



IMPLEMENTATION OF SINGLE EUROPEAN SKY: OVERVIEW OF ACTIVITIES IN SLOVAK REPUBLIC

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Abstract

Local Single Sky implementation monitoring (LSSIP) serves as a structured, localized framework that translates the high-level goals and policies of the Single European Sky (SES) initiative into actionable steps at a regional level. It is structured in such a way that it defines the specific actions required at a local level and the performance indicators that will be used to monitor progress. It is part of an integrated system aimed at improving the management of European airspace. This paper provides general characteristics of the LSSIP, including key external and internal roles, describes status of the implementation activities in Slovak republic and outlines future direction of the programme.

Keywords

Single European Sky, Local Single Sky Implementation Programme, European ATM Master Plan

1. Introduction

The SES initiative itself was introduced to overcome significant inefficiencies and safety risks inherent in Europe's fragmented air traffic management (ATM) system. The SES initiative was launched in response to delays resulting from air navigation, with the intention of reducing the fragmentation of European airspace, thereby increasing its capacity and the efficiency of ATM and ANS. The initiative is pan-European and open to neighbouring countries.

This initiative was launched in 1999 to improve the performance of ATM and air navigation services (ANS) through better integration of European airspace. Local Single Sky implementation monitoring (**LSSIP**) provides a clear plan for achieving the strategic goals of SES for local authorities. It is designed to outline the local actions and projects that contribute to the achievement of the SES targets, focusing on specific environment, airspace sectors and regional challenges. It provides a comprehensive overview of the progress made, the steps to be taken and the timeline for achieving the necessary changes.

The LSSIP ensures that local initiatives are effectively integrated into the broader SES framework, enabling stakeholders to work together to realize the full potential of the SES. LSSIP enables coordinated approach to modernization of the ATM system and allows harmonization of air traffic management procedures, technologies and policies across Europe.

The LSSIP plays a vital role in aligning local Air Navigation Service Providers (ANSPs), airspace users and relevant stakeholders with the broader SES goals, such as enhancements in the following areas:

1. Safety – minimizing risk factors in air traffic,

2. Efficiency – enhancing the throughput and air traffic flow,
3. Capacity – increasing the airspace's ability to accommodate growing air traffic,
4. Environmental Sustainability – reducing the environmental impact of air traffic operations.

Each LSSIP outlines the specific actions and projects required locally to contribute to the broader SES targets, it includes:

1. Progress Updates – tracking milestones and progress in implementing SES compliant strategies,
2. Planned Future Steps – estimating future air traffic demands and planning necessary adjustments in airspace management,
3. Timelines for Completion – establishing a clear temporal structure to ensure timely execution of the implementation phases.

From a system-level perspective, the LSSIP contributes to the SES by ensuring that local ANSPs can meet global aviation goals. By fostering **interoperability, data exchange and collective operational standards**, the LSSIP facilitates a more efficient and unified air traffic system. This helps to minimize inefficiencies, reduce costs, and improve the environmental performance of the entire European aviation network.

2. Characteristics of LSSIP

The LSSIP documents provide an extensive, consolidated and harmonised picture of how ECAC States and States having a Comprehensive Agreement with EUROCONTROL, and stakeholders concerned, are progressing in planning and

deploying all mature elements of the European ATM Master Plan.

2.1. Key External Roles

States, through their National Regulatory Authority (NSA, CAA) have multiple responsibilities in relation to the implementation of appropriate functionalities while building and further developing the European ATM system.

The National LSSIP Focal Point (FP) is a person nominated by the State. The Focal Point is responsible for the coordination of all national Stakeholders during the production of the LSSIP document of the State and ensuring correct and consistent LSSIP data by respecting the agreed time schedule.

The LSSIP Expert Group (LSSIP EG) is established to further enhance the involvement of LSSIP Focal Points / Experts in the development of elements of the LSSIP, e.g. operational matters, process, guidance material, tools, ways of working (including collection and sharing of best practices, lessons learnt, etc.).

2.2. Key Internal Roles

The LSSIP Contact Person (further CP) supports the LSSIP cycle (preparation, execution, maintenance) by mediating between EUROCONTROL and/or SDM and the State to achieve timely, quality and correct formatting production of the LSSIP document. The CP provides the necessary support, instructions and guidance to his/her State(s) for the production/update of the LSSIP and related activities. The CP works in support of the National Focal Point who is responsible for providing consistent and complete LSSIP information.

The LSSIP Objective Coordinator (OC) supports the LSSIP cycle (preparation, execution, maintenance) by mediating between the CPs and the EUROCONTROL Experts. OC works in close cooperation with the EUROCONTROL Experts and the SDM Coordinators and provides feedback to the CPs for the Data Cross Check Period.

SDM Coordinators are involved in SESAR Deployment Programme (SDP) monitoring. They are in charge of elaborating the SDP Monitoring View and the Risk Management Plan based on the yearly SDP Monitoring Exercise performed via EUROCONTROL LSSIP+ tool.

The SDM technical experts are grouped per CP1 ATM Functionality (AF) and represent the main reference for the technical guidance related to CP1 / SDP Families.

2.3. LSSIP Process Related Definitions

Initial Draft

It is the first version of the LSSIP document produced by the LSSIP Support, uploaded on the LSSIP SharePoint after the LSSIP Event. The document consists of all chapters, text and graphics based on the previous year's final version.

Objectives Stabilization & Database Blocking Date

After this day the database is blocked for all Focal Points for any further editing of the Implementation Objectives and Questionnaires. If changes are required after the Database Blocking Date, the FP may communicate those changes to the

CP, who then can process the request and update the DB (if relevant).

Data Cross-Check Period

The period between Database Blocking Date and Freezing of the LSSIP+ Database Date. EUROCONTROL and SDM Experts will check all the objectives and questionnaires. All the necessary potential amendments will go through the Change Request Procedure.

Change Request Procedure

Specific procedure that is applied, if the change of data in the LSSIP+ Database is needed after Database Blocking Date. During two weeks after Database Blocking Date, the relevant CP will input the Change Requests for States according to the comments received from the consulted Experts. The FP provides feedback on the received CRs before the freezing of the LSSIP+ Database Date. In the LSSIP+ Database the CRs can only be closed by the CP.

Freezing of the LSSIP+ DB Date

The day of the year when LSSIP+ Database is frozen for any changes by FP or CP. From this moment, read-only access is provided to all experts. Projects remain open for two more weeks. The number of projects and their names shall not be modified after the freezing of the LSSIP Database Date. Description of the scope and the progress of the projects can be updated.

Working Level Agreed (WLA)

The version of the LSSIP document in which all Chapters and all Annexes have been fully updated by the FP and the CP. This version will not change anymore, except for editorial corrections related to spelling mistakes, formatting etc. The State shall reach this version by end of March at the latest and shall use it for the signatures.

3. Overview of activities in Slovak Republic

The LSSIP of the Slovak Republic contains 87 main objectives (out of which 32 are not applicable) with different status of completeness (as depicted by Figure 1 and Figure 2).

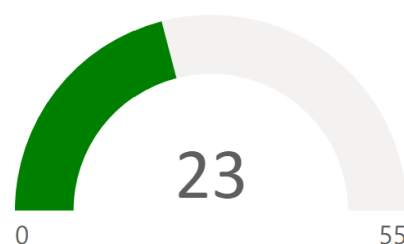


Figure 1. Number of completed objectives in Slovak Republic as of 2023
Source: EUROCONTROL (2023).

Note: Not Applicable Objectives are excluded from the count

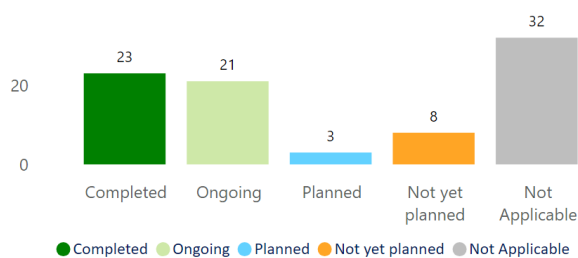


Figure 2. All LSSIP Objectives by status. Source: EUROCONTROL (2023).

The LSSIP in the Slovak Republic is governed by the following timeline (Figure 3, Figure 4).

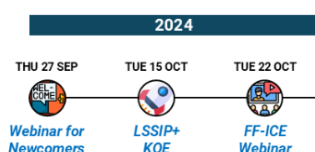


Figure 3. Timeline of the LSSIP in the Slovak republic for 2024. Source: EUROCONTROL (2024).

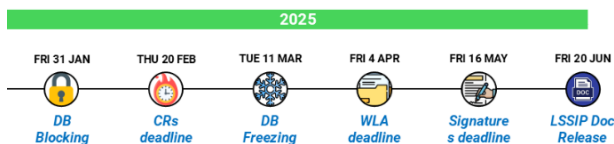


Figure 4. Timeline of the LSSIP in the Slovak republic. Source: EUROCONTROL (2024).

Note: CR – Change Request; DB – Database; FF-ICE – Flight and Flow Information for Collaborative Environment; KOE – Kick-off Event; WLA – Working Level Agreed

3.1. LSSIP drawbacks

1. Misunderstanding – the current system for filling and implementation of the main objectives and the local objectives allows different interpretations. There is no clear explanatory material available.
2. High number of experts involved in the process – coordination of meetings is demanding and time consuming.
3. Complexities in text consolidation - many instructions, notes and information how to report the progress of implementation, how to fill-in the reporting information, how to extract the data, how to understand warnings, etc.

Member States must be precise and careful when filling the LSSIP in. In case of misinterpretation, especially in case of non-compliance, there is a possibility of infringement procedures against the member state.

4. Future Direction

The future Air Traffic Management (ATM) system needs to accommodate new types of airspace users, ranging from drones to all different types of new aircraft. The ATM system of the future will rely much more heavily on digital technologies and systems than today. This inevitably means that data and system

security become ever more important in relation to the ATM system.

To cope with the future demand, Europe needs a more network-centric service delivery model. In the future, Air Traffic Flow Management (ATFM) will evolve to support the management of complete traffic flow in the network context and in a collaborative manner.

The fulfilment of the Single European Sky (SES) objectives is expected to underpin the whole process of modernising the European ATM system. The Slovak Republic should have most of the SES targets met by 2030 (as shown in Figure 5).

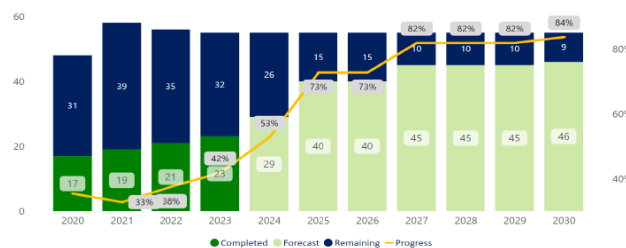


Figure 5. Expected objectives completion evolution until 2030. Source: EUROCONTROL (2024).

5. Conclusion

The LSSIP process aims at monitoring of the Implementation of the Objectives described in the EUROCONTROL Implementation Plan and Report (EIPAR) and other linked implementation activities at State level on a yearly basis. Operational Stakeholders (ANSPs, Airports Operators, MET Service Providers, Civil Aviation Authorities, Military Authorities) are called to report on the progress of their local implementation plans at the end of each calendar year.

The LSSIPs contain the detailed national plans and local implementation actions required to achieve the objectives and to meet national performance targets, safety improvements and capacity profiles identified. They provide the means to monitor and report on the progress of local actions.

The outcome of this activity is the national LSSIP Document, which aggregates the status of implementation of the National Stakeholders at the end of the calendar year.

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