

APPENDIX

MAIN CHARACTERISTICS OF THE EUROCONTROL ATM 2000+ STRATEGY AND ITS ASSOCIATED OPERATIONAL CONCEPT

1. GENESIS AND STATUS

1.1 The Transport Ministers of the European Civil Aviation Conference (ECAC) have adopted the Strategy in 2000 and updated in 2003 to accommodate traffic demand up to 2020. It is the product of the collective effort of the representatives of all the aviation sectors of Europe.

1.2 It has to be seen together with the institutional context (revised EUROCONTROL convention, adhesion of the European Community to EUROCONTROL) and the Single European Sky Initiative.

1.3 It defines objectives, directions for change, and planning and management criteria for the action plans of the aviation partners. It will drive the subsequent development and implementation work. It stresses an attitude of continuous, collective goal-oriented effort.

1.4 It provides the framework to make choices and decisions based on common understanding and business argument. It sets out the realistic, practical path to the future.

2. THE GOALS

2.1 Overall objective

2.1.1 For all phases of flight, to enable the safe, economic, expeditious and orderly flow of traffic through the provision of ATM services which are adaptable and scaleable to the requirements of all users and areas of European airspace. The services shall meet demand in a cost-effective way, be globally inter-operable, operate to uniform principles, be environmentally sustainable and satisfy national security requirements.

2.2 Performance objectives

2.2.1 The strategy is performance oriented. Performance objectives are being quantified.

2.2.2 The objectives include: safety, security, capacity (reflecting delay, access, flight efficiency, predictability, flexibility), cost-effectiveness, environment, national security and defence requirements, uniformity, quality and human involvement and commitment

2.3 Challenges

2.3.1 By 2020 European ATM will need to accommodate twice as many flights as today and, therefore, simultaneously generate extra capacity to meet the traffic demand, increase safety levels and contribute to protect environment, in a cost-effective way.

2.3.2 The ATM changes needed to meet these challenges affect both air and ground systems.

2.3.3 The challenges involve significant operational and cultural changes in ATM.

2.3.4 This requires new, enhanced management methods and processes to synchronise the actions of all of the parties involved.

3. THE MAIN FEATURES

3.1 Delivering Safety and Performance

Delivering Safety and Performance	
Performance oriented, and Safety comes first	ATM performance as the set of criteria expressing the expectations of society and airspace users. All performance criteria always subordinated to safety.
Promotion of overall Safety Improvement and Measurement	Introduction of safety management and safety regulatory functions in ATM. Anticipate, identify and remedy safety problems in aviation where ATM has the potential to contribute safety improvements.
A structural revision of ATM processes, a new ATM concept, a systems approach for the ATM network	Recognising the interdependence of stakeholders' operational decisions , encompassing the gate-to-gate concept, the consistent management of all phases of flight , the application of uniform principles , the integration of airport airside operations into ATM and system-wide information sharing . Organisational means to manage the ATM network via seamless services .
One Airspace continuum, gate-to-gate	Not constrained by national or service provision boundaries.

Delivering Safety and Performance	
Full civil-military cooperation	To fully exploit the airspace continuum.

3.2 A Path for Change

A path for change	
Aimed at a shared vision, responsive to future scenarios	Research & Development (R&D) activities to be focused on the shared future vision. Positive validation results will trigger implementation programmes.
Evolutionary Change steps	To ensure effective safety and project risk management, and protect current investments. No commitment to the unknown.
Global interoperability	Active contribution to the design and planning of the global ICAO CNS/ATM System and Regional Plan.
Strong commitment of all stakeholders, binding collaborative decision required based on revised EUROCONTROL Convention and EC Single European Sky	Need for a combination of regulatory and best practice mechanisms that encourage stakeholders to be committed to decisions and to implement the changes needed.

4. THE SUPPORTING OPERATIONAL CONCEPT

4.1 The strategy is aimed at an operational concept characterised by the key words highlighted above and the other aspects described in this section. The operational concept is consistent with the equivalent global ICAO concept. It is the vision to be reached and that will guide transition. It provides focus for the validation and Research and Development activities necessary to assemble evidence and enable implementation decisions to be made.

A path for change	
Strategic Organisation and Enhanced Predictability	Organisational means such as strategic traffic de-confliction or traffic flow smoothing, supported by exchange of consistent, high quality flight trajectory data, will exploit computer assistance tools to reduce the complexity of the traffic situations and of the procedures.
Flight Management from gate-to-gate	Continuous management of flights within the ATM network throughout all phases of flight to improve planning and make better use of resources.
Enhanced Flexibility and Efficiency	The trajectory of a flight will be managed to best meet at any moment the aircraft operators' needs subject to the prevailing circumstances.
Collaborative Decision-Making	Improved information management will support more extensive and comprehensive exchange of real-time information. Decision-making will be based on the sharing of data about actual events and incorporate preferences and constraints.
Responsive Capacity Management to Meet Demand	Flexible management based on the best possible division of air traffic control centre responsibilities, and responsive allocation of their resources in line with traffic variations.
Collaborative Airspace Management	Collaborative airspace planning and management mechanism based on the flexible use of airspace, and involving both civil and military authorities, for a pan-European airspace continuum used in a flexible and dynamic way.

4.2 The concept will capitalise on newly emerging technologies and fully utilise, where possible, the cooperative capabilities of both air and ground systems. This will allow the balance between humans and automation to be modified, the roles and responsibilities of people to be changed, and a redistribution of some tasks between the ground and airborne ATM systems. The flight trajectory (an accurate prediction of future positions) is the common object managed by ATM, aircraft operators and airports.

5. PLANS

5.1 Central to the strategy is the description of the change steps through time, the road map.

5.2 A better service performance can only result from operational improvements. In turn, enablers like technical systems, procedures, training, regulation are required to realise the operational improvements.

5.3 The road map is not a blue print. It is not possible to decide now on far future changes before rationale for them is solid, but we need a clear overall perspective of where to go, and what to do and when to be ready in due time.

5.4 Planning is top-down, performance-driven. Feed back loops ensure that actual progress and operational experiences are taken into account.

5.5 The European Convergence and Implementation Plan is the Europe-wide high-level implementation plan. It describes the performance targets agreed for the short-medium term and the implementation objectives planned to meet these targets. Objectives can be:

- a) Pan-European (e.g. RVSM) — same implementation date or commonly agreed coordinated deployment;
- b) multi-National;
- c) harmonisation objectives — at individual State level as appropriate to meet its performance targets. ECIP defines the date at which the first implementation can deliver benefits.

5.6 The objectives are broken down into lines of action to be undertaken by the various stakeholder categories. It is their share in the realisation of the objective.

5.7 Catalysts for Change

- a) collaboration, partnership and commitment;
- b) ratification of the revised EUROCONTROL Convention;
- c) accession of the European Community to EUROCONTROL, Single European Sky legislation, European R&D programmes;

- d) new Rule-making process;
- e) new economic and financial mechanisms, e.g. incentives for service providers and users; and
- f) new Relationship with Supplier Industry.

5.8 Main short-term pan-European implementation actions

5.8.1 The proposed changes are linked to a performance improvement to facilitate decision-making. They are consistent packages for validation and include all the necessary ingredients for airspace users and ground service providers.

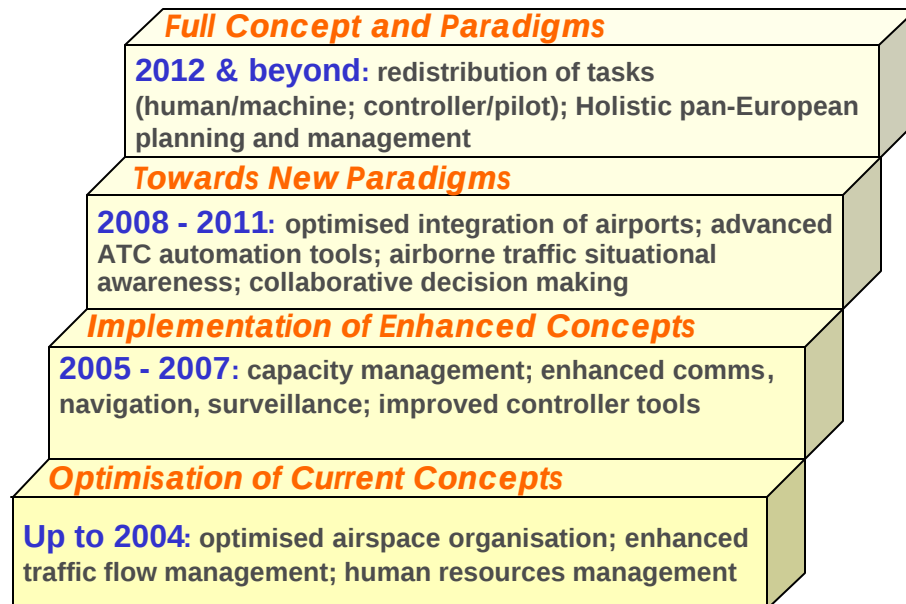
Benefit Focus	Action
Safety	" ACAS phase 2 " Measures from the high level safety initiative " EUROCONTROL Safety Regulatory Requirements (ESARRs)
Network Capacity	" Development of an optimal, dynamic European airspace structure and management, including regional initiatives " Dynamic and pro-active flow and capacity management. Steps to maximise ATM network utilisation " CDM for ATFM " Extension of the use of 8.33kHz VHF channel spacing
Sector productivity	" Deployment of advanced surveillance techniques " Operational use of air-ground data communication
Airport Throughput	" Improved procedures " CDM at airports
Infrastructure Efficiency	" Interoperability criteria and information management mechanisms, if possible at global scale, to allow system architecture convergence and seamless interfaces " Further use of satellite navigation to modernise infrastructure " Establishment of a common recognised repository of traffic, safety and delay data " European AIS data base (EAD)

5.8.2 In addition, generalisation of best practices and systemisation will generate continuing improvements in safety, security, capacity and environment.

5.8.3 Implementation of change is not limited to Europe-wide programmes. States and or service providers also take many initiatives, individually or within multi-national projects, most of them using commonly defined requirements/specifications. National projects address identified performance shortfalls at local scale.

5.8.4

Simplified Road map



— END —