



Agenda Item 3: Air Navigation Services
3.1 CNS/ATM

Aeronautical Management Automation

Technical Solution for Aeronautical Areas applied in the Central American Region

(Presented by COCESNA)

SUMMARY

This Working Paper summarizes the activities and jobs performed by COCESNA in the implementation and standardization of computer solutions to improve the quality and automation of the management in Central American States in the different aeronautical areas. The benefits that the region might acquire with software standards are also presented.

1. Introduction

1.1 The aeronautical industry has been changing as technology evolves; the aeronautical information has become a crucial component to the CNS/ATM system and operational safety because the states must assure they have quality aeronautical information. Taking this into account, COCESNA decided to invest economic, technical and human affords in the development of technological solutions with high safety, quality and satisfaction levels, designed to cover the needs of the different aeronautical areas.

1.2 The technology as a strategic resource and its adoption through the automation is expensive, and try to adopt it as such and the way it works in other more developed regions, generates us the problem of investing a lot of money in order to obtain tangible benefits.

1.3 Considering the needs of Central American States for automating their aeronautical management, COCESNA has developed technological solutions for the air navigation and safety areas in the last decade. In that way, we have strengthened the integration and standardization of the process, updating the industrial and hi-technological investment standards.

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1.5 Thanks to the work of expert personnel in the areas of Safety, Air Navigation, Research and Development, COCESNA has developed technological solutions with high levels of quality and satisfaction.

2. Air Navigation Products

2.1 In the air navigation area COCESNA has developed systems like Maintenance Management System (SGM by its Spanish acronym), Aeronautical Messaging Switch System (AMH by its Spanish acronym), Auxiliary System for the Air Control Center (SACC by its Spanish acronym), and Monitor and Control System (MYC by its Spanish acronym). Additionally, COCESNA has created solutions for invoicing based on a flight data processor.

2.2 Maintenance Management System (SGM): It is a management tool designed to aid the decision making process based on a knowledge data base that includes economic and technical aspects, maintenance plan, workflow control, control of the measurement equipment calibration, equipment condition diagnosis, and statistical data. This System manages all these components and presents precise information to the authority facilitating information access to the technical personnel in order to solve the problems rapidly when they access the information online.

2.3 The Aeronautical Messaging Switch (AMH) maximizes the modern advantages of network management. This system is completely customizable and it works with different networks from old connections to wide area networks (WAN). It can also implement a variety of messaging applications including AFTN/ICAO, ATN, etc.

2.4 The Support System for the Air Control Center (SACC) is a complementary tool for consulting to a Air Traffic Control System, which provides the necessary support to the air traffic controllers offering solutions for the search of NOTAM, ASHTAM, meteorological information, flight plans, aeronautical charts, search and rescue, access to aeronautical papers, as well as mailing of messages across the ATN/AFTN.

2.5 Monitoring Control System (MYC) was developed with the purpose of support an effective control of the AMH Stations and the Stations of the SACC system; additionally this system presents functions that allow a preventive and corrective maintenance in a remote way to the whole software and hardware of the stations. It is important to keep in mind that the system is so robust that it controls and interact with the operating system and the database of the Station, capable of re starting the equipment no matter the location.

2.6 The FYC4 Billing System was created with the capability to receive information online from a flight treatment system, transforming a work of several hours to a few seconds, eliminating transcription errors.

3. Safety Products

3.1 In the safety area we have the information system for regulations administrations which is an integral solution of management support on the airworthiness and operations areas such as register activities of aircraft and aeronautical personnel control. Other facilities include operator's certification, training programs, incidents and accidents, airports, workshops, schools, information digitalization, surveillance plan, fines and sanctions, tests, economical authority among others.

3.2 The information system of aeronautical regulations (SIAR) has as principal objective to support the regulatory agencies and air transport operators in the management of all those operations required to comply with international safety standards.

3.3 The SIAR is developed in modules and displays the essential information at the right time in order to aid the decision making process of the Authority. Besides, it allows taking total control in the performance and incidence of every inspection detailing the findings.

4. Central American Benefits

4.1 With these solutions, COCESNA provides top technology to the Central American States, allowing them to gradually evolve into a high automated aeronautical management with lower costs compared to the international technology providers.

4.2 COCESNA's research and development process has allowed all Central American States to have access to the technological innovations of the aeronautical industry.

4.3 The platforms standardization allows connections between different solutions to integrate seamlessly flow of information in technical, operative and management areas.

4.4 The use of standards open the possibility to share information between the states, making easier the implementation of regional certificates, licensing, documents and operative processes.

4.5 Having diminished the technology costs, it allows to have a quickly access to software updates avoiding outdated packages.

4.6 COCESNA's solutions play an important role for the technological improvement of Civil Aeronautical Authorities, having permanent state-of-the art products with updates and improving their internal and external processes.

4.7 The experience that COCESNA has gained in safety and navigation areas allows the development of specialized tools for international rules accomplishment.

4.8 The integrated and automated systems allows the sharing of radar data, flight plans, meteorological information, which provides the operators local and regional information like pre and post flight information data.

4.9 With the technology platforms standardization, scale economies can be reached for the training processes, allowing the interchange of inspectors, air traffic controllers, AIS officers.

5. Standard Products

5.1 COCESNA´s projects have been developed under a methodology oriented to objects and metrics 3.0.

5.2 Besides, these solutions fulfill the open system standards of the computer industry using multi platform libraries which allow us to export the systems to the different operating systems like UNIX, LINUX or WINDOWS.

5.3 The solutions are able to connect through serial line terminals or TCP/IP WAN, AMHS network connections.

5.4 The applications are available in client/server and web versions.

5.5 The databases are managed by a powerful and high growth in the industry system administrator (MySQL).

5.6 All the systems are developed with dynamic interfaces adapted to every language selection by every aeronautical authority.

5.7 These solutions comply with the ICAO standards applicable to the field.

6. Suggested Action

6.1 We suggest to the Meeting take note of the information provided in this working paper.

6.2 We propose to search for a regional solution that allows the integration and harmonization in the different aeronautical processes.

6.3 We propose to create technical cooperation projects to reach scale economies and achieved the integration of the regional systems.