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**Financial reports and audited financial statements, and  
reports of the Board of Auditors**

### **Third annual progress report of the Board of Auditors on the implementation of the information and communications technology strategy**

#### **Note by the Secretary-General**

The Secretary-General has the honour to transmit herewith to the General Assembly a letter dated 24 July 2019 from the Chair of the Board of Auditors together with the report of the Board on progress in the implementation of the information and communications technology strategy.

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\* [A/74/50](#).



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## Letter of transmittal

### **Letter dated 24 July 2019 from the Chair of the Board of Auditors addressed to the President of the General Assembly**

I have the honour to transmit to you herewith the third report of the Board of Auditors on the implementation of the information and communications technology strategy for the United Nations.

(Signed) Kay Scheller  
President of the German Federal Court of Auditors  
Chair of the Board of Auditors

## Information and communications technology: key facts

### Budget and resources

<b>\$1,376.4 million</b>	Information and communications technology (ICT) resources, excluding Umoja, for the biennium 2018–2019
<b>44.89 per cent</b>	Estimated percentage of the annualized ICT budget relating to peacekeeping operations (2018/19)
<b>1,140</b>	Number of applications in use across the United Nations, down from 2,340 in 2014

*Source:* fourth progress report of the Secretary-General on the status of implementation of the ICT strategy for the United Nations ([A/73/384](#)).

### Timeline

<b>October 2014</b>	The Secretary-General submitted the ICT strategy ( <a href="#">A/69/517</a> )
<b>December 2014</b>	The General Assembly adopted its resolution <a href="#">69/262</a> , in which it endorsed the ICT strategy
<b>September 2015</b>	The Secretary-General submitted his first report on the status of implementation of the ICT strategy for the United Nations ( <a href="#">A/70/364</a> and <a href="#">A/70/364/Corr.1</a> )
<b>December 2015</b>	The Board of Auditors submitted its report on progress in the handling of ICT affairs in the Secretariat ( <a href="#">A/70/581</a> )
<b>February 2016</b>	The Advisory Committee on Administrative and Budgetary Questions submitted its report on progress in the handling of ICT affairs in the Secretariat ( <a href="#">A/70/755</a> ) and recommended that the Board of Auditors submit an annual progress report during the five-year implementation period of the ICT strategy
<b>April 2016</b>	The General Assembly adopted resolution <a href="#">70/238 B</a> , in which it endorsed the conclusions and recommendations contained in the report of the Advisory Committee ( <a href="#">A/70/755</a> )
<b>September 2016</b>	The Secretary-General submitted his second progress report on the status of implementation of the ICT strategy for the United Nations ( <a href="#">A/71/400</a> )
<b>July 2017</b>	The Board of Auditors submitted its first annual progress report on the implementation of the ICT strategy for the United Nations ( <a href="#">A/72/151</a> ) in pursuance of the recommendation of the Advisory Committee on Administrative and Budgetary Questions
<b>April 2018</b>	The Secretary-General submitted his third progress report on the status of implementation of the ICT strategy for the United Nations ( <a href="#">A/72/755/Rev.1</a> )
<b>July 2018</b>	The Board of Auditors submitted its second annual progress report on the implementation of the ICT strategy ( <a href="#">A/73/160</a> ) in pursuance of the recommendation of the Advisory Committee on Administrative and Budgetary Questions
<b>September 2018</b>	The Secretary-General submitted his fourth progress report on the status of implementation of the ICT strategy for the United Nations ( <a href="#">A/73/384</a> )

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## Strategy

<b>20</b>	Number of strategic projects underpinning the strategy being reported on by the Office of Information and Communications Technology in document <a href="#">A/71/400</a> . Of 20 projects, 13 have been reported as completed
<b>2014–2020</b>	The five-year time frame of 2013–2017 indicated in the strategic road map ( <a href="#">A/69/517</a> , annex I) has been revised to 2014–2020, in line with the Secretary-General's second report on the status of implementation of the ICT strategy for the United Nations ( <a href="#">A/71/400</a> )

## Third annual progress report of the Board of Auditors on the implementation of the information and communications technology strategy for the United Nations

### *Summary*

#### **Introduction**

In 2014, at its sixty-ninth session, the General Assembly adopted its resolution [69/262](#), in which it endorsed the information and communications technology (ICT) strategy for the United Nations proposed in the report of the Secretary-General on ICT in the United Nations ([A/69/517](#)). The idea behind the strategy was to create a unified global provision of ICT to enable the successful delivery of the mandate of the United Nations.

To date, the Secretary-General has submitted four progress reports on the status of implementation of the strategy: the first ([A/70/364](#) and [A/70/364/Corr.1](#)) in September 2015, the second ([A/71/400](#)) in September 2016, the third ([A/72/755/Rev.1](#)) in April 2018 and the fourth ([A/73/384](#)) in September 2018.

The Board of Auditors submitted its report on progress in the handling of ICT affairs in the Secretariat ([A/70/581](#)) to the General Assembly in December 2015. After considering that report, the Advisory Committee on Administrative and Budgetary Questions recommended to the Assembly that it request that the Board submit an annual progress report during the five-year implementation period of the ICT strategy, and the Assembly endorsed that recommendation in its resolution [70/238 B](#). The Board submitted its first annual progress report ([A/72/151](#)) in July 2017 and its second ([A/73/160](#)) in July 2018, in compliance with that resolution. The Advisory Committee endorsed the recommendations of the Board in its related reports ([A/72/7/Add.51](#) and [A/73/759](#)). The General Assembly, in its resolution [72/262 C](#), endorsed the conclusions and recommendations contained in the report of the Advisory Committee on the first progress report of the Board. The conclusions and recommendations contained in the report of the Advisory Committee on the second progress report of the Board were being discussed in the Fifth Committee, but there had been no resolution as at the date of finalization of the present report (July 2019). The present report is the third annual progress report of the Board; it provides an examination of the implementation of the strategy during 2018.

#### **Key findings**

The key findings of the Board are presented below.

#### **Governance and leadership**

##### *Governance framework*

The Board noted that the Information and Communication Technology Executive Committee had not held any meetings in 2018. The Board also noted that the Information and Communications Technology Board, the governance body at the next level, had met only twice in 2018, in a deviation from its mandated schedule of meeting at least once every six weeks.

##### *Policies and compliance*

The Board noted that, of the 22 ICT technical procedures due for review as at 1 January 2018, 12 technical procedures were revised in 2018 while the remaining 10

were at various stages of review and/or revision. The policies on the reuse and safe disposal of decommissioned ICT equipment and data management needed to be revised, as the current policies were outdated. The Board also noted that no action had so far been taken towards the formulation of a policy on the outsourcing of ICT services.

As part of the annual review and self-certification exercise initiated in August 2018, entities were requested to report on only 2 of the 42 policies currently in force, related specifically to information security. The Office of Information and Communications Technology reported that the response rate was very low, with only 5 out of 70 entities submitting completed self-certification forms.

#### *Project implementation*

The Board observed that, by February 2019, projects such as Unite Service Desk, the Enterprise Network Operations Centre and website consolidation had been proposed for mainstreaming even though the core tasks set out in the ICT strategy had not been completed. The Board also noted that the project on application consolidation had been closed ahead of the proposed completion date because the number of applications had been reduced to less than 1,000; however, there was scope for further consolidation. The Board is of the view that the premature closure or mainstreaming of projects could lead to reduced attention to their implementation and completion.

### **Modernization**

#### *Umoja mainstreaming*

The Board noted that the scheduled date for the implementation of Umoja (including all Umoja Extension 2 projects) is 31 December 2019. The Board was informed by the Umoja project team that a mainstreaming plan for Umoja would be submitted to the General Assembly in the eleventh progress report of the Secretary-General on the enterprise resource planning project (to be issued in September 2019) and would include a “lift and shift” of the entire project team, most of its general temporary assistance personnel and a limited number of contractors to an entity that is most appropriately placed to manage that team.

The Administration stated that phase 4 planning had begun for the remaining activities, as well as for the number of resources and the funding required to operationally support Umoja in 2020. The Office of Information and Communications Technology was of the view that, if detailed transition planning began immediately, the “lift and shift” planning could be completed in two to three months and executed from 1 January 2020.

#### *Information security*

The Board noted that a number of short-term measures towards information security had been undertaken but that critical areas of network segmentation and classification of information assets were pending. In response to the second progress report on the implementation of the ICT strategy prepared by the Board, the Administration had proposed network segmentation as an alternative to the deployment of additional sensors for intrusion detection systems, but the segmentation has yet to be completed.

#### *Disaster recovery management*

The Board noted that the disaster recovery exercise did not include all applications identified as “critical”, or the network infrastructure of the production environment for the applications for which the exercise was conducted. The exercise

consumed more hours than planned and repeatedly revealed certain problem areas. As further exercises have been postponed, adherence to the envisaged completion of the second phase of the disaster recovery project by June 2019 is uncertain. The Office of Information and Communications Technology was planning to work with the application owners to define the timeline for resuming the postponed activities.

The Board is of the opinion that, unless fully fledged disaster recovery exercises for resuming postponed activities that minimize delays in failover and fallback are conducted, the Administration may not be assured of the organizational resilience expected during situations of unforeseen emergencies.

## **Transformation**

### *Application rationalization*

The application rationalization project was closed on 1 March 2019 on the premise that the target of reducing the number of applications to 1,000 had been achieved. The annual verification of application assets and the global workshop of enterprise application centres were not completed in accordance with the plan. Development, maintenance and licensing costs were not maintained for the majority of applications; the Board could not therefore assess the cost effectiveness of the project.

### *Partial completion of website rationalization*

As at 31 December 2018, there were 740 Secretariat websites, 8 of which were to be retired. The Office of Information and Communications Technology stated that the entry and maintenance of information on public information websites was the responsibility of the designated information technology focal points. It is not possible for the Office to verify whether departments have registered all of their websites if they are not hosted or supported by the Office. The Office stated that 380 of the above 740 websites are built on approved technologies, while 360 are not. The Board concludes that multiple issues have yet to be addressed regarding website rationalization, but the activity has been taken out of the project mode and mainstreamed as an ongoing activity.

### *Enterprise Network Operations Centre*

The Board observed that the monthly status reports of the global Enterprise Network Operations Centre project indicated that it was 75 to 86 per cent complete as at October 2018. The project was temporarily suspended in the light of the management reforms. The monthly progress reports of November and December 2018 indicated that the project was 100 per cent complete even though the project objectives had not been fulfilled. The Board was informed that additional funds for this purpose would be requested in 2021. The final phase of the project would resume as part of the ICT strategy road map over the coming five years.

### *Unite Service Desk*

The aim of the Unite Service Desk project (phase 3) was to build an efficient standard global shared-service model. The Board noted that, although the Office of Information and Communications Technology has designated the project as 100 per cent complete, the consolidation of the service desk resources, assets and field-level operations of the former Department of Field Support with the Unite Service Desks has been placed on hold and is expected to be completed only by the end of 2019.



*Defragmentation: enterprise application centres and ICT units*

The Board noted that, even by March 2019, the ICT units of 27 United Nations entities, offices and departments at Headquarters, offices away from Headquarters and regional commissions had yet to be harmonized.

### **Recommendations**

While the recommendations of the Board are presented in detail in the present report, its main recommendations are that the Administration:

- (a) **Ensure that the governance framework for the implementation of the ICT strategy be made operational and a new governance framework, if envisaged, be put in place immediately to strengthen the governance mechanism;**
- (b) **Develop an appropriate compliance model including a self-assessment mechanism for all policies and coordinate with stakeholders to ensure better compliance;**
- (c) **Conduct a comprehensive assessment of the achievements under all projects, including projects designated as completed and mainstreamed, vis-à-vis the targets and objectives of the ICT strategy;**
- (d) **Prioritize the preparation and putting in motion of the Umoja mainstreaming plan;**
- (e) **Focus its efforts on network segmentation and continue to enhance the information security programme by focusing on workstation configuration, training and asset classification;**
- (f) **Review and define the current set of “critical” applications, conduct regular disaster recovery exercises for all applications identified as critical and ensure prompt corrective action for shortcomings noted in the disaster recovery exercise;**
- (g) **Carry out annual verification of all application assets, clearly define the categories of applications that are to be consolidated or retired and address the shortcomings in the data recorded in Unite Applications;**
- (h) **Review the existing governance and compliance processes regarding websites, identify the gaps and ensure compliance with the existing guidelines and standards;**
- (i) **Take measures including arranging for appropriate funding, in coordination with other stakeholders, to ensure that the Enterprise Network Operations Centre project achieves the envisaged objectives of consolidation;**
- (j) **Clarify the scope of the Unite Service Desk consolidation project and take measures to ensure that the envisaged objectives of consolidation and continuous improvements are achieved at the earliest.**

## I. Background

1. In its resolution [69/262](#), the General Assembly endorsed the information and communications technology (ICT) strategy for the United Nations proposed in the report of the Secretary-General on ICT in the United Nations ([A/69/517](#)). The strategy is focused on five major areas or key drivers, namely, a strengthened governance and leadership framework, modernization in support of organizational priorities, the transformation of ICT delivery, innovation to foster new technological solutions in the long term, and optimal use of ICT resources. The original strategic road map is provided in annex II.

2. To date, the Secretary-General has submitted four progress reports on the status of implementation of the ICT strategy: the first ([A/70/364](#) and [A/70/364/Corr.1](#)) in September 2015, the second ([A/71/400](#)) in September 2016, the third ([A/72/755/Rev.1](#)) in April 2018 and the fourth ([A/73/384](#)) in September 2018.

## II. Mandate, scope and methodology

3. The Advisory Committee on Administrative and Budgetary Questions, after considering the report of the Board on progress in the handling of ICT affairs in the Secretariat ([A/70/581](#)), recommended to the General Assembly that it request the Board to submit an annual report during the five-year implementation period of the ICT strategy. The Assembly endorsed the recommendation in its resolution [70/238 B](#). In compliance with that resolution, the Board submitted its first progress report on the implementation of the ICT strategy, in July 2017 and its second in July 2018.

4. The present report is the third annual progress report submitted in compliance with resolution [70/238 B](#) and is based on an examination of the implementation of the ICT strategy during 2018. The audit was conducted from 18 February to 15 March 2019. The report covers matters that, in the opinion of the Board, should be brought to the attention of the General Assembly.

## III. Findings and recommendations

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

5. Of the 39 pending recommendations of the Board up to the year ended 31 December 2018, 2 (5 per cent) have been fully implemented, 36 (92 per cent) are under implementation and 1 (3 per cent) is not implemented. A summary of the status of recommendations is set out in table 1.

Table 1  
Status of previous recommendations of the Board of Auditors

Status of recommendations	Number of recommendations				Total
	<a href="#">A/67/651</a>	<a href="#">A/70/581</a>	<a href="#">A/72/151</a>	<a href="#">A/73/160</a>	
Open recommendations as at 31 December 2017	6	6	14	13	39
Implementation during 2018					
Fully implemented	–	–	1	1	2
Under implementation	6	6	13	11	36
Not implemented	–	–	–	1	1
Overtaken by events	–	–	–	–	–
Open recommendations as at 15 March 2019	6	6	13	12	37

6. The Board noted that 95 per cent of its previous recommendations have yet to be implemented. The Board is of the view that Administration needs to take timely action on the recommendations so that the gaps noted during the audit are addressed quickly. Of the 37 open recommendations, 12 were more than two years old. In the present report, the Board sets out further recommendations on governance, compliance, Umoja mainstreaming, network segmentation and website rationalization, which had been flagged previously and for which the recommended measures have yet to be implemented.

7. The details of the status of implementation of the recommendations are contained in annex I.

## B. Governance and leadership

### Governance framework

8. Under the ICT strategy, the Information and Communication Technology Executive Committee, chaired by the Under-Secretary-General of the former Department of Management, is the highest decision-making body in the Secretariat on ICT strategy and priorities. The Committee is mandated to ensure that ICT is central to, and delivers against, the business requirements and objectives of the United Nations. The Committee has 13 senior managers at the level of Under-Secretary-General. The Committee meets at least once a year and is expected to receive quarterly updates on projects, as required. In accordance with the Secretary-General's bulletin on the organization of the Office of Information and Communications Technology ([ST/SGB/2016/11](#)), the Chief Information Technology Officer<sup>1</sup> provides briefings and advises the Committee. The Chief Information Technology Officer also advises the heads of departments and offices on ICT matters. The Board observed that the Committee had not held any meeting in 2018. The Committee had also not received quarterly updates on ICT projects as required by the strategy. No meeting of the Committee had been held in 2017 either, as reported by the Board in its previous progress report ([A/73/160](#)).

9. The Information and Communications Technology Board is 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 ICT Executive Committee. The Board is chaired by the Chief Information Technology Officer and comprises members at the D-1 and D-2 levels representing offices and departments at Headquarters, offices away from Headquarters, economic commissions and tribunals. The Board is expected to meet at least once every six weeks (see [ST/SGB/2003/17](#)). The Board noted that the ICT Board had met only twice during 2018. These two meetings were attended by representatives of only a few offices and departments.

10. The ICT Board was mandated to prepare an annual report of its activities to be incorporated into an overall biennial report on the developments of ICT in the Secretariat (*ibid.*). The ICT Board was also mandated to submit biannual progress reports on the implementation of the ICT strategy. The Board observed that no such annual or biannual reports were prepared by the ICT Board.

<sup>1</sup> The Chief Information Technology Officer is responsible for the overall direction and performance of ICT activities in the United Nations. The ICT strategy envisages an overarching role for the Chief Information Technology Officer that includes creating and upholding a set of shared views, programmes and values and implementing innovative technologies to support and facilitate the work of the United Nations.

11. Regular meetings of the ICT Board are important, as they provide a forum for the Chief Information Technology Officer to interact with representatives of other departments and offices for constructive deliberations on ICT matters and to ensure compliance with and follow up on ICT policies and standards. The low levels of coordination in the ICT Board coupled with the sparse engagement of the ICT Executive Committee point to a lost opportunity to improve oversight of the implementation of the ICT strategy.

12. The Office of Information and Communications Technology stated that the Management Committee had received three briefings on ICT matters and, given that the members of the Management Committee were the same as those of the ICT Executive Committee, the Executive Committee had therefore been implicitly briefed. The Office stressed that the Chief Information Technology Officer alone was not responsible for implementing the ICT strategy; in accordance with the relevant General Assembly resolution, this was the responsibility of all senior managers of the United Nations. The Office stated that, in the context of the governance review, the ICT Executive Committee had been transformed into a new committee. The Office also stated that the ICT Board had ceased to exist and that the governance framework for ICT was currently under review. The Office did not specifically indicate the exact changes proposed to the governance framework.

13. The Board noted that the Management Committee had taken note of the fourth report of the Secretary-General on the implementation of the ICT strategy in a meeting on 12 September 2018. There does not, however, appear to be a proactive engagement to review the progress in the implementation of the ICT strategy and to identify and mitigate the risks on an enterprise-wide basis, as mandated for the ICT Executive Committee. The annual meeting of the ICT Executive Committee envisaged in the ICT strategy would provide opportunities for briefings of the Chief Information Technology Officer and trigger a more coordinated response of the participating departments. The Board noted that cooperation of and coordination with other stakeholders are critical to the implementation of a number of initiatives mandated in the ICT strategy, for example, defragmentation, application and website rationalization and disaster recovery management. Since the ICT strategy has entered the final year of its implementation and reforms in the Organization are ongoing, the Board considers it important to have an operational ICT governance framework to review and steer the implementation of the ICT strategy.

**14. The Board recommends that the Administration ensure that the governance framework for the implementation of the ICT strategy be made operational and a new governance framework, if envisaged, be put in place immediately to strengthen the governance mechanism.**

## **ICT policy and compliance**

### *ICT policy framework*

15. ICT policies regulate the implementation, provision and use of ICT resources and data. The ICT Policy Committee prepares and updates the technical policies, procedures and guidelines. The Board noted that, as at February 2019, 42 ICT policies including 22 technical procedures had been issued. The technical procedures relate to security (8), infrastructure (10), applications (3) and information management (1).

16. ICT technical procedures were to be reviewed once a year, except for the procedure for security incident response, which was to be reviewed twice a year. The Board pointed out, in its second progress report (A/73/160), that only one ICT technical procedure had been reviewed out of the 22 due for review by the end of 2017. The Board noted that the ICT Policy Committee had met eight times in 2018 and had reviewed 12 technical procedures; the remaining 10 were at various stages of

review and/or revision. The Board also pointed out, in its second progress report, that no policies on emerging areas such as the outsourcing of ICT services, end-user device usage, information-sharing and open data had been promulgated. The Board was informed that end-user device usage had been addressed in an administrative issuance provided to the former Office of Human Resources Management for consultation in early 2018 and that a working group had been created to draft a policy on online collaborative tools. The Office of Information and Communications Technology agreed that policies on the reuse and safe disposal of decommissioned ICT equipment and data management needed to be revised, as the current policies<sup>2</sup> were outdated. The Board also noted that no action had so far been taken towards the formulation of a policy on the outsourcing of ICT services.

#### *Policy compliance*

17. The Board reported, in its second progress report ([A/73/160](#)), that the Global Services Division had undertaken detailed compliance reviews of specific ICT policies at the Regional Technology Centre-Americas<sup>3</sup> in 2017, which were expected to be completed by April 2018. The Board noted that, following the review, 87 recommendations had been made, of which 62 were open and 8 were pending for want of funds. The Office of Information and Communications Technology reported that a compliance model had been developed for replication at other Regional Technology Centres. The Board noted that no fresh review had been undertaken in 2018.

18. The Office of Information and Communications Technology initiated the annual review and self-certification by departments and offices for policy compliance in August 2018. The review was limited, focusing on only 2<sup>4</sup> of the 42 policies currently in force, related specifically to information security. The Office of Information and Communications Technology reported that the response rate was very low, with only 5 out of 70 entities submitting completed self-certification forms. The Board also noted, during the cybersecurity briefing in August 2018, that there was no clarity or overall awareness in the departments about their role in information security in terms of the application of resources and ownership of business processes, among other things. The Board is of the view that the lack of assessment of compliance with various ICT policies would lead to ineffective monitoring and a lack of identification of risks associated with the implementation of ICT policies.

19. The Office of Information and Communications Technology stated that the self-assessment mechanism aimed to cover compliance with only the most critical policies and controls related to information security. The Office also shared the concerns of the Board regarding the number of risks remaining unknown owing to the low response rate for the self-assessment. The Office noted, however, that it did not coordinate the compliance function centrally and stated that, although it planned to replicate the compliance model in other Regional Technology Centres, this had yet to be pursued further. The Office also suggested that there was no reason to assume that compliance was low because the mechanism for monitoring was not sufficiently strong.

#### **20. The Board recommends that the Office of Information and Communications Technology develop an appropriate compliance model including a self-assessment**

<sup>2</sup> Policy on the disposal of computer equipment at United Nations Headquarters (2001) and record-keeping and the management of United Nations archives (2007).

<sup>3</sup> Regional technology centres are responsible for harmonizing ICT services across regions, institutionalizing governance and implementing the ICT strategy.

<sup>4</sup> Access control for the United Nations Secretariat and minimum security requirements for public websites of the United Nations.

**mechanism for all policies, where feasible, and coordinate with stakeholders to ensure better compliance.**

#### **Delegation of authority**

21. While endorsing the ICT strategy, the General Assembly, in its resolution [69/262](#), acknowledged the importance of the strong central leadership of the Chief Information Technology Officer for the overall direction and performance of ICT activities within the Organization, and in this regard emphasized the need for appropriate delegation of authority and procedures for ensuring compliance with the revised ICT strategy guidelines.

22. The Board noted that the delegation of authority for ICT matters had not been formally established as at March 2019. This issue had also been pointed out by the Board in its first progress report ([A/72/151](#)).

23. The Office of Information and Communications Technology stated that the delegation of authority for ICT matters had never been formally established, leading to de facto full delegation. The Office also stated that the delegation of authority for ICT matters was defined as part of the global delegation of authority framework supported by the Department of Management Strategy, Policy and Compliance and that the delegation of authority matrix had been included in the draft revised Secretary-General's bulletin on the Office, which was yet to be issued.

24. The Board noted that the global delegation of authority framework, released in January 2019, did not expressly include the delegation of authority for ICT matters.

#### **Project implementation**

25. In the ICT strategy, a strategic road map was set out for the subsequent five-year period to support organizational priorities and to harmonize ICT delivery. In his first progress report on the status of implementation of the ICT strategy ([A/70/364](#) and [A/70/364/Corr.1](#)), the Secretary-General provided an implementation timeline for 20 strategic projects with key project milestones. The aims of these projects were to provide ICT support to organizational priorities, to harmonize ICT infrastructure and processes and to promote innovation to support the substantive work of the United Nations. All these projects were to be overseen by the Enterprise Project Management Office, an office established after the adoption of the ICT strategy. The Office tracks each project on a monthly basis by monitoring associated key performance indicators, including scope, timeline, costs and human resources.

26. Of those 20 strategic projects, 7 were reported to be completed in the second progress report of the Secretary-General. This number increased to 12 in the third progress report. In the fourth progress report, the Secretary-General indicated that 13 projects had been completed. The status of implementation of the seven projects reported to be ongoing in the fourth progress report is shown in table 2.

Table 2  
Status of strategic ICT projects

Project name	Percentage reported as complete in progress reports of the Secretary-General				Likely completion date according to the fourth progress report
	First	Second	Third	Fourth	
Enterprise Unite Service Desk/consolidation	64	70	93	93	31 December 2018
Enterprise Network Operations Centre	25	35	72	86	31 December 2018
Umoja mainstreaming	25	30	73	74	31 December 2019
Global sourcing strategy	60	65	46	46	14 February 2019
Disaster recovery (Phase 1)	41	..	100	–	–
Disaster recovery (Phase 2: disaster recovery exercises)	–	–	9	25	28 June 2019
Application consolidation/rationalization (Phases 1 and 2)	100	..	100	–	–
Application consolidation/rationalization (Phase 3)	–	..	70	70	31 December 2020
Website consolidation/rationalization (Phase 1)	42	..	100	–	–
Website consolidation/rationalization (Phase 2)	–	..	30	58	31 December 2020

27. The Board observed that, by February 2019, projects such as Unite Service Desk, the Enterprise Network Operations Centre and website consolidation had been proposed to be taken out of the project mode and mainstreamed as ongoing activities even though the core tasks set out in the ICT strategy had not been completed. For example, the Unite Service Desk project was indicated as completed even though the consolidation of service desks at the field level was pending. The Board also noted that the project on application consolidation had been closed ahead of the proposed completion date because that the number of applications had been reduced to less than 1,000; however, there was scope for further consolidation. The Board is of the view that the premature closure or mainstreaming of projects could lead to reduced attention to their implementation and completion.

28. Considering that the ICT strategy is in its final year of implementation, the Board is of the view that a comprehensive assessment of the achievements under all strategic projects (including those reported as completed and proposed to be mainstreamed) vis-à-vis initially envisaged objectives of the ICT strategy, the constraints hindering the achievement of objectives and lessons learned should be outlined in the next progress report for a transparent review of the implementation of the ICT strategy.

29. The Board noted that the Enterprise Project Management Office did not have any documentation of project costs or savings resulting from the projects to demonstrate the value of the implementation of ICT projects.

30. **The Board recommends that the Administration conduct a comprehensive assessment of the achievements under all projects, including projects designated as completed and mainstreamed, vis-à-vis the targets and objectives of the ICT strategy.**

## C. Modernization

### Umoja mainstreaming

31. The ICT strategy envisaged the mainstreaming of the Umoja project. Mainstreaming was defined in the ICT strategy as the transfer of responsibilities from the project to the corresponding entities within the Secretariat. The Secretary-General

designated the responsibility for mainstreaming the technical component of Umoja to the Chief Information Technology Officer. In its resolution 70/248 A, the General Assembly requested the Secretary-General to develop detailed transition plans for the long-term support arrangements for Umoja mainstreaming. In its resolution 71/272 B, the Assembly reiterated the importance of ensuring a smooth and timely transfer of responsibilities from the Umoja project to corresponding entities within the Secretariat.

32. In his fourth progress report, the Secretary-General stated that 74 per cent of Umoja mainstreaming had been completed by September 2018. The Umoja mainstreaming project was intended to be implemented in four phases, and the Administration informed the Board that the first three phases had been fully completed as at 18 March 2019. The Office of Information and Communications Technology also informed the Board that the activities under phase 4 (“lift and shift”) had been placed on hold pending consultation with the Umoja project team.

33. The Secretary-General, in his tenth progress report on the enterprise resource planning project (A/73/389), did not make any reference to the plans for the mainstreaming of Umoja. In its resolution 73/279, the General Assembly requested the Secretary-General to provide a detailed plan for the mainstreaming of the Umoja team into the Secretariat, including measures to ensure a sustainable business model for the Umoja project.

34. The Board requested the Office of Information and Communications Technology to provide information on its resource mapping of the technical and functional teams (currently under Umoja), so that a seamless transition on a “lift and shift”<sup>5</sup> basis could be possible. The Administration stated that phase 4 planning had begun for the remaining activities, as well as for the number of resources and the funding required to operationally support Umoja in 2020. The Office was of the view that, if detailed transition planning began immediately, the “lift and shift” planning could be completed in two to three months and executed from 1 January 2020.

35. The Board noted that the scheduled date for the implementation of Umoja (including all Umoja Extension 2 projects) is 31 December 2019. The Board was informed by the Umoja project team that a mainstreaming plan for Umoja would be submitted to the General Assembly in the eleventh progress report of the Secretary-General on the enterprise resource planning project (to be issued in September 2019) and would include a “lift and shift” of the entire project team, most of its general temporary assistance personnel and a limited number of contractors to an entity that is most appropriately placed to manage that team. The Board is of the view that it is important that the mainstreaming plan be finalized at the earliest, along with identifying the Secretariat entities and departments responsible for the operation and maintenance of the Umoja project post mainstreaming. The Board is also of the view that efforts should be made as part of the mainstreaming planning process to bring synergies with the already mainstreamed functions to implement a robust, nimble and effective Umoja support structure post mainstreaming.

**36. The Board recommends that the Administration prioritize the preparation and putting in motion of the Umoja mainstreaming plan.**

#### **Decommissioning of the Integrated Management Information System**

37. Umoja has replaced the Integrated Management Information System, which is a United Nations legacy enterprise resource planning application based on the Sybase database platform to support administrative transactions. In accordance with the five-

<sup>5</sup> Lift and shift is a strategy for moving an application or operation from one environment to another without stopping to redesign the application or operations workflow.



year plan for the application rationalization project, data from the System along with the retired finance and human resources systems were planned to be transferred to the SAP HANA platform.<sup>6</sup> The System was expected to be decommissioned by June 2018.

38. The Board noted that the Integrated Management Information System is still being used to calculate retroactive payments for staff members for periods prior to the implementation of Umoja. Such cases are rare, and the Administration expects their number to keep decreasing as time progresses. Data from the System are used for historical reporting. The Office of Information and Communications Technology provides basic support to the System at the database level. No software modifications support is provided.

39. The Office of Information and Communications Technology stated that data from the Integrated Management Information System would not be transferred to SAP HANA. The Office reported that it had fully prototyped human resources data in SAP HANA and could execute this with minimal resources to allow for the periodic inquiry by human resources users. It added that transferring data from the System to SAP HANA would not solve the retroactive payroll issue and that very complex programs would need to be written to emulate the payroll processes in the System.

40. The Board was informed that the Office of Information and Communications Technology intended to propose a change request to modify the completion date for the Integrated Management Information System decommissioning project to 31 July 2019 and to keep the System running for the retroactive payroll process. The proposal is currently on hold, however, pending confirmation from the Office of Human Resources of the implementation plan for an extensive data clean-up and verification campaign for legacy Integrated Management Information System data.

### **Information security**

41. The Board examined the security landscape covered under the information security framework proposed in the ICT strategy.

### *Asset management*

42. In accordance with the ICT Strategy and in the context of the adoption of International Public Sector Accounting Standards (IPSAS), the Office of Information and Communications Technology was to coordinate a global ICT asset management team to assess existing assets and develop a plan for refreshing, upgrading or retiring them, as required.

43. The Board observed, however, that, with the exception of a few, namely, the former Office of Human Resources Management, the former Office of Programme Planning, Budget and Accounts, the Department of Safety and Security and the Department for General Assembly and Conference Management, whose information technology support was consolidated with the Office of Information and Communications Technology, offices and departments continued (at least up to December 2018) to be largely responsible for their information technology equipment needs and budget submissions. Under the ICT technical procedure on system configuration, the Board noted that the Office of Information and Communications Technology reviewed the useful life of assets on the basis of warranty, end of useful life and vendor support.

<sup>6</sup> SAP HANA is a business data platform that processes transactions and analytics at the same time on any data type, with built-in advanced analytics and multi-model data processing engines that can be leveraged to develop next-generation applications for the intelligent enterprise.

44. The Board noted that the Office of Information and Communications Technology, under its own authorization group, had listed 16,716 items of property, plant and equipment acquired during the period from 1983 to 2018. Of these, 13,609 (81 per cent) had outlived their pre-decided useful life, and 5,167 of those were tagged as “in use”. Furthermore, 2,610 of the 3,107 remaining items would reach the end of their useful life soon.

45. The Board observed that owing to a lack of funds the Office of Information and Communications Technology had extended the use of most of the equipment without performing any vulnerability risk assessments. Furthermore, it was not feasible for the Office to isolate and operate this equipment as stand-alone systems, as applications hosted on the systems need to be accessed over the network. The presence in the cloud of systems not assessed for vulnerability pose inherent cybersecurity risks.

46. Given continued budgetary constraints across the Organization, the proposed replacement of ageing ICT assets could not proceed across many entities as envisaged. The Office of Information and Communications Technology stated that it would submit a report to the General Assembly during the seventy-fourth session with a proposal to strengthen capital maintenance to cover critical requirements in all duty stations to replace outdated equipment and systems in the areas of conference management, multimedia, broadcasting, audiovisual communications and cybersecurity. In the report, it would also seek to address the need for a capital investment plan for the period 2021–2025, on the basis of input from all entities, for the replacement of outdated equipment and systems, the concomitant enhancement of capabilities to meet current requirements, compliance with industry standards and the services required to maintain and successfully operate those systems.

#### *Information security initiatives*

47. The ICT strategy envisaged an effective information security policy, in continuation of the previous related resolutions of the General Assembly, to protect information from the risks posed by cyberthreats, unauthorized disclosures and fraud. Accordingly, an action plan to strengthen information security across the Secretariat consisting of 10 initiatives<sup>7</sup> with a focus on prevention, detection and response, and governance risk and compliance was adopted. The aim was to implement short-term measures to address the most urgent shortcomings in information security. The Secretary-General reported that the Regional Technology Centres continue to implement the pending initiatives of the 10-point action plan (see [A/73/384](#)). The Board examined these initiatives in February 2019 and its observations are summarized below.

#### *Prevention*

48. Preventive measures for information security include workstation configuration, network security, training and email filtering, as follows:

(a) Network segmentation is an important initiative to boost information security. The segmentation of network zones reduces the ability of secondary compromise through a single compromised host. Network segmentation can significantly reduce the possibility of such secondary compromises. The Office of Information and Communications Technology reported that segmentation had been implemented for the majority of production networks at United Nations Headquarters

<sup>7</sup> Workstation configuration, email filtering, mandatory security awareness training, network security segmentation, intrusion detection, cyberintelligence service feed, finalization of policies, classification of information assets, mandatory requirements for public websites and reporting of information security incidents.

and only parts of enterprise data centres. The Board noted that a gap analysis had been performed at major duty stations to document the current and target architectures, and the segmentation of networks had been included in the workplans of the Regional Technology Centres. The Office stated that the full implementation of these projects represents a significant effort and requires additional resources. The Board noted that network segmentation had yet to be implemented across the Secretariat, implying that access to network resources in parts of the Secretariat's network remained loosely controlled and that attackers might be able to leverage control over a single compromised host to access additional internal targets;

(b) Security awareness training is mandatory for all United Nations staff. The Office of Information and Communications Technology reported that, as at February 2019, out of 33,865 active United Nations staff members, 24,088 (71 per cent) had completed the mandatory training, although the number of completions and the related overall statistics were affected by the high staff turnaround, specifically in field missions. The Board noted that the ICT Board had expressed concern about the fact that the mandatory training had not been completed by all United Nations staff. The Office was of the view that information security awareness training was mandatory and the issue would be addressed through compliance monitoring by the Department of Management Strategy, Policy and Compliance. The Office also stated that it continues to provide materials to raise awareness, such as iSeek articles and interactive information sessions;

(c) Workstation configuration is aimed at ensuring compliance with policies and procedures and limiting the administrative privileges to mitigate the risk of inadvertent or unauthorized installation of software, including malicious software. The Office of Information and Communications Technology estimated that 90 per cent of workstations would be compliant and stated that others were approved exceptions for specific reasons such as remote locations, test environments, legacy applications and the requirements of rapid deployments. The Board is of the opinion that the Office should have specific information regarding non-compliant workstations and should have a policy for allowing such exceptions, as the non-compliant workstations could pose an information security risk.

#### *Detection and response*

49. The detection of and response to attacks were to be dealt through a dual strategy of receiving a cyberintelligence service feed and installing intrusion detection systems and other detection controls within the network to detect attacks in near-real time, enabling a timely response and thus limiting the damage caused by a compromise. In this regard, the Board was informed of the following:

(a) Centrally managed intrusion detection systems had been deployed at 11 locations and that the deployment of additional sensors and/or alternate complementary infrastructure was currently under consideration. Intrusion detection systems enable the centralized collection, reporting and alerting of cases of intrusion for analysis. The technical procedure on security incident response had been revised and the proposed changes were currently under review by the ICT Policy Committee.

(b) The Office of Information and Communications Technology is also receiving a cyberintelligence service feed, for example, as part of the existing contracts for intrusion detection systems or for protection against distributed denial-of-service attacks. The Secretariat was participating in a pilot project for United Nations system-wide threat intelligence-sharing and was represented in the governance body for the inter-agency initiative for a shared threat intelligence platform.

*Governance, risk and compliance*

50. Governance and compliance aspects of information security are supposed to be taken care of through the classification of information assets, the promulgation of policies, the mandatory implementation of information security controls for public websites and the reporting and sharing of information security incidents. The Board noted that the mandatory implementation of information security controls for public websites is validated in part through three external vendors who conduct assessments on the basis of the methodology of the Office of Information and Communications Technology. The classification of information assets has not been implemented comprehensively. The Office responded that it did not have the ability to verify the implementation of the classification of information assets, as this was the responsibility of business owners.

51. The Board noted that a number of short-term measures relating to information security had been undertaken but that progress in the critical areas of network segmentation and the classification of information assets was still ongoing. In response to the second progress report on the implementation of the ICT strategy prepared by the Board, the Administration proposed network segmentation as an alternative to the deployment of additional sensors for intrusion detection systems, but the segmentation has yet to be completed. The Board noted that the ICT Board had acknowledged the criticality of data classification in the context of the increasing number of security breaches that were being detected and reported.

52. The Office of Information and Communications Technology stated that all initiatives of the 10-point action plan (short-term measures), with the exception of network segmentation, had been implemented and transitioned to maintenance mode. In a separate question regarding the implementation of a comprehensive information security programme including the short-term measures discussed above, the Office stated that its progress was hindered owing to limited resources and continuing fragmentation. The Office also stated that work was under way to align the resources in the Office and the former Department of Field Support to establish an integrated global incidence response team and asserted that the creation of a unified cybersecurity section as part of the consolidation of the Office of Information and Communications Technology of the former Department of Management and the Information and Communications Technology Division of the former Department of Field Support under the management reform, as well as the creation of Cybersecurity Compliance Officer positions in regional offices, would enable the implementation of critical components such as threat management and vulnerability management as Secretariat-wide initiatives.

**53. The Board recommends that the Office of Information and Communications Technology focus its efforts on network segmentation and continue to enhance the information security programme by focusing on workstation configuration, training and asset classification.**

*Cyberattacks*

54. The Secretary-General, in his third annual progress report on the implementation of ICT strategy, highlighted the severity of cyberthreats and recalled that there was a 26 per cent likelihood of a data breach involving 10,000 or more records. The United Nations had been subject to an increasing number of sophisticated, highly targeted and professional cyberattacks. The Office of Information and Communications Technology informed the ICT Board of the vulnerability of the United Nations and its users to cyberattacks. The United Nations faced a variety of cyberthreats during 2018, ranging from threats such as intensive attacks for outages of websites and infrastructure services (e.g. #OPStopTheUN) to

malicious emails and messages and compromised email accounts and ransomware incidents.

55. The Office of Information and Communications Technology stated that the above-mentioned incidents were only a small sample of attacks that was far from representative of all threats facing the United Nations. The cyberattacks were initiated to compromise ICT systems and infrastructure and user accounts in order to gain access to user credentials and systems and steal data. The Office stated, however, that the total number of files that were accessed during cyberattacks was not known as the evidence was incomplete.

56. The Board noted that the Office of Information and Communications Technology had not provided specific information regarding the number and modus of attacks and all identified vulnerabilities and did not have comprehensive documentation for assessing the cyberattacks. The Board also noted that no cyberdiligence framework as envisaged in the ICT strategy had been implemented. Such a framework would have provided mechanisms for cybercrime risk management.

57. The Office of Information and Communications Technology, in its reply in March 2019, stated that, while the observations about attacks against the United Nations could not be based on comprehensive data, there was clear evidence of highly targeted and sustained attacks, a number of incidents and successful breaches. The fact that only limited data were available did not negate the impact of the breaches.

**58. The Board recommends that the Office of Information and Communications Technology maintain a complete record of specific information about the modus and extent of cyberattacks and take appropriate steps to combat these vulnerabilities.**

#### **Disaster recovery management**

59. 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. In its resolution [67/254 A](#), the General Assembly approved information technology disaster recovery as one of the core elements of the organizational resilience management system. The scope of the disaster recovery project would be to develop a Secretariat-wide disaster recovery plan to ensure that critical ICT systems could be effectively failed over<sup>8</sup> in case of an emergency.

60. The ICT Board was informed by the Chief Information Technology Officer on 29 May 2018 that efforts were needed to reduce the footprint of the data centres in the regions and to increase resilience, since most of the data centres lacked disaster recovery plans and were vulnerable to security breaches and intrusion across the network. The Board also observed that the Global Service Centre disaster recovery plan for geospatial, information and telecommunications technology specified that the plan would be tested on a regular basis, with full-interruption tests for critical applications and services to be performed every two years. The Global Service Centre services applications for critical services, such as mail, network and voice, of the Secretariat as well as other organizations on a cost recovery basis. The Board noted that full-interruption tests had not been conducted.

61. The disaster recovery project was identified as one of the strategic projects in the ICT strategy. The first phase included a review of Secretariat-wide critical

<sup>8</sup> Switching an application or ICT service system from its primary data centre to a secondary data centre.

applications, the revision of disaster recovery estimates for such critical applications, the resubmission of the proposal for approval by the Senior Emergency Policy Team and the development of individual disaster recovery plans for critical applications. The Board observed that the number of critical applications for the purpose of the organizational resilience management system remained 24, as was assessed in 2015. However, the Board noted that 60 applications were categorized as critical in the Unite Applications website. The Board was informed that departmental focal points enter the data into Unite Applications and in some cases had identified their applications as critical to their business. In July 2019, the Office of Information and Communications Technology stated that it had introduced a flag in Unite Applications to clearly identify applications defined as critical by the Senior Emergency Policy Team and differentiate them from other applications.

62. In the second phase of the disaster recovery project (beginning in October 2017), disaster recovery exercises and tests were to be conducted for the critical applications. In July 2018, the Office of Information and Communications Technology carried out testing of 11 applications and systems, comprising 8<sup>9</sup> of the critical applications from the identified list of 24 and three infrastructure components, namely, a web farm, a database farm and storage systems. The disaster recovery exercises and tests covered critical applications and systems managed by RTC Americas, except for multiprotocol label switching links, networking infrastructure and email (Mailman). The Board noted that the selected set of applications and systems was a subset of the applications and systems deemed to be critical. Furthermore, the network infrastructure of the production environment was also not included in the scope of the exercise.

63. The disaster recovery exercise was carried out for a duration of approximately 7 hours and 30 minutes against the planned 5 hours and 52 minutes. The reasons for the delay during the failover exercise were missing firewall rules on the MySQL database servers in the web farm<sup>10</sup> and incorrect Domain Name Server (DNS) entries, necessitating DNS script revision and re-execution. The overall conclusion was that the information technology systems were not tested on production. Under real conditions, therefore, the recovery time objective could be higher. The Board also reviewed information system contingency plans<sup>11</sup> for the United Nations web farm and the C-CURE 9000 server,<sup>12</sup> for which annual testing for disaster recovery had been prescribed. The Board observed that no disaster recovery failover testing of the live C-CURE production servers had been conducted since the implementation of multiprotocol label switching and the upgrade of the servers, in 2017, from version 800 to 9000. The disaster recovery exercises of the United Nations web farm, conducted in and before 2017, indicated dependencies on storage, firewalls and DNS failover, which continued to remain a risk and had not been adequately addressed in the past several years. The disaster recovery exercises and tests for the web farm of

<sup>9</sup> [www.un.org](http://www.un.org); Mobile Office; the Official Document System; [iSeek.un.org](http://iSeek.un.org); [delegates.un.org](http://delegates.un.org); iSCAD – tracking of Security Council proceedings and outcomes; Department of Safety and Security web portals; [emergency.un.org](http://emergency.un.org).

<sup>10</sup> The Office of Information and Communications Technology provides web hosting solutions exclusively to organizations of the United Nations system in a managed and secure environment. The shared environments – collectively known as the “web farm” – are designed to provide a stable and highly available platform for the hosting needs of the Office’s customers with minimum maintenance overhead (recovery time objective of one to two hours (based on intranet or extranet) and recovery point objective of 15 minutes).

<sup>11</sup> Management policy and procedures designed to maintain or restore business operations, including computer operations, possibly at an alternate location, in the event of emergencies, system failures or disasters.

<sup>12</sup> Server for the United Nations access control system that is critical for the safety and security of staff and premises, with a recovery time objective of 15 minutes and a recovery point objective of 24 hours.

2018 also faced similar problems. This indicated that the applications and infrastructure have remained a risk for business continuity in the event of a disaster.

64. The disaster recovery project was postponed post July 2018 in view of the Secretary-General's management reforms. At the time of its suspension, the disaster recovery exercises and tests were only 25 per cent complete. The Office of Information and Communications Technology reported that the new structure and work programmes were to be implemented from 1 January 2019 and that the disaster recovery exercises and tests would resume as part of the ICT strategy road map over the coming five years.

65. The Board noted that the disaster recovery exercise did not include all applications identified as critical or the network infrastructure of the production environment for the applications for which the exercise was conducted. The exercise consumed more hours than planned and repeatedly revealed certain problem areas. As further exercises have been postponed, adherence to the envisaged completion of the second phase of the disaster recovery project by June 2019 is uncertain.

66. The Office of Information and Communications Technology, in its response, stated that one of the purposes of conducting a disaster recovery exercise was to validate assumptions, such as expected failover times. As part of the lessons learned, the Office corrected the technical issues identified, such as missing firewall rules, and updated the plans where necessary. In relation to the preparation of a scenario for a real disaster, while the plan may not have been reviewed and tested as often as initially envisaged, it was based on realistic scenarios. In the case of the web farm, as it had been transferred to the cloud and email had been migrated to Office365, the disaster recovery issues would be taken care of. The Office stated that it intended to work with the application owners to define the timeline for resuming the postponed activities.

67. The Board is of the opinion that, unless fully fledged disaster recovery exercises for resuming postponed activities that minimize delays in failover and failback are conducted, the Administration may not be assured of the organizational resilience expected during situations of unforeseen emergencies.

**68. The Board recommends that the Administration review and define the current set of "critical" applications, conduct regular disaster recovery exercises for all applications identified as critical and ensure prompt corrective action for shortcomings noted in the disaster recovery exercise.**

69. The Administration agreed with the recommendation but noted that its implementation was contingent on the availability of resources.

## D. Transformation

### *Application rationalization/consolidation*

70. In his second progress report on the implementation of the ICT strategy (A/71/400), the Secretary-General indicated that there was a large number of ICT applications (2,340) in the United Nations system. In the ICT strategy, it was envisaged that fragmentation leading to significant overlap, disconnect and redundancy of purpose would need to be addressed through appropriate harmonization. It was also proposed that custom in-house applications be replaced with commercially available off-the-shelf<sup>13</sup> software, as that would reduce the

<sup>13</sup> A commercially available off-the-shelf product is usually a computer hardware or software product tailored for specific uses and made available to the general public. Such products are designed to be readily available and user-friendly. A typical example of such a product is Microsoft Office or antivirus software.

Organization's costs. The older, unsecure applications would be retired, helping to upgrade the security of information systems. The Office of Information and Communications Technology undertook the application rationalization project with the aim of reducing the number of applications, through the use of common solutions, to 1,000 in its third phase, by the end of 2020.

71. In its second progress report (A/73/160), the Board noted that the number of applications had been reduced to 1,190 by March 2018. The Office of Information and Communications Technology reported that the number of applications had been further reduced to 988 by February 2019. The Office also reported that, since the target of 1,000 applications had been achieved, the application rationalization project had been closed on 1 March 2019 and confirmed that application rationalization would continue as an ongoing activity.

72. The Board noted the following aspects regarding application rationalization by the Office of Information and Communications Technology:

(a) The Office had plans to maintain only 502 of 988 business applications as they are, while 66 applications were to be modernized, 60 retired and all others harmonized and consolidated with other existing applications, including Umoja (84) and iNeed (25);

(b) The annual verification of application assets and the global workshop of enterprise application centres on plans and standards were not completed in accordance with the plan. The upgrade of the technology platform of Unite Applications was only 25 per cent complete by December 2018;

(c) Application owners continued to use multiple applications in the same area. In its second progress report (A/73/160), the Board noted that there were multiple applications for document and record management in the area of human rights. The Board noted the continued use of multiple applications, with nine applications in the area of human rights currently catering to document and record management. Furthermore, the Board observed that the Department for General Assembly and Conference Management maintained 35 applications for conference management;

(d) One of the main objectives of application rationalization is lowering the cost of support, licensing and development. The Administration had estimated potential savings of \$20 million for retiring 1,540 applications. The Board noted, however, that Unite Applications did not uniformly indicate costs incurred in the development, maintenance and licensing of these applications. Information on development costs was not available in more than 70 per cent of the cases, while the initial licensing cost was not available in 88 per cent of the cases. The maintenance costs of licences, staff and contractors had not been captured in most instances (86 to 96 per cent of the cases). In the absence of cost data, the achievement of cost optimization objectives cannot be accurately tracked.

73. In view of the above, it was difficult to assess whether the objectives of the application rationalization project had been entirely realized. The lack of information on costs incurred on applications, the large number of applications reported in Unite Applications and instances of multiple applications in the same area are concerns that need to be addressed.

74. The Office of Information and Communications Technology stated that, owing to a lack of funding, the project milestones could not proceed as envisaged and the global workshop could not be held. The Office also stated that it did not have the authority or resources to track the development and support the cost of every project outside of the Office. Furthermore, application support costs, especially the cost of



United Nations staff and contractual services, are not always maintained by the application owners in Unite Applications.

75. While noting the response of the Office, the Board stresses the need to track all applications assets, rationalize the instances of multiple applications in the same area and coordinate with application owners to ensure better maintenance of cost information.

**76. The Board recommends that the Office of Information and Communications Technology carry out annual verification of all application assets, clearly define the categories of applications that are to be consolidated or retired and address the shortcomings in the data recorded in Unite Applications.**

#### **Partial completion of website consolidation**

77. The project for website consolidation began in January 2014 and was aimed at increasing the efficiency of website operations, web design and security and achieving economies of scale through changes in the current operating model. The project was to be implemented in phases. The first phase, comprising the development of website technology, identification and remediation, had been completed. The Board noted in its previous report (A/73/160) that, although the second phase of the project had been scheduled to begin in July 2017, it had been delayed owing to the loss of resources and the delay in recruitment to replace them. The Board noted that the project had been placed on hold in December 2017, pending a decision of the Management Committee.

78. At a meeting of the Management Committee in October 2017, the Chief Information Technology Officer presented web harmonization principles, standards and timelines, together with objectives and decisions, which were endorsed at the subsequent meeting, held in November 2017. It was recognized that lack of adherence to governance combined with loopholes has led to the proliferation of non-compliant United Nations websites, increased ICT security risks and breaches, the use of non-standard technologies, little or no data integration, sharing or cross-promotion between sites, non-adherence to United Nations branding guidelines and non-compliance with the minimum standards for multilingualism of United Nations websites. It was decided that the following set of actions would be taken in 2018 to address these concerns:

(a) Implementation of systematic governance and compliance processes (i.e. website registration) to address both legacy and new United Nations websites (prior to launch) to ensure that the following requirements are duly taken into account, in compliance with the relevant mandates and guidelines:

- (i) Minimum mandatory security requirements;
- (ii) United Nations branding standards;
- (iii) Accessibility standards;
- (iv) Multilingual requirements;
- (v) Enterprise approved technology standards and services;

(b) Registration of all legacy websites in Unite Applications to track ownership, technology and compliance;

(c) Departmental commitment to the remediation of non-compliant legacy sites, at a minimum in the area of ICT security;

(d) Migration of public and internal legacy websites (such as iSeek, Unite Web and www.un.org) onto approved enterprise standard web content management platforms or third-party sites where relevant.

79. The Office of Information and Communications Technology stated that the Unite Web platform was to support compliance in the five key areas (minimum security, branding, accessibility, multilingual requirements and technology standards and service). This platform is maintained, supported and regularly patched as new security vulnerabilities are identified and remediated. The Office also stated that all new public information under the un.org domain that was hosted by the Office in its web farm was cleared by the Department of Global Communications before domain use was granted. The Department reviews public information websites to ensure their compliance with standards for branding, accessibility for disabled persons and multilingualism before they are approved for “go live”.

80. The Board observed that, as at 31 December 2018, there were 740 Secretariat websites, 8 of which were to be retired. The Office of Information and Communications Technology stated that the entry and maintenance of information on public information websites, as with applications, is the responsibility of the designated information technology focal points in the departments that have authorized access to Unite Applications for this purpose. The Office also stressed that it is not possible for it to verify whether the departments have registered all of their websites (which are not hosted or supported by the Office), as the Office has no visibility on websites and applications hosted outside its environments. The specific concerns highlighted by the Office regarding website management are as below:

(a) A total of 380 out of 740 websites are built on approved technologies (Drupal), while the remaining 360 are not;

(b) Departments often host websites on other domains and thereby bypass the governance process supervised by the Department of Global Communications;

(c) The Office requested all departments to review their websites and assess their compliance against established ICT security requirements and to register them on Unite Applications. However, the Office does not have visibility over compliance of the departments, as this is the responsibility of the individual departments. The Office confirmed that the 184 websites built on Unite Web by the Office and the additional 60 built by former Department of Field Support were compliant.

81. The Board also noted that the website consolidation project had remained on hold from January to November 2018 and that the completion date of the second phase had been rescheduled from 30 November 2017 to 31 December 2020. However, the status report for the month of December 2018 indicated that the project was 100 per cent complete and that website consolidation would be undertaken as an ongoing operational activity within the Office of Information and Communications Technology from January 2019. The Board observed that no change request had been approved in 2018 for such a change in the scope of the project.

82. The Board concludes that multiple issues have yet to be addressed regarding website rationalization. Nevertheless, the activity has been taken out of the project mode and mainstreamed as an ongoing activity. The Board notes with concern that lack of adherence to governance and compliance processes exposes United Nations websites to threats that have yet to be mitigated.

83. In response, the Administration stated that the Office of Information and Communications Technology and the Department of Global Communications have established website governance and associated compliance controls and that the Chief Information Technology Officer has informed the departmental heads of public websites of the requirements for maintaining the websites and of their obligation to

record their websites in Unite Applications. The Office stressed that the gaps in governance and compliance relate primarily to websites that are not reported.

84. The Board noted the response of the Administration. As the ICT strategy applies to all websites of the United Nations, there is a need to address the gaps in the governance and compliance of the websites.

**85. The Board recommends that the Office of Information and Communications Technology, in coordination with other stakeholders, review the existing governance and compliance processes regarding websites, identify the gaps and ensure compliance with the existing guidelines and standards.**

#### **Enterprise Network Operations Centre**

86. It was envisaged that the Enterprise Network Operations Centre would be implemented in phases. The first phase (monitoring of infrastructure at New York through the global Enterprise Network Operations Centre) and the second phase (consolidation of the global Enterprise Network Operations Centre and the Network Control Centre of the Information and Communications Technology Division) have been completed (August 2017). In his fourth progress report ([A/73/384](#)), the Secretary-General stated that the third phase of the project, which aimed to move the monitoring of Regional Technology Centres from Geneva, Nairobi and Bangkok to the Network Control Centre in Valencia, Spain, was in progress (86 per cent complete).

87. The Board observed that the monthly status reports of the project indicated that it was 75 to 86 per cent complete as at October 2018. The subsequent progress reports indicated that the project was temporarily suspended in the light of the management reforms. The monthly progress reports of November and December 2018 indicated that the project was 100 per cent complete even though the project objectives had not been fulfilled. It was stated that the final phase of the project would resume as part of the ICT strategy road map over the coming five years. The Board noted that the list of change requests in 2018 provided by the Office of Information and Communications Technology did not include a proposal for the change in the scope of the project.

88. The Office of Information and Communications Technology stated that the limiting factor in the introduction of monitoring for the Regional Technology Centres was the lack of funding earmarked by these offices and that the project scope was not entirely in the direct control of the Office. The Board was informed that additional funds for this purpose would be requested in 2021.

89. The Board noted the response of the Administration and the fact that the Enterprise Network Operations Centre project, although envisaged in the ICT strategy, had been deferred without the achievement of its objectives.

**90. The Board recommends that the Office of Information and Communications Technology take measures including arranging for appropriate funding, in coordination with other stakeholders, to ensure that the Enterprise Network Operations Centre project achieves the envisaged objectives of consolidation.**

#### **Network and infrastructure**

91. The Office of Information and Communications Technology provides application-hosting services to the United Nations Secretariat through a wide area network. The overall goal of the network strategy is to ensure standardization and optimization and provide a stable network infrastructure to meet the demands of evolving United Nations business requirements. The Office signed a service-level

agreement with the former Department of Field Support in December 2017 for the provision and support of server hosting and prescribed related services to be delivered at the United Nations enterprise data centres in Brindisi, Italy (Global Service Centre), and Valencia (United Nations Information and Communications Technology Facility).

92. The measure of efficient network service provision is in the time taken to resolve “incidents” reported by users. An incident is defined as an unplanned interruption or reduction in the quality of any information technology service. The primary objective of the incident management process is to restore normal service operation as quickly as possible and minimize the impact of the interruption on business operations, ensuring that agreed levels of service quality are maintained. The time taken to resolve an incident is the total time from the initial recording of the incident to its resolution. Incidents have been accorded different priorities (urgent to low) and targets for the time to resolve them have been set against each priority. The targets in the service-level agreement are shown in table 3.

Table 3  
**Targets for the time to resolve incidents for the network**

<i>Priority of the incident</i>	<i>Target time to resolve an incident (hours)</i>
Urgent/critical	As soon as possible (maximum 9)
High	24
Medium	40
Low	120
Question	240

93. The Board noted that 7,535 incidents were reported in 2018. It was observed that not all incidents could be resolved within the mandated target times. It was noted that the percentage of incidents resolved within the target for the “critical” category was 57.14 per cent in July and 87.50 per cent in August, while for the “high” category achievement was less than 91 per cent for five of the last six months of 2018. The Board also noted that information on the percentage of incidents resolved within the targets was not available for the second quarter of 2018 owing to a bug in iNeed. Such a lack of information is significant in view of the fact that 4,728 incidents (62.74 per cent) were recorded during this period.

94. The Office of Information and Communications Technology stated that, in very remote locations, the link stability is affected by environmental factors and loss of electricity.

**95. The Board recommends that the Office of Information and Communications Technology ensure compliance with the targets set out in the service-level agreement and address issues of service degradation or outages promptly.**

#### **Unite Service Desk**

96. The ICT strategy envisaged the harmonization of help-desk functions to transform them into a global, cost-effective and more efficient shared-service model, which would provide global around-the-clock coverage. It was recognized that enterprise service desks are required to support enterprise-wide applications and infrastructure. The project was to be implemented in phases, and phase 2 was completed in 2015. The aim of the Unite Service Desk project (phase 3) was to build a standard global model, together with improvements in overall resource capabilities,

processes and technology, which was to be completed by December 2018, in accordance with the most recent amendment.

97. The Board noted that the project was shown to be on hold in all monthly status reports from June to December 2017, after which it was reported to be 83 per cent complete in the monthly reports from January to July 2018 and 93 per cent complete in the monthly reports from August to December 2018. The Office of Information and Communications Technology has since designated the project as 100 per cent complete. The Board noted that, with the implementation of the Secretary-General's reforms from January 2019, synergies between the Information and Communications Technology Division of the former Department of Field Support and the Office have been established that support a standard global model for the Unite Service Desks, but the consolidation of the service desk resources, assets and field-level operations of the former Department of Field Support with the Unite Service Desks has been placed on hold. In fact, the Office stated that the consolidation is currently under implementation and should be completed by the end of 2019.

98. When this was pointed out, the Office of Information and Communications Technology responded that the project was reported as 100 per cent complete, as the service desks of the Information and Communications Technology Division of the former Department of Field Support in New York and Brindisi have direct reporting lines to the Chief, Unite Service Desk, who reports to the Chief, Regional Service Management Service, under the Operations Support Division of the Office.

99. The Board noted that the Unite Service Desk project has been designated as completed even though the goal of consolidation of service desks at the field level has not been fulfilled. The Board also noted that the Administration had indicated that the consolidation of service desks would be a part of the ICT strategy over the coming five years.

100. The Administration stated that the consolidation of tier 1 support in peacekeeping missions was never the objective of the Unite Service Desk project. Since peacekeeping missions operate in very harsh conditions, the reporting lines for tier 1 local support in all United Nations entities will always remain local.

101. The Board noted, however, that, in his fourth progress report, the Secretary-General stated that help-desk support for personnel of the former Department of Field Support and Headquarters had been consolidated and tier 1 (field) support had been put on hold on the basis of the need to review the new model in the light of the reform.

**102. The Board recommends that the Office of Information and Communications Technology clarify the scope of the Unite Service Desk consolidation project and take measures to ensure that the envisaged objectives of consolidation and continuous improvements are achieved at the earliest.**

## **E. Innovation**

### **Digital Blue Helmets**

103. In 2017, the Office of Information and Communications Technology established the Digital Blue Helmets, an elite team of analysts, to protect the United Nations from cyberthreats and promote cybersecurity. It was intended that a team would be established and its infrastructure set up and that its members would receive training and certification in penetration testing and collaborate with partners and academia. The team was set up to proactively research and coordinate the potential mitigation of cyberrisk in 10 Sustainable Development Goals. The programme has been funded mostly by Member State contributions under the Junior Professional Officers programme and extrabudgetary funds.

104. The Digital Blue Helmets is currently a five-member team consisting of experts with cross-domain skill sets in the area of cybersecurity, all of whom are certified penetration testers.<sup>14</sup> The team has established infrastructure to safely access and browse the dark web.<sup>15</sup> The Office of Information and Communications Technology reported that the Digital Blue Helmets conducted cybersecurity assessments of the field missions and Headquarters and had established partnerships with the United Nations Entity for Gender Equality and the Empowerment of Women, the International Narcotics Control Board and the Counter-Terrorism Committee Executive Directorate.

105. The Board observed that the number of team members of the Digital Blue Helmets had been reduced from eight in 2017 to five in 2018. Noting the incomplete evidence for the number of accessed files and the lack of comprehensive documents, the Board observed that there was no evidence that the Digital Blue Helmets had attempted to conduct any detailed digital forensic investigation into cyberattacks faced by the United Nations to gather evidence of vulnerability or measure the impact of such attacks in terms of data breaches and other losses. The Office of Information and Communications Technology stated that the Digital Blue Helmets had conducted detailed digital forensic investigations on a number of occasions for major incidents but did not provide any specific statistics. The Office pointed out, however, that the Digital Blue Helmets had helped to clone hard drives and create memory snapshots in accordance with established procedures and had analysed them in depth to help to establish the attack timelines and the artefacts used, to extract information on techniques, tools and procedures and to determine the extent of the attacks whenever possible. The Office confirmed that the Digital Blue Helmets collaborate with the internal security team to help to protect United Nations infrastructure and would also enhance digital forensic capabilities.

#### **United Nations Technology Innovation Labs**

106. An initiative for the establishment of United Nations Technology Innovation Labs has been taken up by the Office of Information and Communications Technology in collaboration with interested Member States. The labs use cutting-edge frontier technologies to pioneer open-source technological solutions to global humanitarian, sustainable development, climate change and peace and security challenges. The labs are intended to be incubators and accelerators to foster collaborative problem-solving among the United Nations system, the private and public sectors, academia and civil society. Collectively, the network of labs will help to build a portfolio of technology solutions and support the sharing of innovative technologies to address global issues.

107. The Board was informed that three labs had been operationalized in 2018 in collaboration with three Member states. It was noted that two Member States that had expressed interest in setting up labs had withdrawn their interest. The three operational labs funded by the host country Governments focused on the thematic areas shown in table 4.

<sup>14</sup> Someone whose job is to attack computer systems in order to find security weaknesses that can then be fixed.

<sup>15</sup> The part of the World Wide Web that is accessible only by means of special software, allowing users and website operators to remain anonymous or untraceable.

Table 4  
**Thematic areas of the United Nations Technology Innovation Labs**

<i>United Nations Technology Innovation Lab</i>		
<i>1</i>	<i>2</i>	<i>3</i>
Health	Smart cities and transportation	Health
Peace and security	Ethical fashion – blockchain and three-dimensional printing	Technology innovation capability
Education	Ecotourism	Education for special needs
Circular economy		Circular economy
		Agriculture

108. The Board noted that six requests had been received in 2019 for setting up United Nations Technology Innovation Labs and the requests were currently being considered by the Office of Information and Communications Technology. In March 2019, the Office stated that it had engaged with the countries on a first-come, first-served basis and that the establishment of the labs was at the discretion of the Member States and subject to their priorities.

**109. The Board recommends that the Administration proactively engage with the Member States that have expressed interest in establishing United Nations Technology Innovation Labs and respond in a time-bound manner.**

### **Optimal utilization of ICT resources**

#### **Global sourcing project**

110. The ICT strategy envisaged global sourcing to ensure that all ICT resources are optimally managed. It was envisaged that the United Nations would strengthen the visibility and control of ICT expenditure through the establishment of standard processes, a centralized contract management capacity, a repository of contracts and a management tool for software licences and hardware purchases.

111. In his first progress report ([A/70/364](#)), the Secretary-General set the target to develop a global ICT sourcing plan with standard processes and centralized contract management. In his fourth progress report ([A/73/384](#)), the Secretary-General stated that the requests for proposals for ICT and application services were complete and the finish date for solicitation and contract award was 14 February 2019. The Board observed that the targeted finish date had been revised to 30 May 2019 for ICT services and 20 July 2019 for application services.

112. The Board observed that the evaluation of the commercial bids for ICT services was completed on 5 August 2018 but that the next stage, comprising the submission of the bids to the Headquarters Committee on Contracts, began only on 11 February 2019, after a six-month gap. The request for proposals for application services was issued in November 2018, after a gap of more than a year, as the development of the request had been completed in September 2017. The Board also noted that the deadline for the submission of bids for application services had been extended to 28 February 2019.

113. The Office of Information and Communications Technology was to procure cloud computing services. The Board noted that Azure under the Microsoft contract was already in place for cloud computing. However, the provisioning for Amazon

Web Services was still under negotiation. The Office stated that the timeline for Amazon Web Services would be developed on the basis of the response from the supplier and inputs from the Procurement Division.

114. The Board noted that the process for solicitation and contract award for ICT and application services had begun as early as December 2016 and was likely to take two and half years for actual procurement, according to its revised finish date. In the status report for December 2018, the size and complexity of the request for proposals for ICT services was noted as a reason for the delays in the finalization and issuance of the request by the Procurement Division.

115. While agreeing that the project had been delayed, the Administration pointed out that the project was currently under the Procurement Division.

116. As departments other than the Office of Information and Communications Technology are involved in the global sourcing project (notably the Procurement Division and the Office of Legal Affairs), the Board considers that better coordination is essential for faster processing.

### **Defragmentation**

117. Under the ICT strategy, the Office of Information and Communications Technology is mandated to focus on defragmentation, the retirement of systems and global sourcing to ensure that all ICT resources are optimally managed. The harmonization of functions in regional ICT units, data centres and applications centres was envisaged to reduce fragmentation, inefficiencies and carbon footprint.

#### *Enterprise application centres*

118. The ICT strategy provides for enterprise application centres as part of the enterprise delivery framework. It was intended that the existing application centres in New York, Bangkok and Vienna would be strengthened and upgraded to enterprise application centres. In accordance with the organizational structure envisaged in the strategy, the centres were to report to the Chief Information Technology Officer.

119. The Board observed that the enterprise application centre in Vienna continues to run its own ICT unit, the Information Technology Service, which does not have a reporting line to the Chief Information Technology Officer, as envisaged in the ICT strategy. The Board also noted that the Chief Information Technology Officer did not have the envisaged oversight of the implementation of Go Portfolio in the enterprise application centre in Vienna.

120. The Administration confirmed that the envisaged reporting arrangement has remained unimplemented in the enterprise application centre in Vienna.

121. The organizational structure for the implementation of the strategy was intended to support a global enterprise approach to ICT and to provide central authority to the Chief Information Technology Officer to oversee all ICT activities. The non-establishment of a reporting line from the ICT unit in Vienna to the Chief Information Technology Officer impedes the uniform implementation of the ICT architecture, given that its organization is fragmented.

#### *ICT units*

122. Under the ICT strategy, the harmonization of the then existing 70 ICT units across the organization was proposed. In his first and second progress reports, the Secretary-General stated that the harmonization of the ICT units of departments such as the Department for General Assembly and Conference Management and the Office for the Coordination of Humanitarian Affairs was under way.



123. The Board noted in its first progress report that the consolidation of ICT resources had been slow, with only three ICT units across the Secretariat consolidated as at January 2017. The Board noted that, even by March 2019, the ICT units of 27 United Nations entities, offices and departments at Headquarters, offices away from Headquarters and regional commissions had yet to be harmonized. The Board noted that, although discussions with offices such as the Department for General Assembly and Conference Management and the Office for the Coordination of Humanitarian Affairs had been initiated by the Office of Information and Communications Technology in 2015, the units had yet to be harmonized.

124. The ICT strategy has entered its fifth and final year of implementation. Most of the ICT units, however, have yet to be harmonized. Although the slow pace of progress was pointed out by the Board in its first report, there has not been much progress on the matter.

125. In response, the Office of Information and Communications Technology stated that, although full consolidation of ICT units has not been implemented, coherence has increased, some areas have been harmonized and it is continuing to engage constructively.

#### IV. Acknowledgements

126. The Board wishes to express its appreciation for the cooperation and assistance extended to its staff by the Chief Information Technology Officer, the Office of Information and Communications Technology and members of their staff.

(Signed) Kay **Scheller**  
President of the German Federal Court of Auditors  
Chair of the Board of Auditors

(Signed) Rajiv **Mehrishi**  
Comptroller and Auditor General of India  
(Lead Auditor)

(Signed) Jorge **Bermúdez**  
Comptroller General of the Republic of Chile

24 July 2019

## Annex I

## Status of implementation of the recommendations on information and communications technology affairs

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
1	<a href="#">A/67/651</a> , para. 31	In order to enable greater consistency and transparency with regard to information and communications technology (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.	The Office issued guidelines to all ICT offices and requested details regarding their budgets and expenditure in order to analyse and consolidate the data. The presentation and execution of the budget remains the responsibility of heads of departments and offices.	The Board noted the Administration's response, but compliance by the departments in the presentation of the requirements for ICT resources is not ensured. The recommendation is considered to be under implementation.		X		
2	<a href="#">A/67/651</a> , 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.	The Office issued guidelines to all ICT offices and requested details regarding their budgets and expenditure in order to analyse and consolidate the data. The presentation and execution of the budget remains the responsibility of heads of departments and offices.	The Board noted the Administration's response, but compliance by the departments in the presentation of the requirements for ICT resources is not ensured. Furthermore, the Administration did not provide programme-wide budget details to the Board to ensure the implementation of the recommendation. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
3	<a href="#">A/67/651</a> , 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.	The total cost of ownership is outlined in the ninth progress report of the Secretary-General on the enterprise resource planning project ( <a href="#">A/72/397</a> , paras. 125–133 and table 6 on maintenance costs for 15 years). The cost of production support is addressed in paragraph 42 of the same report. The Umoja support model is structured on three levels to best serve users and is designed to achieve self-sufficiency in each location and provide efficient processes and expertise for the resolution of incidents and the fulfilment of service requests.	The response of the Administration cites the presentation of the total cost of ownership of Umoja, which is one of the business transformation projects in the Organization. There is still a need to clearly document the key cost and performance information that may affect the achievability of a global ICT transformation. Therefore, the Board considers the recommendation to be under implementation.		X		
4	<a href="#">A/67/651</a> , 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.	This recommendation is from 2012. With the Secretary-General's reform, a new strategy will be developed. The Advisory Committee on Administrative and Budgetary Questions, in its report on the fourth progress report of the Secretary-General on the implementation of the ICT strategy, requested a new ICT strategy for the subsequent five-year period.  The Administration suggests that the status of the recommendation be changed to "overtaken by events".	The Board noted the Administration's response. Although the recommendation is from 2012 and could not be implemented to deliver the ICT strategy of 2014, an attempt can be made to incorporate the same recommendation into the new strategy, as mentioned by Administration. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
5	<a href="#">A/67/651</a> , 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.	With the Secretary-General's reform, there is a new delegation of authority, and the ICT delegation of authority has been provided to the Board for reference. The Administration suggests that the status of the recommendation be changed to "overtaken by events".	The Board took note of the governance framework documents provided by the Administration as attachments to its response. However, the Board noted that the delegation of authority has not yet been issued. Therefore, the Board considers the recommendation to be under implementation.		X		
6	<a href="#">A/67/651</a> , 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.	An information security road map that transforms initiatives into programmatic activities and addresses additional risks has been developed and provided to the Board of Auditors as supporting documentation.  The Administration suggests that the status of the recommendation be changed to "implemented".	The Board noted the Administration's response. It also noted that some of the initiatives in the action plan to strengthen information security are still ongoing. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
7	<a href="#">A/70/581</a> , summary, recommendation (a)	The Administration should 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.	With the Secretary-General's reform, there is a new delegation of authority, and the ICT delegation of authority has been provided to the Board for reference. As a result of the management reform, the role of the Chief Information Technology Officer includes direct responsibility for field missions.  The Administration suggests that the status of the recommendation be changed to "overtaken by events".	Although the role of the Chief Information Technology Officer and the functions of the Office of Information and Communications Technology have been addressed, the authority of the Chief Information Technology Officer has not been clarified in terms of field operations by clearly indicating the activities that require strong central control or merit operational freedom. The recommendation is considered to be under implementation.		X		
8	<a href="#">A/70/581</a> , summary, recommendation (b)	The Administration should reassess the realism of the timetable for implementing the strategy and strengthen the project management approach, including the introduction of independent assurance arrangements.	With the Secretary-General's reform, a new strategy will be developed. The Advisory Committee, in its report on the fourth progress report of the Secretary-General on the implementation of the ICT strategy, requested a new ICT strategy for the subsequent five-year period.  The Administration suggests that the status of the recommendation be changed to "overtaken by events".	The Board noted the Administration's response. The recommendation is still relevant. As the Administration stated that a new strategy would be developed, the Board considers the recommendation to be still under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
9	<a href="#">A/70/581</a> , summary, recommendation (c)	The Administration, as a matter of urgency, should 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 the implementation of the ICT strategy.	<p>A governance structure and appropriate delegations of authority were established in the Secretary-General's bulletin on the organization of the Office of Information and Communications Technology (<a href="#">ST/SGB/2016/11</a>), with an additional 39 policy, guidance and technical procedure documents formulated since the inception of the ICT strategy.</p> <p>The Administration suggests that the status of the recommendation be changed to "implemented".</p>	The Board verified the bulletin and noted that the delegation to the Chief Information Technology Officer had not yet been issued. Therefore, the recommendation is considered to be under implementation.		X		
10	<a href="#">A/70/581</a> , summary, recommendation (d)	The Administration should establish a robust compliance framework with the necessary authorities to ensure adherence to Secretariat-wide ICT policies, including those on information security.	Policy compliance as well as compliance with goals related to the implementation of the ICT strategy are ensured through the governance bodies, the Information and Communications Technology Board, the Information and Communication Technology Executive Committee and the senior management compacts. In the area of information security, a self-assessment compliance function has been established.	The Board considers that the compliance framework is not robust enough, as discussed in the present report. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
11	<a href="#">A/70/581</a> , summary, recommendation (f)	The Administration should 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.	An estimate of costs has been developed for each of the remaining strategic projects listed in annex II to the fourth report of the Secretary-General on the implementation of the ICT strategy ( <a href="#">A/73/384</a> ). Reasons for undertaking the initiatives and benefits to be derived from implementing the projects are outlined in the ICT strategy ( <a href="#">A/69/517</a> ). Expected costs and benefits of implementing the revised ICT strategy were addressed with the results of the study included in the second progress report of the Secretary-General ( <a href="#">A/71/400</a> ).	The Board reviewed the document and noted that the strategic projects were not tracked for their costs, benefits and savings. Some projects were lagging owing to competing priorities. The Board considers that the recommendation is under implementation.		X		
12	<a href="#">A/70/581</a> , summary, recommendation (g)	The Administration should 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 assessed and resolved in a timely manner.	The Management Committee chaired by the Chef de Cabinet has become an effective forum for strategy compliance.	The Board reviewed the Administration's response and noted that governance bodies such as the ICT Executive Committee and the ICT Board had not met regularly. Furthermore, during the Board's exit conference it was amply indicated that responsibility for the implementation of the strategy needed to be shared across the departments and the senior management of the Secretariat. The recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
13	<a href="#">A/72/151</a> , para. 21	The Administration should ensure that: (a) bodies under the ICT governance framework engage proactively in monitoring progress, resolving interdepartmental issues to ensure the implementation of the strategy in compliance with General Assembly resolution <a href="#">69/262</a> ; (b) the performance measures in the senior managers' compact with regard to the strategy are made more objective and quantifiable; (c) immediate steps are taken to issue the necessary delegation and designation policies; and (d) departments submit road maps and take the steps necessary for aligning their business plans with the strategy.	<p>With regard to part (a), as the nature of the governance bodies created more than a decade ago has changed over time, they do not provide the expected results to efficiently help offices and departments to deliver on their mandates. The ICT governance review initiated in the third quarter of 2018 will be delivered in the first quarter of 2019, in line with the management reform, the delegation of authority framework and organizational change, and will include monitoring, compliance and escalation mechanisms.</p> <p>For part (b), the performance measures for senior managers have been made more objective and quantifiable.</p> <p>Concerning part (c), the delegation of authority and accountability framework in the area of ICT was provided as part of the overall delegation of authority framework prepared by the Department of Management Strategy, Policy and Compliance.</p> <p>The ICT delegation of authority is in progress.</p>	The Board is of the view that the lack of periodic reporting on the implementation of the ICT strategy to the bodies under the ICT governance framework and the Office of Information and Communications Technology is bound to have an adverse impact on the ability of the Office to implement the strategy. The recommendation is considered to be under implementation.		X		



No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
14	<a href="#">A/72/151</a> , para. 33	The Chief Information Technology Officer and the Office of Information and Communications Technology, as the central authority for implementation of the strategy and its monitoring, should not only track the project timelines closely but also monitor the cost of each of the strategic projects to ensure transparency and accountability in substantial investments.	For the remaining strategic projects (see <a href="#">A/73/384</a> , annex II), the project status reports collected monthly from the project managers are reviewed with the Chief Information Technology Officer. Projects are tracked according to their baseline timelines and monitored for their costs. Expenses are processed centrally in Umoja.	The Office of Information and Communications Technology had not estimated the cost of implementation of each of the 20 strategic projects across the Secretariat and was not monitoring the progress of expenditure against them. This is a weakness in the system of project assurance and project performance monitoring of ICT strategic projects, and there is a risk that project costs will escalate owing to, among other things, slippages in adhering to timelines, the uneconomic and inefficient execution of projects and repeated modifications to or increase in the scope of projects. The recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
15	<a href="#">A/72/151</a> , para. 40	The Office of Information and Communications Technology should complete the task of formulating and promulgating ICT policies in a time-bound manner and establish the proposed self-regulatory compliance function.	<p>In 2018, 12 technical procedures were reviewed, and more are currently under review. Additional policies have been published, such as one on the use of mobile devices. New policies addressing gaps are also being developed (on online collaboration tools, digital signature, etc.).</p> <p>Self-regulation has been established for priority areas (information security).</p> <p>A self-assessment compliance exercise with information security controls is scheduled annually to ensure that minimum requirements are properly applied to all applications and websites and underlying infrastructure. Security assessments have also been conducted in field missions.</p>	Continued monitoring and enforcement of compliance with all ICT policies across the departments and duty stations are essential to ensuring the standardized management of ICT resources and improving the coordinated use of ICT in the Organization. The Board concluded that compliance with policies is not properly monitored. Therefore, the recommendation is considered to be under implementation.		X		
16	<a href="#">A/72/151</a> , para. 45	The Administration should ensure that sufficient funds are earmarked for implementing the training plan.	<p>The Office of Information and Communications Technology is not in a position to ensure sufficient funds. In 2018, the Office requested \$444,915 in training funds, of which \$83,410 (18.75 per cent) were granted.</p> <p>This is separate from the cybersecurity training funds (\$72,800) granted to cover the 2018–2019 biennium.</p>	The Office of Information and Communications Technology has made requests for required funds, and the training has yet to be conducted in accordance with the plan. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
17	<a href="#">A/72/151</a> , para. 50	The formulation and implementation of the ICT performance management framework should be expedited.	<p>The performance management framework was established in 2017.</p> <p>Few metrics and targets were defined for the delegation of authority and accountability framework in the area of ICT. The performance management framework is consistent with the ICT delegation of authority that has been provided to the Board for reference.</p>	There is no formal delegation of authority for the Office of Information and Communications Technology, and the framework has yet to be implemented, as the metrics have yet to be endorsed across the Secretariat to ensure a standard and consistent reporting methodology across all ICT units. Therefore, the recommendation is considered to be under implementation.		X		
18	<a href="#">A/72/151</a> , para. 55	The Administration should ensure that all personnel complete the mandatory information security training.	The Office of Information and Communications Technology contacted the Department of Management Strategy, Policy and Compliance to determine how this recommendation can be addressed as part of a comprehensive compliance effort.	The Office of Information and Communications Technology has yet to determine a plan for the implementation of the recommendation. Therefore, the recommendation is considered to be under implementation.		X		
19	<a href="#">A/72/151</a> , para. 60	The Office of Information and Communications Technology should create a mechanism for departments and offices to provide periodic updates on the implementation of the strategic project on information security.	The Office of Information and Communications Technology established a process of annual self-assessments of all departments and offices that maintain and operate ICT systems. The self-assessment defines a set of critical policies and technical procedures against which all systems maintained by the respective entity have to be assessed. The results of the self-assessments, i.e. updates of applications for each system, are maintained online in Unite	Although the departments and offices were assigned the responsibility of classifying information on the basis of its sensitivity, there was no assurance that they classified all information in line with its security or sensitivity level, given the lack of a way to verify compliance. Delays in the classification of the information assets and the absence of a way to verify compliance carry the risk of exposing important		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
			<p>Applications (<a href="https://uniteapps.un.org">https://uniteapps.un.org</a>).</p> <p>In addition, the Information and Communications Technology Division of the former Department of Field Support provided detailed instructions to field missions for the secure operation of ICT systems and tracks compliance on a dedicated website (<a href="https://compliance.dfs.un.org/">https://compliance.dfs.un.org/</a>).</p> <p>In the memorandum that was sent to all departments and offices, the Office of Information and Communications Technology requested that they review their respective websites and applications and submit a signed self-certification to confirm compliance with information security controls.</p> <p>The Administration suggests that the status of recommendation be changed to "implemented".</p>	<p>sensitive information assets. Therefore, the recommendation is considered to be under implementation.</p>				

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20	<a href="#">A/72/151</a> , para. 67	The criteria for determining the criticality of applications should be reviewed and the number of critical applications should be ascertained on the basis of an analysis; and the number of critical applications should be progressively reduced by replacing them with new systems and enterprise-level applications through consolidation and rationalization.	The Office of Information and Communications Technology conducted a review of applications in 2016 and the Senior Emergency Policy Team endorsed a list of 24 applications; only applications on this list are deemed critical for the Organization. The Administration suggests that the status of recommendation be changed to "implemented".	<p>Until the applications are consolidated, they remain critical, and the status of the replacement of such applications needs to be closely monitored. A further review of applications should take place to clearly establish the actual number of critical applications based on business to date. There are many business applications, which are to be consolidated with the enterprise-level applications and rationalized.</p> <p>Therefore, the recommendation is considered to be under implementation.</p>		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
21	<a href="#">A/72/151</a> , para. 77	Progress in website rationalization and harmonization and application rationalization and consolidation should be expedited to mitigate security risks, reduce costs and optimize application value.	Departments have been advised of the compliance requirements for public information websites, and the Management Committee has endorsed them. In this regard, Unite Web has been delivered as the enterprise web content management platform, which is compliant across all areas, and departments have been strongly encouraged to use this platform for their public websites.	The major milestones remain incomplete as Departments often host websites on domains other than un.org and thereby bypass the established governance process. It is not possible to verify whether departments have registered all their websites on Unite Applications. the Office of Information and Communications Technology could confirm that only 184 (24.86 per cent) websites are compliant with security-related requirements, while 360 (48.64 per cent) websites are not built on approved technologies. Therefore, the recommendation is considered to be under implementation.		X		
22	<a href="#">A/72/151</a> , para. 86	The Administration should devise a first-level resolution rate measure by classifying the requests for services that could potentially be resolved at the first level.	It is important to note that an accurate response requires that all "substantial tickets" are excluded from the first level, as they are outside the scope of Unite Service Desk user support activities. This step has been taken by and falls under the responsibility of the global service delivery model team with the creation of the global shared catalogue of administrative services.	The global service catalogue has not yet been created. Therefore, the recommendation is considered to be under implementation.		X		

<i>No.</i>	<i>Report reference</i>	<i>Recommendation of the Board</i>	<i>Administration's response</i>	<i>Board's assessment</i>	<i>Fully implemented</i>	<i>Under implementation</i>	<i>Not implemented</i>	<i>Overtaken by events</i>
23	<a href="#">A/72/151</a> , para. 92	The Office of Information and Communications Technology should develop a detailed plan of action on innovative emerging technology in consultation with stakeholders.	Investment in emerging technology is limited, but small programmes are supported wherever possible.	The Office of Information and Communications Technology has developed a strategy for emerging and innovative technology and a workplan for executing the strategy. Therefore, the recommendation is considered to be implemented.	X			
24	<a href="#">A/72/151</a> , para. 105	The relevant policies should be suitably revised to ensure that ICT procurements above a prescribed threshold are processed through Umoja and vetted centrally by the Office of Information and Communications Technology to ensure uniformity, standardization, compliance with ICT policies and benchmarking of costs.	The Contracts Management Officer position has not yet been filled. The Office of Information and Communications Technology will, within existing capacities, continue to support the administration of contracts. In the meantime, following the management reform, the Office and teams of the Information and Communications Technology Division of the former Department of Field Support are working collaboratively to continue to monitor ICT procurement, ensure compliance with ICT policies and standards and reduce or eliminate duplication of efforts in solicitation processes and multiple procurement actions across the Secretariat.	In the absence of any analysis of discounts obtained through global sourcing, it was not possible to make an objective assessment of the progress achieved in implementing global sourcing and optimizing the cost of ICT assets by means of discounts. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
25	<a href="#">A/72/151</a> , para. 106	A clear road map should be developed to realize cost optimization benefits through global sourcing.	<p>The global sourcing strategic project is in progress and status reports on activities have been included in the recent reports of the Secretary-General on the implementation of the ICT strategy (<a href="#">A/72/755</a> and <a href="#">A/73/384</a>). Owing to delays in the acquisition process, the timeline for the awarding of contracts for ICT services and cloud services will need to be adjusted. The latest details are as follows:</p> <ul style="list-style-type: none"> <li>• The case for the provision of fully managed ICT services was submitted to the Headquarters Committee on Contracts on 27 February 2019. The Procurement Division has communicated that the revised timeline for the final award of contracts is expected to be 31 May 2019</li> <li>• The request for proposals for software development application services is in its second phase, and prospective bidders have requested an extension of the deadline for submission to 28 February 2019. Therefore, the Procurement Division currently estimates the solicitation and contract award by 20 July 2019</li> </ul>	In the absence of any analysis of discounts obtained through global sourcing, it was not possible to make an objective assessment of the progress achieved in implementing global sourcing and optimizing the cost of ICT assets by means of discounts. Therefore, the recommendation is considered to be under implementation.		X		



No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
26	<a href="#">A/72/151</a> , para. 112	The Administration should take effective steps to ensure the implementation of the enterprise delivery framework and reduce the fragmentation of ICT resources.	<p>In the ICT strategy, an enterprise delivery framework was proposed that included the following:</p> <ul style="list-style-type: none"> <li>• Enterprise application centres to coordinate and lead the global replacement of legacy applications</li> <li>• Regional Technology Centres to oversee Secretariat entities on information security, governance and risk, compliance with ICT policies and the delivery of technological solutions regionally</li> <li>• The Enterprise Network Operations Centre to monitor all networks and data centre operations, improving visibility, uptime, performance and security</li> <li>• Enterprise data centres to deliver services in the areas of hosting, connectivity and monitoring. Enterprise systems have been strengthened and moved to the centres</li> <li>• Unite Service Desks to provide <a href="#">24/7</a> service from the five hubs in Bangkok, Nairobi, Geneva, New York and Brindisi, Italy</li> </ul>	<p>Only 11 out of 24 critical applications have been confirmed by the Office of Information and Communications Technology to have been migrated to enterprise data centres.</p> <p>The ultimate objective of Unite Service Desk consolidation (phase 3) of full consolidation of the service desk resources, assets and operations of the former Department of Field Support and the former Department of Management remains incomplete.</p> <p>The goal of creating a unified global ICT service catalogue remains a work in progress.</p> <p>The ICT unit in Vienna has not been developed into an enterprise application centres with a reporting line to the Chief Information Technology Officer, as was intended in strategy. None of the 34 ICT units at peacekeeping and special political missions have been harmonized with the Office of Information and Communications Technology</p> <p>Therefore, the recommendation is considered to be under implementation.</p>		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
27	<a href="#">A/73/160</a> , para. 25	Appropriate processes and practices of the governance framework should be followed so that the business goals of the Organization are met through the implementation of the ICT strategy.	The implementation of the ICT strategy is ultimately measured and evaluated in the senior leadership compacts. The Office of Information and Communications Technology provided the details of the methodology used.	The Administration has still not produced documents to demonstrate that processes and practices of the governance framework are followed. Therefore, this recommendation is considered to be under implementation.		X		
28	<a href="#">A/73/160</a> , para. 26	The Administration should establish a performance management framework with suitable metrics and benchmarks that help align the ICT initiatives with the strategic goal of the United Nations within an established time frame.	The performance management framework was established in 2017.  Few metrics and targets were defined for the delegation of authority and accountability framework in the area of ICT. The performance management framework is consistent with the ICT delegation of authority that has been provided to the Board for reference.	There is no formal delegation of authority for the Office of Information and Communications Technology, and the framework has yet to be implemented, as the metrics have yet to be endorsed across the Secretariat to ensure a standard and consistent reporting methodology across all ICT units. Therefore, the recommendation is considered to be under implementation.		X		
29	<a href="#">A/73/160</a> , para. 41	The Administration should proactively engage with user departments to identify policy gaps in emerging areas and draw up action plans to frame such policies.	The recommendation was addressed in meetings of the ICT Policy Committee.  The Administration suggests that the follow-up of the recommendation be assigned to the Department of Management Strategy, Policy and Compliance.	As evident from the minutes of the ICT Policy Committee meetings, policy gaps in emerging areas have yet to be fully addressed. The Office of Information and Communications Technology did not provide any reasoning for its proposal to transfer the follow-up of the recommendation. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
30	<a href="#">A/73/160</a> , para. 50	The Office of Information and Communications Technology should make efforts to ensure that appropriate certifications needed for the performance of ICT functions are obtained and recorded appropriately.	The Administration requested guidance and clarification from the Board.	It was explained to Administration during discussions that certifications of training are not being obtained and recorded. Therefore, the Board considers the recommendation not implemented.			X	
31	<a href="#">A/73/160</a> , para. 55	The Administration should take appropriate measures to mitigate risks related to the project components under Umoja mainstreaming and ensure that the Office of Information and Communications Technology, in conjunction with the Umoja project office, ensures knowledge transfer to facilitate Umoja mainstreaming as and when it happens.	The Office of Information and Communications Technology is formulating a plan to identify the functions that will require knowledge transfer and their sequence within the broader activities under way. The Umoja team needs to engage with the Office to determine plans for the final phase of the mainstreaming.	Since the process is still ongoing, the recommendation is considered to be under implementation.		X		
32	<a href="#">A/73/160</a> , para. 79	<p>(a) The Office of Information and Communications Technology should continue to work with the Department of Field Support, offices away from Headquarters and regional commissions to improve the visibility of ICT assets;</p> <p>(b) A cost-benefit analysis should be conducted in order to decide on extension of the scope of intrusion detection services to include all critical ICT resources across the Secretariat;</p> <p>(c) Priority should be accorded to the completion</p>	Part (a) of this recommendation has been implemented. In addition to System Centre Configuration Manager, which is deployed to Windows systems, the Office of Information and Communications Technology, through the Global Service Centre, uses HP uCMDB, which provides a more complete coverage of ICT assets (e.g. Windows and Linux systems, physical and virtual servers, enclosures, blades and ESX servers). These include the Office's applications hosted at the Global Service Centre. A screenshot of HP uCMDB	The data privacy policy is in the drafting stage, work on the visibility of assets and the replacement of outdated assets is still in progress, and network segmentation is not yet completed. Therefore, this recommendation is considered to be under implementation.		X		

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		<p>of network segmentation as originally planned; and</p> <p>(d) Efforts should be made to finalize the data privacy policy for the United Nations at the earliest.</p>	<p>showing the Office's applications was provided as evidence of implementation of this recommendation.</p> <p>With regard to part (b), the current contract for managed intrusion detection services will need to be rebid in 2020. The additional requirements for locations that are currently not in scope will be included in the request for proposals, and a final determination will be made on the basis of actual costs according to responses to the request for proposals.</p> <p>Concerning part (c), full network segmentation implementation requires additional resources – capital expenditure for purchasing additional network equipment and professional services to implement new network design. Unfortunately, the Administration was unable to allocate resources to perform this activity fully. At Headquarters in New York, the Office of Information and Communications Technology performed partial network segmentation at the data centre level. The user network was not segmented owing to a lack of resources. The Office is currently analysing software-based user segmentation built on the end point protection tool used in the Secretariat.</p> <p>As regards part (d), the data privacy policy is already being</p>					

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33	<a href="#">A/73/160</a> , para. 101	The Administration should identify the number of core applications that are required to be maintained and work towards rationalizing applications by identifying overlapping applications within the same area.	drafted on the basis of the principles defined in collaboration with several United Nations system entities.  The Office of Information and Communications Technology has been working to identify applications, including those that serve similar purposes. It is expected that this work will continue until the conclusion of the ICT strategy.	The Board noted that there were still duplicate applications and therefore recommended that the Administration formulate clear road maps with specific key performance indicators to bring down the number of applications and expedite the implementation of identified measures on the overlapping applications to immediately retire or maintain them. Therefore, the recommendation is considered to be under implementation.		X		
34	<a href="#">A/73/160</a> , para. 108	Clear milestones should be set to avoid the deferral of timelines and to effectively monitor projects.	The Enterprise Portfolio Management Section will monitor projects through periodic meetings and ensure that timelines are altered when there is a valid and compelling reason to do so.	Although the Administration stated that it would monitor the deferral of timelines, monitoring deficiencies have been noted during the present audit, as changes were made without change requests approved by the relevant authority. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
35	<a href="#">A/73/160</a> , para. 114	The setting-up of the United Nations Technology Innovation Labs should be monitored closely to ensure adherence to the prescribed timelines.	<p>Labs are being monitored closely through weekly meetings and constant strategic engagement from the Director of the Office of Information and Communications Technology.</p> <p>The United Nations Technology Innovation Lab in Finland is operational and its budget is covered by a contribution agreement (2.3 million euros and in-kind space provision) to the United Nations digital agenda trust fund signed on 27 June 2018. The Finnish authorities have already submitted a request to extend the contribution agreement to cover an additional two years of operations with the same terms and conditions (4.6 million euros and in-kind space provision) for a total of 6.9 million euros.</p> <p>The Administration suggests that the status of recommendation be changed to “implemented”.</p>	<p>The Office of Information and Communications Technology has developed a strategy for emerging and innovative technology and a workplan for its execution. Therefore, the recommendation is considered to be implemented.</p>	X			

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
36	<a href="#">A/73/160</a> , para. 118	The Administration should develop a long-term augmentation plan, considering asset life and technological change, and indicate the requirements in budget requests in a timely manner.	Given continued budgetary constraints across the Organization, the proposed replacement of ageing ICT assets could not proceed as envisaged. Therefore, in the interim, the Office of Information and Communications Technology will submit a report to the General Assembly with a proposal for capital maintenance in 2019 to replace outdated equipment and systems in the areas of conference management, multimedia, broadcasting, audiovisual communications and cybersecurity. Thereafter, the Office will submit a proposal to the General Assembly, at its seventy-fourth session, for the replacement of assets over the next five years.	A process is under way. Therefore, the recommendation is considered to be under implementation.		X		
37	<a href="#">A/73/160</a> , para. 126	The Administration should identify and document global sourcing opportunities along with an estimation of savings.	The Office of Information and Communications Technology continues to identify opportunities where global sourcing is optimal and will work within the Secretariat and the United Nations common system to ensure that global sourcing is implemented and available. The cost benefits arising from the use of global contracts are being monitored.	The Administration has not provided documents to demonstrate that savings related to global sourcing opportunities are being estimated. Therefore, the recommendation is considered to be under implementation.		X		

No.	Report reference	Recommendation of the Board	Administration's response	Board's assessment	Fully implemented	Under implementation	Not implemented	Overtaken by events
38	<a href="#">A/73/160</a> , para. 127	Pending contracts should be finalized with the established timelines to enable optimal utilization of resources.	<p>Owing to delays in the acquisition process, the timeline for the awarding of contracts for ICT and cloud services will need to be adjusted. The latest details are as follows:</p> <ul style="list-style-type: none"> <li>• The case for the provision of fully managed ICT services was submitted to the Headquarters Committee on Contracts on 27 February 2019. The Procurement Division has communicated that the revised timeline for the final award of contracts is expected to be 31 May 2019</li> <li>• The request for proposals for software development application services is in its second phase, and prospective bidders have requested an extension of the deadline for submission to 28 February 2019. Therefore, the Procurement Division currently estimates the solicitation and contract award by 20 July 2019</li> </ul>	In view of the response of the Administration, the recommendation is considered to be under implementation.		X		
39	<a href="#">A/73/160</a> , para. 140	The Administration should draw up a plan for the time-bound replacement of videoconferencing equipment to ensure the resilience of videoconferencing services.	<p>The status of the videoconferencing equipment used for conferencing services has been documented, and the need to replace end-of-life equipment and systems has been emphasized.</p> <p>Updates from all sites of the Office of Information and Communications Technology have been consolidated, except the Broadcast and Conference Support Section in New York. The Section insisted on</p>	Owing to budgetary constraints, the Office of Information and Communications Technology has drawn up a plan for the gradual replacement of end-of-life equipment. During the current audit period, an observation entitled "Asset management" was developed, which considers all outdated assets across the United Nations, including		X		



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			<p>presenting its data in a different format. The Global Engineering and Conferencing Section was not able to consolidate the data provided by the Section to be included in the overall report.</p> <p>A videoconferencing “end point” plan and a plan for videoconferencing infrastructure at all sites have been drawn up.</p> <p>Owing to budgetary constraints, the plan envisages the gradual replacement of end-of-life equipment. For those end points that have not yet been replaced, site-specific teams are relying on either the budget under section 33, the strengthening capital maintenance initiative or the capital investment plan or taking the approach of using the videoconferencing equipment while it is functional and phasing out to the other collaboration tools, e.g. Skype for Business, where feasible. Following any outage or breakdown of such end-of-life equipment, it will be phased out and decommissioned in accordance with the relevant International Public Sector Accounting Standards (IPSAS) procedure.</p> <p>Through the global videoconferencing infrastructure harmonization project, the core infrastructure set-up has been standardized, and all sites will decommission the hardware-based videoconferencing services set-up and move to the</p>	<p>videoconferencing equipment. Therefore, the recommendation is considered to be under implementation.</p>				

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			United Nations private cloud set-up. The One United Nations bridge approach has been delayed owing to budgetary constraints and will be deployed in April 2019. Pending this deployment, certain stand-alone bridges and related components will be decommissioned and videoconferencing services will be moved to the global One United Nations bridge hosted on the United Nations private cloud. During the transitional period, some functioning systems will still be used as a backup to the global bridge and will be in service until the equipment is functional. Once the backup videoconferencing infrastructure and end-of-life equipment and systems show signs of degradation in functionality, cybersecurity and/or reliability, they will be phased out and decommissioned in accordance with the relevant IPSAS procedure.					
<b>Total</b>					<b>2</b>	<b>36</b>	<b>1</b>	<b>–</b>
<b>Percentage</b>					<b>5</b>	<b>92</b>	<b>3</b>	<b>–</b>

## Annex II

### Original strategic road map

Phases I and II cover the strategic information and communications technology (ICT) drivers of modernization, transformation and innovation. ICT business transformation and leadership cover the two major underlying areas of governance and optimal use of ICT resources, which are interlinked with the three strategic ICT drivers.

		2013		2014				2015				2016				2017			
		July-Sept.	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.
Phase I	<b>Modernization</b>																		
	Enterprise solutions																		
	Umoja mainstreaming and International Public Sector Accounting Standards																		
	Network and infrastructure																		
	Information security																		
	Disaster recovery and business continuity																		
	<b>Transformation</b>																		
	Enterprise delivery framework:																		
	Enterprise service desk (help desk)																		
	Enterprise application centres																		
	Regional technology centres																		
	Enterprise network operations, communications and security centre																		
	Global engineering and conferencing																		
Phase II	<b>Innovation</b>																		
	Projects: analytics, collaboration, crisis management solutions, global security and modernization projects																		
ICT business transformation and leadership	<b>Governance and leadership</b>																		
	Governance framework																		
	ICT performance management framework																		
	Architecture and standardization																		
	ICT policies																		
	<b>Optimal use of ICT resources</b>																		
	Global sourcing																		
	Defragmentation of organizations and harmonization																		