**GUIDELINES FOR STRATEGY OPERATIONAL INTEGRATION OF THE
ATM AUTOMATED SYSTEMS OF THE CAR/SAM REGIONS**

Objective: Through a committed participation of the States, users and ATS providers of the CAR/SAM Regions,

1)   to cooperate jointly in the integration of technologies for ATM automation, in accordance with ICAO guidelines available, considering the best regional and global alternatives;

2)   develop a strategy for the integration of ATM automated systems with a safe, gradual, evolutionary and interoperable vision that facilitates the information exchange and the collaborative decision-making of all the components of the ATM system for a seamless, flexible, optimum and dynamic management of airspace and international aerodromes, and at the same time that it increases the required operational safety levels.

3)   take into account the data processing and network environment, taking into consideration the use of ground and space segments for an interactive ATS information process, under the criteria of integrity, quality and real time.

FRAMEWORK

a)   identify homogeneous areas on the basis of traffic flows operating in the different airspace and international aerodromes;

b)   analyze the operational environment scenarios of the air traffic services currently provided and those that are planned;

c)   determine the scope, architecture design, characteristics and attributes of the operational requirements for the short-term integration of the current automated systems of the ATS units depending on the current provided service levels, as well as other operational requirements that respond to future expectations of the components of the ATM system, considering:

i)   arranging the requirements in logical sequence, through the following stages.

Stage	Function
Stage I	- **Flight plan processing** (FDPS/Flight Data Processing System)
Stage II	- **Radar data processing** and ATS surveillance (RDPS/Radar Data Processing System, ADS and exchange of radar information); - **Monoradar;** - **Multiradar**; - **Radar data sharing**.
Stage III	- **Automated** digital communications (radar control transfer/automated traffic hand off, AIDC/CPDLC, etc.).
Stage IV	- Implementation of CDM (Collaborative Decision Making) for other ATM requirements (AOM [Airspace Organization and Management], CM [conflict management], DCB [Demand/Capacity Balancing], AO [Aerodrome Operation], TS [Traffic Synchronization], AUO [Airspace User Operation], ASDM [ATM Service Demand Management], AIS, Meteorology, Statistics, etc.);

NOTE: SAR should be taken into consideration in all the lower airspace stages.

ii)   identify the automation level required according to ATS functions defined in States´ classification of airspace and international aerodromes, as follows:

ATS Operational functions required in the automated systems (ATC, FIS, SAR)							
APPLICABLE ATS FUNCTIONS	ATS Airspace						
	A	**B**	**C**	**D**	**E**	**F**	**G**
Identification							
Separation							
Navigation guide							
Surveillance							
Transfer							
Coordination							
Information of flight plans in real time							
Visualization of the geographical position of the aircraft (longitude, latitude, history)							
Statistical data of flight plans (past and forecasted information).							
Radar data processing system (RDPS)							
Flight data processing system (FDPS)							
ATS inter-facility data communications (AIDC)							
Controller-pilot data link communications (CPDLC)							
Flight profile information (altitude, vertical speed, offset speed, predictive							

ATS Operational functions required in the automated systems (ATC, FIS, SAR)							
APPLICABLE ATS FUNCTIONS	**ATS Airspace**						
	A	**B**	**C**	**D**	**E**	**F**	**G**
vector, turn angle, etc.)							
Automatic alerts (STCA, MSAW, DAIW, emergency, communication failure, unlawful interference, etc.)							
AIS Interface							
Meteorological information							

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iii)   define the incoming and outgoing data, and functional interfaces data applicable to functions and sub-functions of the service;

iv)   define from the highest to lowest level the functional decompositions for all the ATM components;

v)   successively determine the different operational applications from the functional level or lowest interface to the upper interface;

vi)   define the current and future operational applications needs;

vii)   determine the short-term operational requirements; and

viii)   determine the future operational requirements.

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d)   determine the existing facilities and technological equipments in the CAR/SAM Regions, especially in adjacent States/Territories/Organizaitons, as well as the inter-operability technical requirements, data bases, equipped aircraft, software tools, etc., required that ease the integration of automated systems;

e)   develop a cost-benefit analysis for the integrated implementation of ATM automated systems;

f)   establish bilateral and multilateral agreements as appropriate, among States/Territories/International Organizations of adjacent airspace and regions for trials and the operational implementation/integration of ATS automated systems;

g)   develop standards, procedures and guidance material required (as *the Interphase Control Document (ICD) for data communications and common coordination between ATM centres, based on ICAO SARPS*) for the functional operation of ATS automated systems, including critical contingency cases, so as to serve as an aid to users;

h)   take the necessary measures for human resources training on a national and regional basis and allowing the facilitation of the implementation/integration of ATS automated systems;

i)   identify other potential benefits for the ATM community that may be obtained in the long-term; and

j)   document an action plan permitting the interoperable implementation of ATS automated systems.