



Work Package Final Report

Document information

Work Package Title	R&D Transversal Areas
Work Package Number	16.00
WP Leader(s)	
Deliverable Name	Work Package Final Report
Deliverable ID	D05-027
Edition	00.01.01
Template Version	01.00.00

Task contributors

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Abstract

WP 16.0 was a coordination task, coordinating the work of 6 sub-work packages (16.1 to 16.6) and 27 Projects, covering the domains of Safety, Security, Environment, Human Performance, Cost Benefit Analysis (CBA) and Business Cases..

At the start of the programme, the performance assessments in the transversal domains have been conducted in a very fragmented, diverse way, where it was very difficult to gain a consolidated aggregated performance view. WP16 has achieved a harmonised common approach, including complete reference and guidance material, that enables aggregated performance assessments and consolidated Business Cases

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Rational for rejection

Document History

Edition	Date	Status	Author	Justification
00.00.01	19/04/2016	Draft	██████████	Version 0.2
01.00.00	29/04/2016	Final Version		Version 0.4
00.01.00	31/05/2016	Revised Final Version		Version 0.5
00.01.01	04/07/2016	Revised Final Version		Version 0.6

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Acronyms

Acronym	Definition
ATM	Air Traffic Management
SESAR	Single European Sky ATM Research
SJU	SESAR Joint Undertaking
WP	Work Package
HP	Human Performance
CBA	Cost Benefit Analysis
MP	Master Plan
KPA	Key performance area
PCP	Pilot Common Project
ICAO	International Civil Aviation Conference
CAEP	Committee on Aviation Environmental Protection
EASA	European Aviation Safety Agency

1 Work Package Overview

WP 16.0 was the coordination project for the management of the SESAR WP16. The objective was to provide for the transversal areas covered through WP16 a harmonised assessment approach to enable the aggregation of performance assessment results. For each of the WP16 transversal domains various fragmented methods all over Europe were consolidated into a common method, tested, documented, supported and applied in the field on real R&D work.

WP16 contained a total of 6 Sub-WPs (16.01 to 16.06) and 27 Projects. The 16.06 projects were 'transverse' projects which coordinated and supported the transversal assessments at Primary Project level (WP4-15) and the aggregation of assessment results at solution level. They also build the higher level cases (e.g. Safety Cases) and the CBAs & Business Cases for Deployment Packages and Scenarios to support the SESAR deployment decision making processes. The 16.1 to 16.5 projects were 'development' projects which refined or supplemented the current transversal assessment processes, methods and tools

1.1 Work Package contribution to the Master Plan

WP16 has closely worked together with the Master Plan project, ensuring the provision of aggregated performance views and consolidated CBAs. These were used to introduce a performance driven approach to the Master Planning process.

WP16 has successfully developed a number of methodologies for the Key Performance Areas (KPA) Safety, Security, Environment, Human Performance and CBA/Business Case assessment. These methodologies consist of documented methods, processes, templates and software tools. In addition, WP16 has supported deployment of the methodologies in the operational solution projects by providing training and hands-on assistance, with the result that there is now a significant knowledge-base in the operational solution projects on how to apply the methodologies.

WP16 has assisted in consolidating and summarising KPA assessment results from operational solution projects for building higher-level results, notably the Pilot Common Projects (PCP) and the ATM Master Plan. In addition, WP16 provided a particularly important contribution to the ATM Master Plan by developing CBAs to help decision making on the prioritisation amongst operational solutions (Essentials).

WP16 has also assisted the SJU in external coordination with a number of bodies notably including EASA for Safety and Environment, ICAO CAEP for Environment, and Staff Associations for Human Performance impact of operational solutions.

1.2 Work Package achievements

SESAR1 WP16 has made a number of significant achievements:

- A Common Approach agreed by Partners for Safety, Security, Environment, HP and CBA with positive impact on Maturity of solution assessments. At the start of the SESAR programme there were multiple views amongst SESAR partners on the approach to each of these KPAs and there was a low level of preparation (in terms of resources and skills) in operational projects for carrying out assessments of the operational solution benefits in terms of these KPAs. During the SESAR programme WP16 developed commonly-agreed reference material and tools for each KPA, programme participants have been trained and become experienced in its application, and the reference material and tools are now being applied widely (e.g. Safety Assessment reference material is being applied in 80%+ of operational solution projects).

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- First use of CBAs to select ATM Master Plan operational changes (Essentials). For the first time CBAs produced by WP16 have been used in the latest Master Plan Update to prioritise and select amongst potential operational solutions. Previously decisions had been based exclusively on expert opinion which, while an important criterion, did not have the level of rigor and objectivity possible with formal CBAs to identify operational concepts that should really be worth deploying.
- Performance-based approach to R&D of new operational concepts as advocated by ICAO. In coordination with SESAR WPB, WP16 has developed validation processes and templates for potential operational changes that are structured to include assessment and reporting in terms of ICAO Key Performance Areas. This leads to a more comprehensive and benefit-oriented approach to concept validation.
- Development of new Key Performance Areas not previously addressed and maturing approaches to others using the results of new R&D. An innovative aspect of SESAR has been to develop the first widely-accepted assessment approaches for certain KPAs. Diverse strands of ATM Security Reference Material have been matured and integrated by WP16 into a formal assessment framework that is aimed at meeting future Security priorities. In addition, WP16 matured existing ideas about how to assess concepts in terms of Human Factors extending them to the full range of Human Performance drivers and impacts. Safety assessment has been extended from the existing failure-based approach pre-SESAR to a success-based approach capturing the safety benefits that can be gained from concepts.
- Development of the idea of Business Case providing a holistic view for decision makers across all KPAs of readiness for industrialisation and deployment. First concrete steps have been made in implementing the idea of a Business Case for a proposed operational concept in which a dashboard is provided showing decision makers the different pros and cons and readiness of a concept for progression to industrialisation and deployment.
- Active support to SESAR programme outcomes. WP16 has supported development of SESAR proposals for deployment of validated operational concepts through contributions to the PCP and ATM-MP activities, highlighting where appropriate the achievable benefits in terms of Safety, Security, Environment, HP and CBA.

Overall WP 16 moved the performance assessment in the transversal domains from a fragmented, uncoordinated approach to a level, where these assessments are based on an agreed common guidance and reference material. This enabled not only a consolidated performance assessment for the various domains, but also lead to an overall Business Case development. The achieved harmonisation of the performance assessment approach will be of great benefit for future ATM performance assessment.

1.3 Work Package Deliverables

The following table presents the relevant deliverables that have been produced by the Work Package management team (if any).

Reference	Title	Description

No relevant deliverables were produced by the WP management team since the project fulfilled principally a management role coordinating and monitoring the activities of the sub-work packages and projects

1.4 Contribution to Standards and Reference Material

For the transversal areas Safety, Security, Environment, Human Performance and Business Cases a complete package of reference and guidance material has been developed. Each transversal area delivered specific tailored reference and guidance material to standardise and support the assessments on solution level.

Higher level guidance material was provided to the project management level of solution projects to support the corresponding validation plan and approach.

In addition, consolidated contributions from the WP16 transversal domains (Safety, Security, Environment, Human Performance and CBA) have been provided as input to the SESAR 2020 Handbook.

1.5 Work Package Conclusion and Recommendations

The Reference and Guidance Material developed by WP16 provides a comprehensive and commonly-agreed approach to Safety, ATM Security, Environment, HP and CBA available now for application by R&D projects and programmes.

Overall significant progress has been achieved by WP16 during SESAR1 by introducing the performance-based approach to ATM R&D validation projects. In the new SESAR 2020 program, the maturity assessment of projects related to these transversal domains as well as cost and benefit assessments are now an integral part of project deliverables.

It is recommended that the WP16 Reference and Guidance material is exploited fully across all solution projects in the SESAR 2020 programme to ensure a consistent and thorough approach to performance assessments in order to ensure implementation of a performance-driven approach as advocated by ICAO. This will have the key benefit that solutions should then be selected for industrialisation and inclusion in the ATM Master Plan not only on the basis of operational and technical merit but primarily according to their performance benefits.

This also could be a basis to have a consolidated approach to performance assessments beyond SESAR 2020. It is recommended on the basis of the current Reference and Guidance to explore the possibility to consolidate the assessment approach further on European and World level.

2 References

- [1] [SESAR Programme Management Plan](#)
- [2] [European ATM Master Plan](#)
- [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
- [4] 16.00- D05-027 Sub-WP16.0 Final Project Report
- [5] 16.06 – D01 Change Impact Assessment for project P16.06.01
- [6] 16.06 – D02 Change Impact Assessment for project P16.06.02
- [7] 16.06 – D03 Change Impact Assessment for project P16.06.03
- [8] 16.06.- D04 Change Impact Assessment for project P16.06.05
- [9] 16.06 – D05 Change Impact Assessment for project P16.06.06
- [10] 16.06 – D07 Sub-WP16.6 Change Request and evaluating Project Change Requests
- [11] 16.06 – D08 Sub-WP16.6 Management Execution Plan
- [12] 16.06 – D11 2013 Release 2 SE3 - Consolidated Deliverable: Contribution from projects 16.06.XX
- [13] 16.06 –D12 2014 Release 3 SE3: Contribution from projects 16.06.XX
- [14] 16.06 – D13 2015 Release 4 SE3: Contribution from projects 16.06.XX
- [15] 16.06 – D10 Sub-WP16.6 Close Out Report
- [16] 16.06 – D14 2016 Release 5 SE3: Contribution from projects 16.06.XX
- [17] Name of SWP, Title of document, Identification number, Edition, date
- [18] Note: list all WP and SWP deliverables here (except with black or red assessment outcomes). This does not refer to the deliverables of the projects, but only of the WP and SWPs.

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