



# Final Project Report

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## Task contributors

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## **Abstract**

This document is the Final Project Report of the 16.01 Safety R&D project. It describes the project achievements and key deliverables. The project was concerned with managing the work of the 16.01.0x projects.

## Authoring & Approval

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Rational for rejection
None.

## Document History

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This deliverable consists of SJU foreground.

# 1 Final Project Report

This Final Project Report is a summary of the project 16.01 goals and achievements and highlights the link between the project activities and the SESAR outcomes.

## 1.1 Progress and Contribution Made by the Project

Project 16.01 was concerned with the overall management and coordination of the 16.01.0x projects that were responsible for the SESAR ATM Safety R&D activities.

This R&D covered four areas:

- 16.01.01 Accident Incident Model and Enhanced Safety Target Achievement roadmap
- 16.01.02 Ensuring ATM remains resilient
- 16.01.03 Dynamic Risk Modelling
- 16.01.04 PoC for flight deck certification

All these projects have now completed or are on extended pause (16.1.4) and have delivered their final technical deliverables.

As explained in section ATM Master Plan (Edn 2), the safety must not only be maintained within SESAR development, but must increase by a factor of 10. 16.1. has been crucial in coordinating the projects that will ensure this high level goal is

- Translated into meaningful targets for each project
- Incorporates the human and technical element of safety assessment
- Is able to deal with complex iterations of safety assumptions
- Is relevant to air and ground technical developments

The deliverables of the 16.01.0x projects provide the guidance necessary for SESAR R&D projects to take account of the political, process, financial and safety requirements of 16.06.01 when developing new methods of delivering safety assessment. These deliverables are essential to facilitating the ultimate – **safe** – deployment of the ATM master plan roadmap.

## 1.2 Project Achievements

16.01 has successfully managed and coordinated delivery of deliverables by the 16.01.0x projects, and has supported the adoption and where appropriate the integration of these deliverables in the 16.06.01 project Safety Reference Material (SRM).

The result of this work is that the R&D has been carried out to provide an augmented SRM that is suitable for use by the SESAR R&D projects to take account of a broad range of safety projects, and demonstrate the order of magnitude change in safety as required by the ATM master plan.

The individual projects have delivered a new set of tools to ensure a full and complete approach to safety can be deployed by SESAR. Partners in the 16.01.0x projects have worked together successfully to produce coordinated deliverables for the Safety transversal assessment area.

There was one unforeseen variation:

- The Proof of Concept for flight deck certification Methodology, prepared by 16.01.04, remains on extended pause. The technical work for the project has been concluded and delivered to SJU however no suitable test project has been identified to enable the approach to be thoroughly tested.

## 1.3 Project Key Deliverables

16.01 coordinated initiation and conduct of work by 16.01.0x projects. As such the project key deliverables were:

Project	Deliverables	Link to Achievements
16.01	16.01 Management Initiation Report (MIR); 16.01.0x Change Impact Reports (CIAs); 16.01 Contributions to WP16 Quarterly Reports; 16.01.0x Change Management Support; 16.01 RIO Updates; 16.01 Sub-WP Management Support.	16.01 management deliverables, enabling the R&D work.
16.01.01	Leading & Lagging indicators Relevance of L&L indicators to ATM AIM Proof of concept AIM - Reliability Work Bench model E-STAR – MS Access application Validation Report	Providing the tool to allow the apportionment of the SESAR safety target and allowing the assumption of safety made by projects to be collated to demonstrate wither SESAR is on track to meet its overall safety target.
16.01.02	Safety guidelines on Robustness Safety guidelines on Resilience Guidance for the SRM on Robustness & Resilience Test case results of Robustness and Resilience guidance	Delivery of an effective Safety II method into SESAR and its integration into the SRM so that safety is no longer purely concerned with safety, but is able to describe and document the success that the human element of the operation delivers into safety assessment.
16.01.03	DRM principles and relevant solutions for SESAR Final guidelines on DRM Lessons learned for the SRM – DRM test case	Understanding, describing and documenting the complexity of the field of DRM and deriving a working method that can integrate with the SRM to provide a broader perspective on safety.
16.01.04	Guidance material to execute proof of concept Proof of concept supporting documentation Final guidance material to execute a proof of concept	Describing how to safety develop and assure the approach to “flying” new technology such as i4D with fee paying passengers from a safety perspective. Ensuring that the approach remains compliant with legislation and acceptable to EASA.

## 1.4 New Standards and Norms Arising

Not applicable to 16.01. Where relevant 16.06.01 will take forward any outcomes that may lead to new standards and norms.

## 1.5 Recommendations

It is strongly recommended that the 16.01.0x project deliverables, as represented by the 16.06.01 SRM, be fully applied by the SESAR operational and technical R&D projects to ensure that safety considerations are addressed systematically and completely during the SESAR R&D phase and prior to industrialisation and deployment. If this is not done, there is a significant risk of unexpected safety issues arising later in the concept lifecycle with resulting underperformance, additional costs and unmanaged safety consequence.

## 2 References

*Reference to main documentation, delete if not required*

- [1] [SESAR Programme Management Plan, Edition 03.00.01](#)
- [2] [European ATM Master Plan, Edition 2](#)
- [3] Multilateral Framework Agreement (“MFA”) signed between the SJU, EUROCONTROL and its 15 selected members on August 11, 2009, amended on 14 June 2010, 19 October 2010 and 2 July 2012

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