maximizing the benefits of technology. For example, the policy of instituting electronic signatures will enable faster workflow, simplify systems, reduce paper and provide many other benefits; however, its implementation requires Organization-wide action beyond the area of ICT;

(d) *An organizational culture that is supportive of change*. Creating a culture that is supportive of change is a task that falls upon all personnel in the Organization and is a precursor to the successful implementation of the programmes and projects that will be carried out as part of the ICT strategy.

VII. Conclusions and recommendations

76. Departments of the Secretariat now, more than ever, rely on information technology to help maximize value. In the new, technology-enabled world, ICT plays an increasingly important role. In addition to keeping data centres up and running, ICT organizations must help other leaders see what is possible, and then drive that vision through an organization where change is often difficult. This requires sufficient authority, control of resources and full membership and participation in the Secretariat's executive management team.

77. Member States have repeatedly called for changes in the way ICT services are administered throughout the global Secretariat. Diverse stakeholders across the globe have expressed the need for positive changes in ICT service delivery and in access to information. The creation of the post of Chief Information Technology Officer at the level of Assistant Secretary-General is the first step in responding to

this global demand for change. The present report described the actions necessary to achieve the vision of a comprehensive, responsive and efficient ICT structure.

78. The proposed ICT strategy for the Secretariat has been developed through a comprehensive process, resulting in recognition of the following key components:

(a) *ICT vision*. The vision of a strong ICT for a better United Nations will be achieved over the next three to five years by closely aligning ICT with the work programmes carried out by the Secretariat, connecting United Nations personnel and their stakeholders anytime, anywhere, and by facilitating the more efficient management of the Organization's global resources;

(b) *Priorities*. A set of five cross-cutting strategic priorities have been developed to support the ICT vision and enable strategic programmes. These priorities include the development of an ICT management structure, delivery of strategic programmes, enhanced service and performance management, implementation of global architecture and standards, and improved financial control and reporting;

(c) *Strategic programmes*. The three strategic programmes of knowledge management, resource management and infrastructure management build upon one another and collectively address the ICT needs of the global Secretariat.

79. To carry out the strategy effectively, a requisite ICT management framework is proposed to consolidate fragmented ICT resources in the Office of Information and Communications Technology and to establish service units directly related to the strategic programmes. The two key functions created within the Office to address Organization-wide issues are strategic management, which includes the establishment of a project management office, and architecture and standards. Two levels of oversight, the executive committee on information and communications technology and steering committees, are established to provide proper guidance in regard to ICT. In addition, an advisory group on information and communications technology, broadly representing the global Secretariat, and the existing group of executive officers will provide additional advice and expertise on key issues.

80. The Chief Information Technology Officer provides the centralized coordination and decision-making necessary to drive this framework, and is the senior officer of the Secretariat responsible and accountable for ICT matters. To maintain the independence necessary to effectively carry out transformational changes, steps have been taken to establish the Office of Information and Communications Technology as an independent office reporting directly to the Executive Office of the Secretary-General. Given the critical role that ICT plays in supporting the Organization's operational and substantive programmes, the post of Chief Information Technology Officer has been established at the level of Assistant Secretary-General, reporting to the Deputy Secretary-General. This post level is further justified given the scope of the Secretariat's global resources devoted to ICT, which requires that the Chief Information Technology Officer provide strategic advice and fully participate in discussions at the senior management level.

81. Implementation of the ICT management framework will take place in two phases, over a 12-month period:

(a) In phase I (July-December 2008), ICT management oversight committees and advisory groups will be established, and procedures will be defined and

formalized by means of administrative issuances. To rationalize and harmonize ICT organizational structures, reviews will be conducted of all ICT units, including the Information Technology Services Division of the Department of Management and the Information and Communications Technology Division of the Department of Field Support, and UNLB, and the results submitted to the General Assembly at its sixty-third session for its approval of any changes proposed to the approved programme of work, changes in organizational structures, and the realignment of resources that may be necessary;

(b) In phase II (January-June 2009), the Office of Information and Communications Technology will establish overall management oversight of ICT resources at UNLB, delegating appropriate ICT operations to the Department of Field Support. Subject to the authorization of the General Assembly, the Office will proceed with the implementation of the results of structural reviews of all ICT units and with the optimization of its structure in order to support ICT strategic programmes and services more effectively. The transition to a new ICT management framework will be completed and the Secretary-General will report to the General Assembly at its sixty-fourth session on the status of implementation.

82. The proposed ICT strategy establishes the core building blocks necessary to create a strong ICT capable of meeting the operational and strategic needs of the global Secretariat well into the future. While the level of change is substantial, so are the benefits.

VIII. Action to be taken by the General Assembly

83. It is proposed that the General Assembly:

(a) Endorse the overall approach relating to the comprehensive ICT strategy for the Secretariat, as contained in the present report;

(b) Note that the Secretary-General intends to proceed with the implementation of the ICT management framework in two phases;

(c) Note that the Secretary-General intends to proceed with structural reviews and the rationalization and harmonization of all ICT units, including the Information Technology Services Division of the Department of Management, the Information and Communications Technology Division of the Department of Field Support and UNLB;

(d) Request the Secretary-General to report to the General Assembly at its sixty-third session on the results of such reviews, including the impact on and changes proposed to the approved programme of work, changes in organizational structures, and the realignment of resources that will be required.

Annex I

Executive interviews

1. Capital Master Plan
2. Department of Economic and Social Affairs
3. Department of Field Support and Department of Peacekeeping Operations
4. Department for General Assembly and Conference Management
5. Department of Management
6. Department of Political Affairs
7. Department of Public Information
8. Deputy Secretary-General
9. Department of Safety and Security
10. Economic Commission for Africa
11. Economic Commission for Europe
12. Economic Commission for Latin America and the Caribbean
13. Economic and Social Commission for Asia and the Pacific
14. Economic and Social Commission for Western Asia
15. ICT for Peace Foundation
16. International Criminal Tribunal for Rwanda
17. International Tribunal for the Former Yugoslavia
18. Office for the Coordination of Humanitarian Affairs
19. Office of Disarmament Affairs
20. Office of the United Nations High Commissioner for Human Rights
21. Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
22. Office of Human Resources Management
23. Office of Internal Oversight Services
24. Office of Legal Affairs
25. Office of Programme Planning, Budget and Accounts
26. Secretariat of the United Nations Conference on Trade and Development
27. United Nations Development Programme
28. Secretariat of the United Nations Environment Programme
29. United Nations Population Fund
30. Global Alliance for Information and Communications Technologies and Development

31. United Nations Geographic Information Working Group
32. United Nations Children's Fund
33. United Nations Office at Geneva
34. United Nations Office at Vienna, United Nations Office for Drugs and Crime
35. United Nations Relief and Works Agency for Palestine Refugees in the Near East
36. World Food Programme

Annex II

Information and communications technology strategy: institutional and technological drivers

Summarized below are the key points and priorities raised during the executive interview process. This input provided a foundation for the strategic programmes proposed in the ICT strategy and, in respect of the institutional drivers, should not be construed as a set of pre-approved deliverables.

A. Institutional drivers

Knowledge-sharing and collaboration

1. The need for increased knowledge-sharing and collaboration was expressed across the board during the interview process. The specific areas identified included:

(a) *Retention of institutional knowledge*. The United Nations should seek ways to mitigate the risks posed by staff mobility, turnover, retirement, natural and unnatural disasters and the upcoming capital master plan and consequent displacement;

(b) *Facilitation and enhancement of knowledge-sharing and collaboration*. The United Nations is uniquely positioned to broker knowledge exchanges that improve programme delivery. This includes communities of practice as well as global and regional knowledge hubs and portals;

(c) *Improved websites and web-content management*. Websites are fragmented and inconsistent across the Organization, both in design and content. Web-content management systems are needed to allow consistent, real-time updating and harmonization of design;

(d) *Improved organization, accessibility and usability of information*. Information is fragmented across the Organization and is difficult to find, access and use. Document tracking and workflow management are needed;

(e) *Improved and enhanced analytical and decision support capabilities*. Databases are not integrated. The United Nations needs data mining and predictive modelling capabilities, as well as the accurate, timely and regular production of statistics across the Organization;

(f) *Improved information management policies and processes*. The existing information management and record retention processes and policies are outdated. Policies for the classification and declassification of documents should be reviewed.

Improvement of internal operations

2. Internal operations would be enhanced by:

(a) *Increased transparency, accountability and results*. United Nations management reform is supported with the establishment of an accountability architecture. Auditing and compliance should be strengthened; this would include implementation of the International Public Sector Accounting Standards;

(b) *Improved administrative policies, processes and coordination.* Processes and data are fragmented and inefficient. The United Nations should clarify, coordinate and harmonize programme functions internally and across departments and duty stations;

(c) *More efficient management of resources*. Business analytics and modelling should be used to strategically plan and manage resources. Targeted needs assessments and risk management frameworks should guide priority-setting. Industry benchmarking should be implemented;

(d) *Informed decisions based on reliable and timely data.* Accurate and timely core resource data from the global Secretariat should be captured;

(e) *Fast deployment and effective support for field operations.* Mandated missions often require a rapid response to establish essential ICT services and, to maintain their operations, effective integration of financial, logistical and technical resources;

(f) *Improved delivery of services, including conference services*. There is a need for an integrated global management of services, together with additional self-service capabilities for management and staff. A shared services capability is needed to allow for the internal sourcing of services;

(g) *Enhanced staff security*. The United Nations is unable to identify consistently staff across the Organization or the United Nations system. Real-time access to information is needed during a crisis (e.g., a unified security response system);

(h) *Increased staff learning and capacity-building*. Strategic workforce planning is needed. Talent management should be made more effective and recruitment made more proactive and speedy.

Communications and infrastructure

3. Requirements in regard to communications and infrastructure include:

(a) *Improved network connectivity and performance*. Connectivity and bandwidth are of particular concern to departments, offices and field missions in areas with limited access to traditional ICT infrastructure;

(b) *Effective crisis management and business continuity*. Service and support levels do not reflect extended needs during a crisis. A rapid response capability is needed;

(c) *Improved mobile and remote access capabilities*. Better remote access capabilities are needed to enable effective remote participation, strengthen business continuity and facilitate telecommuting;

(d) *Provision of enhanced videoconferencing facilities.* Current videoconferencing systems are ineffective and unreliable. Upgraded systems are needed to enable participation and improve the effectiveness and morale of staff serving in remote locations;

(e) *Enhanced information security and privacy.* Consolidated identity management is needed to ensure better physical and data security;

(f) *Improved ICT service desk support*. Centralized, around-the-clock support is needed.

Management of information and communications technology

4. Areas identified in ICT management include:

(a) *Fostering the strategic use of ICT.* Greater awareness is needed among senior executives of the value of ICT as an enabler for achieving programme objectives;

(b) *Improved ICT governance framework.* Centralized and decentralized functions should be rationalized, and a coherent ICT governance framework established;

(c) *Enhanced ICT budgetary framework.* The current budgetary framework does not allow for rational investment in ICT;

(d) *Improved ICT policy, standards and processes*. Organization-wide policies are needed for information management, security and privacy;

(e) *Improved ICT service delivery*. Fragmentation of ICT systems across the Secretariat should be reduced and existing systems made available to other locations, wherever possible. ICT training must be increased;

(f) *Harmonization with other United Nations agencies and pursuit of alternative sourcing strategies.* The Secretariat should work more collaboratively with other United Nations organizations to take advantage of synergies and economies of scale in applications, services and purchases.

B. Technological drivers

5. **Mega-trend towards connecting everyone.** The world is becoming increasingly interconnected. This mega-trend towards connecting everyone is supported by the rapidly growing volume of global communications and by the infrastructural enhancements planned for the medium term in underserved markets, such as Africa and major portions of Asia.

6. **Convergence of technologies.** Cell phones, digital radio, satellite phones and other mobile technologies continue to advance rapidly, enhancing the ability to communicate without wired access. Simultaneously, the underlying technologies are converging such that a single connection can carry voice, image and/or data, regardless of whether the connection is established by means of a copper wire, fibre cable or, wirelessly, satellite or radio. Usually a mix of these technologies is employed in a way that is transparent to the users.

7. **Increased intensity and velocity of information-sharing.** Building upon the accelerating electronic connections among people, new personal technologies are increasing the velocity of information; information is being captured and shared ever more quickly and effectively and in newer forms and combinations. These technologies aim to facilitate creativity, collaboration and sharing among users and are collectively known as Web 2.0; they include wikis, blogs, podcasts etc., and social networking sites, such as YouTube, MySpace, Facebook etc. Together, a new paradigm for connectivity is being established in a trend that will continue strongly

in the medium term: the creation of knowledge-intensive environments in which human interactions generate content that is published, managed and used by means of network applications.

8. **Knowledge management tools**. Some information technologies have matured and can be efficiently exploited over the medium term; such technologies are expected to strengthen their positions as the broadly adopted ICT building blocks of major global enterprises. Enterprise resource planning is the fundamental tool for managing financial, human, and physical resources, and is one of the major ICT initiatives of the Organization in the medium term. Other technologies have also reached maturation and can be employed in beneficial initiatives: information portals and search engines can provide much-improved access to information across the board and for specific groups, such as the delegations of Member States. Enterprise content management is a broad category of tools that facilitate the capture and sharing of the Organization's knowledge in electronic form, whether text, audio or video. Customer relationship management will help to coordinate the efforts of the Organization to deliver, efficiently and uniformly, to a diverse set of internal and external customers.

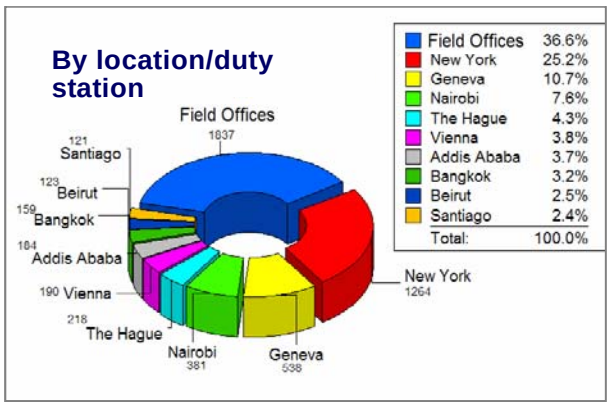
Annex III

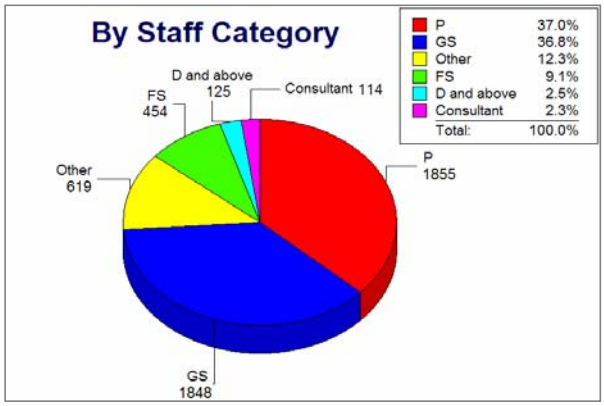
Information and communications technology survey

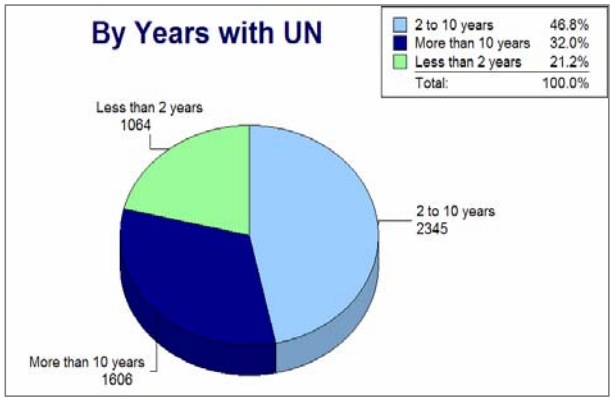
A. Topics

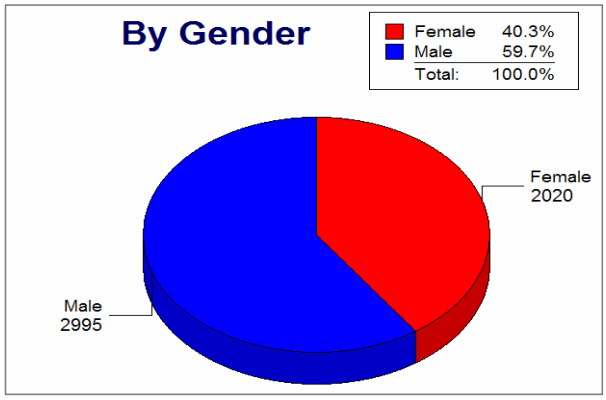
1. Computer equipment (e.g., computer, monitor, printer, scanner etc.) and related support
2. Performance and reliability of the Internet
3. E-mail services (LotusNotes mail, archiving, calendar, mailing lists etc.)
4. Remote access to United Nations applications and information while travelling to or from home (Webmail, Intranet etc.)
5. Telephone equipment and related support
6. Mobile equipment (cellular phone, BlackBerry, personal digital assistant (PDA) etc.) and related support
7. Basic office application software (word-processing, spreadsheets, presentations etc.)
8. Department-specific application software (specialized local applications and databases)
9. United Nations common application software (e.g., Integrated Management Information System, official document system, Galaxy, Performance Appraisal System (ePAS) etc.)
10. Finding information on United Nations websites and in document repositories and databases
11. Help desk services
12. Training related to the above-mentioned ICT services, systems and tools
13. Overall ICT effectiveness

B. Respondent demographics

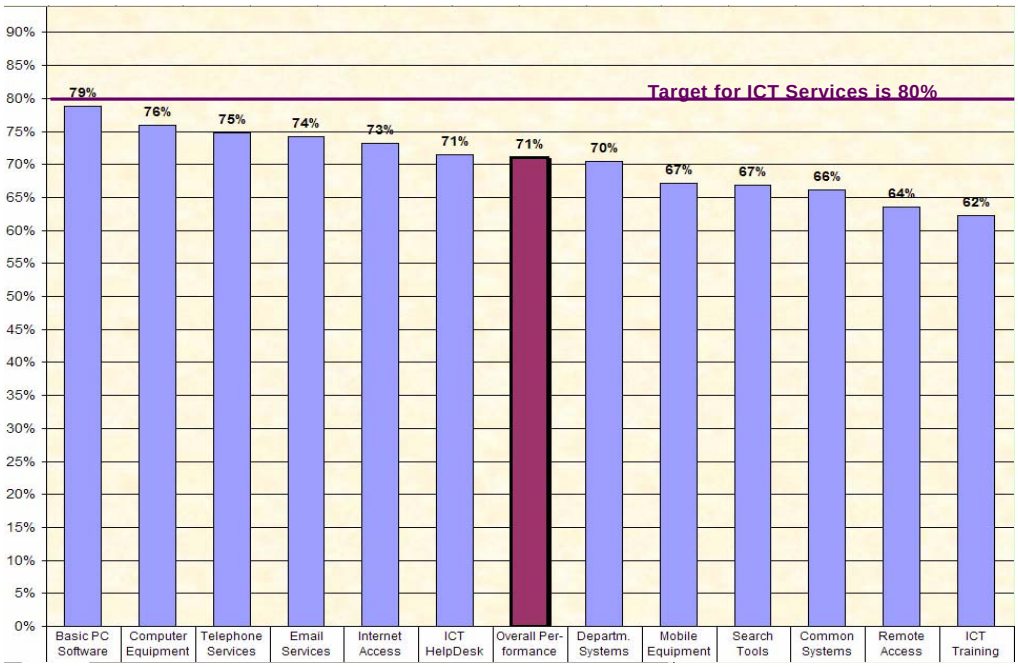








C. Satisfaction levels, by service



Annex IV

Information and communications technology personnel of the United Nations Secretariat as of December 2007[a]

Department or office	*D*	*P*	*FS, L*	*GS*	*Total international*	*Local*	*UNV*	*ICC*	*Contractual staff*	***Total***
Department of Management (Information Technology Services Division and other)	5	115		97	217			30	82	**329**
Department of Field Support and field missions	1	103	606	5	715	1 057	245	255	410	**2 682**
Other departments at Headquarters	1	44		60	105					**105**
Regional commissions		40	3	78	121	61			63	**245**
International Criminal Tribunal for Rwanda		7	24		31	23		11		**65**
International Tribunal for the Former Yugoslavia		10		59	69					**69**
United Nations Office at Geneva		33		55	88				14	**102**
United Nations Office at Nairobi		11		38	49				11	**60**
United Nations Office at Vienna and United Nations Office on Drugs and Crime	1	8	5	75	89	2		35		**126**
Total	**8**	**371**	**638**	**467**	**1 484**	**1 143**	**245**	**331**	**580**	**3 783**

Abbreviations: D, Director; FS, Field Service; GS, General Service category; ICC, International Computing Centre; L, project personnel; P, Professional category; UNV, United Nations Volunteers.

[a] Data collected from United Nations departments, offices and field missions during the ICT strategic planning exercise.