ATM Master Plan

**Description**

The ATM Master Plan represents the main deliverable of the [SESAR](https://skybrary.aero/index.php/SESAR) Definition Phase. It will become the unique ATM reference for all European stakeholders for:

* Identifying, planning and scheduling benefits, investments, financing, operational improvements, procedural and technological enablers as well as changes to legislation, regulation and standardisation relating to ATM;
* Timely decision-making regarding ATM research and implementation at political and stakeholders’ level (what, when, who), ensuring synchronised & coordinated air-ground ATM deployment (schedules, content, investment).

The plan demonstrates the willingness of all stakeholder groups to commit to the proposed deployment and identifies the content of the implementation program phases.

**Background**

Being the technological element of the [Single European Sky](https://skybrary.aero/index.php/Single_European_Sky_%28SES%29), SESAR aims to deliver a high performance air traffic control infrastructure which will enable a safe and environmentally friendly development of air transport.

The SESAR Definition Phase (2006-2008) has delivered the initial version of the ATM Master Plan defining the content, the development and the deployment plans for the next generation of ATM systems up to 2020 and beyond. The definition phase was executed by a large consortium of all air transport stakeholders under the leadership of [EUROCONTROL](https://skybrary.aero/index.php/EUROCONTROL). The Master plan development was co-funded by the [European Commission](https://skybrary.aero/index.php/European_Commission) and EUROCONTROL.

Following the completion of the SESAR Definition Phase the ATM Master Plan has been handed over to the [SESAR Joint Undertaking](https://skybrary.aero/index.php/SESAR_Joint_Undertaking), who is responsible for its execution and updates for the coming years.

The EU Transport Council, at its meeting on 30 March 2009, endorsed the European ATM Master Plan.

**Purpose**

The ATM Master Plan will be used by the SESAR JU to manage and organise the development activities of the SESAR project.

**Scope**

The ATM Master Plan provides a plan for implementing the ATM Target Concept addressing deployment and R&D planning in terms of roadmaps for operational evolutions, enabler development & deployment and supporting aspects. These roadmaps encompass the lifecycle between feasibility up to and including deployment and are supported by an analysis of the associated benefits, funding and financing aspects as well as the related risks. The roadmaps shall enable timely and consistent implementation of the core components of the ATM Target Concept at European network level to enjoy their full benefits.

The European ATM Master Plan is a “rolling” plan that will be regularly updated. Continuous performance monitoring will be undertaken to ensure that the future ATM activities will deliver the agreed benefits defined within an agreed performance framework.

**Structure**

The ATM Master Plan is build of three elements which provide the necessary set of planning means to ensure the successful implementation of the SESAR ATM Target Concept:

* The "High Level View" - it is the agreed strategic guideline delivered by the SESAR Consortium in the Definition Phase (D5 Master Plan Document). It identifies necessary activities on a stakeholder group level.
* The "Planning Area" - it is working material, which contains more detailed information. The working material comprises the Task Deliverables (DLTs) of the SESAR Consortium and the ATM Master Plan Database.
* The "Agreed and committed implementation activities" identified by the European Single Sky ImPlementation (ESSIP) and the set of Local Single Sky ImPlementation Documents (LSSIP) of the European ECAC States.

**ATM Target Concept Implementation**

Implementation of the ATM Target Concept is split into five areas:

* Enhancing the ATM service levels of the European ATM system in response to the evolving performance needs. Operational evolution roadmaps show per ATM Service Level the changes to be implemented.
* Evolution towards System Wide Information Management (SWIM).
* Institutional changes (legislation/regulation and standardisation) to be implemented to support the European ATM system evolution.
* Development and deployment of Integrated Management Systems for environment, safety, security and human performance.
* Implementation roadmaps for each air transport stakeholder group:
	+ Aeronautical Information Providers
	+ Air Navigation Service Providers
	+ Airport Operators
	+ Airspace Users
	+ Regional Airspace & Network Managers
	+ Regional SWIM Managers
	+ Regulatory Bodies
	+ Research Establishments
	+ Standardisation Bodies

**Cost Benefit Assessment (CBA)**

An initial assessment on expected performance, benefits and costs of the 2020 ATM Target Concept deployment (also known as “ATM Capability Level 3”) has been carried out during the SESAR Definition phase.

Important benefits have been identified in a number of areas:

* **Safety**. The Master Plan implementation will have the potential to increase the level of safety in relation to the traffic growth as the majority of the operational improvements in the ATM Target Concept have a positive contribution to safety. Early deployment of specific initiatives, like runway incursion prevention and improved performance of the safety nets will have a direct positive effect on safety. Additional safety benefits are foreseen with the introduction of: new communication, navigation and surveillance technologies, provision of better access to information, enabling the position of every aircraft (including GA) and vehicle to be electronically visible to other users of the system.
* **Operational benefits**. The overall cost effectiveness of the air navigation services will improve by achieving 20 % reduction of the average cost per flight thus allowing for € 8 billion total cost savings. Increase in capacity and quality of service, and the associated reduction in average ATFM delay to 0.5 min per flight is expected to bring total savings of € 9 billion. Savings on fuel should amount up to € 8 billion owing to the use of optimum flight routes. The positive effect of improved low visibility operations is estimated to € 2 billion.
* **Social benefits**. The implementation of the ATM Target Concept directly contributes to mobility, regional development and tourism.
* **Further benefits**. An overall assessment of the ATM Target Concept and the planned operational improvements indicated some initial qualitative improvements in a number of specific areas, like: access and equity, interoperability, security, flexibility.

The total estimated investments and operating costs for the Users, Airports Operators and ANS Providers to achieve ATM Capability Level 3 is around € 30 billion.

The transition from ATM Capability level 1 to ATM Capability level 3 shows a positive CBA result for commercial operators with a break even point in 2019. However, high upfront avionics investment of around € 2 billion is required during the 2015-2017 period. Eventual decision by some airlines to postpone their investments would delay the benefits expected at the ATM network level or prevent them to materialise.

**NextGen**

The equivalent initiative aimed at the modernisation of the American ATM system is called NextGen. The Joint Programme Development Office's (JPDO) Integrated Work Plan (IWP) presents the research, development, and implementation efforts of the US government and its industry partners to achieve the Next Generation Air Transportation System (NextGen) vision. This initiative is being coordinated with the ATM Master Plan in Europe in order to assure alignment where necessary and joint inputs to ICAO.

**Related Articles**

* [EUROCONTROL Strategic Guidance in Support of the Execution of the European ATM Master Plan](https://skybrary.aero/index.php/EUROCONTROL_Strategic_Guidance_in_Support_of_the_Execution_of_the_European_ATM_Master_Plan)

**Further Reading**

**European Union**

* [The European Air Traffic Management Master Plan Portal](https://www.atmmasterplan.eu/)

**FAA**

* [Next Generation Air Transportation System (NextGen)](http://www.faa.gov/nextgen/)
* [FAA Safety Briefing, May/June 2010: "Introducing the Next Generation Air Transportation System"](https://skybrary.aero/bookshelf/books/1173.pdf)

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