



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 4: Implementing the global air navigation system and the role of planning and implementation regional groups (PIRGs)

4.3: Implementing ASBUs for performance improvement

**CONTRIBUTION TO THE OBJECTIVE MEASUREMENT OF THE OPERATIONAL
BENEFITS OF THE AVIATION SYSTEM PROVIDED BY THE AIR NAVIGATION SERVICES
PROVIDER AND THE AERODROME OPERATOR**

(Presented by Colombia)

EXECUTIVE SUMMARY

The Global Air Navigation Plan (Doc 9750, GANP), Regional Air Navigation Plan (RANP) and National Air Navigation Plan (NANP) are planning tools for ensuring that the civil aviation system meets growing demands, in safety conditions, through a long-term shared vision. The aviation system block upgrades (ASBUs) is a step-by-step approach that guides States in the implementation of operational improvements in line with their specific needs, in a “one size does not fit all” scalable and flexible manner.

To identify gaps based on projected demand, and thus assertively apply the GANP ASBU framework, questions such as: what is the capacity offered today? or what is the level of service offered versus that which is expected? must be answered.

An instrument to help answer these questions is the maintenance management process used by the aircraft operator or maintenance organization that also apply to the air navigation service provider (ANSP) and aerodrome operator (AO) with the same requirement conditions. In other words, an ANSP and AO maintenance management process for the provision of air navigation services based on organization, personnel competencies, technical documentation, facilities, tools and records.

Through this management process, the levels of service currently offered as well as the performance specifications can be monitored with key performance indicators (KPIs) in different key performance areas (KPAs). For instance: safety, capacity used, environment or efficiency, as well as availability, coverage, accuracy or integrity. This is an objective way to make decisions regarding which, when, where

¹ Spanish version provided by Colombia.

and how operational improvement(s) and associated technology, should be deployed following the GANP ASBU framework.

This concludes the planning cycle (Plans) – Making (provision for levels of service) – Verifying (measurement, monitoring, indicator analysis) – Acting (implementing improvements based on information) in the provision of navigation and airport services, ensuring ongoing improvement.

Action: The Conference is invited to agree to the recommendation in paragraph 3.2.

1. INTRODUCTION

1.1 The Global Air Navigation Plan (Doc 9750, GANP), Regional Air Navigation Plan (ANP) and National Air Navigation Plan (NANP) pursue “purposeful” transformations planned according to operational needs. In this regard, decisions must be made based on the analysis of objective measurements.

1.2 Therefore, it is necessary to identify the level of service offered today and in the future in order to establish the gap against the demand (operational expectation) of aviation system users and the service provided. This will serve to plan, in an assertive manner, through the NANP, operational improvements from the aviation system block upgrade (ASBU) framework. In this regard, questions such as: what is the capacity now offered?; what is the operational need now, in 10, 20 years?; what is the level of service offered? should be answered. This analysis will provide the necessary information to establish where it is and will be necessary to advance in each thread (area of the air navigation system) within the Blocks (0, 1, 2, 3) of the GANP ASBU.

1.3 The *Manual on Global Performance of the Air Navigation System* (Doc 9883) proposes indicators for eleven key performance areas (KPA): access and equity; capacity; [flight] efficiency; environment [impact], safety, cost effectiveness, flexibility, global interoperability, air traffic management (ATM) community participation, predictability and security. Through these eleven KPAs, the operational gains that meet the expectations of aviation system users are classified.

2. DISCUSSION

2.1 On the other hand, the maintenance management process used both for the design and operation of aircraft is an instrument that has proven to be effective for safety risk mitigation. The operation of an aircraft is subjected to a rigorous process that includes elements such as: organization, personnel competencies (education, training), technical documentation (maintenance program, manuals, processes, procedures), facilities, tools and records.

2.2 Therefore, it is desirable that the ANSP and AO manage the provision of the services under their responsibility using the same requirements of a maintenance management process since they contribute equally to maintaining safety levels, especially when in most cases they are treated as the last resource available after an in-flight failure.

2.3 In the overall context of the aviation system, each subsystem participates through the level of service provided, which, related to an equation based on the required variables, manages to establish, for instance, the KPA-capacity offered by the ANSP or AO.

2.4 This purpose can be achieved following a maintenance management process, which calculates the equations and their correlation, in order to deliver, in real time, the level of service of the infrastructure that supports the operation. In this case, the infrastructure is made up of “subsystems” of the ANSP or the AO (i.e. communications, radio-aids, air traffic control (ATC) surveillance systems, runway, fire fighting vehicle, etc.) that affect the aviation system and that must be treated with the same rigor to which an aircraft is submitted. A diagram is shown below to illustrate this proposal.

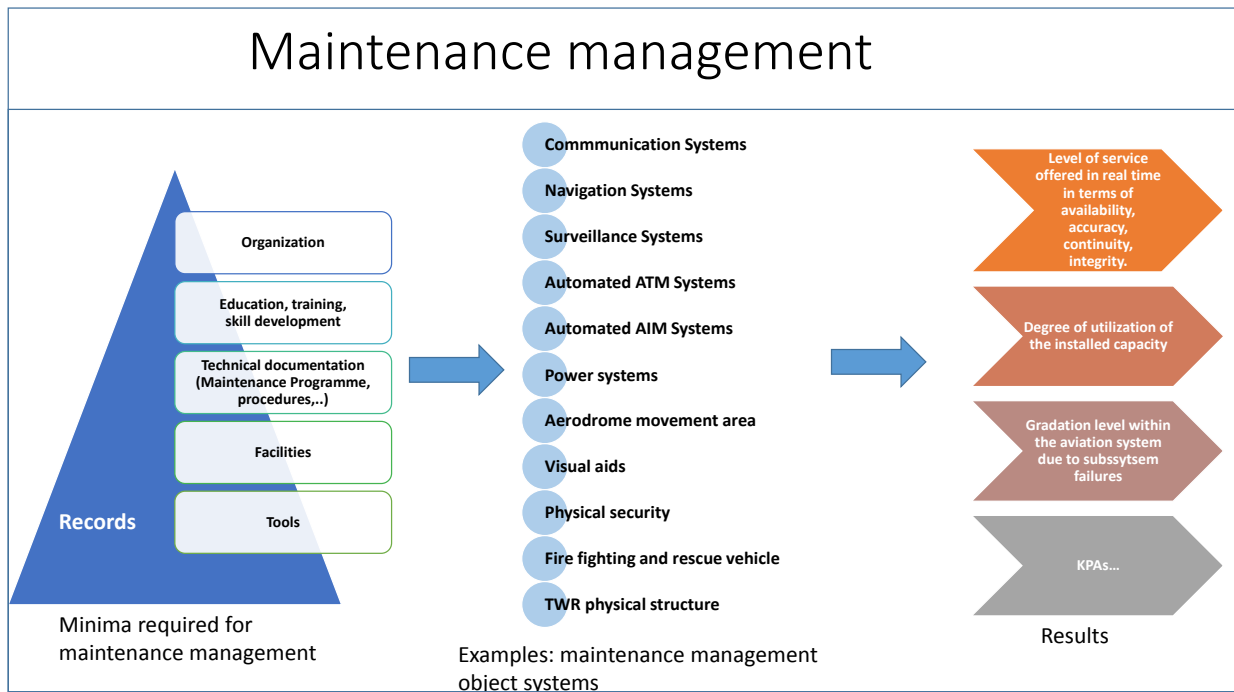


Diagram. Elements of an ANSP and AO maintenance management process

2.5 In other words, with adequate ANSP and AO maintenance management process, indicators can be calculated in order to establish the service offered today (baseline), to analyse the information for decision-making (based on the gap between the level offered and the level expected by users) and to define where, when and how an improvement foreseen in the GANP-ASBU is required.

2.6 In this light, the Planning Cycle (NANP) is concluded: making (provision for levels of service), verifying (measurement, monitoring, indicator analysis), acting (implementing improvements based on information), in the provision of navigation and airport services, ensuring ongoing improvement.

3. CONCLUSION

3.1 The ANSP and the AO impact the agreed level of service and safety (in the same manner as an aircraft operator or an aviation maintenance workshop); therefore, it would be desirable that all

stakeholders have the same level of requirement. One way of achieving this is for both the ANSP and the AO to manage the provision of the services under their responsibility considering at least the following elements: organization, personnel competencies, technical documentation, facilities, tools and records, as they are already considered in a maintenance management process. With these minimum elements in place, the levels of services offered based on the KPAs, as well as the operational gain after implementing a proposed improvement to the NANP are confirmed.

3.2 This would be the basis for building a common framework of consistent and comparable indicators to measure the expected benefits (KPA), with minimum attainable targets, such that they make it possible to manage whatever is necessary at a State level and allow for contributions at a regional level in order to achieve the goals of the international civil aviation system established by ICAO in the GANP.

3.3 Considering the information above, the Conference is invited to agree to the following recommendations:

Recommendation 1.2/x – Air navigation performance improvement and measurement through the aviation system block upgrades (ASBUs)

That the Conference:

request ICAO to standardize, through Standards and Recommended Practices (SARPs) and/or Procedures for Air Navigation Services (PANS), the performance-based requirements for the air navigation services provider (ATM, aeronautical information management (AIM), meteorology (MET) search and rescue (SAR) communications, navigation, and surveillance (CNS) and aerodrome (*Airport Services Manual* (Doc 9137)).

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