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Administrative and budgetary aspects of the financing of the United Nations peacekeeping operations

Final progress report on the enterprise resource planning project

Twenty-first report of the Advisory Committee on Administrative and Budgetary Questions on the proposed programme budget for 2022

I. Introduction

1. The Advisory Committee on Administrative and Budgetary Questions has considered the final progress report of the Secretary-General on the enterprise resource planning project ([A/76/386](#)) submitted pursuant to General Assembly resolutions [64/243](#) and [75/253](#) A, in which the Assembly requested the Secretary-General to provide annual updates on the progress of the enterprise resource planning project, Umoja, as well as an update on the newly established Enterprise Resource Planning Solution Division. The Committee also had before it the tenth annual progress report of the Board of Auditors on the implementation of the United Nations enterprise resource planning system ([A/76/131](#)), submitted pursuant to Assembly resolution [66/246](#).

2. During its consideration of the aforementioned reports, the Advisory Committee met with the representatives of the Secretary-General, who provided additional information and clarification, concluding with written responses received on 6 November 2021. The Committee also had an exchange with the members of the Audit Operations Committee, who provided additional clarification on the findings of the Board of Auditors, concluding with written responses received on 18 October 2021.



II. Tenth annual progress report of the Board of Auditors on the implementation of the United Nations enterprise resource planning system

3. The Board of Auditors indicates that its report covers progress in the project governance, the deployment of Umoja Extension 2 (UE2) solutions, the information security, the support functionalities, the mainstreaming, the benefits and the costs of Umoja, as well as the results of its examination of application controls in the areas of process control, user access provisioning and delegation of authority. The Board also indicates that it examined the implementation of the six UE2 solutions and was informed that deployment of UE2 processes and functionalities had been completed by 31 December 2020, with full stabilization and maturity expected by the end of 2021 ([A/76/131](#), summary and paras. 19 and 33). Upon enquiry, the Board informed the Advisory Committee that the Administration had not indicated the per cent implementation of the scope of Umoja and that the deployment of UE2 solutions, comprising the roll-out by the end of 2020 of strategic processes and functionalities to agreed-upon entities, was separate from continuous improvement initiatives, addressing opportunities for additional integration and enhancement identified during the design and development phases. With regard to the latter, the Board indicated that it had not received an overall plan for benchmarks or deadlines for completion.

4. With regard to the implementation status of its recommendations, the Board of Auditors indicates that, of the 55 recommendations issued in its previous reports up to 31 December 2019, 15 (27 per cent) have been implemented and 40 (73 per cent) are under implementation ([A/76/131](#), summary). A more detailed commentary on the individual recommendations, together with details of the action taken by the Administration, is provided in the annex to the report of the Board. In paragraph 55 of his report, the Secretary-General indicates that, over the course of 10 audits, the Board had made a total of 135 recommendations for the project, of which 60 remained outstanding. The Secretary-General also notes that, as the project matured, the nature of audits evolved over time, and the Administration requested the closure of 38 recommendations relating primarily to the risk of the project not finishing on time, 15 of which were closed by the Board as a result ([A/76/386](#), paras. 52–55). Upon further enquiry as to how the Administration would proactively work to address the outstanding recommendations of the Board, the Advisory Committee was informed that the Administration would seek to request the Board to close the majority of the open recommendations.

5. **The Advisory Committee commends the Board of Auditors for its report, and is of the view that the requests for the closure of recommendations do not constitute a proactive approach to their implementation and that the majority of the recommendations remain valid. The Committee recommends that the General Assembly request the Secretary-General to proactively address the outstanding recommendations of the Board, with a view to improving upon the areas and issues identified. The Committee makes further observations in paragraph 7 below.**

III. Final progress report of the Secretary-General on the enterprise resource planning project

6. The Secretary-General indicates that his report provides the final progress update on the implementation of Umoja and an update on all activities since the issuance of his twelfth progress report ([A/75/386](#)). He also indicates that his report contains an update on the operations of the Enterprise Resource Planning Solution

Division and on the implementation status of all outstanding Board of Auditors recommendations, as requested by the General Assembly. The Secretary-General states that the deployment of UE2, comprising 41 per cent of Umoja processes, was completed by 31 December 2020, that the Enterprise Resource Planning Solution Division became operational on 1 January 2021 and that additional integration and other enhancement opportunities identified during the design and development phases were being pursued as part of continuous improvements ([A/76/386](#), summary). Key issues covered in the report of the Secretary-General include: (a) an update on progress since the issuance of his previous progress report; (b) an update on the operations of the Enterprise Resource Planning Solution Division, consisting of information on the governance model, continuous improvements, analytics, total cost of ownership and benefits realization; and (c) resource requirements for 2022.

A. General observations and recommendations

7. The report of the Secretary-General is intended to serve as the final progress report on the implementation of the Umoja project and, in line with the recommendation of the Advisory Committee in its previous report (see [A/75/7/Add.14](#), para. 7), to establish a clear record of the achievements and outstanding activities at the end of the project and stabilization phases of Umoja. The Committee notes, however, that there have been gaps in the implementation of the project phase of Umoja, also identified by the Board of Auditors in its report, which put into question the status of the project's implementation as final. For example, the Secretary-General indicates that all UE2 solutions were deployed by the end of 2020, with stabilization due to be completed by the end of 2021, while work on the integration of key organizational processes in the conference and events planning area is yet to commence and is currently scheduled for completion only in 2023 (see also paras. 29–32 below). Under the area of strategic planning, budgeting and performance management, the Board notes in its report that the completion status of the business consolidation planning and consolidation workplan was 95 per cent, rather than 100 per cent, at the end of 2020 owing to the deferment to 2021 of a decision pertaining to the United Nations Volunteers programme ([A/76/131](#), para. 40). The Board recommends that the Administration refine its approach to the estimation of maintenance costs and provide an update in the context of its next progress report (*ibid.*, summary and para. 206). Finally, as noted in paragraph 4 above, the Committee points out the high number of outstanding recommendations of the Board that are still under implementation (see [A/76/131](#), annex). **The Advisory Committee supports the findings of the Board of Auditors and is of the view that no conclusive certification of the Umoja project as complete and delivered can be drawn from the analysis and recommendations presented in the Board's report. Taking into consideration the differing views between the Board and the Secretary-General on the finalization of the Umoja project phase, the Committee therefore reiterates its recommendation that the General Assembly request the Secretary-General to provide a clear record of achievements and outstanding activities in order to delineate deployed functionalities, those under stabilization and those planned for development as part of continuous improvements, and to submit this information in the context of a progress report updating the Assembly on the status of implementation of the Umoja enterprise resource planning system and the related recommendations of the Board at the main part of its seventy-seventh session. The Committee furthermore recommends that the Assembly request the Secretary-General to submit an annual progress report updating the Assembly on the functioning and development of the Umoja enterprise resource planning system.**

8. The Advisory Committee notes the absence of a section on lessons learned, which are essential to the evaluation of the impact, areas for improvement and value for money of a project, from the progress report of the Secretary-General. The Committee was provided, upon enquiry, with a list of lessons learned, which is included in the annex to the present report. **The Advisory Committee recommends that the General Assembly request the Secretary-General to include, in the future, a section on lessons learned as part of the regular format of his progress reports on the Umoja system.**

B. Update on progress since the issuance of the twelfth progress report on Umoja

9. The progress report of the Secretary-General provides an overview of and an update on the implementation status of the six UE2 solutions. The Secretary-General indicates in his overview that Umoja is now in the post-project phase and is a business-driven solution, with the newly established Enterprise Resource Planning Solution Division both ensuring business continuity and shifting focus onto continuous improvements of the system. The Secretary-General also outlines updates to business intelligence and selected comments of the Board of Auditors on the value of the system (A/76/386, paras. 3–5). Progress on the UE2 solutions is discussed in further detail in paragraphs 12 to 32 below.

10. In its report, the Board of Auditors notes that Umoja remained a key enabler of administrative reforms and modernization and provided crucial support and functionality to the Organization throughout the coronavirus disease (COVID-19) pandemic (A/76/131, summary). The Board also provides its assessment of the deployment of UE2 projects, including on the status of their implementation (ibid., paras. 33–69) and on inter- and intra-solution linkages, noting that, for a number of solutions, linkages were not established as part of their deployments and would be assessed in the scope of Umoja continuous improvements from 2021 onwards. The Board expressed its view that, in order to obtain optimal benefits of UE2, inter- and intra-solution linkages would need to be established (ibid., paras. 70–76).

11. The Advisory Committee, while noting the positive contribution of Umoja to operations of the Organization during the COVID-19 pandemic, notes several gaps in the implementation of solutions and functionalities, as well as the observation of the Board of Auditors on missing inter- and intra-solution linkages, and trusts that the Secretary-General will provide a comprehensive analysis of the total cost of implementation, maintenance costs and lessons learned, in addition to planned continuous improvements and opportunities for system enhancement, in the context of his next progress report.

Strategic planning, budgeting and performance management

12. In his progress report, the Secretary-General indicates that the strategic planning, budgeting and performance management solution was deployed to all entities in 2020 and that an enhancement to the solution in the form of a new integrated functionality, entitled “integrated planning, management and reporting”, was deployed in the fourth quarter of 2020. The Secretary-General states that this new functionality enables the end-to-end management of the full life cycle of projects across funding sources and allows programme managers to plan, manage and monitor projects using a results-based methodology, which would link projects to programmes and multi-year strategies such as the 2030 Agenda for Sustainable Development and Agenda 2063 of the African Union. Following the launch of integrated planning, management and reporting, approximately 3,000 existing projects were converted to

the new integrated project format, thus providing a foundation of data for planned analytic, reporting and dashboard efforts. Figure II of the report of the Secretary-General provides an example of a logical framework for an integrated planning, management and reporting project. The Secretary-General also outlines in his report several enhancements to strategic management applications, including updates to accommodate changes related to the annual budget format and performance report generation and the budget planning solution, including improvements in regular budget recosting simulations of revised estimates and the automatic rollover of approved peacekeeping budgets. It is indicated that the automatic rollover of approved regular budgets is planned for deployment as part of continuous improvement initiatives during the fourth quarter of 2021 (A/76/386, paras. 9–14).

13. In its report, the Board of Auditors notes that the strategic planning, budgeting and performance management solution supports the full life cycle of programme management and that the integrated planning, management and reporting solution forms the integration layer, which, together with the implementing partner management solution, links the components of strategic planning, budgeting and performance management¹ to deliver integrated planning, management and reporting. The Board also notes that the integrated planning, management and reporting solution has fully replaced the previous portfolio and project management module and that, following a gap assessment in 2019, the SAP Fiori technology was used for customized development of the integrated planning, management and reporting solution, due mainly to the lack of capabilities for capturing programmatic and substantive information within the SAP portfolio and project management product (A/76/131, paras. 34–36).

14. Upon enquiry, the Advisory Committee was informed that, with respect to a solution developed by the United Nations using the SAP platform, such as integrated planning, management and reporting, SAP would not be in a position to use or commercialize such a functionality; if SAP developed a customized solution for the United Nations, on the other hand, certain clauses in the contract with SAP might grant SAP the rights over such a solution. The Committee was also informed that there could be certain cases in which a functionality developed by the United Nations might be provided to SAP voluntarily as it would be in the best interest of the Organization to ensure that it was included as part of the SAP standard solution. **The Advisory Committee believes that any software solution developed for the United Nations by a third party should, to the extent feasible, become the intellectual property of the United Nations, with the appropriate rights and protections accruing to the Organization, and recommends that the General Assembly request the Secretary-General to carry out a review of contractual modalities in place between the United Nations and SAP, with a view to identifying any gaps in control over software solutions commissioned by the Organization, as well as to identify any opportunities to license or otherwise generate revenue from software applications specifically developed for the United Nations.**

Fundraising and donor relationship management

15. In his progress report, the Secretary-General indicates that, following the initial deployment of the fundraising and donor relationship management solution in September 2018, and based on user feedback, further improvements were deployed in September 2021 to the management of donor profiles and preferences, providing additional insight for fundraisers across the Secretariat into donors' strategic priorities and administrative and management procedures (A/76/386, paras. 15–16).

¹ Strategic management application, business planning and consolidation and project system.

16. In its report, the Board of Auditors notes that user adoption of the programmes and library functionalities in the fundraising and donor relationship management solution was not optimal, and that integration of the solution with other Umoja modules was not established and would be assessed as part of continuous improvement initiatives ([A/76/131](#), paras. 53–59).

Implementing partner management

17. In his progress report, the Secretary-General indicates that, after concluding deployment in December 2019 and in response to user feedback, additional improvements were introduced in December 2020, including tools to assess implementing partners, and further improvements were planned for completion by the end of 2021, including improvements in monitoring reporting and payments, application and agreement formats, and integration with the integrated planning, management and reporting solution. The Secretary-General notes that the implementing partner management solution user base has grown since 30 June 2020 from \$620 million to \$747 million in terms of the value of agreements, and from \$420 million to \$588 million in the biannual value of related payments ([A/76/386](#), para. 18). In its report, the Board of Auditors notes that the United Nations is the first SAP customer to deploy the implementing partner management solution, along with the SAP grant management application, and that, after its initial roll-out at the end of 2018, the solution was deployed to all entities at the end of 2019. At the same time, the Board indicates that user uptake of the solution is still proceeding, with only 40 of the 2,376 partners within the solution accessing the solution through a portal designed to assist them in becoming eligible partners. The Board notes that the Administration would continue to encourage the use of the implementing partner management solution by partners with the operational capacity to do so ([A/76/131](#), paras. 49–52).

18. It is further noted in the report of the Secretary-General that the Secretariat joined the UN Partner Portal, an online partner screening platform, in August 2021, thereby promoting information-sharing among United Nations system entities and reducing the duplication of efforts in the verification of potential partners ([A/76/386](#), paras. 18 and 20). Upon enquiry, the Advisory Committee was informed that the UN Partner Portal enhances the initial vetting, or conduct of due diligence, of partners, including periodic automatic checks of partners against United Nations sanctions lists. Once successfully vetted, the related applications and agreements would be managed through the Umoja implementing partner management solution and would include the assessment of partners during the application process, as well as an evaluation of their performance at the conclusion of an agreement. The Committee was also informed that the integration of Umoja and the UN Partner Portal, which is a new system introduced at the beginning of 2019, has focused on the alignment of partner master data, such as current verification status and identification numbers, and that systematic sharing of partner assessment and performance information, including risk profiles, was being prioritized as an opportunity for further integration as the UN Partner Portal continues to mature through the ongoing collaboration of participating entities.

19. Upon further enquiry, the Advisory Committee was informed that the Secretariat was part of the Enterprise Resource Planning Special Interest Group, which allowed common system entities to collaborate and remain engaged in enterprise resource planning-related activities and to consolidate joint submissions to SAP for changes. The Committee was informed that, while it was not foreseen that all funds and programmes would integrate all aspects of their respective systems given their different mandates, business and individual governance needs, there were already applications in place that provided common data sources to entities, such as the

United Nations Global Marketplace in the area of procurement, as well as the UN Partner Portal referenced above. In terms of operations, the Secretariat has an interface with the United Nations Development Programme to exchange financial information supporting agreements and services provided, and further interfaces exist between entities and the United Nations Joint Staff Pension Fund in the sharing of human resources-related and pension-related data. The Committee was also informed of initiatives currently under way, such as the UN Digital ID initiative, overseen by the inter-agency High-level Committee on Management network, which would create an immutable online identity for United Nations employees from onboarding to separation or retirement by leveraging blockchain technologies to ensure efficient, secure, portable and universal identity verification, thus facilitating the movement of staff within the United Nations system throughout their career. **The Advisory Committee, noting the examples of enterprise resource planning systems interoperability among United Nations system entities, encourages the Secretary-General, as the Chair of the United Nations System Chief Executives Board for Coordination, to facilitate the coordination of entities on further areas of compatibility and interoperability of their enterprise resource planning systems, as appropriate.**

Supply chain management

20. In his progress report, the Secretary-General indicates that the supply chain management solution covers four functional areas, as follows: planning for the demand of goods and services, determining the sources of supply, managing transportation and tracking the movement of goods. These functional areas are grouped under two solutions in UE2, namely transportation management, and demand and supply planning, and are underpinned by an integrated architecture of on-premise and cloud-based technologies (ibid., para. 21).

21. With regard to the transportation management solution, the Secretary-General indicates that the solution had been deployed to 37 entities by the end of 2019 and has since been expanded to 2 more entities, the United Nations Integrated Office in Haiti in November 2020 and the Economic and Social Commission for Asia and the Pacific in February 2021. He also indicates that, following UE2 deployments, additional enhancements to the management of intra-mission movements of troops and contingent-owned equipment, as well as the creation of automated forms, were delivered as continuous improvements (ibid., paras. 22–24).

22. With regard to demand planning and supply planning, the Secretary-General indicates in his report that gross demand planning was delivered in September 2020, with net demand and source planning following at the end of 2020. He notes that 192 users and eight solution validation entities were trained or otherwise involved in the deployment and that the solution was implemented in collaboration between the Enterprise Resource Planning Solution Division and business teams, while being led by the Office of Supply Chain Management in the Department of Operational Support. As of July 2021, the solution, rebranded the “supply chain planning tool”, had been deployed to 44 entities and constituted the first global deployment of a Umoja supply chain management solution on a completely virtual basis through the leveraging of remote technologies (ibid., paras. 25–30).

23. The Advisory Committee, upon enquiry and from the supplementary information that it received, was informed that the supply chain planning tool was implemented using an SAP cloud-based subscription solution entitled “integrated business planning” (see also [A/74/478](#), paras. 44–45, and [A/75/386](#), para. 23), supported by a solution architecture that included integration with on-premise components.

24. In its report, the Board of Auditors notes that such integration was achieved through the consolidation of multiple data feeds from various modules, including the transport management, supplier relationship management and enterprise resource planning central component modules, through the SAP HANA² layer (A/76/131, para. 46). Upon enquiry, the Advisory Committee was informed that data feeds included data on contracts, purchase orders, equipment, inventory and batch management, lead-time and safety stocks, and financial coding blocks from their respective modules and were further validated, transformed and aggregated within the HANA layer. Information then flowed into the supply chain planning tool through SAP cloud platform integration.

25. The Advisory Committee was informed, upon enquiry and from the supplementary information that it received, that the implementation by the United Nations of this solution was the first major public sector implementation of its kind and represented another example of non-traditional public sector implementation within the suite of UE2 products. The Committee was also informed that the cloud-based subscription service underpinning the solution, integrated business planning, was currently the only cloud-based solution deployed within Umoja, alongside the latest SAP cloud analytics technology, and that decisions on upgrades to either on-premise or cloud-based infrastructure were based on several factors, including vendor support, strategic fit, user experience and cost.

26. From the additional information provided to it, the Advisory Committee notes that the Organization has perpetual licences for its on-premise SAP products and that the maintenance component of the contract with SAP is managed on an annual basis, covering regular software updates and product support to ensure compliance, security patching and new features; for cloud-based products, licensing is managed on an annual basis and is also inclusive of maintenance. The Committee also notes that SAP has committed itself to support for and maintenance of its core products, including the business suite powered by SAP HANA, through the end of 2027; beyond the 2027 time frame, customers in transition to the newer SAP S/4 HANA suite could receive extended maintenance through the end of 2030, with SAP committed to providing maintenance for S/4 HANA through the year 2040.

27. The Advisory Committee notes the expiration period in 2027 of maintenance support for the current suite of SAP products used by the Organization and points out that, in order to keep pace with technological innovation, a transition to SAP S/4 HANA and related products would likely be required and would bring additional costs to the Organization. The Committee therefore recommends that the General Assembly request the Secretary-General to include a detailed scenario analysis and breakdown of upcoming product upgrades and their corresponding licensing and maintenance costs in the next Umoja progress report.

Uniformed capabilities management

28. In his progress report, the Secretary-General indicates that the functionality for troop and formed police strength reporting and troop cost reimbursement was delivered by end of 2020 and deployed to users in January 2021. He notes that 22 peacekeeping and special political missions use the solution to capture daily gains and losses in personnel categories and generate mission reports for troop-contributing countries. The Secretary-General highlights the increased adoption of the solution in

² A column-oriented in-memory database management system developed by SAP that is capable of storing and quickly retrieving application data, in addition to providing search, analytics and data integration capabilities for both structured and unstructured data (see www.sap.com/products/hana/what-is-sap-hana.html#overview).

transaction processing in the first half of 2021, at a value of \$615 million for 878 certified claims, which is in addition to claims worth \$2.5 billion processed through the solution since its deployment in August 2019. In the report, he also outlines further improvements made to the solution since deployment, including a payment remittance advice interface and functionalities to generate payment letters and reports to permanent missions, as well as improvements to be undertaken in troop planning and management (A/76/386, paras. 31–35).

Conference and event management

29. In his progress report, the Secretary-General indicates that, owing to the absence of SAP capabilities in this area, the solution for conference and event management is delivered through four enterprise applications developed and managed by the Department for General Assembly and Conference Management, namely gMeets (meetings management), Indico.UN (meeting participant management), gDoc 2.0 (document production and distribution) and eAPG (meeting interpretation assignment) (see also A/75/7/Add.14, para. 19). The Secretary-General indicates that consultations are ongoing with the Inspira team on the integration of the global language roster with gDoc 2.0 and eAPG, which is to be followed with Umoja integration in 2022. It is further noted that, after UE2 completion, the Department has undertaken an analysis of possibilities for the integration of conference and event management applications into Umoja (A/76/386, paras. 36–40).

30. In its report, the Board of Auditors notes that the conference and event management subsystems of the Secretariat are legacy systems existing for many years prior to the UE2 solution and that their integration with Umoja finance, human resources, supply chain management and travel modules may be completed by 2023. The Board also notes that the Administration considers such integration within the scope of continuous improvements of Umoja, and not within the original criteria for completion of the Umoja project (A/76/131, paras. 68–69).

31. The Advisory Committee was informed, upon enquiry, that, while deployment of the scope of the Umoja solution under UE2 was concluded in 2020, followed by standard stabilization during 2021, any enterprise resource planning solution required constant sustainment, enhancement, upgrade and partial replacement during its entire life cycle, and that integration opportunities would continue throughout the life of the system as part of continuous improvement initiatives. With respect to conference and event management integration, the Committee was informed that integration opportunities in this area were planned through 2023.

32. While noting that the integration of conference and event management was not included in the original criteria of the Umoja project, the Advisory Committee points out the three-year gap between UE2 deployment completion, stabilization and planned integration of key solutions, such as conference and event management, within the Umoja system. The Committee trusts that the Secretary-General will provide to the General Assembly a list of outstanding integration opportunities and their related timelines and cost profiles at the time of its consideration of the next Umoja progress report.

Infrastructure

33. In his progress report, the Secretary-General provides an overview of disaster recovery and planning for the Umoja solution, including that, in the fourth quarter of 2020, the Enterprise Resource Planning Solution Division successfully completed a major upgrade that provided product fixes and security patches, in addition to annual package upgrades to other applications of Umoja. The Secretary-General also indicates that, over the reporting period, the Division established processes to ensure

a minimized risk profile for Umoja, in response to the recommendation of the Advisory Committee in its previous report (see [A/75/7/Add.14](#), para. 42), as endorsed by the General Assembly in its resolution [75/253 A](#), and provides updates regarding cybersecurity enhancements, including the review of SAP weekly automated reports and recommended patches, bimonthly reviews of personnel login credentials, implementation of multifactor identification and the conduct of annual self-assessments within the scope of the 2019 cybersecurity action plan ([A/76/386](#), paras. 41–50).

34. In its report, the Board of Auditors notes that the cybersecurity action plan endorsed in December 2019 was aimed at increasing compliance but did not indicate a modality for the broad implementation of and accountability for the plan, and that, for the action plan on Umoja, a specific measure on the encryption of data at rest or in transit was pending in 2020. In terms of disaster recovery, the Board also notes that the actual recovery time achieved in test exercises conducted on 31 October and 7 November 2020 did not meet the recovery time objective of 8 hours ([A/76/131](#), paras. 93, 100 and 101).

35. The Advisory Committee was informed, upon enquiry, that a security breach in the Umoja access layer occurred in April 2021 through the use of compromised account credentials, but that the breach did not affect the Umoja system itself, and that access control for the Umoja access layer was strengthened in July 2021 with the deployment of multifactor authentication for Umoja production and mobile applications. The Committee was also informed, upon enquiry, that the Office of Information and Communications Technology, in collaboration with the Enterprise Resource Planning Solution Division, had fast-tracked the deployment of a threat-hunting solution, as well as a state-of-the-art vulnerabilities detection and response module.

36. The Advisory Committee, noting the related recommendation of the Board of Auditors (see [A/76/131](#), para. 96), trusts that the Secretary-General will establish the mechanism necessary to ensure the broad implementation of and accountability for the 2019 cybersecurity action plan and will continue to take proactive measures within the scope of continuous improvements in order to prevent future cyberattacks on and breaches of the Umoja system.

C. Enterprise Resource Planning Solution Division

37. In his progress report, the Secretary-General indicates that, following the conclusion of the Umoja project phase in 2020, Umoja has been fully mainstreamed into the Secretariat with a sustainable business model that ensures that the solution remains fit for purpose and continues to support the business case. In section III of his report, the Secretary-General outlines progress on the mainstreaming plan since his twelfth progress report, comprising: (a) the Umoja governance model; (b) continuous improvement; (c) analytics; (d) total cost of ownership; and (e) benefit realization.

38. In its report, the Board of Auditors notes the absence of quantifiable indicators for the components of the above mainstreaming plan and the resulting challenges in identifying resource constraints and problem areas, and recommends the establishment of measurable indicators with a critical path, detailed task-wise schedule and monitoring mechanism ([A/76/131](#), paras. 210–212). The Advisory Committee, upon enquiry, received a revised version of table 1 of the report of the Secretary-General ([A/76/386](#)), summarizing the status of the Umoja mainstreaming plan with the addition of the progress indicators “established” and “ongoing” for each of the components of the plan. The Committee was informed that the Secretary-

General considered the project to be mainstreamed and the recommendation of the Board to be implemented. **The Advisory Committee points out that the recommendation of the Board of Auditors made specific reference to the addition of “measurable indicators with a critical path, a detailed task-wise schedule and a monitoring mechanism” to monitor the progress of implementation of the mainstreaming plan, in view of the complexities of stabilization and the need to identify specific resource constraints, and trusts that the Secretary-General will implement fully the recommendation of the Board and provide the related update in the context of his next progress report.**

1. Governance model

39. In his progress report, the Secretary-General indicates that the broad functional scope of Umoja made it imperative to create a governance model that provided the right direction and support to ensure that the solution kept adapting to the evolving needs of the business areas, as well as to ensure that the technical footprint of Umoja conformed to the United Nations information and communications technology standards and policies. The governance model ([A/76/386](#), paras. 63–73) includes the following main elements:

(a) *Department of Management Strategy, Policy and Compliance and Department of Operational Support.* The two departments continue to provide the joint business leadership necessary to ensure that the Umoja solution remains fit for purpose for the Organization globally. In its report, the Board of Auditors notes that the two departments continue to use the Management Client Board to periodically engage with clients on the strategic and operational needs addressed by Umoja ([A/76/131](#), para. 21). Upon enquiry, the Advisory Committee was informed that the Management Client Board would serve as a formal feedback mechanism between the two departments and their client entities and would identify, jointly and systematically, any opportunities to improve the implementation of the Secretary-General’s new management paradigm;

(b) *Umoja Steering Committee and Information and Communications Technology Steering Committee.* The Umoja Steering Committee has continued to support the mainstreaming process and to ensure that UE2 is technically stable and that user adoption is sustainable. The tenure of the Umoja Steering Committee ends at the end of 2021, at which point the Secretary-General indicates that the Information and Communications Technology Steering Committee, overseeing information and communications technology activities across the Secretariat, will assume responsibility for providing overall direction to the Enterprise Resource Planning Solution Division. The Advisory Committee was informed, upon enquiry, that the transition from one steering committee to the other was agreed in accordance with the expected stabilization of UE2 projects at the end of 2021, with the projects coming under the governance of the Umoja Change Board (see subpara. (c) below) and the Umoja Steering Committee passing its responsibilities to the Information and Communications Technology Steering Committee;

(c) *Umoja Change Board.* The Umoja Change Board, established in April 2020, continues to be led by the Office of the Under-Secretary-General for Management Strategy, Policy and Compliance and the Office of the Under-Secretary-General for Operational Support and is composed of functional and technical representatives from across the Secretariat. The full terms of reference of the Board are presented in the twelfth progress report of the Secretary-General (see [A/75/386](#), paras. 56–60). The Secretary-General indicates that the terms of reference of the Board were updated in 2021 following the closure of the Umoja project phase and the establishment of the Enterprise Resource Planning Solution Division, as well as the mainstreaming of responsibilities to the business. In addition, it is noted that

conference and event management were added as a subgroup, and membership in subgroups was expanded to UE2 projects (*ibid.*, paras. 68–70). Figure III of the report of the Secretary-General provides more information on the composition of the Board.

40. In its report, the Board of Auditors notes the meetings held to update the governance structure on the basis of UE2 progress and expresses the view that the Management Committee ought to have a more proactive leadership role in governance, having been briefed on Umoja only twice in 2020 ([A/76/131](#), paras. 17–26). **The Advisory Committee notes from the report of the Secretary-General that the Management Committee, at its meeting in September 2021, has agreed to continue receiving biannual updates on Umoja from the Enterprise Resource Planning Solution Division, but considers that biannual updates are insufficient given the scope and importance of the Umoja system. The Committee trusts that the Secretary-General will implement the recommendation of the Board of Auditors to the fullest extent in strengthening the Organization's senior leadership role in Umoja governance.**

2. Continuous improvement

41. In his progress report, the Secretary-General indicates some of the key areas in which the Enterprise Resource Planning Solution Division has implemented a programme of continuous improvement in collaboration with the business and in line with the Secretary-General's management reform. It is noted that the continuous improvement principle since the deployment of Umoja Foundation has been defined on the basis of change requests raised by business teams ([A/76/386](#), paras. 74 and 75).

42. Examples of improvements since the twelfth progress report and improvements planned for 2022 are cited in the areas of: human capital management, including Umoja/Inspira integration, travel improvements, a new solution for danger pay processing, improved business intelligence reporting and beneficiary forms processing; strategic planning, budgeting and performance management, including reporting on sector-specific strategies and sign-off on Umoja substantive reporting; finance, including retiree payment improvements, automation of investment transactions, improvements in the preparation of financial statements for multiple accounting entities, and planned improvements for continued compliance with International Public Sector Accounting Standards; and supply chain management, including enhancements to the processing of inter-mission customs clearance, shipment handling and letters of assist (*ibid.*, paras. 77–86).

43. The report of the Secretary-General also provides information on a governance, risk management and compliance module used to grant emergency user access and enhance risk management, COVID-19-related improvements and the expansion of Umoja through the incorporation into the system of over 750 staff members across more than 200 duty stations (*ibid.*, paras. 87–90).

44. In its report, the Board of Auditors comments on user access provisioning, pointing out that a clear definition of roles is essential to effective performance. The Board notes that the user access provisioning tool, the security liaison officer workbook and the Umoja roles guide should complement each other, and recommends oversight functions and the identification of an organizational unit and process for this purpose ([A/76/131](#), paras. 119–124).

45. Upon enquiry, the Secretary-General informed the Advisory Committee that the Enterprise Resource Planning Solution Division would continue to maintain the user access provisioning tool, with security liaison officers in each entity managing the user access provisioning process from end to end. The Board of Auditors informed the Committee, upon enquiry, that the responsibility of the business was to maintain the Umoja roles guide, the security liaison officer workbook and other Umoja-related

resources, as well as to ensure that these resources were properly aligned with delegation of authority and segregation of duties information; the Division was responsible for publishing information on these resources on iSeek on a regular basis. The Board informed the Committee that only the Administration could identify the appropriate point of accountability to perform the oversight function for this process. **The Advisory Committee trusts that the Secretary-General will conduct a review of the appropriate oversight mechanism for the user access provisioning process and will include an update in the context of his next progress report.**

3. Analytics

46. In his progress report, the Secretary-General indicates that the Umoja Analytics platform will be used to blend a broader and deeper level of internal and external data and will gradually replace business intelligence, which combines data from Umoja with that of other solutions such as Inspira and iNeed. Umoja Analytics would provide predictive analytics and “what if” scenarios in the analysis of potential budget decisions and thus assist in Member State decision-making.

47. As an example of the success of Umoja Analytics, the report of the Secretary-General cites data visualization, interactive dashboards and dynamic reports used to communicate with Member States during the recent liquidity crisis. The report indicates that analytics enhancements to the Member States portal, the Umoja contributions portal and additional functionalities in the areas of human resources and uniformed capabilities management are forthcoming ([A/76/386](#), paras. 91–98).

48. The Advisory Committee notes that the launch of a human resources portal for Member States was expected in September 2021 and was informed, upon enquiry, that delays in the launch of the portal were due to several factors, on both the business and the technical side, including competing priorities as a result of COVID-19 and a decision to switch to the new analytics platform in December 2020, and that a soft launch of the portal would take place with some Member States in the first quarter of 2022. The Committee was further informed, upon enquiry and from the supplementary information provided to it, that 132 Member States had access to the Umoja contributions portal. **The Advisory Committee trusts that the Secretary-General will continue his efforts to expedite the launch of the human resources portal and to provide access to the Umoja contributions portal for all Member States of the United Nations.**

49. In its report, the Board of Auditors expressed some reservations about missing documentation that was necessary for the preparation of analytical reports and the “business intelligence certified layer” and indicated that the Administration was currently reviewing documentation gaps at the request of business owners ([A/76/131](#), paras. 134–137).

4. Total cost of ownership

50. In his progress report, the Secretary-General indicates that the total cost of ownership has been updated and has increased from \$1,478.7 million in the twelfth progress report to \$1,526.4 million in the current report, having been expanded to include actual and projected costs of business support activities. Table 2 of the report of the Secretary-General provides an overview of the total cost, estimated to 2030.

51. In its report, the Board of Auditors notes several inconsistencies and areas for improvement for calculation and estimation of the total cost of ownership as presented in the twelfth progress report of the Secretary-General ([A/75/386](#)); it also notes that the methodology for the calculation of maintenance costs had differed in the past three progress reports of the Secretary-General and expresses its concern that the lack of

detailed data for estimating maintenance costs could result in forecasting inaccuracies and inconsistencies ([A/76/131](#), paras. 184–207).

52. Upon enquiry, the Board of Auditors informed the Advisory Committee that the total cost of ownership was a comprehensive assessment of information technology and other costs across enterprise boundaries over time, which included hardware and software acquisition, management and support, communications, end user expenses, the opportunity cost of downtime, training and productivity losses; as such, the volatility of such costs could be driven by a number of cost factors, including direct, indirect, training and maintenance costs. The Board highlighted its recommendation with respect to the estimation of maintenance costs and that major purchases of hardware and software licences were not independently estimated, thereby increasing the risk that current total cost of ownership estimates may be adjusted upwards in future periods.

53. The Advisory Committee is of the view that a comprehensive and accurate view of the total cost of ownership of the Umoja system is necessary to properly assess the benefits of its implementation and encourages the Secretary-General to continue to refine the methodologies for calculation of unstable elements comprising the total cost of ownership, such as projected maintenance, hardware acquisition and software licensing costs, and to include the related updates in future Umoja progress reports.

5. Benefit realization

54. In line with the recommendation of the Advisory Committee in its previous report ([A/75/7/Add.14](#), para. 32), the final progress report of the Secretary-General includes an update on the benefit realization plan approved by the Umoja Steering Committee in December 2020 and indicates that the Business Transformation and Accountability Division continues to have responsibility for coordinating the process of benefit realization of Umoja. The Secretary-General also indicates that the Benefits Working Group has been initiated and is actively involved in overseeing the progress of Umoja benefit realization relating to continuous improvements and the implementation of UE2 solutions ([A/76/386](#), paras. 100–108).

55. In its report, the Board of Auditors notes the lack of updated quantitative information regarding Umoja benefit realization and expresses the view that the lack of such information would expose the Organization to inefficiently recording benefits accruing from Umoja. The Board stresses the need for the timely updating of the recording, tracking and reporting of continuous improvement benefits and the deployment of UE2 solutions so as to capture overall benefits realization ([A/76/131](#), paras. 177–180).

56. The Advisory Committee requested information on estimated cost savings as a result of the deployment of the supply chain management module and, upon enquiry, was informed that the quantitative benefits realized previously through the implementation of the foundation of the solution were now an indistinguishable, fully absorbed part of the Umoja system. The Committee was also informed that future qualitative and quantitative benefits would arise from the implementation of UE2 solutions as well as from continuous improvements, and would be reported through the business owners' budgetary proposals and monitored, in the future, by the Business Transformation and Accountability Division and the Office of Programme Planning, Finance and Budget.

D. Expenditure for 2021 and resource requirements for 2022

57. In his progress report, the Secretary-General indicates that the projected expenditure for 2021 for the Enterprise Resource Planning Solution Division, established in accordance with General Assembly resolution [73/253 A](#), is \$24,976,100, against an approved budget of \$25,483,100. He also indicates in table 3 of his report that expenditure for the Umoja project over the period 2008–2020 amounted to \$554,853,000, against the approved cumulative funding up to the end of 2020 of \$565,324,300, resulting in an unused balance of funding of \$10,471,300. The Secretary-General notes that a provision of \$3,695,400 was reserved from this balance to fund business support activities during 2021 and that the projected expenditure for 2021 business support activities to be charged against the reserved amount is \$2,304,000 ([A/76/386](#), table 3, footnote a). **The Advisory Committee trusts that updated expenditure information will be presented to the General Assembly at the time of its consideration of the present report.**

58. The total proposed resources for 2022 for the Enterprise Resource Planning Solution Division amount to \$24,571,800, reflecting a decrease \$911,300, or 3.6 per cent, as compared with the approved budget for the Division for 2021 (*ibid.*, para. 111 and table 4). In addition, resources in the amount of \$3,219,200 are proposed for the business support areas in the Department of Management Strategy, Policy and Compliance, the Department of Operational Support and the Department for General Assembly and Conference Management and would provide for 22 general temporary assistance positions (*ibid.*, paras. 133–138, table 6 and annex III). A breakdown of resource requirements by category of expenditure is presented in table 4 of the report of the Secretary-General, while details on the post and non-post resources of the Division are provided in paragraphs 120–132. Upon enquiry, the Advisory Committee was informed that peacekeeping operations funding in the amount of \$11,526,000, providing for a staffing complement of 42, was also approved for 2021–2022 under the Umoja implementation support project, reflecting a third funding stream in support of the Umoja enterprise resource planning system.

Proposed resources for the Enterprise Resource Planning Solution Division

Posts

59. The proposed resources under posts amount to \$12,660,400 and would provide for salary and common staff costs for the continuation of 68 posts in the Enterprise Resource Planning Solution Division, comprising 1 D-2, 3 D-1, 8 P-5, 20 P-4, 16 P-3, 7 P-2, 8 General Service (Principal level) and 5 General Service (Other level) posts. Upon enquiry, the Advisory Committee was informed that, as at 28 October 2021, 58 posts were encumbered and 10 were at various stages of recruitment, with candidates selected and onboarding for 2 of the vacant posts. **The Advisory Committee requested, but did not receive, information regarding specific dates of vacancy for the posts that have been vacant and their corresponding stages of recruitment, and trusts that this information will be provided in future progress reports as a matter of routine.**

60. In line with the recommendation of the Advisory Committee in its previous report ([A/75/7/Add.14](#), para. 37), annex II of the progress report of the Secretary-General provides a detailed explanation and justification of the roles and required staffing complement for the Enterprise Resource Planning Solution Division in 2022; annex III of the report provides an overview of the functions and justifications for the 22 general temporary assistance positions providing business support to the Division (see also para. 58 above). Upon enquiry, the Committee was informed that no changes were being put forward by the Secretary-General in respect of the number, grade level

or associated profile of the 68 posts proposed for continuation in 2022. The Committee was also informed that, since January 2017, Umoja project staffing had been continuously downsizing and reprofiling as posts became vacant to arrive from a complement of 90 posts to 68, 49 general temporary assistance positions to 10, and 110 on-premise contractors to 16, and that, during 2021, the Division had had to cancel and recirculate 13 job vacancy announcements in order to attract more qualified candidates. At the same time, the Division has focused on developing the self-sufficiency of its staff in developing and maintaining the Umoja system in-house, which has led to cost reductions for knowledge transfer from contractors to staff and eliminated the need for a systems integrator.

61. The Advisory Committee welcomes the efforts of the Enterprise Resource Planning Solution Division in developing the in-house capacity of staff to maintain and develop the Umoja system. At the same time, the Committee expresses its concern regarding the high number of vacant posts and recirculated job openings, and trusts that the Secretary-General will apply the appropriate lessons learned in adjusting his strategy to attract qualified candidates in the information technology field and will provide updated information on the recruitment status for vacant posts to the General Assembly at the time of its consideration of the next Umoja progress report.

Consultants

62. The proposed resources for consultants in 2022 amount to \$132,000 to provide for the continued services of one full-time consultant during 2022. Upon enquiry, the Advisory Committee was provided with the actual and projected expenditure for 2021 by category of expenditure, showing that the estimated expenditure for consultants in 2021 amounted to \$0. **In view of the pattern of expenditure, the Advisory Committee recommends that the General Assembly reduce the proposed requirement of \$132,000 for consultants in 2022 by 10 per cent, or \$13,200.**

Contractual services

63. The proposed resources for contractual services in 2022 amount to \$7,500,000 to provide for: \$2,200,000 for premium SAP support services; \$3,700,000 for experienced developers provided by two vendors to complement the Enterprise Resource Planning Solution Division team, with 16 developers assisting the team in 2022, reduced from 25 approved for 2021; \$100,000 for low-value contractual requirements; \$1,000,000 for software upgrades to support solutions, such as the Member States portal and supply chain planning tool; and \$500,000 to provide specialized SAP training to staff of the Division. Upon enquiry, the Advisory Committee was provided with the actual and projected expenditure for 2021 by category of expenditure, showing that the estimated expenditure for contractual services in 2021 amounted to \$10,458,000, against an approved budget of \$7,030,000. **The Advisory Committee trusts that the Secretary-General will provide updated expenditure information and a justification for any projected overexpenditure for contractual services in 2021 to the General Assembly at the time of its consideration of the present report.**

Travel of staff

64. The proposed resources for travel of staff amount to \$271,900, comprising \$220,000 for travel to attend specialized technical training only available off site, according to a calendar established by SAP Education, and \$51,900 for other official business travel of the team. Upon enquiry, the Advisory Committee was provided with the actual and projected expenditure for 2021 by category of expenditure, showing that the estimated expenditure for travel of staff in 2021 amounted to \$13,000, against

an approved budget of \$259,800. In view of the pattern of expenditure, the Advisory Committee recommends that the General Assembly reduce the proposed requirement of \$271,900 for travel of staff in 2022 by 15 per cent, or \$40,800. The Committee also recalls its related recommendation in its previous report (A/76/7/Add.14, para. 39) and trusts that the Secretary-General will make further use of online training opportunities and alternative means of communication in the light of the COVID-19 pandemic.

E. Other matters

Proposed cost-sharing arrangement for 2022 and from 2023 onwards

65. Table 7 of the final progress report of the Secretary-General outlines the proposed cost-sharing arrangement to support the resource requirements of \$24,571,800 for the Enterprise Resource Planning Solution Division in 2022. The Secretary-General proposes to maintain the arrangement established for the project phase of Umoja, as endorsed by the General Assembly in its resolution 63/262, whereby requirements were financed at 15 per cent from the regular budget, 62 per cent from the support account for peacekeeping operations and 23 per cent from the special account for programme support costs. The Secretary-General proposes to maintain the same cost-sharing arrangement to finance resource requirements of \$3,219,200 for business support activities in 2022 (A/76/386, paras. 140–142, and table 7).

66. From 2023 onwards, as outlined in table 8 of his report, the Secretary-General proposes to change the cost-sharing arrangement for the post-project phase of Umoja to an updated apportionment among funding sources that is reflective of changes that have taken place over the past 12 years. The revised funding model would be appropriated at 46 per cent through the regular budget and 54 per cent through the support account for peacekeeping operations, with the proposal to review the distribution every five years. The Secretary-General proposes to assess Member States at only 26 per cent from the regular budget, with the remaining 20 per cent extrabudgetary share assessed as cost recovery under income section 2 of the programme budget. According to the Secretary-General, such an arrangement would improve the liquidity necessary for the Enterprise Resource Planning Solution Division and other Umoja costs in the absence of the multi-year account approved for the Umoja project phase and is a more effective solution for financing models involving multiple funding sources (*ibid.*, para. 144).

67. The Advisory Committee was informed, upon enquiry, that the proposed revised cost-sharing arrangement was derived from the funding mechanism approved by the General Assembly for the resource requirements of the Office of Administration of Justice, which are reflected and appropriated in their entirety under section 1, Overall policymaking, direction and coordination, of the programme budget, with the amounts corresponding to the contributions of the agencies, funds and programmes and of the peacekeeping operations reflected as miscellaneous income under income section 2 of the programme budget. The appropriation of the extrabudgetary share through the regular budget would in this way ensure that the Enterprise Resource Planning Solution Division would not be limited by cash constraints owing to the unpredictability of voluntary funding receipts.

68. The Advisory Committee was also informed, upon enquiry, that, as Umoja is a core system of the Organization, encompassing all administrative activities of the Organization, due consideration was given to financing the requirements for Umoja from multiple funding sources, not just the regular budget, in line with the “whole of Secretariat” approach outlined by the Secretary-General in his management reform proposal establishing the Department of Operational Support and the Department of

Management Policy, Strategy and Compliance ([A/72/492/Add.2](#)), to which the Enterprise Resource Planning Solution Division reports.

69. The Advisory Committee requested, but did not receive, a sufficiently detailed explanation on the relative shares of the different budgetary sources comprising the proposed revised cost-sharing arrangement, which could clearly illustrate justification for the proposed distribution. The Committee points out that, as compared with the currently approved arrangement, the share of the regular budget in the revised funding arrangement would increase by 11 per cent, while the support account and extrabudgetary shares would decrease by 8 and 3 per cent, respectively. The Committee also points out that the proposed revised cost-sharing arrangement of the Secretary-General does not apply to the resources provided through peacekeeping operations funding (see para. 58).

70. In view of the unpredictability of extrabudgetary funding, the Advisory Committee has reservations about the reliability of the proposed revised cost-sharing arrangement with respect to the appropriation of, and eventual receipt of contributions to support, the extrabudgetary share of funding under income section 2 of the programme budget. The Committee considers that a more appropriate approach would be to treat the extrabudgetary share of funding as an advance against confirmed contributions over a given funding period. **The Advisory Committee is therefore not convinced that the inclusion of the extrabudgetary share of funding as cost recovery income is sufficiently justified, and recommends that the General Assembly request the Secretary-General to review alternative options for the revised cost-sharing arrangement, to further refine his approach to cost-sharing the totality of resources supporting the Umoja system and to present the related proposal and justification, supported by the appropriate calculations, for the consideration of the General Assembly in the context of his next Umoja progress report.**

IV. Conclusions and recommendations

71. The actions requested of the General Assembly are set out in paragraph 145 of the progress report of the Secretary-General. **Subject to its comments and recommendations in the paragraphs above, the Advisory Committee recommends that the General Assembly:**

- (a) **Take note of the final progress report of the Secretary-General on the enterprise resource planning project;**
- (b) **Approve the resource requirements of \$24,571,800 for 2022 for the Enterprise Resource Planning Solution Division;**
- (c) **Approve resource requirements of \$3,219,200 for 2022 for business support resources;**

Programme budget

- (d) **Approve an amount of \$3,677,700 under the proposed programme budget for 2022 under subprogramme 1, component 1, Enterprise resource planning solution, of section 29A, Department of Management Strategy, Policy and Compliance, representing the regular budget share for the cost of the Enterprise Resource Planning Solution Division for 2022;**

- (e) **Revise the appropriation under the proposed programme budget for 2022 by reducing the provision under section 29A, Department of Management Strategy, Policy and Compliance, by an amount of \$322,300;**

(f) Approve, under the proposed programme budget for 2022, the amounts of \$43,000 under section 2, Department for General Assembly and Conference Management, \$136,600 under section 29A, Department of Management Strategy, Policy and Compliance, and \$303,300 under section 29B, Department of Operational Support, representing the regular budget share of the cost of the business support resources in 2022;

Support account for peacekeeping operations

(g) Note that resource requirements in the amounts of \$15,201,000 for the Enterprise Resource Planning Solution Division and \$1,995,900 for business support resources will be included in the subsequent requirements for the support account for peacekeeping operations for the financial period from 1 July 2022 to 30 June 2023;

Extrabudgetary resources

(h) Note that resource requirements in the amounts of \$5,639,100 for the Enterprise Resource Planning Solution Division and \$740,400 for business support resources will be funded from extrabudgetary resources in the financial year 2022.

Annex

Lessons learned

<i>Area</i>	<i>Description</i>
Funding	<p>Major transformation projects must be adequately funded for indirect costs such as testing, training and change management</p> <p>Business and technology support structures for global projects need to be funded</p>
Governance	<p>Governance structure may evolve but the fundamental structure and terms of reference must be enshrined from the start</p>
Change management	<p>A phased implementation approach must be taken to ensure appropriate business readiness and change management</p> <p>A high level of participation of senior and mid-level management and staff is critical to organizational readiness</p> <p>Early, extensive and sustained business engagement is critical for improving adoption and ensuring future ownership of the solution. Extended business teams are one way to assist in this regard through requirement-gathering, solution design, development of training content and hypercare</p>
Training	<p>Just-in-time training and longer hypercare support are more helpful than courses too far ahead of deployment</p> <p>Training strategies should be continuously aligned and adapted on the basis of feedback from learners and experience gained</p> <p>Umoja training must be owned by the business as it is responsible for keeping the training content up-to-date and aligned with its needs</p>
Deployment	<p>Deployment should be methodical and there should be a strategic focus on functionality that is critical to overarching goals</p> <p>A user role guide and an early and concerted effort at user access mapping is critical to effective deployment</p> <p>New data need to be collected, cleansed, managed and validated by the business. An early start is crucial in this regard</p>
Operations	<p>Operational excellence can be achieved and sustained only when management structures, policies and procedures are aligned to support business process performance</p>
Mainstreaming	<p>Mainstreaming takes time in order to ensure a smooth transition. The functions also need to be properly staffed and funded for long-term sustainability</p>
Benefits	<p>A cautious approach to benefit quantification is recommended</p> <p>Benefits must be kept up-to-date from project launch to close-out</p> <p>A benefit management framework is needed throughout the life of the project</p>