



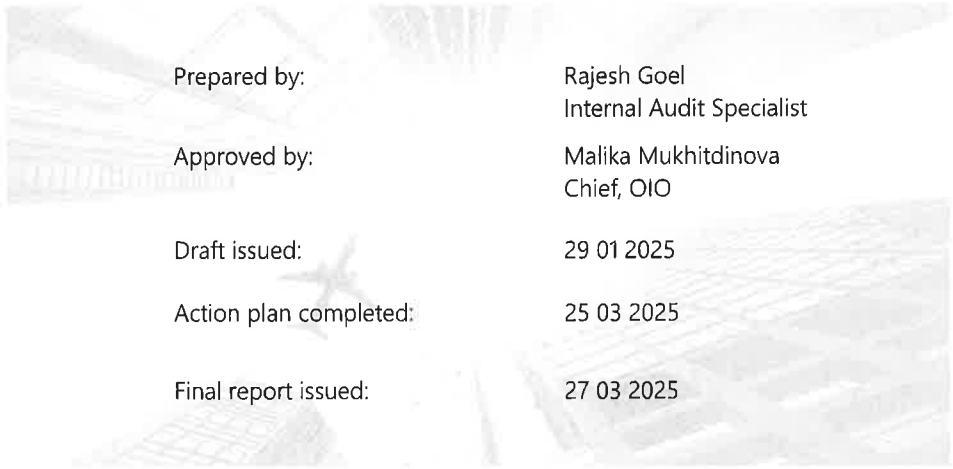
ORGANISATION DE L'AVIATION
CIVILE INTERNATIONALE

INTERNATIONAL CIVIL
AVIATION ORGANIZATION

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**Internal Audit Report
on the
Implementation of the Language Services
Management System (LSMS)**

Office of Internal Oversight



Prepared by:

Rajesh Goel
Internal Audit Specialist

Approved by:

Malika Mukhitdinova
Chief, OIO

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ACRONYMS

AI	Administrative Instruction
API	Application Programming Interface
ARMS	Archival Records Management System
BC/DRP	Business Continuity and Disaster Recovery Plan
BIA	Business Impact Assessment
DMS	Document Management System
EDEN	Electronic Documents and Enquiry Network application
EDRMS	Electronic Data and Records Management System
LSMS	Language Services Management System
LPC	Languages, Publications and Conference Management
ICAO	International Civil Aviation Organization
ICT	Information and Communication Technology
OIO	Office of Internal Oversight
OSG	Office of the Secretary General
RFP	Request for Proposal
RMS	Records Management System
SaaS	Software as a Service
UN	United Nations

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EXECUTIVE SUMMARY

1. In accordance with its annual work plan for 2024 (C-WP/15526), the Office of Internal Oversight (OIO) carried out an audit on the implementation of Language Services Management System (LSMS). The objectives of the audit were to (i) conduct a post-implementation review to ensure that the project accomplished the expected results and benefits within the budgeted costs, time and quality parameters; (ii) assess the adequacy of governance of outsourced services to another UN organization; and (iii) assess the satisfaction of users with rolled out platform and post-implementation support, including adequacy of user training and system's performance. The audit was conducted in conformance with the Global Internal Auditing Standards of the Institute of Internal Auditors.
2. LSMS introduced modern applications—gDoc 2.0, eLuna, eAPG, and UN Term—to streamline workflows, improve efficiency, and address challenges like scalability limitations and user dissatisfaction with legacy systems. The main reason for the introduction of the new applications was that EDEN and Hummingbird could no longer be maintained.
3. The project represents a significant step towards modernization, aligning with ICAO's transformational objectives. However, certain functionalities, primarily a reporting module in gDoc and search facility in eLuna are required for efficiency improvements.
4. Findings revealed several strengths, including successful system implementation, high user satisfaction with gDoc, and a robust training program tailored to user needs. Survey results showed overall satisfaction with gDoc and other modules. Areas for improvement identified by audit included: Administrative Instructions referencing outdated systems, heavy reliance on consultants with limited staff involvement, delays in implementation, etc. Management's awareness of lessons learned and commitment to improving processes was evident, ensuring long-term project sustainability and alignment with organizational goals.
5. The audit recommended updating Administrative Instructions, integrating LSMS with a planned enterprise Document Management System (DMS), and enhancing collaboration with the United Nations Secretariat development team to address user concerns.



7. Based on the results of the audit, OIO has given an overall audit rating of "Some improvement needed". This report identified areas for improvement and made four recommendations related to developing an effective interface with an enterprise document management system, acquiring new functionalities like gData module and eLuna search facility, updating the Administrative Instructions for language services, and developing a business continuity and disaster recovery plan. Various advisory notes have also been given by OIO where there is scope for improvements. Management comments and proposed actions are in the Management Action Plan at Annex 5
8. OIO wishes to thank management and staff for their assistance and cooperation during the audit.

RESULTS OF THE AUDIT

Introduction

9. The Language Services Management Systems (LSMS) Project was initiated back in 2018. It marks a significant shift from outdated systems to a more integrated, user-friendly, and efficient framework. Historically, ICAO's language services faced challenges with their existing tools, notably 'Eden', 'Hummingbird' and 'MultiTrans', which had hit their peak capacities and were plagued by numerous user issues. The LSMS project was conceived to address these pain points and to modernize the system with the latest technological advancements.
10. The LSMS project introduced four applications, each serving a unique purpose in the language services workflow:
 - gDoc 2.0: A workflow and document repository tool, replacing Eden and Hummingbird for new jobs.
 - eLuna: A new computer-assisted translation system incorporating Machine Translation (MT) engines, replacing MultiTrans.
 - eAPG: The Interpretation Assignment module, taking over a similar function from Eden.
 - UN Term: A comprehensive terminology database, integrating and replacing ICAO Term.
11. This suite of applications signifies a leap towards simplicity and efficiency. For instance, the integration of gDoc and eLuna simplifies the submission and translation processes for users, consolidating steps that previously required multiple platforms.

Audit Objectives, Scope and Methodology

12. The objectives of this audit were to:
 - Conduct a post-implementation review to ensure that the project accomplished the expected results and benefits within the budgeted costs, time and quality parameters.
 - Assess the adequacy of governance of outsourced services to another UN organization including the cloud-based service provision in terms of availability, integrity and confidentiality.
 - Assess the satisfaction of users with rolled out platform and post-implementation support, including adequacy of user training and system's performance.
13. Scope of this audit included assessing the reliability of LSMS components (gDoc 2.0, eAPG, eLuna and UN Term) in terms of availability, failover capabilities, and integration with other enterprise systems. The LSMS's performance against any predefined key performance indicators and system's efficiency in handling large volumes of data and requests was also covered as part of this audit. The audit analyzed the cost-effectiveness of the system, considering initial implementation costs, ongoing maintenance, and operational expenses and whether the system delivers the expected benefits such as reduced manual effort, faster turnaround time, and improved service quality.

14. Methodology: OIO carried out a desk review of project documentation to assess the design and effectiveness of governance and internal controls to provide assurance about effective project management. OIO conducted interviews with key personnel to seek clarifications and gain a better understanding of the systems as appropriate, as well as a user satisfaction survey.

Audit Observations and Conclusions

Project Management

15. In 2005, ICAO introduced the Electronic Documents and Enquiry Network (EDEN) /eDOCS system to better manage translation, editorial and related processes. EDEN was an in-house built web application, which was customized to address ICAO's needs, allowing the processing of all requests for document services such as: translation, interpretation, editing, text processing, printing, distribution and electronic publishing. OpenText Document Management eDOCS Edition (eDOCS DM formerly known as Hummingbird) was a software designed for integration with Microsoft applications, serving as a repository of documents (with a powerful search function) within the organization, helping in controlling and managing the documents.
16. The previous system (EDEN/eDOCS) was in operation till March 2024. It had limited capacity for growth and improvement. Documentation on the system was not up to date. To mitigate these challenges, it was planned in 2017 to revisit the user requirements for a new solution, identify various options, select the most suitable system and adequately migrate the existing data. In August 2021 LPC moved with a proposal for procuring the UN-based system. Furthermore, LSMS was included as a project under Transformational Objectives in 2023. Cloud based LSMS could finally be implemented in April 2024.
17. OIO observations / lessons learned are as follows:
 - a. The audit revealed that LSMS, a significant initiative, was being primarily managed by consultants hired by LPC with minimal involvement of regular staff. This approach created a dependency on consultants and exposed the organization to risks in terms of knowledge retention, operational continuity, and long-term sustainability. It was gathered during interviews that there was a lack of emphasis on involving regular staff in implementing LSMS to ensure knowledge retention.
 - The total expenditure for implementing LSMS with deployment, maintenance and operational cost in the period 2022-2024 was about CAD 910,000. This cost excluded the costs incurred on hiring two consultants in different spells between 2017 and 2024 which amounted to CAD 913,265. Thus, the budgeted cost of implementing LSMS is only half compared with the actual costs if consultancy remuneration is included.
 - b. The initial decision to replace the ageing systems was taken in 2017 and a Request for Proposal (RFP) was floated considering 142 requirements that were listed in RFP. The initial RFP had a large scope and included the document management and translation management system. The Document Management System (DMS) requirements included only LPC's needs and not the ICAO's requirement, which was kept out of scope. During the first procurement process for LSMS, the RFP failed to attract any bidders. A review of the documentation revealed that the scope of work was excessively broad and lacked specificity. Additionally, insufficient attention was

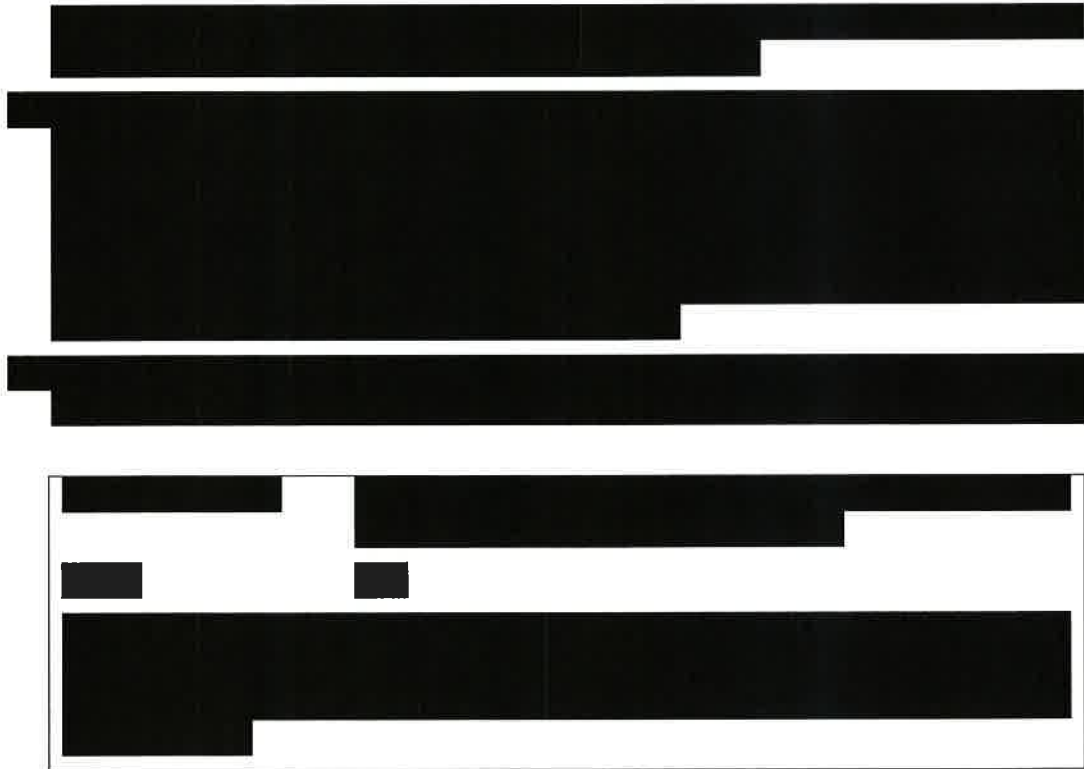
given to aligning the requirements with practical business process engineering principles, making the project appear ambiguous and overly complex.

- In the second attempt, another RFP was floated with a revised scope. Eight bidders applied and four were technically qualified. In parallel, the UN LSMS system was studied, and it was decided to opt for various modules of the UN Secretariat's LSMS system. A software as a service (SaaS) agreement was signed between ICAO and UN in 2021 for acquiring various modules of LSMS. The timelines for implementing the modules were not decided beforehand and there were eventual delays in implementing LSMS which could finally be implemented in April 2024.

18. LPC management is fully aware of these lessons and is committed to implementing measures to address the identified risks and improve future processes.

Interface with an enterprise Document Management System





Limitations faced by different user groups in different modules of LSMS

25. OIO suggests that LPC management should continue to raise users' problems and system limitations with the development team of United Nations Secretariat for expedient resolution of problems and enhancement of features.

[gDoc 2.0](#)



[gText/eluna](#)



APC

Guidance and Training

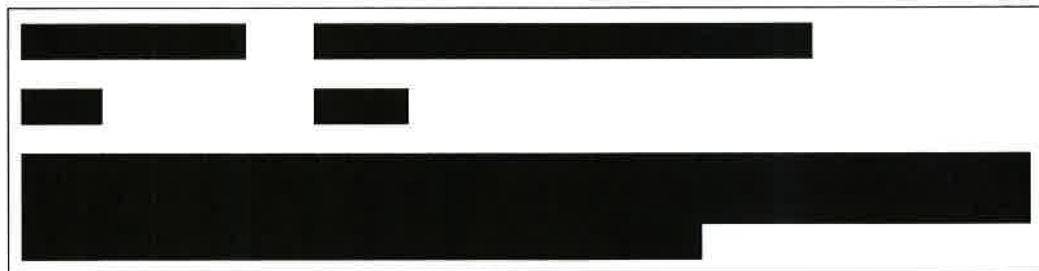
33. The Document Management (DM) section of LPC demonstrated a strong commitment to user training by successfully imparting training to all identified user groups. Training sessions were conducted across various levels, ensuring that staff members received the knowledge and skills to use the new modules. Attendance records and feedback surveys further confirmed high participation rates and satisfaction levels among the attendees, reflecting the section's proactive approach to engagement and delivery.
34. Additionally, the section developed tailored training modules to address the unique needs of different user groups. The surveys conducted by OIO further confirmed that LPC/DM support is crucial for change management.
35. The Administrative Instructions (AI) for the provision of language services was last updated in 2016. The AI inter alia provides guidance to all stakeholders for submission of documents. The main module for submission of documents after implementation of LSMS is gDoc. However, the existing AI draws several references to EDEN and Hummingbird in various Annexes to the document which are already replaced by gDoc and other associated modules in April 2024.
36. Regularly updating Administrative Instructions is essential to ensure alignment with modern requirements and to foster a culture of continuous improvement. Outdated instructions which fail to reflect changes in systems, standards, or current organizational practices can lead to confusion, errors, and inconsistent practices amongst end users of other Bureaus and LPC staff.

Recommendation 3	Administrative Instructions for the provision of language services
Priority	Medium
Deputy Director, LPC should update the Administrative Instructions on provisions of language services to correctly reflect the mapping of existing processes by including references to new modules of LSMS.	

Business Continuity and Disaster Recovery

37. OIO noted that the Business Impact Assessment (BIA) document for LSMS is outdated and no longer accurately reflects the current operating environment. Specifically, the BIA continues to reference old systems like EDEN and Hummingbird which had been decommissioned. This outdated information undermines the effectiveness of the BIA in identifying critical business functions, assessing their dependencies, and determining appropriate recovery time objectives (RTOs) and recovery point objectives (RPOs). Subsequently, the Disaster Recovery Plan based on an updated BIA is missing for the new LSMS.
38. ICAO relies on UN Secretariat cloud services for system availability and backups. While the Agreement signed between the UN Secretariat and ICAO states that UN Secretariat shall not be liable for any claim, damages or other liability, there is a need for enhanced business continuity and disaster recovery plan for LSMS just in case the various modules of LSMS are rendered unavailable. There is a risk of inadequate preparation and response in case of disruptions or unavailability of systems. An increased awareness and formal business continuity and disaster recovery procedures will strengthen the organization's resilience and preparedness for any disruptions.
- 

40. Furthermore, ICAO lacks adequate third-party assurance mechanisms for United Nations Software-as-a-Service (SaaS) applications, creating potential risks in data security, service reliability, and compliance. OIO does not raise a recommendation in this report as this area will be covered in OIO upcoming audit of third-party service providers.



User Management

41. The roles are defined by a group policy and all users are assigned to a particular group. OIO requested a list of all users. User management is effectively governed, with adequate controls in place to ensure proper user access and accountability.

OIO Survey Results

42. OIO conducted an anonymous survey to obtain direct feedback from users of LSMS. Two separate surveys were launched to get feedback from (i) gDoc end users who submit documents in gDoc for processing by LPC, and (ii) LPC staff and consultants who use eLuna,

eAPG, UN Term apart from gDoc. 41 staff members and consultants responded to the OIO survey. The responses to the various questions are presented in Annex 3 and Annex 4.

43. Positive feedback was received on many aspects:

- i. 80% LPC staff/consultants and 95% end users of gDoc indicated that they are very satisfied / satisfied with the functioning of gDoc.
- ii. 63% LPC staff/consultants and 74% end users indicated that they find it easy to navigate and find the features that they want from different modules.
- iii. 50% LPC staff/consultants and 89% end users of gDoc indicated that they strongly agree /agree that training resources are sufficient and easy to understand.
- iv. 82% of respondents from LPC and 89% respondents from end user group gave very positive feedback about the quality of LPC support, especially the support provided by DMO.

44. A significant proportion of staff members expressed concerns on the following:

- i. Nearly 50% respondents who use gText/eLuna, and eAPG indicated that they are neither satisfied nor dissatisfied with the features of these applications which hints that the participation level of all staff was not adequate at the time of migration to LSMS. Nonetheless, this may need to be interpreted with caution because of inherent survey limitations that the target population as well as corresponding response rate was low.
- ii. 75% LPC staff/consultants and 32% end users of gDoc indicated that they experience system related issues at times. Few users stated that the problems relate to slow downloading time for big documents, slow loading times for references documents, re-login required too often and sometimes there are errors while the particulars have been filed in the concerned forms of gDoc.

All the LPC/DM staff supporting this transition have been nothing short of extremely helpful, open to and grateful for comments to improve.
(Anonymous survey respondent)

45. The results of surveys support the conclusions of this audit, and recommendations have been made accordingly.

ANNEX 1: DEFINITION OF AUDIT TERMS

Audit Ratings

In providing an overall assessment of the results of the audit, OIO uses the following standardized audit rating definitions:

Audit Assessment	Definition
Effective	Controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met.
Some Improvement Needed	A few specific control weaknesses or areas for improvement were noted; generally however, controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met.
Major Improvement Needed	Several key control weaknesses were noted and/or several areas of strategic/high importance were identified where significant improvements can be made to increase efficiency and effectiveness.
Unsatisfactory	Controls evaluated are not adequate, appropriate, or effective to provide reasonable assurance that risks are being managed and objectives should be met.

Internal control is defined as a process effected by senior management and staff, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting and compliance objectives. Whilst internal control provides reasonable (but not absolute) assurance of achieving organizational objectives, limitations may result from:

- suitability of objectives established as a precondition to internal control;
- reality that human judgment in decision making can be faulty and subject to bias;
- breakdowns can occur because of human failures such as simple errors;
- ability of management to override internal control;
- ability of management, other staff, and/or third parties to circumvent controls through collusion;
- external events beyond the organization's control.

Priority of Audit Recommendations

The audit recommendations in this report are categorized according to priority as a guide to management in addressing the issues raised. The following categories are used:

High: recommendations, which address significant and/or pervasive deficiencies or control weaknesses, or areas where significant improvements can be made.

Medium: recommendations, which address important deficiencies or control weaknesses, or areas where some improvements can be made.

Low: suggestions, which represent best practice, or general opportunities for improvement.

ANNEX 2: MAPPING OF OLD MODULES WITH LSMS MODULES

As part of the LSMS Project, new tools from UN LSMS were commissioned in April 2024. The details of old tools which were decommissioned following implementation of LSMS. The new tools run in the cloud and maintenance is provided by UN Secretariat conferencing services.

The following table provides a quick guide and mapping from old tool to the new tool for various functions:

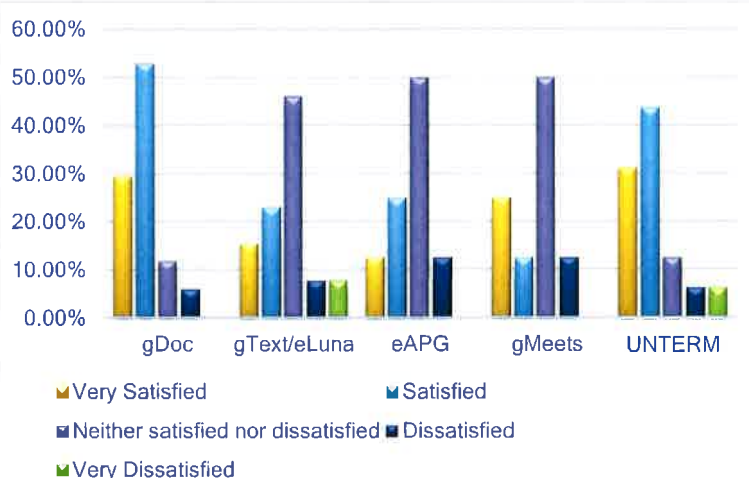
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ANNEX 3: RESULTS OF SURVEY OF LPC STAFF AND CONSULTANTS

This survey was used to generate feedback of about 80 LPC staff and consultants. Responses were received from 22 participants. A summary of the results is presented below:

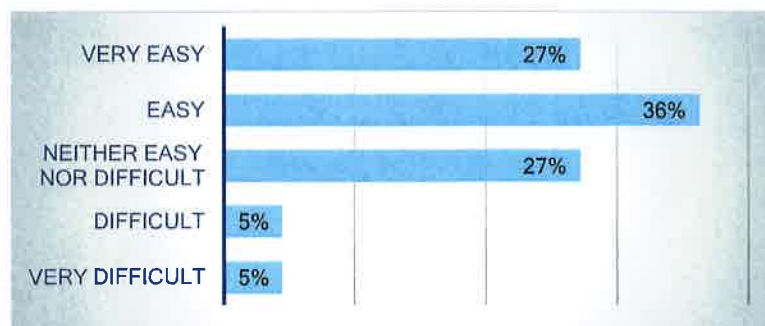
Overall, how satisfied are you with the functionalities of modules of LSMS (Language services management system)?

While the satisfaction levels (Very satisfied and satisfied) were higher than 75% for gDoc and UN Term, the levels were comparatively lower for gText/eLuna and eAPG.



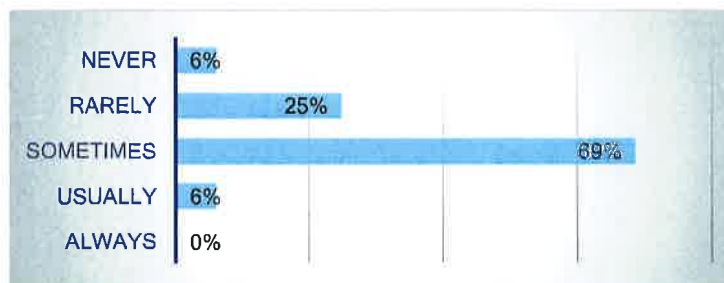
How easy is it to navigate and find the features you need?

Nearly 63% indicated that it is very easy or easy to navigate and find the concerned features. This is positive given that LSMS was implemented less than an year ago and some staff members and consultants might still be on a learning curve.



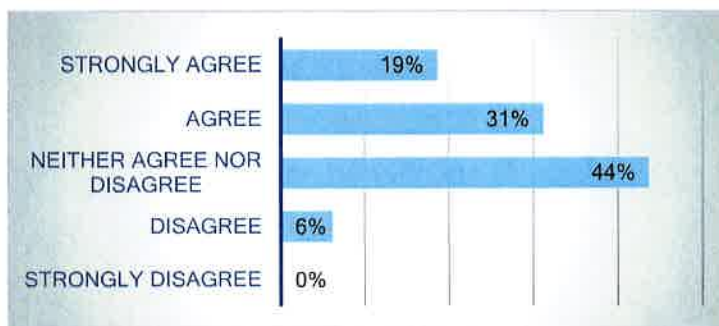
Have you experienced any issues with the system's performance, such as slow loading times or errors?

A high proportion of 75% respondents indicated that they face issues with the system's performance such as slow loading times or errors. The LPC needs to continue to resolve issues with the system developers of the United Nations Secretariat



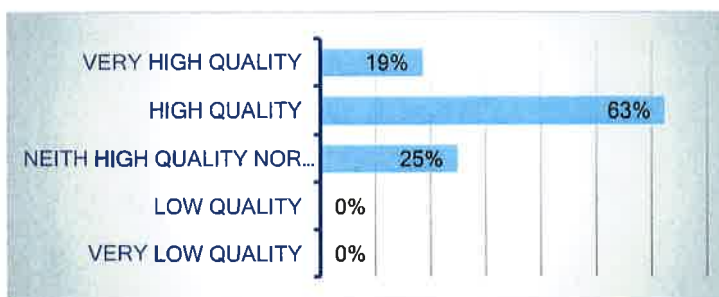
Do you feel that the training resources (e.g., structured training, tutorials, FAQs, guides) are sufficient and easy to understand?

50% indicated that they either strongly agree or agree that training resources are sufficient and easy to understand. A large proportion (44%) neither agreed nor disagreed. LPC/DMO should continue to make efforts to train and enable all groups in LPC.



How would you rate the quality of LPC support for the module(s) that you use?

82% gave very positive feedback on the LPC support for LSMS.

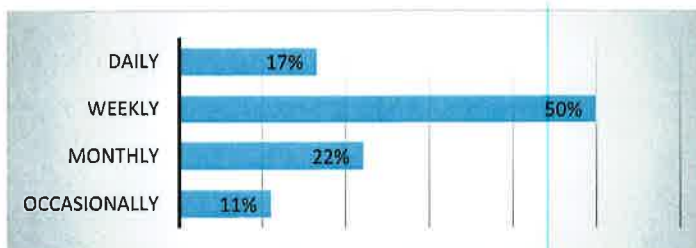


ANNEX 4: RESULTS OF SURVEY OF GDOC END USERS

The survey was targeted at end users and submitters of documents in gDoc. The questionnaire was issued to 54 staff members at ICAO Headquarters. 19 staff members replied to the questionnaire. A summary of the results is presented below:

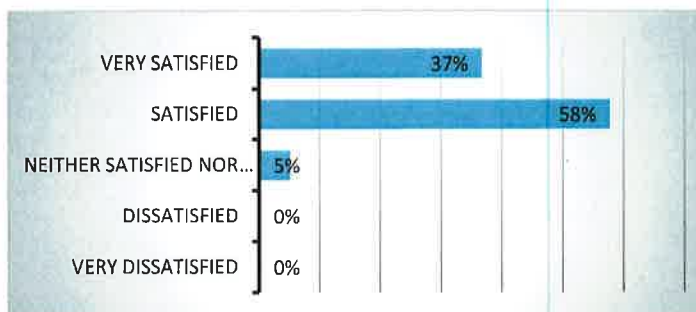
How frequently do you use gDoc?

Most respondents use gDoc on a frequent basis to submit documents and receive information about the status of documents



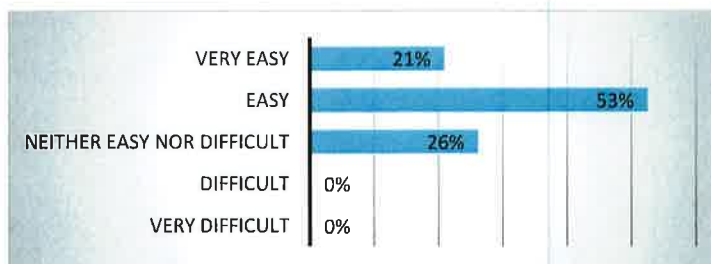
Overall, how satisfied are you with the functionalities of gDoc 2.0 module of LSMS (Language services management system)?

95% of respondents indicated that they are very satisfied / satisfied with the functionalities of gDoc.



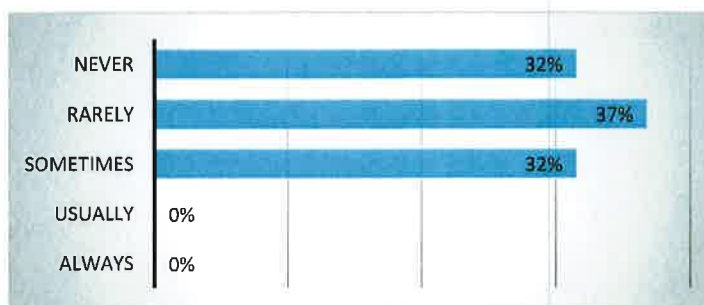
How easy is it to navigate and find the features you need?

74% of respondents indicated that they find it very easy or easy to navigate through and find the features they need.



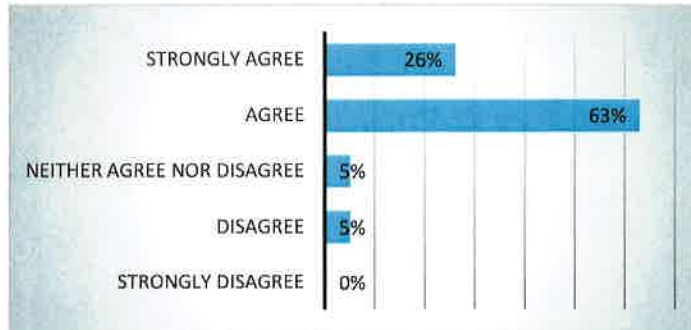
Have you experienced any issues with the system's performance, such as slow loading times or errors?

While 69% of the respondents gave positive feedback, 32% indicated that they sometimes have problems related to system's performance. The problems areas included long time taken in downloading finalized documents.



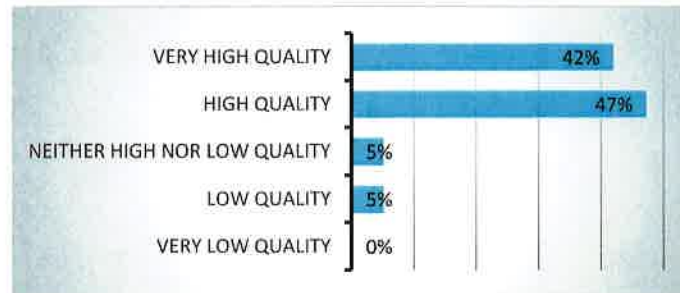
Do you feel that the training resources (e.g., structured training, tutorials, FAQs, guides) are sufficient and easy to understand?

89% respondents gave very positive feedback about the training resources.



How would you rate the quality of LPC support for the gDoc module?

89% respondents gave very positive feedback about the quality of LPC support especially the support provided by DMO.



ANNEX 5: MANAGEMENT ACTION PLAN

Ref	Recommendation	Priority Rating	Accepted (Y/N)	Closure Criteria	Agreed Actions	Office/ Section Responsible	Target Date
1.	[REDACTED]	High	Yes	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2.	[REDACTED]	High	Yes	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3.	Deputy Director, LPC should update the Administrative Instructions on provisions of language services to correctly reflect the mapping of existing processes by including references to new modules of LSMS.	Medium	Yes	Update of Administrative Instructions for provision of language services.	Review and update the Administrative Instructions to reflect the new LSMS modules, coordinate with relevant stakeholders and disseminate the updated document.	LPC	Q4 2025

Ref	Recommendation	Priority Rating	Accepted (Y/N)	Closure Criteria	Agreed Actions	Office/ Section Responsible	Target Date
■	■	■	■	■	■	■	■