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and reports of the Board of Auditors**

Report of the Board of Auditors on progress in the handling of information and communications technology affairs in the Secretariat

Note by the Secretary-General

The Secretary-General has the honour to transmit to the General Assembly a letter dated 30 November 2015 from the Chair of the Board of Auditors transmitting the report of the Board on progress in the handling of information and communications technology affairs in the Secretariat.



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Letter of transmittal

Letter dated 30 November 2015 from the Chair of the Board of Auditors addressed to the President of the General Assembly

I have the honour to transmit to you the report of the Board of Auditors on progress in the handling of information and communications technology affairs in the Secretariat.

(Signed) **Mussa Juma Assad**
Controller and Auditor-General of the United Republic of Tanzania
and Chair of the Board of Auditors

The President of the General Assembly
United Nations
New York

Information and communications technology: key facts

Budget and resources

\$663.7 million	Estimated annualized information and communications technology (ICT) budget, excluding Umoja, during the biennium 2014-2015
72 per cent	Estimated percentage of the annualized ICT budget relating to peacekeeping operations (2014/15)
4,398	Estimated total ICT workforce
2,200	Number of applications in use across the United Nations, down from 2,400 in 2013
70,030	Estimated users of ICT
376	Number of locations in which ICT is used

Timeline

December 2012	Board of Auditors publishes its report on the handling of information and communications technology affairs in the Secretariat (A/67/651)
June 2013	General Assembly requests the Secretary-General to propose a revised ICT strategy by no later than the sixty-ninth session
October 2014	Secretary-General presents revised ICT strategy (A/69/517)
December 2014	General Assembly adopts resolution 69/262, in which it endorses the revised ICT strategy

Strategy

20	Number of strategic projects underpinning the strategy being reported on by the Office of Information and Communications Technology in A/70/364 and Corr.1
2015-2019	Duration of ICT strategy

Report of the Board of Auditors on progress in the handling of information and communications technology affairs in the Secretariat

Summary

Introduction

Effective information and communications technology (ICT) is essential to supporting the wide range of activities undertaken by the United Nations both at Headquarters and in the field. The Administration estimates that, excluding Umoja, the total annual ICT budget for the biennium 2014-2015 was \$663.7 million. If resources for Umoja are included, that figure increases to \$728.3 million a year.

In its resolution 66/246, the General Assembly requested that the Board audit and evaluate the handling of information and communications technology affairs in the Secretariat. In its first report (A/67/651), published in December 2012, the Board found that the Administration had been unsuccessful in enforcing a centralized ICT implementation and delivery strategy. The Board also concluded that the strategy could not be implemented through the work of a central ICT function that lacked the authority to enforce change, and that a global ICT strategy was unlikely to be successful unless a number of fundamental managerial and structural issues were addressed. The Board recommended that the Administration develop a new ICT strategy, setting out the steps it proposed to take and the timeline and cost of implementation.

The Board's report also identified serious concerns about the adequacy of the United Nations information security environment. There was no approved information security policy embedded in the United Nations administration, nor was there harmonization of security environments across the Secretariat. The Board provided a separate memorandum, addressed to the Chair of the Advisory Committee on Administrative and Budgetary Questions, in which it set out its detailed findings and recommendations in relation to ICT security.

The Administration accepted the Board's recommendations on the ICT strategy and information security. After appointing a new Chief Information Technology Officer in May 2013, the Secretary-General presented his revised ICT strategy in 2014 (A/69/517). The strategy was endorsed by the General Assembly in December 2014 (see resolution 69/262). The three main objectives of the strategy are as follows:

- (a) The direction of ICT in support of organizational priorities, such as Umoja;
- (b) Harmonization of existing infrastructure and processes;
- (c) Greater emphasis on innovation to support the substantive work of the United Nations.

The present report reviews the Administration's progress in addressing the issues raised in the Board's 2012 report. It examines progress in addressing the Board's concerns about information security; the development of the revised ICT strategy; and progress in implementing the revised ICT strategy. The report is based on work undertaken between September and October 2015.

Overall conclusion

The Administration has taken action to respond to the Board's previous report and recommendations. It has developed and agreed to a revised ICT strategy and has begun restructuring the Office of Information and Communications Technology to support its implementation. The new Chief Information Technology Officer, appointed in May 2013, is responsible for leading the implementation of the strategy.

The strategy is a pragmatic first step in responding to the Board's concerns. It focuses on standardization of ICT policies, applications and procedures and harmonization of various support structures. Such activities have been necessary as the Office of Information and Communications Technology seeks to establish the governance, infrastructure, and technical ability required for the Administration to implement the strategy successfully. Progress has been slower than the Administration expected when its plans were first developed in 2013. However, important steps have been taken to improve information security, and progress has been made in defining structures and policies. Work has also been undertaken to examine the budget baseline for the existing ICT landscape, to provide an indicative five-year budget projection and to begin establishing the Organization's future ICT funding priorities. There remains much to do, and the level of challenge is likely to increase as the focus moves from planning and preparing to full implementation.

While progress has been made in establishing and developing organizational structures and policies, at the time of audit they had no formal status and the Chief Information Technology Officer cannot enforce full compliance with the activities necessary to implement the strategy. Differing interpretations of the role of the Chief Information Technology Officer have led to disagreements between two of the strategy's main stakeholders, the Office of Information and Communications Technology and the Department of Field Support regarding the provision of benchmarking data and access to systems to implement security measures. Such issues are perpetuating an incomplete picture of the full cost of ICT, necessary for the Administration to make fully informed decisions about its future planning assumptions for investment in ICT and about ongoing risks to United Nations information security.

The fundamental managerial and structural issues identified in the Board's previous report, such as the need for clarity over the role and authority of the Chief Information Technology Officer, have not yet been fully addressed. Until those issues are resolved, there are significant limitations to what can be achieved in terms of the pace of substantive change, as reflected in the level of progress achieved to date and in the level of delay in the original timetable for completing key activities. Implementation of the strategy is currently reliant on collaboration rather than established and agreed business rules. Given the complexity of the environment in which the strategy is being implemented, it is critical that key enablers, such as policies establishing formal roles and responsibilities, be in place to support its delivery.

The timetable for implementing the strategy in a federated organization like the United Nations is ambitious and does not reflect a full understanding of the depth of the challenges that need to be overcome. The Administration's approach to monitoring and reporting progress has been developed recently but remains inadequate, and the Administration recognizes that it needs to be further strengthened. Although the Administration is confident it has delivered activity to

date, within existing resources, budget and expenditure data is missing from the majority of the projects underpinning the strategy and the Board has no confidence that the budgets and costs are being adequately overseen and controlled.

The Administration has reported that implementation of critical ICT projects is 45 per cent complete only eight months into implementation of the strategy. However, the figure of 45 per cent relates only to those projects and phases of projects under way in 2015. It does not represent overall progress in implementing the strategy. While some initiatives have been implemented, for example establishing an enterprise data centre and a global service help desk, in the main, delivery of the strategy has yet to fully move beyond the preparatory phase into implementation and realization of benefits. Overall progress towards achieving its three main aims has been limited. All projects being run by the Office of Information and Communications Technology in support of Umoja, such as the transfer of responsibilities from the project team to the Office and the development of application interfaces for existing systems that will be retained, are expected to finish later than was originally planned in 2013. Regional structures have been established and harmonization activities are progressing but considerably slower than planned, and innovation remains a lower-priority future aspiration.

The Board's previous report noted that any revised ICT strategy would need to evolve and adapt over time. It also noted that a global ICT strategy would be unlikely to be successful without the full collaboration and support of all heads of business units. The strategy itself recognizes that it is dependent on clear governance, strong leadership and optimal use of resources. Significant improvements are needed in all three of those areas.

Key findings and recommendations

The Board identified the following key findings:

- **The revised ICT strategy is pragmatic and focuses on standardization of ICT policies, applications and procedures, and harmonization of various support structures.** The strategy is underpinned by a range of subprojects which are technical in nature, or which seek to establish global baselines and functions. The strategy was developed following consultation with departments and entities but is now being implemented without having fully resolved concerns raised by the Department of Field Support regarding the role of the Chief Information Technology Officer in field operations. The Board has also not seen any comprehensive assessment of the expected benefits of the ICT strategy.
- **The Board is unable to provide assurance that overall implementation of the revised ICT strategy is on schedule and within budget.** Although the Administration is confident it has delivered activity to date within existing resources, budget and spending data is missing from the majority of projects underpinning the strategy. The road map for implementing the ICT strategy consists of a wide range of projects, of which 20 are described as strategic projects in the first progress report of the Secretary-General (A/70/364). The original timetable for implementing the projects has been subject to significant change. Although a project management office has been established, progress is self-reported by project teams without any independent assurance and overall progress is reported without any weighting linked to project size, complexity or importance. The Board has seen no evidence of activities being systematically

prioritized on a critical path or any assessment of the dependencies between projects, but notes that the Administration has submitted proposals to strengthen the project management office.

- **Governance and management structures for ICT affairs have been revised but accountabilities and authorities have not been formally updated.** Bodies such as the Information and Communications Technology Board and regional technology centre advisory boards have been created, but their relationship to existing governance structures and their formal status and authority are unclear. Strong leadership and governance supported by approved policies clearly setting out the roles and responsibilities of business units will be key enablers of progress. However, those important components are not yet in place and there remains a lack of agreement over which activities require strong central control and which activities require or merit operational freedom. Delegations of authority from the Chief Information Technology Officer have also not been finalized. The Administration expects to issue an updated Secretary-General's bulletin during the first quarter of 2016.
- **The Administration has taken steps to improve information security but there is a lack of formal authority and capacity to ensure compliance with policies and procedures, particularly beyond Headquarters.** Measures to strengthen and harmonize desktop security and network security are under way at Headquarters and mandatory training courses on information security have been introduced. However, existing policies on responsibility for information security have not been updated to reflect the Chief Information Technology Officer's intended new role as the central authority for information security. As a result, the Office of Information and Communications Technology was denied access to the Department of Field Support's systems to undertake checks on its firewalls until November 2015. The increasing need for interconnectivity and the interdependence of the Secretariat ICT systems means that an attack or intrusion anywhere can lead to a compromise everywhere. In that context, a collective response to security threats is required and any lack of compliance with central policies could place United Nations information security at risk.
- **The Administration has attempted a five-year indicative budget projection for ICT but it is based on incomplete data.** In the absence of baseline data from the Department of Field Support, the forecast assumed that ICT costs for peacekeeping operations remain unchanged from the 2015-2016 budget. As the Department represents 72 per cent of expenditure on ICT, this severely undermines the credibility and usefulness of the forecast. The Department informed the Board that given the complexity and volatility of peacekeeping operations, a five-year projection is not feasible, but that it will develop a shorter term (two- to three-year) projection to provide the Secretariat with visibility of its overall ICT investments while also providing meaningful budgetary information on peace operations.

To maximize the chances of successful implementation of the strategy and the achievement of its aims, the Board makes the following recommendations, all of which have been accepted by the Administration:

- (a) Clarify the role and authority of the Chief Information Technology Officer in field operations by setting out clearly which activities require strong central control and which activities require or merit operational freedom;**
- (b) Reassess the realism of the timetable for implementing the strategy and strengthen the project management approach, including the introduction of independent assurance arrangements;**
- (c) As a matter of urgency, formalize corporate ICT policies and procedures, including governance structures and appropriate delegations of authority, to ensure that the necessary authorities and accountabilities are in place to support implementation of the ICT strategy;**
- (d) Establish a robust compliance framework with the necessary authorities to ensure adherence to Secretariat-wide ICT policies, including those on information security;**
- (e) Further refine and improve the quality of the data underpinning the five-year forecast of ICT expenditure by increasing visibility of actual expenditure and the status of ICT assets across all of the Secretariat, including peacekeeping operations;**
- (f) Develop a statement of the expected costs and benefits of implementing the revised ICT strategy to enable strategic activities to be prioritized and resourced appropriately;**
- (g) Increase the visibility of senior management in leading the implementation of the ICT strategy to ensure that all departments are committed to implementing the revised ICT strategy as mandated by the General Assembly, and that any disagreements or impediments to implementing the strategy are addressed and resolved in a timely manner.**

I. Background

1. The United Nations is a complex organization comprising multiple entities, offices and projects across the globe. Many of them have a high degree of autonomy and have historically worked independently of each other to fund, design, procure and run their own information and communications technology (ICT) systems. The effective provision of ICT is essential in supporting critical work in operational and administrative activities, both at Headquarters and in the field, in the areas of peacekeeping, security, development, human rights, international affairs and humanitarian assistance.

2. The Administration has long recognized that there has been a high level of fragmentation and duplication in the ICT function of the Secretariat. That fragmentation leads to inefficient and ineffective use of resources and makes it difficult to identify ICT expenditure and assets. There are over 70 different ICT units in various departments, offices and field missions, and around 2,200 software applications in use across the United Nations Secretariat. The Administration's latest estimate of the total annual ICT budget, excluding Umoja, for the biennium 2014-2015 was \$663.7 million. If resources for Umoja are included, that figure increases to \$728.3 million a year.

3. The United Nations 2008 ICT strategy sought to address the duplication and fragmentation of ICT through three main aims: (a) creating an ICT environment aligned with the mission and work programmes of the Secretariat; (b) enabling United Nations staff and their stakeholders to connect and share knowledge anytime, anywhere; and (c) allowing ICT resources to be deployed and utilized more efficiently. Implementation of the strategy was to be supported through the creation of the Office of Information and Communications Technology in 2009. The intended role of the Office's role was to provide enterprise-wide oversight of ICT programmes, budgets and decision-making. The Office would also have responsibility for the delivery of ICT services at Headquarters in New York.

4. In December 2012, the Board published a report on the handling of ICT affairs in the Secretariat, including the Office of Information and Communications (A/67/651). It concluded that the ICT strategy had failed to establish a common vision and commitment across the Organization. As the United Nations operates more like a network of organizations, rather than a single, global and homogenous entity, the strategy could not be delivered solely through the work of a central ICT function that lacked the authority to enforce change. The Board considered that a global ICT strategy for the United Nations would be unlikely to be successful unless such fundamental managerial and structural issues were understood and addressed. The Board's view was that senior management needed to support and drive more centralized decision-making and corporate behaviour from the centre or consider an alternative approach to the development and implementation of an ICT strategy.

5. The Board was also very concerned that the United Nations did not have an adequately secure information environment. There was no overall approved information security policy embedded in the United Nations Administration, nor was there harmonization of security environments across the Secretariat. The Board provided a separate memorandum, addressed to the Chair of the Advisory Committee on Administrative and Budgetary Questions, in which it set out its detailed findings and recommendations in relation to ICT security.

6. The Board recommended that the Administration should develop a new ICT strategy consistent with United Nations objectives, and recognize the changes that needed to be made in responsibilities and the operating model of the Secretariat to deliver successfully that strategy. The Administration accepted the Board's findings and recommendations. In its resolution 67/254 A of 12 April 2013, the General Assembly requested the Secretary-General to propose a revised ICT strategy no later than its sixty-ninth session. The Administration's revised ICT strategy was issued in October 2014 and endorsed by the Assembly in December 2014 (A/60/517).

II. Mandate, scope and methodology

7. In its resolution 66/246, the General Assembly requested that the Board audit and evaluate the handling of ICT affairs in the Secretariat. In response, the Board published its report in December 2012 (A/67/651). In its related report, the Advisory Committee on Administrative and Budgetary Questions requested that the Board follow up on the implementation of its recommendations (A/67/770, para. 69). The present report contains the results of the Board's latest follow-up audit on the findings and recommendations contained in its 2012 report. The audit was undertaken in September and October 2015, and takes account of the first report of the Secretary-General on the status of implementation of the ICT strategy for the United Nations dated 14 September 2015 (A/70/364). The Board's audit focused on the following areas:

- The Administration's progress in addressing the Board's concerns about the security of the United Nations information environment
- The development of the Administration's revised ICT strategy
- The Administration's progress in implementing its revised ICT strategy

8. In its resolution 69/262, the General Assembly requested that the Advisory Committee on Administrative and Budgetary Questions request the Board to expand its planned audit of ICT expenditure to cover all Secretariat entities, main duty stations and other field-based offices. The Board intends to address the subject of ICT expenditure across the Secretariat in its report on the United Nations (Vol. I, forthcoming, July 2016) for the seventy-first session of the General Assembly. That audit will also provide the Board with an opportunity to provide a further update on the progress made in implementing the revised ICT strategy.

III. Findings and recommendations

A. Follow-up to previous recommendations of the Board of Auditors

9. The Administration has taken action to address a number of the Board's previous recommendations. The Board notes in particular the steps taken to begin establishing information baselines to support longer-term strategic planning for ICT. The Board also welcomes the steps taken to improve information security, but was concerned to note that the Office of Information and Communications Technology was granted access to perform checks on Department of Field Support firewalls only in November 2015. It is likely to take at least two years to fully address the Board's

s recommendations, particularly where alignment with such initiatives as the global service delivery model is required.

10. Of the 16 recommendations made in the Board's previous report (A/67/651), 2 (12 per cent) were fully implemented and 14 (88 per cent) were under implementation. Overall, the Board judges that management is committed to implementing its recommendations and progress has been made.

11. The annex summarizes the status of implementation of the recommendations. Further commentary on progress in implementing previous recommendations is contained in the relevant sections of the present report.

B. Information security

Network and desktop security

12. The Board's previous report raised serious concerns that the United Nations did not have an adequately secure information environment. Senior management within the United Nations had not established accountability and responsibility for improving information security across the Secretariat, and security controls fell short of what would be expected in a modern, global organization. This part of the report examines the Administration's progress in responding to the Board's concerns.

13. On the basis of the security concerns raised by the Board, the Office of Information and Communications Technology developed an information security action plan. The plan was approved by the Under-Secretary-General of the Department of Management on 7 March 2013 and consists of 10 initiatives across three themes:

(a) **Prevention.** Includes workstation configuration to limit administrative privileges, e-mail filtering for malicious code, mandatory security awareness training for all staff and network segmentation to defend against cross-network attacks;

(b) **Incident detection and response.** Includes deployment of an intrusion detection system and subscription to a cybersecurity feed;

(c) **Governance, risk and compliance.** Includes the development of policies, classification of information assets, the mandating of implementation of minimum requirements for public websites and a requirement for mandatory reporting of information security incidents.

14. Work to implement the action plan commenced in March 2013. In its report on the United Nations of June 2014, the Board noted that good progress was being made on all of the initiatives but that further work was needed to fully implement security measures at Headquarters and at other duty stations (see A/69/5 (Vol. I), paras. 185-199).

15. As at October 2015, the Administration reported that the overall 10-point plan was 62.5 per cent complete, with four of the initiatives complete and six rated as in progress but on track (see table 1).

Table 1
Progress in implementing the 10-point security plan as of October 2015

<i>Initiative</i>	<i>Percentage complete</i>	<i>Administration's views on progress made</i>
(a) Prevention		
1. Workstation configuration: limit administrative privileges	85	Upgraded 95% of personal computers at Headquarters; the remaining workstations are approved exceptions required to perform specific functions that cannot be migrated without significant effort. The implementation of related projects at other duty stations is ongoing.
2. E-mail: improved filtering for malicious code	100	Comprehensive e-mail gateway filtering system has been deployed for spam, trojans and unknown malicious software to provide more effective security capabilities.
3. Mandatory information security awareness training for all staff	100	Course developed and deployed.
4. Network security: segmentation of network zones	20	Implementation of segmentation of network zones in enterprise data centres is ongoing. To implement network segmentation, new firewalls with "next-generation" capabilities are being implemented. The network topology for data centres was reviewed and redesigned to establish a three-tier environment and further segregate environments.
(b) Incident detection and response		
5. Deployment of an intrusion detection system	100	Intrusion detection solutions have been deployed to Headquarters, offices away from Headquarters, regional technology centres and the enterprise data centres.
6. Subscription to a cybersecurity service/feed	100	An ongoing feed of cyberthreat information indicators has been established.
(c) Governance, risk and compliance		
7. Approve and promulgate pending draft policies	80	In progress. Of the 46 policies under review, 37 relate to ICT security, and of these, 29 have been issued, 5 are in the consultation phase and 12 are still being formulated within the Office of Information and Communications Technology.
8. Classify information assets	0	In progress. The Administration has not yet determined how to assess implementation of this item so reports 0 per cent.
9. Mandatory implementation of minimum requirements for public websites	15	Information security assessments of the Secretariat started in 2013 and are ongoing. The minimum requirements for public websites have been promulgated and a compliance reporting mechanism has been established. Detailed information security reviews of more than 25 public website applications were carried out to identify vulnerabilities.
10. Mandatory reporting of information security incidents and sharing of actionable information across the Secretariat	25	A technical procedure to standardize the response to information security incidents was developed and promulgated. Subsequently, a common taxonomy for information security incidents has been defined and deployed. Compliance reporting (self-assessment) is ongoing.
Overall	62.5	

Source: Office of Information and Communications Technology.

16. The Administration has demonstrated that further progress has been made across the three main areas: (a) prevention; (b) incident detection and response; and (c) governance, risk and compliance. However, the Board remains of the view that the progress reported by the Administration is incomplete, as it is based mainly on completion of enabling activities by the Office of Information and Communications Technology rather than on actual results achieved in the business. Some of the projects under the three main headings in table 1 are examined below.

Prevention

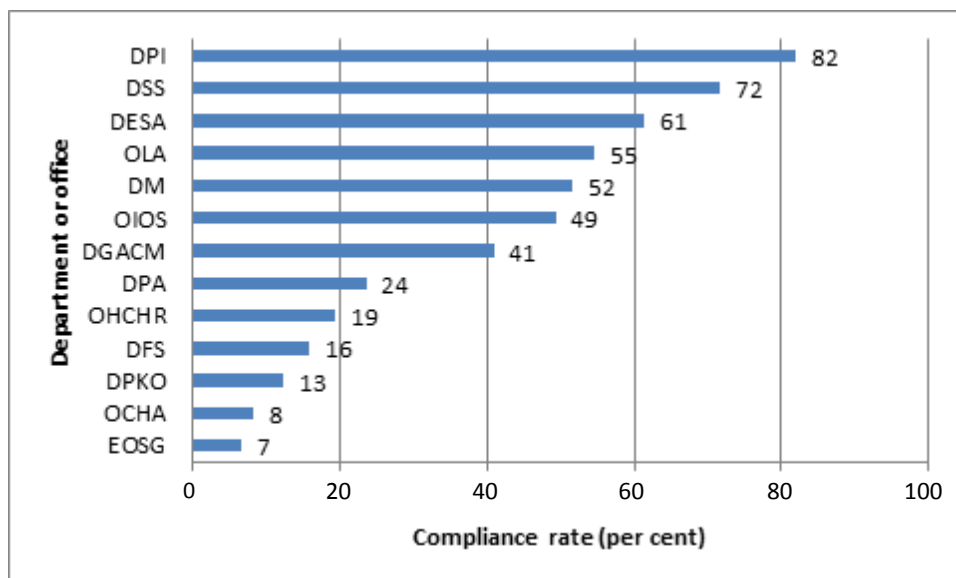
Mandatory information security awareness training for all staff

17. In October 2014, the Office of Information and Communications Technology released a web-based training course on information security awareness (foundation level). The course is mandatory for all users of information and communications technology in the Secretariat, and aims to ensure awareness of the importance of information security and the need to comply with all applicable rules, policies and guidelines. Although mandatory, and judged as 100 per cent complete by the Office, only 7,946 staff (19 per cent)¹ had completed the training some 11 months after it was established. The Board examined how many staff had completed the mandatory training requirement in 13 departments and offices in the Secretariat (see figure I). While compliance ranged from 7 per cent to 82 per cent between departments, the Board found that of the 8,092 staff concerned, only 2,957 had completed the training (37 per cent compliance). The Board also notes that:

- Of the 4,938 staff at the Professional level and above, 1,523 staff had completed the training (31 per cent compliance).
- Of the 3,154 staff at the General Service level, 1,315 staff had completed the training (42 per cent compliance).
- Only two Under-Secretaries-General and four Assistant Secretaries-General had completed the training. The Administration subsequently informed the Board that other senior managers had attended briefing sessions on information security instead of undertaking the online awareness training course.
- Only 72 out of 162 staff in the Office of Information and Communications Technology (44 per cent) had completed the course.
- Only 2 out of 39 staff in the Information and Communications Technology Division of the Department of Field Support (5 per cent) had completed the course.

¹ Calculation based on 41,426 total staff members in the Secretariat in 2014 (A/70/5 (Vol. I)), para. 66.

Figure I
Compliance with mandatory training by Department, as at October 2015



Source: Board of Auditors: analysis of Administration data.

Abbreviations: DPI — Department of Public Information; DSS — Department of Safety and Security; DESA — Department of Economic and Social Affairs; OLA — Office of Legal Affairs; DM — Department of Management; OIOS — Office of Internal Oversight Services; DGACM — Department for General Assembly and Conference Management; DPA — Department of Political Affairs; OHCHR — Office of the United Nations High Commissioner for Human Rights; DFS — Department of Field Support; DPKO — Department of Peacekeeping Operations; OCHA — Office for the Coordination of Humanitarian Affairs; EOSG — Executive Office of the Secretary-General.

Notes: Figures relate only to staff at the General Service level and Professional level and above. Department of Management figures do not include staff based at offices away from Headquarters.

18. The findings in figure I demonstrate that information security training, like some other training courses in the United Nations, is mandatory in name only, and that the Secretariat needs to improve compliance at all levels of the Organization. The performance measure adopted by the Office of Information and Communications Technology (the deployment of the training course) is an input metric which suggests that the activity is complete. Tracking the number of staff who have actually completed the training would be a more meaningful measure of progress made in raising awareness of the importance of information security and ensuring that staff are familiar with the established policies and procedures. A circular announcing the course established a series of target dates and deadlines for all staff to complete the training by July 2015, but no sanctions, such as temporarily withdrawing e-mail access, were applied to anyone who failed to complete the course by that date.

Incident detection and response*Intrusion detection system*

19. In 2013, the Administration identified the installation of an intrusion detection system across its network as critical to improving its capability to centrally collect, correlate and analyse internally generated alerts, notifications and systems log information. Such a system would detect many attacks in real time, allowing for a more timely response and hence limiting the damage caused by a compromise. As the independent operation of such a system requires specialized skills and knowledge, the Administration engaged a third party to deploy and manage the system, and to develop a long-term strategy for network security monitoring and intrusion detection/prevention.

20. The Administration reported that the initiative is 100 per cent complete. The sensors have been deployed at key points of the network, but at the present time, it does not cover all United Nations operations. The Board was informed that the Administration is considering expanding the initiative, but it could have significant resource implications and a cost-benefit analysis would need to be performed before any further expansion of the system.

Governance, risk and compliance*Overall accountability for information security*

21. In its resolution 69/262, paragraph 12, the General Assembly established the Chief Information Technology Officer as the central authority for information security across the Organization. However, there have been significant issues establishing the Chief Information Technology Officer's accountability and authority for information security under existing Secretariat policies and procedures. For example, until November 2015, the Office of Information and Communications Technology was denied access to Department of Field Support firewalls. Such access is necessary to assess and monitor weaknesses, and also to determine any necessity to update firewall rules. The Department informed the Board that under established information security policies, its security incident response and compliance team was responsible for performing those duties and that they followed those reporting requirements. The Department recognized, however, that, pursuant to paragraph 12 of the resolution, which provides for central control of information security, the policy is required to be updated. The Board was informed that work is ongoing to update the existing policy.

22. There have been a number of other security concerns in 2015, including specific incidents affecting interconnected data centres, in which the Office of Information and Communications Technology and the Department of Field Support did not work together to address a serious security threat. In addition, at the time of the writing of this report, the Office has not been provided information on the following:

(a) Patch levels of servers or desktops, which are critical to determine the current state of security in an interconnected environment;

(b) The design of Department of Field Service networks, which makes it impossible to assess the degree to which it is compliant with the segregation into network zones, as required by the firewall protection technical procedure.

23. The interconnectivity and interdependence of the Secretariat information and communications technology systems are such that an attack anywhere could compromise systems everywhere. In this context, a coherent response to security threats is essential, but the disagreements between the Department of Management and the Department of Field Support, if not resolved, could place information security in the United Nations at risk. Existing policies and ways of working including a clear definition of roles and responsibilities for information security, need to be updated as a matter of urgency.

24. The Board is concerned at the slow progress made in implementing corporate-wide information security arrangements and at the continuing duplication of some activities by both OICT and the Department of Field Support. For example, there are two systems in place for monitoring system performance and parallel staffing arrangements in place for running ICT affairs and infrastructure. Moreover, although the Administration accepted the Board's recommendation contained in A/69/5 (Vol. II) that it should explore the setting-up of an Organization-wide computer emergency response team, this has not yet happened.

Disaster recovery

25. Disaster recovery relates to policies and procedures that enable the recovery or continuation of critical ICT infrastructure and systems following a data security breach or disaster of either natural or human cause. As part of its implementation of an operational resilience management system across the Secretariat, the Office of Information and Communications Technology reviewed the software applications in use across the Secretariat. The review identified 171 applications that were classified as either critical in their own right or that supported critical processes.

26. The Office carried out tests in July 2015 to test the suitability of disaster recovery arrangements for the 171 critical applications and identified the following systemic weaknesses in those arrangements:

- (a) 129 applications had inadequate disaster recovery, no disaster recovery plan or a failed failover test;
- (b) 31 applications for which no status was available;
- (c) 8 applications had advanced disaster recovery, a disaster recovery plan and a successful failover test with recovery time objective concerns;
- (d) 3 applications had advanced disaster recovery in place, a disaster recovery plan and a successful failover test.

27. The lack of adequate disaster recovery arrangements for so many critical systems puts the United Nations at risk of significant costs and reputational damage in the event of a disaster. More importantly, it could affect the United Nations ability to carry out its work effectively. Providing disaster recovery capabilities for 171 applications also requires substantially higher annual operation and maintenance costs for the United Nations. The Office is seeking to improve disaster recovery arrangements and reduce the number of critical applications.

28. The Office's analysis of industry best practice suggests that large multinational organizations typically have no more than 15 to 20 business critical systems. The Office informed the Board that it is working with affected departments and offices and intends to submit a list of 24 critical applications for endorsement

by the Senior Emergency Policy Team, chaired by the Chef de Cabinet, in December 2015.

C. The revised information and communications technology strategy

29. Section C of the report examines the extent to which the Administration's revised ICT strategy addresses the Board's main findings and recommendations in its 2012 report.

30. The Board's 2012 report emphasized that ICT systems in the Organization continued to operate in a highly fragmented way and that the Organization lacked a common vision for ICT. Three key limitations in the previous ICT strategy were identified:

- (a) Insufficient emphasis on the implementation of the enterprise resource planning system;
- (b) Insufficient priority for information security issues;
- (c) Insufficient recognition of peacekeeping activities.

31. The Board also identified a number of fundamental managerial and structural issues that further weakened the ability of the Organization to implement a global ICT strategy successfully. These included the following:

- (a) An inadequate assessment of or understanding by senior management of the Organization's ICT requirements prior to developing the strategy;
- (b) Governance and accountability structures established to support the implementation of the strategy failing to operate effectively;
- (c) A lack of clarity regarding the scope and remit of the Chief Information Technology Officer;
- (d) The inability to effectively prioritize investment in ICT since management information did not routinely capture relevant expenditure;
- (e) A lack of control over software applications leading to increased security risks, unnecessary expenditure and increased maintenance and support costs;
- (f) An insufficient focus by the Office of Information and Communications Technology in implementing the strategy, leading change or driving innovation.

32. In its resolution 67/254 A, the General Assembly approved the conclusions and recommendations of the Board, and requested the Secretary-General to propose a revised ICT strategy, including lessons learned, by no later than the sixty-ninth session of the Assembly.

Development of the information and communications technology strategy

33. The Secretary-General presented a revised information and communications technology strategy to the General Assembly in October 2014 (see A/69/517). The purpose of the revised strategy is to strengthen, and provide a common vision for, the delivery of information and communications technology in the United Nations through modernization, transformation and innovation and by providing a

framework for improved governance, strong leadership and optimal use of information and communications technology resources.

34. The Board considers that the revised strategy is a pragmatic first step in responding to its concerns. It provides an approach designed to address the core problems emanating from the fragmentation of ICT management in the Secretariat and thus drive greater consolidation, standardization and management of information and communications technology across United Nations global operations.

35. The strategy document does not devote significant text to demonstrating how the proposals within it align directly with United Nations overall strategic aims and objectives or how those proposals will meet the current and future needs of the business departments. While the document does not explain how the strategy will respond to current trends in information and communications technology and innovation, it addresses those elements briefly, including references to modernizing the United Nations ICT infrastructure and developing business analytics. In its 2012 report, the Board emphasized that for an area as strategically important and fast-moving as ICT, the formulation and management of a strategy must be an iterative and continuous process (see A/67/651, summary). As the new ICT strategy evolves and develops over time, the Board would expect that future iterations of the document will address more directly how the investments in ICT are designed to support and improve the delivery of the key mandates, aims and objectives of the United Nations.

36. The Administration informed the Board that while it did not cover the above-mentioned subjects extensively in the ICT strategy document, it has considered the issues in more detail, and has submitted supplementary information to the Advisory Committee on Administrative and Budgetary Questions on the ways in which implementing the strategy would better enable ICT to support the core work of the United Nations.

Internal consultation and “buying in” to the strategy

37. For the new strategy to succeed, it requires departments to surrender aspects of local autonomy and control they have enjoyed in the past and to accept the leadership and authority of the Chief Information Technology Officer. As none of the underlying budgetary structures or formal staffing and reporting lines within departments have been changed, to make significant changes, the Chief Information Technology Officer has to rely upon the support of senior management and the ICT governance structures and on willing cooperation and collaboration from heads of business units.

38. In September 2013, the Office of Information and Communications Technology initiated extensive internal consultation to build consensus and support for the new ICT strategy. The consultation process involved 22 ICT chiefs of Headquarters departments, offices away from Headquarters and regional commissions. The consultation process also included consideration by the Information and Communications Technology Executive Committee, which approved the general direction of the proposed strategy in December 2013, and the Information and Communications Technology Board. In July 2014, a final round of consultation with stakeholders was initiated prior to presenting the new strategy in September 2014.

39. The Administration was unable to provide the Board with a summary of the consultation responses it received and how they had been addressed in the strategy. However, correspondence seen by the Board indicates that the most protracted discussions were held with the Department of Field Support. In October 2014, the then Under-Secretary-General for Field Support wrote to the Under-Secretary-General for the Department of Management to raise concerns that although the Department had been consulted on the strategy, its comments and suggestions had not been accommodated. The Department of Field Support was further concerned that given the scope of the peacekeeping footprint with respect to ICT operations, moving ahead along the lines proposed would thus be problematic. Critical items which the Department of Field Support considered had not been sufficiently addressed included the following:

(a) The lack of a clear distinction between the regional technology centres proposed in the draft and the ICT regionalism model approved by the General Assembly for field missions;

(b) The global ICT operations centre concept, which the Department believed duplicated existing network and security monitoring programmes approved by the General Assembly and in place for field missions' extensive ICT network;

(c) An unclear and contradictory definition of the role of the Chief Information Technology Officer and a lack of clarity on whether the balance between central control and operational freedom would be respected for field missions.

40. The Under-Secretary-General of the Department of Field Support expressed the view that the draft strategy's description of the role of the Chief Information Technology Officer as leading all ICT activities in the Secretariat, combined with other proposals to further centralize ICT functions, threatened to disrupt the unity of command model that allowed the Department to remain agile and responsive to the constantly shifting operational demands of the field environment.

41. Although the memorandum confirmed that the Department of Field Support remained open to discussion on the strategy, it had already gone to the Advisory Committee for Administrative and Budgetary Questions. The Under-Secretary-General stated that the Department wished to ensure that its views on the three points of concern would be respected in the implementation of the strategy, following its approval by the legislative bodies. The Board was informed that in the view of the Office of Information and Communications Technology, two of the concerns raised were addressed in the final strategy document. However, the Department indicated to the Board that it did not agree that this was the case. Irrespective of the positions represented above, the General Assembly mandated implementation of the revised strategy of the Secretary-General in December 2014. The Board has made a recommendation on the matter in the summary of the present report.

42. The formal expression of such strong reservations by the Department of Field Support was a clear signal that the Department responsible for using and managing the majority of the United Nations ICT infrastructure was not fully committed to the revised strategy. The impact of not securing the Department's "buy in" to the strategy would become clear as implementation of the approved strategy began.

Funding for the information and communications technology strategy

43. The budget proposal of the Office of Information and Communications Technology for the biennium 2014-2015 did not contain any additional resources to support the implementation of the new ICT strategy. The Secretary-General indicated that the proposals in the strategy were to be implemented on a cost-neutral basis during the biennium. The proposed budget for the 2016-2017 biennium includes \$2.9 million to implement the revised ICT strategy, plus a further \$19.9 million to fund ICT activities redeployed from other parts of the Department of Management (see A/70/6 (Sect. 29E)). The Board understands that further funding requests are to be included in the 2018-2019 budget proposals. The Board was informed that since the strategy was approved, a number of posts previously classified as ICT posts have been reclassified to non-ICT posts. This could result in an artificial reduction in the number of ICT staff or the Office taking on activities without the necessary resources to carry them out.

44. The Chief Information Technology Officer has confirmed to the Board that the costs of implementing the proposals under the strategy can be met from within existing resources and the limited amount of additional funding requested. It is expected that as the strategy is implemented there will be opportunities to secure efficiency gains that will enable existing resources to be used more cost-effectively. The Board is unable to confirm that this is the case, as detailed budgets and sources of funding for the various activities under the strategy have not been identified or documented.

Alignment of business plans with the information and communications technology strategy

45. Input and collaboration from the business units to date has been slow and incomplete. The Board has seen limited evidence of plans from the individual business units on what actions they will undertake to achieve the objectives of the strategy.

46. During the development of the ICT strategy and subsequently, following its endorsement by the General Assembly in December 2014 (see resolution 69/262), business units did not recognize the need to align their ICT activities and plans to those set out in the ICT strategy. Departments did not anticipate and commence an assessment of the impact of the strategy on their own operations and structures, particularly in respect of consolidation and the global centralization of services. Nor did they seek to gain buy-in for the strategy from their own staff, prepare for change or plan the activities needed to embed the strategy within the Secretariat as a whole. There was no structured assessment of the impact of aligning business unit strategies to the ICT strategy, accompanied by high-level road maps, milestones and plans. Such steps were particularly important for departments, such as the Department of Field Support, that had reservations regarding aspects of the strategy or that were unclear on any aspect of it.

47. In July 2015, seven months after the approval of the strategy, the Office of Information and Communications Technology promulgated the ICT strategy guidelines to all heads of departments. The document sets out the actions each entity must undertake for the strategy to be implemented successfully. The guidelines include guidance on all ICT-related activities to be undertaken across the Secretariat to support implementation of the strategy, for example:

- Five-year planning assumptions
- Global sourcing and asset management
- Information security and disaster recovery
- Regional technology centres
- Enterprise application centres
- Enterprise service desks
- Enterprise data centre
- Enterprise network operations and security centre
- Global engineering and conferencing
- Harmonization and standardization of ICT structures
- Enterprise business intelligence and analytics

48. While comprehensive regarding what needs to be done, the guidelines lack formal status in terms of being covered by any formal policies, procedures or administrative instructions of the Secretariat. It is also unclear how and when departments should respond across all elements of the guidelines, introducing the risk that departments will develop their own approaches to implementation.

49. Although the guidelines were communicated only in July 2015, the Board notes that the Administration still has the opportunity to align departmental business plans with the ICT strategy in the biennium 2016-2017. Firstly, the Committee for Programme and Coordination, in its report on the biennial programme plan for 2016-2017, sets an objective for the Office of Information and Communications Technology to align technology with the core work of the United Nations, the specific indicator of achievement being an increased number of technology strategies that are aligned with the United Nations ICT and business strategies (see A/70/80 and A/70/16, para. 72).

50. Secondly, the Under-Secretary-General for the Department of Management is the corporate risk owner of enterprise risk 2: organizational transformation (A/69/676, paras. 19-20). A key mitigating activity is the preparation of an overall “end state” operating model for the Organization, encompassing all the business transformation projects, including the ICT strategy, currently being implemented.

51. The Administration has put forward proposals to the General Assembly on how it intends to develop the global service delivery model. The Board notes that there is a subsequent requirement for each United Nations Secretariat entity to develop a clear understanding of how it will move from the current state of operations to the end state, taking into account the impact of the ICT strategy and other transformation projects. By September 2016, each entity is required to produce a specific strategy and project plan which is:

- (a) Endorsed at the level of Under-Secretary-General;
- (b) Communicated to and understood by the staff within the department/office;
- (c) Integrated into the existing planning and accountability mechanisms.

In the Board's view, meeting those commitments would be an important step towards aligning future plans with the objectives of the ICT strategy.

52. Similarly, while General Assembly resolution 69/262 establishes the Chief Information Technology Officer as the central authority for information security across the Organization, the role has not been formalized through updated policies and procedures. As demonstrated by paragraphs 21 to 24 of this report, this situation led to particular problems with the implementation of revised information security arrangements affecting the Department of Field Support.

Governance and accountability

53. Effective governance is essential to the successful implementation of an information and communications technology strategy across the United Nations. The Board reported previously that the governance and accountability structures established to support implementation of the earlier strategy did not operate effectively, with senior management not adequately assessing and understanding requirements before developing the strategy.

54. A governance framework has been set up to oversee ICT policies and guidelines, standards, architecture and investments. The highest-level governance body is the Information and Communications Technology Executive Committee, which met twice in 2015 (February and August) and is chaired by the Under-Secretary-General for the Department of Management. The Information and Communications Technology Board is chaired by the Chief Information Technology Officer and has met five times in 2015 to oversee most of the ICT strategic developments. Both bodies have representation from various areas of the Secretariat. They discuss progress in implementing the ICT strategy, although at the present time they do not have an approval role, and the meeting minutes seen by the Board do not show strong evidence that they are exercising a constructive challenge role. The Management Committee, chaired by the Chef de Cabinet, also reviews progress on strategy implementation and acts as an independent internal challenge mechanism. See table 2 for a summary of the arrangements.

55. The Board considers that the relationship and reporting lines between the governance bodies is unclear, particularly in relation to the procedures to be followed when escalating issues to senior management when agreement cannot be reached by consensus, and in regard to the responsibilities for oversight of the entire portfolio of projects designed to transform ICT. It is vital that this be addressed to ensure that decisions and approvals are escalated in a timely manner in the interest of adhering to cost and time targets.

56. The governance structures put in place could provide a valuable forum for building consensus on the way in which the revised ICT strategy is to be implemented and for raising key issues. However, the absence of clear and agreed terms of reference detailing the decision-making authority for the governance bodies has allowed key issues and disagreements to remain unresolved and for non-compliance with key aspects of the strategy to persist. For the revised ICT strategy to be successful, it is essential that the legitimacy, authority and powers of the governance mechanisms be clearly defined and accepted by all heads of business units.

Table 2
Governance framework for the information and communications technology strategy

<i>Group</i>	<i>Role</i>	<i>Membership</i>
Management Committee	Review progress on strategy implementation and act as an independent internal challenge mechanism.	Chaired by the Chef de Cabinet; Heads of business units from departments of the Secretariat are represented.
ICT Executive Committee	To ensure that ICT is central to, and delivers against, the business requirements and objectives of the United Nations. It is the highest-level decision-making body in the Secretariat on ICT strategy and priorities. The Committee last met in August 2015, and is updated quarterly on projects.	Chaired by the Under-Secretary-General for Management. Departments and offices are represented at the level of Assistant Secretary-General and Under-Secretary-General.
ICT Board	Responsible for ensuring coherent and coordinated global usage of ICT across departments and duty stations, in line with the objectives of the Secretariat and the general policy direction provided by the Executive Committee. The Board met five times up to the end of October 2015.	Chaired by the Chief Information Technology Officer. Membership includes officials at the D-1 or D-2 level, representing offices and departments at Headquarters, offices away from Headquarters, the regional commissions and tribunals.
ICT Policy Committee	Responsible for establishing policies, procedures and guidelines.	Membership of the Committee includes representatives of offices away from Headquarters, the regional commissions and the major departments and offices at Headquarters.
Architecture Review Board	Responsible for reviewing and formulating the enterprise architecture of the United Nations and associated standards and policies, and providing recommendations to the Chief Information Technology Officer. The Board meets at least monthly.	Membership of the Board includes representatives of ICT sections in offices away from Headquarters, the regional commissions, the Department of Field Support and three ICT working groups.

Source: A/69/517.

57. The Board notes that the adequacy of representation of field operations within the governance structure has been challenged by the Department of Field Support. The Board was informed during the audit that a proposal to increase the membership of the Architecture Review Board had been developed which included other field-based entities. The Board was also informed that the terms of reference of the Information and Communications Technology Executive Committee, the Information and Communications Technology Board and the Architecture Review Board were under review and that the revised terms of reference were in draft.

Scope and remit of the Chief Information Technology Officer

58. The roles of the Chief Information Technology Officer in field operations is not universally understood and agreed across the Organization. As set out in paragraphs 39-42 of this report, the Department of Field Support, during the course of consultations on the revised ICT strategy, raised concerns about what it saw as an unclear and contradictory definition of the role of the Chief Information Technology Officer, and a lack of clarity on whether the balance between central control and operational freedom would be respected for field missions. Those concerns were not resolved prior to the publication of the strategy.

59. The central importance of establishing clear lines of authority and responsibility between the Office of Information and Communications Technology, the Chief Information Technology Officer, and other United Nations departments and entities, is illustrated by some of the time-consuming disagreements and difficulties that have arisen in 2015. One example was a proposal by the Department of Field Support to begin a pilot project investing in low orbit satellite telecommunication facilities; the Department estimated that the pilot would cost \$24 million and would provide wide area network communications across eight missions. In April 2015, the proposal was referred by the Assistant Secretary-General for Central Support Services to the Office of Information and Communications Technology to obtain their views on the proposed pilot project. In response, the Office questioned the decision process for such a large investment in piloting new technology, and suggested the need for such decisions to be supported by proper analysis. The Office also questioned whether the proposal had been submitted through the appropriate ICT governance structures.

60. The subsequent exchanges highlighted strong differences of opinion between the Department of Field Support and the Office of Information and Communications Technology as to whether the proposal related to an operational matter within the purview of the Department or whether it fell within the remit of the Chief Information Technology Officer, who is responsible for strengthening governance and accountability for ICT across the Secretariat. The Department also cited a memo from the Chief Information Technology Officer to the Procurement Division, dated 30 January 2014, which appeared to exclude telecommunications equipment from such reviews. The Chief Information Technology Officer subsequently issued a memo dated 6 June 2015 on this matter, which in the view of the Department amounted to shifting authorities in the middle of a procurement process. However, following various communications, the Chief Information Technology Officer, with deep reservations and understanding how critical it was to the Department, supported the project to proceed to the next steps as an exception on 24 June 2015. The Department informed the Board that the two months spent discussing the pilot with the Office of Information and Communications Technology may have limited their ability to achieve savings. The Board notes that at the time of the writing of this report the proposed procurement had still not been concluded.

61. The Board's previous report emphasized the need for better recognition and understanding of genuine Organization-wide activities that require strong central control and those activities for which entities, offices away from Headquarters and missions require or merit operational freedom. Clarity over which activities should be controlled centrally and which should be subject to operational freedom is, however, still lacking, as demonstrated by the recent difficulties between the Chief

Information Technology Officer and the Department of Field Support over the proposed procurement mentioned above. The Administration stated that a Secretary-General's bulletin would be issued to clarify roles and responsibilities and specify clear delegations of authority. It would also set out mechanisms that would enforce compliance with the main aspects of the ICT strategy. However, the Office for Legal Affairs subsequently advised the Office of Information and Communications Technology that it does not have the necessary authority to issue such revised delegations of authority, and a clear mechanism for enforcing compliance with the requirements of the ICT strategy has not yet been issued. The Administration expects to issue an updated Secretary-General's bulletin during the first quarter of 2016.

Understanding and prioritizing investment in information and communications technology

62. In its 2012 report, the Board found that funding for ICT was short-term and fragmented. There was no Secretariat-wide overview of ICT spending, as management information did not routinely capture relevant expenditure, which in turn increased the risk of funding being directed to lower-priority activities.

63. As noted in paragraph 8 of the present report, the Board intends to address the subject of ICT expenditure across the Secretariat in its report on the United Nations (Vol. I, forthcoming, July 2016) for the seventy-first session of the General Assembly. The findings below are an interim assessment of progress to date.

64. Improving the visibility of ICT costs is a long-held concern of Member States and the Advisory Committee on Administrative and Budgetary Questions (ACABQ). In its report on the ICT strategy (A/69/610, paras. 53-60), the Advisory Board on Administrative and Budgetary Questions set out criteria by which the Administration could demonstrate progress on understanding ICT expenditure, including: (a) establishing an accurate baseline of costs; (b) benchmarking United Nations ICT costs; and (c) improving the ability to record and analyse costs.

(a) Establishing more accurate baseline information from which to measure progress in improving efficiency and effectiveness

65. The Administration has made progress. For example, for the first time the programme budget for 2016-2017 includes a separate disclosure of ICT requirements across the Secretariat, entity by entity (see A/70/6 (Introduction), annex, schedule 12).

66. In its resolution 69/262, the General Assembly requested the Secretary-General to prepare an indicative five-year overall information and communications technology budget projection for the Secretariat. In response, the Administration also presented an overview of ICT resources starting from the biennium 2010-2011 up to and including the proposed budget for 2016-2017, and planning assumptions for the biennium 2018-2019 (see A/70/364 and Corr.1, paras. 44-50). The \$1,279 million to \$1,308 million forecast for 2018-2019 assumes that ICT costs for peacekeeping operations will remain unchanged from the 2015-2016 budget. Costs reported over the years 2010 to 2015 indicate that in fact the cost of ICT in peacekeeping operations was reduced from \$1,048 million to \$951 million (see A/69/610, annex II). As peacekeeping represents 72 per cent of the expenditure on ICT, and 69 per cent of ICT staff and contractors work in field operations and

peacekeeping missions, not including peacekeeping severely undermines the credibility of the forecast.

67. The Department of Field Support informed the Board that, given the complexity and volatility of peacekeeping operations, a five-year projection was not feasible, but that it would develop a shorter term (two- to three-year) projection to provide the Secretariat with visibility of its overall ICT investments while also providing meaningful budgetary information on peacekeeping operations.

68. The Administration has developed a five-year indicative budget projection for investment in ICT through the regular budget (figure II). Two specialist ICT consultancy firms supported the exercise, providing a standard approach to gathering cost information from across the Secretariat, comparing the trends to other organizations, and utilizing industry trends in ICT costs to model possible future requirements. The Administration forecasts a minimum increase of \$29 million in ICT expenditure under the regular budget in the biennium 2018-2019 if the strategy is implemented, and \$137 million if it is not implemented. The Administration has stated:

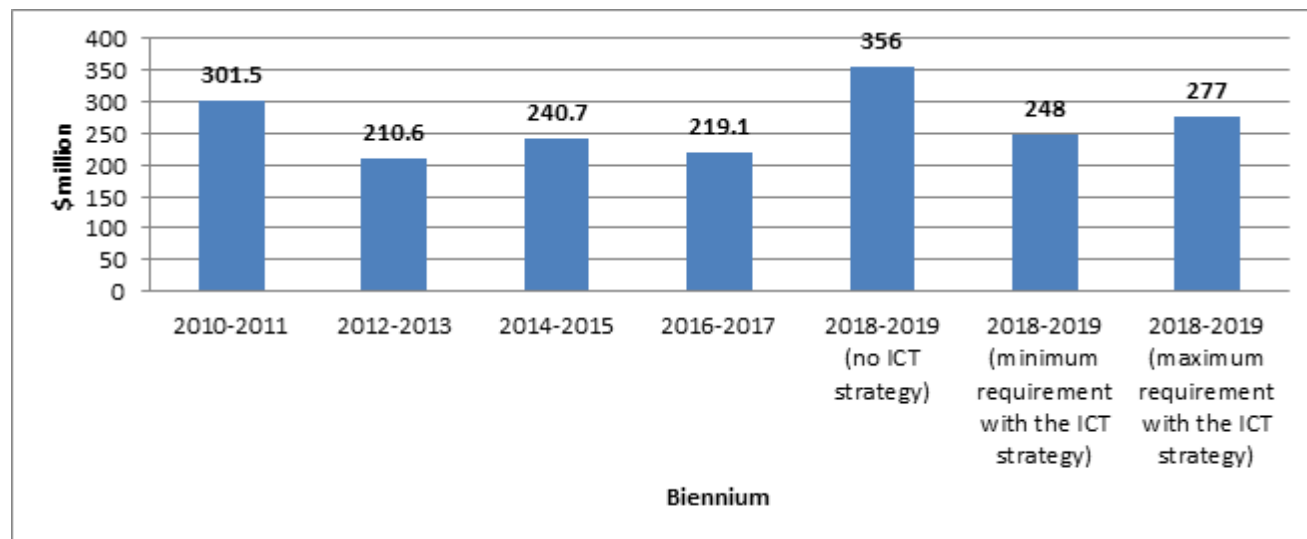
(a) Not implementing the strategy would result in a forecast of \$356 million for the biennium 2018-2019, a 62 per cent increase from the \$219.1 million proposed budget in 2016-2017;

(b) Implementing the strategy would result in a forecast of between \$248 million (\$29 million increase) and \$277 million (\$58 million increase) for the biennium 2018-2019, depending on the measures implemented;

(c) The information-gathering exercise provided an estimated, not an actual, split between staff and non-staff costs (for Headquarters, offices away from Headquarters, and regional commissions).

Figure II
ICT budget projection for the regular budget by biennium

(Millions of United States dollars)



Source: A/70/364 and Corr.1, annex II.

69. In reviewing the indicative budget projections, the Board noted a number of limitations in the underlying data and assumptions:

(a) The projections cover only the regular budget, some 17.5 per cent of the proposed spending on ICT in 2016-2017;²

(b) The \$219.1 million baseline in 2016-2017 is derived from unapproved budget proposals rather than actual expenditure;

(c) The main additional element of the \$356 million projected cost for 2018-2019 is a \$138 million increase in resources identified by department. The Administration informed the Board that the assumptions used to derive this figure represent a “worst-case scenario”. In the Board’s view there is no certainty that a 62 per cent increase in resources would be approved under existing budgetary processes;

(d) The Administration estimates that implementing the strategy will reduce ICT expenditure from \$356 million to between \$277 million (a reduction of \$79 million) and \$248 million (a reduction of \$108 million). However, the unreliability of the \$356 million projection brings into question the overall level of potential cost-avoidance claimed.

70. While the Office of Information and Communications Technology has responded to the request to provide a five-year forecast, a longer horizon than has previously been achieved, the severe limitations in the data available mean the figures need to be treated with a high degree of caution. In the Board’s view, it would be beneficial for the Administration to explain the improvements which would be realized as a result of the forecasted increase in expenditure of \$29 million (13 per cent) to \$58 million (26 per cent), and to develop detailed plans on how the implementation of the strategy, as opposed to other factors, would achieve the predicted level of cost avoidance.

71. The Administration has not yet provided a detailed articulation of the financial and non-financial benefits expected from the ICT strategy which could be used to set targets, monitor performance and ultimately to demonstrate the success of the strategy itself. The Administration informed the Board that it intends to perform a full benefit analysis at the end of the first year of implementation as ICT departments prepare their 2014-2015 performance reports.

(b) Gathering benchmarking data to allow a comparison of the costs of information and communications technology services in the United Nations with industry standards

72. The Administration has made good progress, with the specialist ICT consultancies supporting a comparative analysis of United Nations resource distribution in respect of national Governments, international government organizations, and private sector organizations in terms of resources allocated across functional areas and spending per user. The Administration intends to use this analysis as one factor in prioritizing future ICT investments in areas where the United Nations differs significantly from the benchmarks.

(c) Ensuring procedures are in place for recording, tracking and analysing costs

73. In its 2012 report, the Board recommended that the Administration review arrangements for capturing information on ICT expenditure with a view to enabling

² The forecast excludes the following: peacekeeping, extrabudgetary, support account for peacekeeping operations, special political missions and Umoja.

more effective monitoring of costs and improved decision-making on future expenditure, and clearly specify how the chart of accounts in Umoja will enable ICT expenditure to be captured and monitored effectively (A/67/651, paras. 29 and 30).

74. The difficulties the Office of Information and Communications Technology experienced during the information-gathering exercise in 2015 demonstrates that the Board's concerns are still valid. Information identified as industry standard by the specialist consultancy firms could not be produced from existing categories used for budgeting and accounting purposes. This led to a manual exercise using templates developed especially for the exercise. The Office received this information from all areas except the Department of Field Support, which cited difficulties in meeting the deadline owing to the effort that would be required to collect the information across a large operation, including peacekeeping missions, and the granularity of the request. The data has not yet been provided in the detail and format requested, and so could not be incorporated in the cost forecasting or benchmarking exercise.

75. The Administration informed the Board that the roll-out of Umoja will improve how ICT costs are recorded and analysed. For example, cost centres have been created to classify expenditure at a greater level of granularity.

76. Notwithstanding the limitations mentioned above, the Office of Information and Communications Technology has taken the first important steps to introduce a model and methodology for monitoring, forecasting and benchmarking ICT costs across the Organization. It is important, however, that the current limitations be addressed by building more robust assumptions and gathering more accurate and complete data on ICT costs, particularly in field operations, to further refine and improve the accuracy and reliability of future forecasts. The Office has informed the Board that it intends to update the five-year forecast on an annual rolling basis to help to prioritize future investment in ICT.

Application management

77. In its previous report, the Board determined that the Administration had no overall software application strategy and that many of the applications in use across the Secretariat had been developed locally and performed duplicate functions. The lack of control over applications exposes the Organization to security risks and increases the risk of duplicating expenditure. The proliferation of software applications also increases maintenance and support costs. The Board recommended that the Administration develop an application management strategy to minimize security risks and reduce costs.

78. In response to the Board's concerns, the Chief Information Technology Officer introduced an application management strategy in May 2015. Enterprise application centres have been established in New York, Vienna and Bangkok in order to provide a focal point for application development. The purpose is to prevent the further development of fragmented applications across the Secretariat by consolidating development activity into centres of excellence. Application rationalization is still in its early stages and plans for specific activities are being developed.

79. Progress has been made in identifying applications to be rationalized. A global United Nations application portfolio has been published and application rationalization road maps are being produced for the approximately 2,200 software

applications currently identified. Resourcing arrangements have not been finalized and, in some cases, ad hoc arrangements are being entered into locally in order to use resources in particular locations. To be successful, budget and support will be needed from the heads of the business units in the areas where the application centres are situated.

Information and communications technology skills in the Secretariat

80. The Office of Information and Communications Technology has carried out a survey to determine how many staff work in ICT roles. It estimates that the total ICT workforce of the United Nations consists of 4,398 staff, including third-party contractors. This information is, however, likely to be out of date owing to the lack of updated information from the Department of Field Support.

81. The Office is in the process of analysing the data collected from its survey. It predicts that, over the next five years, the need for infrastructure support will decrease while the need for applications development, business analytics and intelligence and security will increase. The analysis will be used to form a skills baseline that will identify areas that need to change to meet the future ICT needs of the United Nations and ensure alignment with the Office's five-year strategic plan. The results of this work will be presented to the General Assembly for its consideration at its seventy-first session.

82. The plan to align technology systems and consolidate ICT posts in business units has shown, however, little progress since the previous report. The Board has seen no evidence of proactivity in the business units to determine the impact of this aspect of the ICT strategy on their areas. Difficulties are emerging in identifying, quantifying and reaching agreement on the posts to be moved or retained where staff are engaged in roles that have only a partial ICT element. Progress has been made within some parts of the Department of Management but appears slower elsewhere. To date, 42 ICT staff have been identified for transfer to the Office of Information and Communications Technology (see table 3).

Table 3
Transfers of information and communications technology staff into the Office of Information Communications Technology

<i>Department or office</i>	<i>ICT staff transferred to OICT</i>	<i>Board's comments</i>
Office of Human Resources Management	12	Staff performing ICT functions moved in recognition of human resources role change to managing a global workforce
Office of Central Support Services	29	Staff in posts relating to videoconferencing
Office of Programme Planning, Budget and Accounts	1	Work on the implementation of the International Public Sector Accounting Standards and Umoja cited as the reasons for delays in further staff transfers
Overall	42	

Source: Administration data.

Note: OICT — Office of Information and Communications Technology.

83. Difficulties and delays in finalizing agreements for the transfer of ICT staff to the Office of Information and Communications Technology from other business areas within the Department of Management do not convey an encouraging message to the wider Organization and contribute to negative perceptions that are hampering the implementation of the wider consolidation elements of the ICT strategy.

D. Progress in implementing the revised information and communications technology strategy

84. In 2013, the Office of Information and Communications Technology developed a 2014-2017 ICT key strategic project plan that set out a detailed road map for developing and implementing a revised ICT strategy. It covered the period from July 2013 to December 2017 and consisted of various projects designed to establish global baselines and functions, as well as technical projects. Those ranged from developing and agreeing upon the ICT strategy to developing baseline costs, harmonizing applications and websites and mainstreaming Umoja.

85. Using the 2014-2017 ICT key strategic project plan (see table 4), the Board identified 15 projects for comparison that appeared to align closely with those reported by the Secretary-General in his first progress report (A/70/364 and Corr.1). The Board's analysis indicates that 9 of those projects are now being undertaken against shorter timescales than originally planned (e.g. the development of policies and standards), while others have substantially longer timescales (e.g. data centre consolidation). The Board's review has also determined that 10 projects started late and that 11 are now expected to be completed later than originally planned.

86. The Office of Information and Communications Technology informed the Board that changes to the timetable were due to the dynamic nature of the environment. The timelines were adjusted as more was learned about the projects.

Table 4

Variance in planned delivery timetable for 15 information and communications technology strategy projects

<i>Strategy project</i>	<i>Start date</i>	<i>End date</i>	<i>Start date</i>	<i>End date</i>	<i>Variance in planned duration (months)</i>
	<i>(as indicated in 2014-2017 ICT key strategic project plan)</i>		<i>(as indicated in A/70/364 and Corr.1)</i>		
Data centre consolidation	Oct. 2013	June 2014	Dec. 2013	Jan. 2017	29
Regionalization model implementation	Jan. 2014	Dec. 2016	Mar. 2015	Apr. 2017	-10
Policy and standardization development	July 2013	Dec. 2017	Apr. 2013	Oct. 2015	-23
Baseline costs development	July 2013	June 2014	Feb. 2015	Sept. 2015	-4
Global sourcing strategy, including telecommunication assessment and review	Jan. 2014	Dec. 2014	Nov. 2014	Nov. 2015	1
Human resource strategy	July 2013	Dec. 2014	Feb. 2015	Sept. 2015	-10
Applications harmonization: plan development	Apr. 2014	June 2014	June 2014	July 2015	11
Website harmonization: planning and consolidation of 1,300 websites	July 2014	Dec. 2016	Jan. 2014	Dec. 2017	18
Security and resiliency	July 2013	Dec. 2017	Mar. 2013	Jan. 2016	-19

<i>Strategy project</i>	<i>Start date</i>	<i>End date</i>	<i>Start date</i>	<i>End date</i>	<i>Variance in planned duration (months)</i>
	<i>(as indicated in 2014-2017 ICT key strategic project plan)</i>		<i>(as indicated in A/70/364 and Corr.1)</i>		
Disaster recovery	July 2013	Dec. 2017	May 2013	Jan. 2016	-21
Infrastructure and network upgrades	July 2013	Dec. 2017	May 2013	Jan. 2017	-9
Umoja mainstreaming	July 2013	Dec. 2016	Nov. 2013	Jan. 2019	21
Global help desk establishment	Jan. 2014	Mar. 2015	Jan. 2015	Oct. 2015	-5
Application interfaces	Jan. 2014	Dec. 2014	May 2014	Jan. 2016	9
Analytics development design	Jan. 2014	Sept. 2014	Oct. 2014	Jan. 2016	7

Source: Board analysis of Administration data.

87. The changes to the delivery timetable identified by the Board indicate that the scale of the challenge to be overcome in implementing the revised ICT strategy was initially underestimated. Changes to project timetables now require authorization from the Enterprise Programme Management Office. This should improve the level of control that the Administration has over the planned delivery timetable.

Enterprise Project Management Office

88. In its previous reports on transformation projects such as Umoja and the capital master plan, the Board highlighted a number of weaknesses in project management. For example, in its report on the capital master plan, the Board observed that there was a need for a standard unified approach to the delivery of major projects, noting that it should not be left to each individual project team to determine the processes to follow and actions to take to deliver successfully within the United Nations system. The Board also noted that there should be a structured and well-disciplined approach to project governance, management and assurance (see A/68/5 (Vol. V), annex V).

89. In order to monitor progress in implementing the revised ICT strategy, the Administration has established an Enterprise Project Management Office consisting of two staff members. This Office tracks on a monthly basis the progress of critical or strategic projects underpinning the strategy. It also monitors key performance indicators, including scope, timeline, costs and human resources.

90. The Board reviewed the monthly status report of September 2015 of the Office of Information and Communications Technology to assess its approach in tracking implementation of the ICT strategy and noted the following:

(a) Progress information is reported by the project teams themselves and is not subject to independent assurance;

(b) The assessments by project teams of their own progress are subjective and do not follow a consistent or agreed methodology. The relative complexity or importance of projects, or project elements, is also not weighted when average progress figures are generated;

(c) The level of project monitoring is based on the strategic importance of the project. However, there is no evidence of projects being systematically prioritized by their importance to the critical path and no documented assessment of interdependencies among the projects;

(d) The Enterprise Programme Management Office is itself coordinating two projects: ICT assessment benchmarking and Umoja mainstreaming. This represents a potential conflict of interest and risks overstressing an already thinly resourced monitoring team;

(e) The monthly status report of September 2015 of the Office of Information and Communications Technology includes 17 of the 20 projects listed in the Secretary-General's progress report (A/70/364 and Corr.1). The Board notes that, while the ICT benchmarking assessment was reported as 100 per cent complete as at 30 August 2015 and data collection for all locations assessed as complete as at 27 July 2015, no information had been received from the Department of Field Support;

(f) Of the 17 strategic projects listed, 13 had budgets. However, only 6 reported any expenditure against their budget. One project, "Umoja (ICT-related projects)" was rated "amber" despite being only 65 per cent complete with no budget remaining. The Administration informed the Board that this project had been so rated because efforts were under way to secure additional funding and the Office of Information and Communications Technology had already received \$6.2 million of the \$8.5 million shortfall.

91. In the progress report on the status of implementation of the ICT strategy (A/70/364 and Corr.1), it is reported that the implementation of critical ICT projects is 45 per cent complete, with the remaining 55 per cent on schedule for completion. However, the figure of 45 per cent relates only to those projects and phases of projects under way in 2015 at the time of that report. It does not represent overall progress in implementing the strategy. While some initiatives have been implemented, for example establishing an enterprise data centre and a global service help desk, in the main, the delivery of the strategy has yet to fully move beyond the preparatory phase into implementation and the realization of benefits. Owing to the limitations noted above, the Board is unable to confirm that the overall implementation of the revised ICT strategy is on schedule and within budget.

92. Establishing an Enterprise Project Management Office to monitor and coordinate the projects and subprojects that underpin the ICT strategy is a pragmatic first step and addresses some of the Board's wider concerns over project management in the United Nations. However, the limitations in project management need to be addressed as a matter of urgency to provide assurance to Member States that the implementation timetable for the ICT strategy is realistic and that it will be delivered within approved budgets. The Administration recognizes the need to strengthen the Enterprise Project Management Office and has included a proposal to allocate two extra staff members to that Office in the proposed programme budget for the biennium 2016-2017 (see A/70/6 (Sect. 29E)).

Achieving the objectives of the revised information and communications technology strategy

93. The revised ICT strategy has identified three main objectives:

- (a) The direction of ICT in support of organizational priorities, such as Umoja;
- (b) The harmonization of existing infrastructure and processes;

(c) Greater emphasis on innovation to support the substantive work of the United Nations.

94. The Board has assessed the Administration's current progress in the achievement of each of those objectives.

(a) *Information and communications technology in support of Umoja*

95. When the revised ICT strategy was adopted, it included plans to establish a global ICT support model over the following three years. Part of that revised support model has an impact on Umoja which, in order to function effectively as a global enterprise system, requires an integrated support model capable of providing assistance to users 24 hours a day worldwide.

96. The proposal to consolidate local ICT help desks into regional help desks means that the support functions currently provided by some 60 help desks in New York would be brought together into one centre under a global model. Those help desks provide support to a range of different systems and applications and have very limited knowledge of Umoja. The Office of Information and Communications Technology is working with the Umoja project team to provide technical and operational support. However, as noted in the Board's report on Umoja (A/70/158), the Office currently lacks the capability to support an enterprise resource planning system of the size and scale of Umoja. The Office's project team is underresourced, while the Umoja team does not have the capacity to support the Office's mainstreaming activities. The transfer of Umoja to the Office is included in the five-year strategic plan and is not expected to be completed until 2019. However, Umoja already requires help desk support from the Office, as well as technical development and support for its infrastructure, interfaces, access controls and security.

97. The phasing of the Umoja roll-out has required that a number of mainstreaming elements be prioritized and implemented prior to the implementation of the Umoja clusters 3 and 4. These include user access provisioning, disaster recovery testing, network scaling, infrastructure and the building of interfaces from Umoja to existing systems. Completing the tasks required to provide user access, security and network connectivity is critical for the testing and readiness of cluster 4. The Board is concerned that the Office of Information and Communications Technology faces a shortage of funding and skilled staff that constrains those activities. Mainstreaming activities were not planned and budgeted as part of Umoja. The tasks have been undertaken on a priority basis for each phase of the Umoja roll-out.

98. Work is now under way to assess the ongoing Umoja support requirements and costs of ownership for staffing, production support, enhancements and upgrades, software maintenance, and licensing. The Office of Information and Communications Technology will then need to develop a detailed plan to define the scope of ICT and business support functions, including considering resource needs, sourcing strategy, staff transition and the installation of upgrades. However, the Office has not yet built up an understanding of Umoja robust enough to fully develop its transition plans. Such plans require a significant amount of detailed analysis, ranging from clarity around changes from the original design to managing security requirements. There has been very little overlap or sharing of resources between the Umoja project team and the Office with respect to knowledge transfer. For example, Office staff are not embedded within the project team. While it is

focused on deploying clusters 3 and 4, the project team will also be unable to prioritize resources to help Office staff to prepare for taking over the running of Umoja.

99. The importance of the Office of Information and Communications Technology developing a solid knowledge of Umoja is increased by the planned downsizing of the Umoja project team beginning in 2016 and the resultant loss of individuals with key knowledge and expertise by the end of 2017. The recent acceleration in departures from the Umoja team reinforces the need to develop clear transition and knowledge transfer plans. Some 21 staff members left the project between June and September 2015, while a total of 55 staff members have left since June 2014. The Administration reports that efforts will be made to retain the technical expertise of the project team. However, in the absence of a detailed transition plan, it is not possible to confirm that such plans are realistic. As the end of the project approaches, there is an increased risk of losing skilled resources. Project staff may begin to look for other opportunities outside the project unless clear transition and retention plans are in place. The Board notes that, in the absence of a detailed and fully costed transition plan, a realistic budget to fund the transition cannot be developed. The Umoja project forecasts do not include this as an explicit cost and there is therefore a risk that substantial and unforeseen costs will need to be absorbed by the Office.

100. The Office of Information and Communications Technology informed the Board that it had begun preparing a staff transition plan with Umoja in August 2015 and that Umoja mentors had been identified.

(b) Harmonization

101. Regional technology centres have been established to support harmonization of ICT services across the United Nations. They have been established for Africa, the Americas, Asia and Europe and are located in Nairobi, New York, Bangkok and Geneva, respectively, under regional heads. The centres are partially operational, and key remaining milestones are the establishment of a standardized global ICT network by June 2016 and the harmonization of ICT service delivery by December 2016. This is an ambitious time frame given the current difficulties in obtaining the full collaboration of the Department of Field Support. As noted in connection with the satellite service proposal (see paras. 59-61), the Department of Field Support does not currently have firm plans to move any of its missions onto the corporate wide area network developed by the Office of Information and Communications Technology.

102. The initial focus of the regional technology centres will be on institutionalizing governance and implementing the strategy. Work undertaken so far has been resourced from within existing budgets, which represents a risk to future delivery. The roles, responsibilities and authorities of the centres have also yet to be formalized in revised policies and procedures, and the relationship to existing structures within the Department of Field Support has not been clearly articulated. Until this happens, they will lack the authority to enforce policies and procedures or to drive harmonization efforts across the United Nations.

103. The Office of Information and Communications Technology has developed a set of global policies and procedures to coordinate the use and operations of ICT throughout departments and duty stations. There are 46 policies covering the

following categories: (a) governance; (b) information security; (c) acceptable use; (d) applications; (e) ICT asset management; (f) infrastructure management; and (g) videoconferencing. Of these policies, 29 have been issued and 17 are awaiting approval. Those have been written in conjunction with duty stations and are a good example of global collaboration. The next step is to draw up and implement a set of processes to ensure policy compliance once all 46 policies have been agreed and issued.

104. The Administration has put in place mechanisms to govern the harmonization of ICT services. For example, following a pilot by the Department of Field Support of the Microsoft Exchange e-mail system in peacekeeping, a proposal to adopt that system as standard for the Secretariat was discussed by the Architecture Review Board. The Architecture Review Board advised the Chief Information Technology Officer to adopt the e-mail system as the corporate standard and the ICT Board endorsed the Officer's subsequent recommendation. As a result of these deliberations, the Secretariat will adopt Microsoft Exchange and Office 365 as the future e-mail system for the Organization.

(c) Innovation

105. The ICT strategy aims to ensure that core ICT services can better support the delivery of wider business objectives. The Administration has identified areas where new technologies could potentially have a positive impact on how the United Nations works, including in the areas of field commodity management, fibre optics and digitization, enterprise computing, mobile technology, mobile solutions and cloud computing, and the analysis of data for tracking and early detection purposes.

106. The projects being undertaken under "Innovation" relate to the development of business intelligence and data analytics. The ICT strategy notes that, while some analytical methods are currently used by parts of the Organization in isolated or specialized applications, in programme delivery and administrative contexts, a platform for data and information collection would enable departments to share data and information productively and help to foster a culture of data sharing within the United Nations system. In his progress report on the implementation of the ICT strategy (A/70/364 and Corr.1, annex I), the Secretary-General stated that the Office of Information and Communications Technology would have the capability to perform data analytics by 31 December 2015. As of September 2015, the project to establish that capability was judged by the Administration as being 63 per cent complete.

107. The Board has repeatedly stressed that the development of data analytics is fundamental to the Administration exploiting the improved information from the enterprise resource planning system to enable better decision-making. It is an integral part of the Umoja benefits case. The system provides the foundation for a step change in the exploitation of data and information through access to up-to-date, consolidated financial and performance information from across the United Nations. Realizing the benefit of the improved management information will require staff to interrogate complex datasets and distil them into clear information on the basis of which management can make decisions. It will also require a comprehensive plan at all levels of the United Nations to provide assurance that aggregate datasets are built on accurate data at the transactional level.

108. The Board recommended in its previous reports on the United Nations (Vol. I) and Umoja that the Administration develop the skills, tools and methodologies to perform data analytics. The Board considers that the development of such capability would allow for a deeper understanding of underlying costs and enable areas such as finance and human resource management to perform a more strategic, advisory function to the wider Organization. Such information could be used to benchmark and measure costs in a way that promotes increased cost consciousness, improved value for money and a culture of continuous improvement in financial management practices.

109. While the Administration has consistently agreed with the Board's findings and recommendations on that matter, limited progress had been made to date. The ambition remains largely aspirational at this point compared to other higher-priority projects. Although the planned implementation timeline is at risk, the efforts of the Office of Information and Communications Technology to develop that area are necessary.

IV. Acknowledgement

110. The Board wishes to express its appreciation for the cooperation and assistance extended to its staff by the Under-Secretary-General for Management and the Office of Information and Communications Technology, and members of their staff.

(Signed) **Mussa Juma Assad**

Controller and Auditor-General of the United Republic of Tanzania
and Chair of the Board of Auditors

(Signed) **Amyas Morse**

Comptroller and Auditor-General of the
United Kingdom of Great Britain and Northern Ireland
(Lead Auditor)

(Signed) **Shashi Kant Sharma**

Comptroller and Auditor-General of India

Annex

Status of implementation of the recommendations

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
A/67/651, para. 20	The Administration should develop a new ICT strategy, including a United Nations-wide information strategy and an enterprise architecture framework that describes how information and technology will support and provide benefits for the Organization. Such a strategy needs to be consistent with United Nations objectives and realistic ambitions for transformation. The Administration then needs to make progress in the implementation of the ICT strategy in parallel with any agreed reforms to the Organization's operating model, culture and approach	This recommendation has been implemented. The Secretary General's report (A/70/364 and Corr.1) on progress made towards the implementation of the ICT strategy (see A/69/517) is currently being considered by the legislative bodies. The report addresses the decisions of the General Assembly in its resolution 69/262 by providing such information as an implementation plan, estimated resource requirements and an assessment of all aspects of ICTs in the Secretariat. Through a consultative process, the ICT report is aligned with other transformational initiatives currently under way, such as mobility, Umoja and the global service delivery model	A revised ICT strategy has been developed and was approved by the General Assembly in resolution 69/262. For this recommendation to be implemented, the Administration needs to clearly articulate: (a) how implementing the strategy will enable United Nations entities to better deliver their mandates; and (b) the alignment between the ICT strategy and other transformation initiatives (see sect. III.C)		X		
A/67/651, para. 29	The Administration should review its arrangements for capturing information on ICT expenditure with a view to enabling more effective monitoring of costs and improved decision-making on future expenditure	Capturing financial data on ICT budgets and expenditure will improve with the deployment of Umoja, as about 29 cost centres are established by OICT for 2016-2017 to capture data by functional and programmatic areas	The Board notes the Administration's response and considers that this recommendation is still under implementation		X		

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
A/67/651, para. 30	The Administration should clearly specify how the chart of accounts in Umoja will enable ICT expenditure to be captured and monitored effectively. In addition, it should consider whether there are any options for improving management information on ICT expenditure that could be pursued prior to the implementation of Umoja	In designing the coding blocks and the chart of accounts in Umoja, the Office of Programme Planning, Budget and Accounts has been guided by key principles to enable standard classifications and ensure control, and cost centres have been created for improved recording and analysis of costs. Business units have the flexibility to drive cost centres deeper to help them to manage and report costs	The Board notes that the Administration is reliant on the implementation of Umoja to capture and monitor ICT expenditure and will examine this subject further in its 2016 report on the United Nations (Vol. I). The Board considers that this recommendation is still under implementation		X		
A/67/651, para. 31	In order to enable greater consistency and transparency with regard to ICT funding and budgets and allow better management of costs and effective prioritization, the Controller should require that proposed ICT budgets set out: (a) the cost of running day-to-day services; (b) the cost of licences and maintenance costs for existing systems; (c) costs related to upgrading existing service delivery (e.g. to improve security); and (d) new costs, including strategic requirements	This level of ICT budgets is being captured by creating coding blocks and costs in Umoja and raising commitments and purchase orders for very specific types of expenses	The Administration's response does not fully address the recommendation. Discussions are ongoing between OICT and the Controller's office regarding the budget instructions for the biennium 2018-2019. The Board considers this recommendation to be under implementation		X		

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
A/67/651, para. 32	The entities, offices and programmes comprising the United Nations should prioritize ICT funding to ensure that the right balance of attention is given to transformation, improvement and leadership, frameworks and policies, and operational services	This recommendation is addressed through a requirement for all ICT offices to update planning assumptions annually by improving visibility in budget formulation and expenditure, in coordination with the Programme Planning and Budget Division, the Peacekeeping Financing Division and the Procurement Division (as outlined in A/70/364 and Corr.1)	The Board notes the Administration's response and considers this recommendation to be under implementation		X		
A/67/651, para. 39	As a necessary precursor to any new ICT strategy, and to reduce the substantial risks associated with the implementation of a global enterprise resource planning system, the Administration should clearly document those elements of the culture, custom, practices and processes, as well as key cost and performance information, that may affect the achievability of a global ICT transformation in the United Nations. Using the results of this review, the Administration should define the Organization's overall objectives and specify realistic ambitions for global service delivery, consistent processes and a unified Organization	OICT has established a Unite Service help desk that is fully operational and provides tier-1 level support 24 hours a day and seven days a week for enterprise applications, including Umoja. OICT has also established enterprise application centres in New York, Bangkok and Vienna that standardize application development, enforce disaster recovery and reduce fragmentation. The Umoja team and OICT are working together on a detailed assessment to identify the Umoja support model and the total cost of ownership for ICT for the next five years, taking into account staffing and support, connectivity, upgrades, enhancements, licenses and maintenance. OICT, in collaboration with the Umoja team and the	The Administration's response does not address the recommendation in full. In paragraphs 34 to 38 of its previous report, the Board set out its concerns that an insufficient understanding of the wider culture, custom, practices, processes and key cost and performance information could place the successful implementation of a global ICT strategy at risk. The Board's recommendation to document those factors is partially addressed by the Administration's efforts in the area of risk management in the Secretary-General's progress report (A/70/364 and Corr.1, para. 14), but a more comprehensive analysis needs to be carried out for this recommendation to be considered implemented		X		

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
A/67/651, para. 41	The Administration should recognize the changes in responsibilities and operating model across the Secretariat that are needed to deliver any new ICT strategy and accept the responsibility of senior management as a whole to deliver Organization-wide changes to support the Chief Information Technology Officer	<p>Department of Field Support, continues to conduct disaster recovery test and security assessments</p> <p>This recommendation is implemented. In its resolution 69/262, the General Assembly recognized the Chief Information Technology Officer as the central authority for information security and acknowledged the importance of the Chief's strong central leadership for the overall direction and performance of information and communications technology activities within the Organization. The Assembly requested the Secretary-General to continue his efforts to reduce the level of fragmentation and emphasized the need for appropriate delegation of authority and procedures for ensuring compliance with the revised information and communications technology strategy guidelines on, inter alia, operations, security, investment and oversight at United Nations offices, in particular those related to the field</p>	The Board notes the Administration's response. As highlighted in section III.C of the present report, policies setting out the roles and responsibilities of business units have yet to be formalized, and there remains some uncertainty over which activities require strong central control and which activities require or merit operational freedom. The Board considers this recommendation to be under implementation		X		

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
A/67/651, para. 50	The Administration should: (a) emphasize the strategic priorities of the Chief Information Technology Officer by redefining the functions of the role and changing the title; (b) evaluate whether there is a need to appoint a chief technology officer or designate an existing post to assist the chief information officer in operational matters; and (c) clearly define and communicate the different roles across the Secretariat, in particular the scope and remit of the renamed chief information officer with regard to strategy and business transformation	This recommendation is implemented. OICT has evaluated the need and appointed a Chief Technology Officer at the D2 level and defined the function and role in the revised ICT strategy (A/69/517). In the regular budget proposal currently before the legislative committees, the existing D2 Director of OICT is proposed as the Chief Technology Officer	The Board notes the Administration's response and considers that this recommendation is fully implemented	X			
A/67/651, para. 55	The Administration should plan for any parallel business and ICT activities associated with a new strategy to be supportive of the implementation of Umoja and not conflict with its objectives	This recommendation is implemented. The initiatives in the revised ICT strategy were developed to support Umoja and enterprise systems as a matter of priority	The Board notes the Administration's response and considers that this recommendation is fully implemented	X			
A/67/651, para. 56	In relation to ICT, the Administration should define the leadership and executive roles, competencies and management effort that should be directed to three distinct aspects of ICT delivery, namely: (a) transformative change, innovation and leadership across the Secretariat;	The Administration's budget proposal for ICT has been presented to the General Assembly in the proposed programme budget for the biennium 2016-2017 (A/70/6 (Sect. 29E)) and aims to create the recommended balance between subprogrammes 5 (information and communications technology	The Board notes the Administration's response and considers this recommendation to be under implementation		X		

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
	(b) the design and enforcement of corporate guidance, frameworks, policies and standards; and (c) operational services	strategic management and coordination) and 6 (information and communications technology operations). The recommendation is in the process of being implemented, subject to the decision of the General Assembly					
A/67/651, para. 68	The Administration should develop a fit-for-purpose governance framework to oversee the strategic development of ICT across the United Nations. This governance framework should clearly set out roles, accountabilities and responsibilities and ensure that decision-making bodies operate distinctly from consultative and advisory forums	This recommendation is implemented. A governance structure has been put in place that comprises an Executive Committee, a Project Review Committee and the Information and Communications Technology Board. This structure is supported by the Enterprise Project Management Office and the Policy Committee	The Board considers this recommendation to be under implementation. Governance structures have been revised and progress in implementing this recommendation has been made. However, as noted in section III.C of the present report, roles and accountabilities still need to be formalized		X		
A/67/651, para. 76	Over time, the Administration should redirect existing resources of the Office of Information and Communications Technology to more strategic activities and consider the use of alternative sourcing arrangements for day-to-day ICT support services	This recommendation is being addressed through developing a global sourcing strategy in consultation with the Procurement Division	The Board notes the Administration's response and will monitor the development of the global sourcing strategy		X		

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
A/67/651, para. 82	Management should develop an "intelligent client" function for Secretariat-wide ICT and within United Nations departments to effectively articulate business needs and provide a channel for the Office of Information and Communications Technology, local ICT committees and business areas to improve services	This recommendation is implemented. The Business Relationship Management Section continues to gather information on business needs and aligns the business expectations with the expectations of regional and global ICT service providers	Progress in implementing this recommendation has been made through the establishment of the Business Relationship Management Section as an "intelligent client" function, as well as the establishment of other business-facing functions, such as regional technology centres. While these functions provide a channel for OICT, they need to be fully embedded to enable an effective articulation of business needs		X		
A/67/651, para. 92	The Administration should develop an application management strategy to minimize security risks and reduce costs. Such a strategy should address enterprise-wide applications primarily and include the decommissioning of legacy systems applications and services and any necessary data migration. The Board also recommends that, as part of the new strategy regarding applications, the Administration develop a process to ensure that strategic ICT and operational investments can be made, no matter where they are undertaken in the Secretariat, and that they are consistent with Umoja and other enterprise applications	OICT developed the application management strategy, approved by the Chief Information Technology Officer on 27 March 2015. The Administration is currently in the process of developing technical procedures and guidelines for the development, maintenance and decommissioning of applications. The United Nations Global Application Portfolio repository went live on 1 August 2015. OICT verified 2,160 active United Nations applications and developed the application road maps (consolidation and modernization opportunities) for maximizing the use of enterprise applications, such as Umoja, Inspira, iNeed and Unite Docs	The Board notes the Administration's response and considers that, even though progress has been made, the recommendation remains under implementation		X		

<i>Report reference</i>	<i>Summary of recommendation</i>	<i>Administration's comments on status (November 2015)</i>	<i>Board's comments on status (November 2015)</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Closed by the Board</i>
A/67/651, para. 100	Management should strengthen Secretariat-wide ICT standards to consolidate and leverage ICT buying power and should use these standards to drive the harmonization of ICT as a necessary precursor to the consolidation of software applications and infrastructure	This recommendation is being addressed through the development of a global sourcing strategy in consultation with the Procurement Division	The Board notes the Administration's response and considers the recommendation to be under implementation		X		
A/67/651, para. 101	The Administration agreed with the detailed recommendation on ICT security set out by the Board in its memorandum to the Chair of the Advisory Committee on Administrative and Budgetary Questions on this matter	The implementation of the action plan to strengthen information security in the areas of prevention, incident detection and response to security threats is ongoing (see A/70/364 and Corr.1)	The Board notes the Administration's response and comments further on the issues around information security in section III.B of its current report		X		
Total				2	14	0	0
Percentage				12	88	0	0

Note: OICT — Office of Information and Communications Technology.