

**Civil Aviation's Need for Global or Regional  
CNS/ATM & GNSS Systems**

**By**

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***Ladies and Gentlemen***, Distinguished colleagues and Guests; it is an honor & a pleasure to be with you today.

*Mes cheres collegues, madams et monsieurs, c'est une honneur d'etre avec vous aujourd'hui.*

***The Middle East Ladies and Gentlemen...***

One of the most dynamic aviation markets in the world, expanding from 5% of international traffic to 10% in the last seven years.

But our region like any other region is not immune to the current global recession.

It is expected that Airlines in this region will lose \$200 million more or less in 2009 as traffic growth slows significantly.

However, in the Middle East infrastructure and air traffic control procedures are not keeping up with growth. Military restrictions limit airspace expansion and the fragmentation of airspace and sub-optimal routes are costing millions of dollars.

The Middle East ***Ladies and Gentlemen*** need healthier coordination to find practical and effective solutions. This shall require the involvement of Governments, Airlines, and industry groups like ICAO and IATA to structure a coherent regional approach to ATM to provide capacity and improve efficiency, which means looking beyond national borders to the region-wide implementation of enroute airspace and terminal control areas based on Performance Based Navigation (PBN); that calls for investment in improved aeronautical information management and communications infrastructure. And it means making better use of aircraft and air traffic management technology to achieve an airspace structure that is based on user-preferred flight-paths.

Airlines in this region *Ladies and Gentlemen* are doing their part by ordering 1000 new, fuel-efficient aircraft worth over US\$178 billion in the past three years, as has been stated by IATA's regional Director.

On the other hand, IATA is also playing a role. Since 2004 globally IATA have delivered US\$12 billion and 59 million tonnes of CO2 savings by shortening routes, enhancing operational procedures and sharing best practices.

Since 2006 in this region alone IATA saved US\$460 million in total; US\$40 million by shortening routes, US\$46 million with **Reduced Vertical Separation Minima** (RNAV) approaches and US\$374 million by helping airlines in the region improve fuel efficiency with IATA Green Teams. There is progress, but there is much more work to do.

It is a fact that air transport brings tremendous benefits to humanity in terms of economic, social and cultural development.

Also, the air transport industry plays a major role in world economic activities and remains one of the fastest growing sectors of the world economy. For air transport to contribute to the well-being of people in the years ahead, it must keep growing in a safe and orderly manner, as intended by the Chicago Convention of 1944.

ICAO's aim is to achieve its vision of safe, secure and sustainable development of civil aviation through cooperation amongst its Contracting States.

To implement this vision, the Council adopted the following Strategic Objectives for the period 2005-2010:

**Enhance global civil aviation Safety, Security, Efficiency of operations, maintain the continuity of operation, minimizing the adverse effect of civil aviation on the environment; and strengthen the rule of laws governing international civil aviation**

The aviation community has been working on ATM operational improvements steadily since the 1920s. The work accelerated with the onset

of CNS/ATM systems. Technology development has been more rapid in recent years and improvements are now coming about more quickly. A major operational improvement was the implementation of **Reduced Vertical Separation Minima** (RVSM), which brought significant operational benefits to aircraft operators in terms of reduced fuel burn, availability of optimal flight levels, an increase in capacity, as well as environmental benefits.

ICAO has a central role to play in planning for the implementation of operational improvements. In addition to developing the necessary standards and guidance material, ICAO has developed a global ATM Operational Concept that was widely endorsed and used as the basis for planning.

ICAO also provides the planning framework through the Global Air Navigation Plan and several other documents and tools that support planning and implementation efforts.

Every ICAO Region has identified performance objectives and has developed work programs to foster near and medium term benefits while integrating those programmes with the extensive work already accomplished.

One of the key elements in maintaining the vitality of civil aviation is to *ensure Safe, Efficient, and Environmentally sustainable conditions* at the *National, Regional* and *Global* levels;

This means keeping in check major obstacles to sustained growth such as airspace and airport congestion, threats to the security of airline operations, airports and critical ground installations such as air traffic control towers, as well as the negative impact of aviation on the environment.

ICAO's role will continue to be one of leadership and assistance to its Contracting States according to the six strategic objectives established by its Council in 2004 and by working to strengthen laws governing international civil aviation.

Furthermore, *Ladies and Gentlemen*, Distinguished colleagues, since the establishment of the Special Committee on *Future Air Navigation Systems* (FANS) in 1983, and the 11<sup>th</sup> ICAO Air Navigation Conference held in

2003, ICAO has continued its efforts to structure the future direction for the development of a harmonized and seamless global air navigation system, with the Global ATM Operational Concept at its core.

In addition, ICAO's policy on air transport liberalization is contained in the Declaration of Global principles of the 5<sup>th</sup> Worldwide Air Transport Conference held in 2003, which ensure the safe and orderly development and implementation of global air traffic management.

The contribution of air transport to the economy of nations is well recognized and the need to create an efficient and sustainable civil aviation industry can therefore not be overemphasized. The air transport industry must continue to modernise its infrastructure to avoid capacity constraints, improve airspace efficiency and minimise costs.

The current air traffic growth, and consequently the growing air traffic demand, is a fact which cannot be denied and constitutes a common phenomenon in several parts of the world.

It is crystal clear, that current Air Traffic Management (ATM) systems are inadequate to face the eminent demand and air traffic growth. Moreover, existing Air Navigation Services (ANS) systems are insufficient to adequately cover the anticipated growth in air traffic demand.

**As you are aware ladies and Gentlemen, as a result of the above, Air Navigation Services are becoming more and more inefficient in terms of accuracy and reliability.**

The International Civil Aviation Organization (ICAO) has been responsive to the shortcomings of the current Air Navigation Service. ICAO developed its own strategy to face current Air Navigation Services (ANS) system inefficiencies by introducing at its 29<sup>th</sup> Assembly Session in 1992 a motivated concept known as CNS/ATM system which employs digital technologies, including satellite systems together with various levels of automation applied in support of seamless global air traffic management systems, which was based upon the FANS concept endorsed in 1991 by the States and international organizations at the 10<sup>th</sup> Air Navigation conference.

Global interoperability and harmonization are key to making further improvements to the global ATM system. In fact, most improvements can only be made through the recognition of the need to work and to cooperate

at the global level. This requires a broader, more inclusive vision, a wider planning perspective and planning for implementation of facilities and services over larger geographical areas. It also requires a global framework for performance measurement. Put another way, greater opportunities for efficiency gains will only come through implementation of a more global and seamless ATM system.

All regions have well established implementation plans in place and are progressing with their individual work programmes, such as the European Community and United States both of whose efforts have recognized the importance of ICAO's Operational Concept and the Global Air Navigation Plan as effective tools to guide the global effort and to serve as the framework for continued improvements.

The Global Plan therefore focuses efforts toward maintaining consistent global harmonization and improving implementation efficiencies by drawing on the existing capabilities of the infrastructure and successful regional implementations over the near and medium terms.

We support the view that a Global ATM system can be described as a worldwide system which achieves interoperability and seamlessness across all regions for all users during all phases of flight for the following reasons:

- It meets agreed levels of safety;
- Its optimum economic operations have been proven;
- It is environmentally sustainable;
- It meets national security requirements;
- It allows for an increase in airspace Capacity;
- It improves efficiency by reducing separation between aircraft;
- It allows further implementation of automation systems to support increase in traffic;
- It helps aircraft operators achieve reduced flight operating costs and delay;
- It permits aircraft operators to equip international aircraft with a minimum set of avionics usable everywhere;
- It provides and maintains extensive ground infrastructures; a reduction in the overall cost of operation and maintenance of facilities is expected as the traditional ground systems become obsolete and satellite technology is increasingly employed; and
- Most of all it will provide a timely opportunity for developing and Middle East States to enhance their infrastructures to handle additional

traffic with minimal investment. Many of these States have large areas of available but underutilized airspace, mainly because of the expense involved in purchasing, operating and maintaining the necessary ground infrastructures.

In fact *Ladies and Gentlemen, most improvements can only be made through recognition of the need to work and to cooperate at the Global Levels and we emphasize the above as it will result in the following:*

- I. Lower fares and rates;
- II. Passenger time savings;
- III. Increased employment;
- IV. Enhanced trade opportunities;
- V. Stimulation of related industries;
- VI. Transfer of high-technology skills; and
- VII. Productivity improvements and industry restructuring.

This requires a broader more inclusive vision, a wider planning perspective and planning for implementation of facilities and services over larger geographical areas.

***Ladies and Gentlemen:***

The **Global Navigation Satellite System (GNSS)** is an important element of the CNS/ATM systems utilizing Satellite-based technology, which is part of ICAO's mandate in accordance with Article (44) of the Chicago Convention to develop the principles and techniques of International Air Navigation and to foster the planning and development of international air transport.

Therefore, GNSS shall be compatible with International Air Law, including the Chicago Convention, its Annexes and the relevant rules applicable to Outer Space Activities in the same time. Furthermore, it is appropriate taking into account current States practices, to establish and affirm the fundamental legal principles governing GNSS; also, the integrity of any legal framework for GNSS implementation and operation requires observance of fundamental principles.

***However, due to the time allotted to us, unfortunately we are not able to elaborate on such principles.***

As you know, GNSS represents a major technical innovation benefiting the further development, safety, economy, and constancy of international civil aviation for the next Century.

Thinking about the legal and institutional implications of the GNSS within ICAO, at the same time, it is important to understand the current limits of any meaningful law-making efforts, when the essential components of the GNSS are in fact a natural monopoly developed for military purposes and serving primarily the national interests of the provider States.

***Ladies and Gentlemen:***

To some degree, growing trends towards globalization and liberalization of air transport erode, with States consent, the strict protectionist concept of sovereignty over airspace. Will the GNSS put further strain on the concept of sovereignty and require substantial concessions from sovereign States as the Former President of the ICAO Council stated that:

*“The full implementation of an integrated global satellite-based air navigation system is bound to breach and violate on the States’ sovereignty”*

Nevertheless, the full benefits of the GNSS will be available only to those States that will accept an agreed cooperative framework for the GNSS. Any presently expressed concerns relating to sovereignty of States may be motivated by the fact that some States feel less than comfortable with the current monopoly of the two superpowers in the actual provisions of the GNSS technology, technical leadership in the field, and possible economic spin-offs.

Furthermore, it is essential to draw a distinction between the still-abstract ideal of future global systems and the reality of today, when important components of the GNSS are available only from their national owners under the terms, conditions, and standards determined by the owners’ national interests.

**On the other hand** the universal access to the GNSS for all States and their airlines without discrimination is a logical proposal if the GNSS is to truly become the global and universal and eventually the sole means of air navigation which shall secure the following General and Legal Principles:

- a. Compatibility of regional Arrangements with Global Planning and Implementation;
- b. Universal Accessibility without Discrimination;
- c. The Safety of International Civil Aviation;
- d. Administration, Financing, and cost-Recovery;
- e. Compatibility with Chicago Convention;
- f. Continuous Availability of Services;
- g. Responsibilities and Roles of ICAO;
- h. Cooperation and Mutual Assistance;
- i. Respect for State Sovereignty;
- j. Certification; and
- k. Liability;

**Therefore, in conclusion, we support the idea that One Global Navigation Satellite System shall support a consistency of procedures and cockpit displays coupled with a minimum set of avionics, maintenance and training requirements. As we are all aware, the ultimate goal is that GNSS would eliminate the requirement for ground-based aids, although this is not the case for specific areas.**

The above opinion also was the outcome of the 11<sup>th</sup>. ICAO Air Navigation Conference in 2003 for establishing the future direction of the development of the Global ATM Operational concept with its aim of ensuring the safe and orderly development and implementation of global air traffic management.

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