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CAR/SAM Regional Planning and Implementation Group (GREPECAS)
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Punta Cana, Dominican Republic, 9 to 14 April 2018

Agenda Item 3: Air navigation activities at global, inter-regional and intra-regional level

3.2 Follow-up on the implementation of global, inter-regional and intra-regional activities

Performance Based Approach Applied to Regional Implementation Planning

(Presented by Dominican Republic)

SUMMARY

This working paper stresses the importance of using the guidance in ICAO documents in applying the performance based approach to establish clear performance objectives at the regional level, and also to establish business cases for the solutions considered for reaching those objectives.

References:

- Document 9883: Manual on Global Performance of the Air Navigation System
- Document 9750: Global Air Navigation Plan
- Regional Performance Based Air Navigation Implementation Plan (RPBANIP)

1. Introduction

1.1 The Global Air Navigation Plan (GANP) describes the planning process that should occur in each region, in which the global plan gives guidance for regional plans, and national plans should align with these. The performance based approach is the recommended way of planning and decision making, and an important part of this approach is setting the performance objectives. This working paper stresses the importance of considering and establishing clear performance objectives, as also creating the business case for plans to go forward.

1.2 An example of why this is important is the implementation status of AIDC. In the region the target set for AIDC implementation in the Port of Spain declaration has been achieved, so it is important to evaluate if this great effort is actually yielding the results expected. In that sense the need for improvement in how we are measuring the performance of the solutions that are being implementing is evident.

2. Discussion

Performance based approach

2.1 The performance based approach is a decision-making technique recommended by ICAO in Document 9883: Manual on Global Performance of the Air Navigation System. It is based on the following principles[1]:

a) Strong focus on desired/required results
b) Informed decision making driven by the desired/required results
c) Reliance on facts and data for decision making

2.2 It is notable that the desired/required results are the drivers for setting objectives and making decisions. Therefore, these expected results should be defined and clear from the beginning of the planning process. This fact is made evident throughout the said document and Document 9750, the Global Air Navigation Plan. Paragraphs 2.3 to 2.7 offer examples on where this reflected.

2.3 Document 9883 establishes six steps for applying the approach[2]:

a) Step 1: Define/review scope, context and general ambitions/expectations
b) Step 2: Identify opportunities, issues and set (new) objectives
c) Step 3: Quantify objectives
d) Step 4: Select solutions to exploit opportunities and resolve issues
e) Step 5: Implement solutions
f) Step 6: Assess achievement of objectives.

2.4 An example for the whole process, referring to ATC capacity, is given and is very useful to understand the details of each step of the process.

2.5 Again, it is clear that before the selection of solutions there are three previous steps dedicated to the establishment of objectives based on the required/desired results. Also, to exploit opportunities and resolve issues there can be other activities that may not be all covered in the application of a specific ASBU module (re-sectorization, reconsideration of airport capacity, etc.). These decisions will depend on the results of the preceding analysis and will bring about specific actions in national plans.

2.6 The GANP also offers a flowchart for planning at the regional and national levels in its Appendix 1 (reproduced in this working paper in Appendix A). This flowchart begins with the identification and mitigation of gaps, after which modules are selected. These gaps are determined from a regional situation analysis. The information of what these gaps are and their corresponding dimensions are the starting point for the decision making process.

2.7 Finally, Document 9883 offers examples of performance indicators for each of the 11 Key Performance Areas (KPAs) defined in the Global ATM Operational Concept document (GATMOC, Document 9854)[3], and defines a performance based transition approach roadmap for regional planning[4] (see Appendix B of this working paper) where the selection and sequence of operational improvements, corresponding to the selection of ASBUs, is the 11th step of a total of 12, preceded by those necessary to define performance targets and identify performance gaps.

[1] Manual on Global Performance of the Air Navigation System, first edition, p. I-1-3
[2] Idem, p I-App D-1
[3] Idem, p I-App E-1
[4] Idem, p II-1-3

Business case

2.8 Another key issue is that of business case. In Document 9883 the example of performance based approach application introduces this factor into the analysis. In the example, which consists of increasing ATC capacity, you can see that a significant drop in demand is forecasted in the long term, and that fact could make investment in increasing ATC capacity unfavorable and economically non-beneficial[5]. Also, in the selection of solutions cost is one of the two factors considered (see Appendix C).

2.9 The GANP also touches the financial aspects of implementation in its Appendix 8, mentioning the importance of establishing a business case, a cost-benefit analysis, and the use of incentives for cases in which implementations do not have any or immediate positive financial outcomes for some of the stakeholders. Operational benefits should be provided as early as possible in the implementation process and synchronization across all stakeholder groups of investments should be achieved as best possible. This is what should make ASBU implementation feasible now and sustainable in time.

Regional performance based air navigation implementation plan (RPBANIP)

2.10 The RPBANIP establishes the NAM/CAR regional priorities described as Regional Performance Objectives (RPO) to be accomplished during the period 2013 to 2018.[6] In this document you can find the following information:

a) The forecasted aircraft movements and passenger traffic for the region, divided by sub-regions.
b) The Regional Performance Objectives (RPOs), which drive the implementation process. The RPOs indicate the expected benefits, the strategy and corresponding tasks linked to the ATM system components listed in the GATMOC (Document 9854), as well as the related Global Performance Indicators (GPI).
c) The Air Navigation Reporting Forms, in which the progress for the implementation of each ASBU is informed. The forms include implementation metrics as well as performance metrics.
d) A table with a prioritization of ASBU modules.

2.11 In the regional plan, the regional performance objectives only state the benefits, but do not provide a specific objective to aim for. For example, RPO 1 (Implementation of Performance Based Navigation PBN) has several benefits: reductions in fuel consumption (Environment) and increase in airspace capacity (Efficiency). These only state general benefits, but do not specify a target (e. g., double the airspace capacity in sub-region X). The estimate of the savings of reduced fuel consumption would be important information to have, under the KPA of Cost-efficiency. Moreover, the supporting analysis on which the expected benefits were determined is lacking.

2.12 Using the guidance detailed in previous sections, and given the forecasted increase in traffic by sub-region, an analysis of what requirements must be met to accommodate this increase, as also the current level of compliance of those requirements, could provide the information of what gaps to overcome and thus the performance objectives in a manner easier to quantify. Other aspects, such as safety trends and requirements, may also be projected and subject to the gap analysis. From there, priorities and trade-offs can be determined, in which operational benefits and economic feasibility would be balanced to help make the effort sustainable (e. g., deciding to implement 'quick wins' first that could stimulate investment and achieve early benefits). This is a much simplified version of what the process could be, nonetheless illustrative.

[5] Manual on Global Performance of the Air Navigation System, p I-2-7
[6] NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP) v 3.1, p vii

2.13 National plans would consider how in their particular airspace the performance objectives would be accomplished, taking into account the singularities of each State, the applicability of the objectives, and the involved stakeholders. Efforts at the national level would not be isolated, as they correspond to regional performance objectives: they will be pieces of the "bigger picture" and thus harmonization would be easier achieved.

2.14 In the end the focus would not be on implementing ASBUs, but on producing a desired result at the regional level, by means of a combination of actions that may include the implementation of selected ASBUs.

3. Conclusion

3.1 The need for basing implementation on expected performance results has been expressed by Dominican Republic before, in WP/341 of the 39th Session of the Assembly. In that working paper, an implementation impact assessment form is proposed as a means of linking implementation to an expected outcome in performance. It is a form to be filled by States, depending on their realities. Thus, one step further would be to put regional performance objectives in place from which States determine the first section in this impact assessment analysis.

3.2 There is also a Multi-Disciplinary Working Group on the Economic Challenges Linked to the Implementation of the Aviation System Block Upgrades (MDWG-ASBU), created in conformance with recommendation 2.7/1 b) of the 6th meeting of the Air Transport Conference, whose purpose is to provide generic guidance on cost benefit analysis, how to provide incentives and schemes to finance the implementation of ASBUs. Mostly the results of this working group will be reflected in the GANP, but it would also be useful to take reference of the reports of the MDWG-ASBU and any other assistance that is possible to guide the region in this aspect.

3.3 A team of experts would be necessary to do the gap analysis and evaluation of solutions at a regional level, and this could be costly. In the same spirit as in the MDWG-ASBU, the possibility of a working group to be developed for this purpose is an option to be considered.

3.4 Finally, there is ample information in the documents referenced throughout this working paper that can serve as guidance in order to focus the efforts in the region on producing an impact on performance in a synchronized manner. A revision of the RPBANIP would be necessary for these concepts to be put in practice.

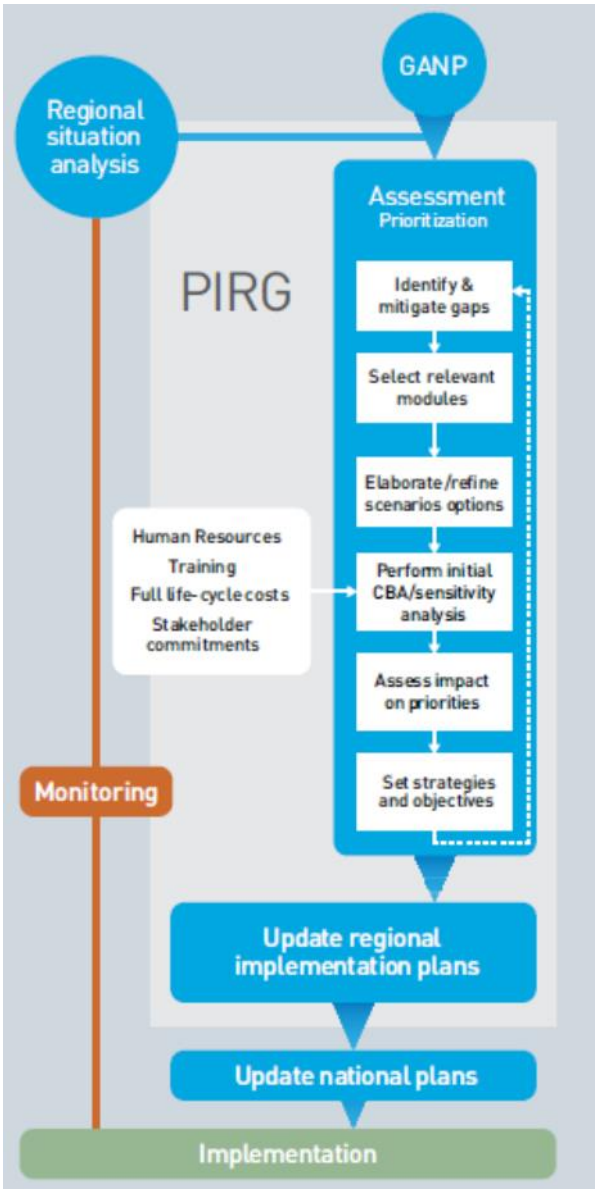
4. Suggested actions

4.1 The meeting is invited to:

a) Take note of the information in this working paper.
b) Use the referenced documents as guidance for suggesting improvements in the regional plan.
c) Consider working closer with the MDWG-ASBU to establish business cases and identifying opportunities and threats to implementation.
d) Any other action deemed necessary.

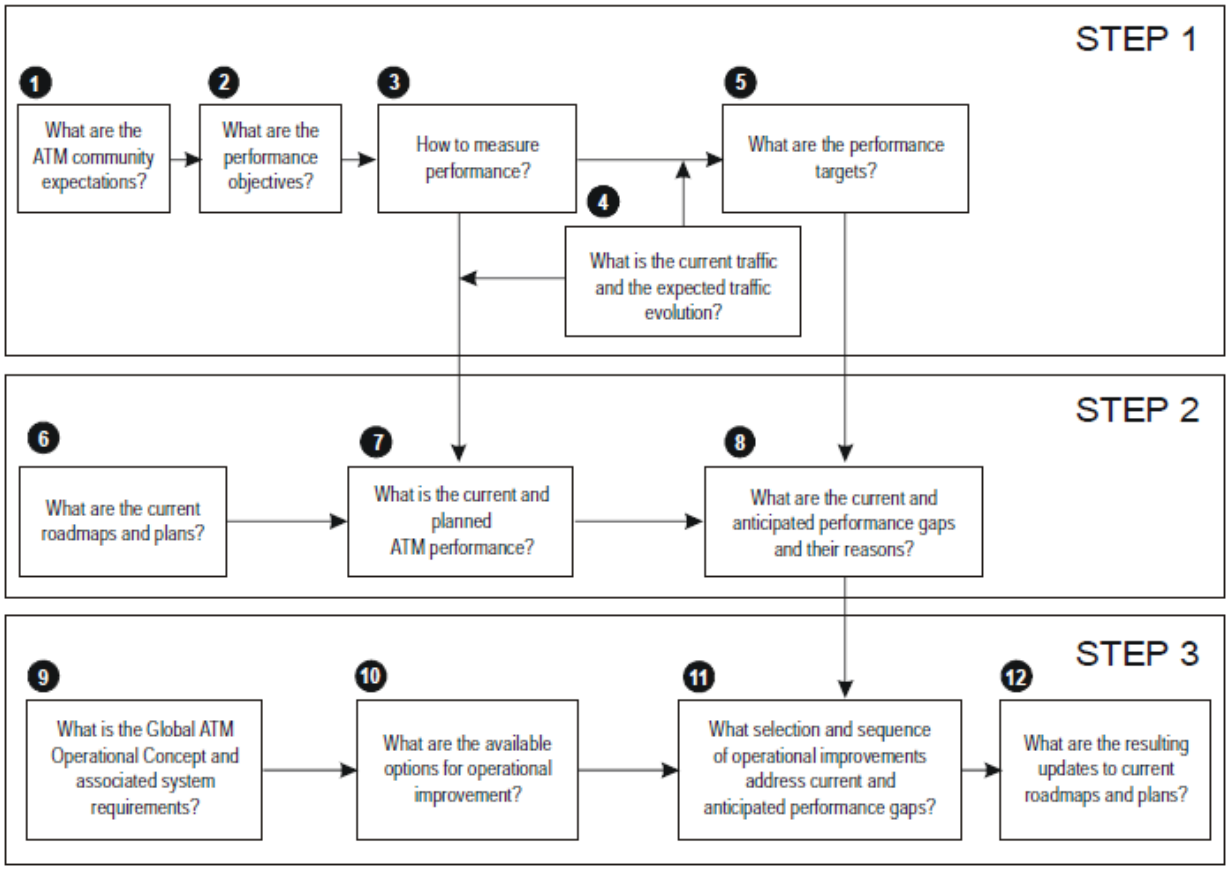
APPENDIX A

GANP REGIONAL PLANNING FLOWCHART



APPENDIX B

PERFORMANCE BASED TRANSITION APPROACH FOR REGIONAL PLANNING



APPENDIX C

EVALUATION OF CANDIDATE SOLUTIONS FOR THE CAPACITY EXAMPLE OF DOCUMENT 9883

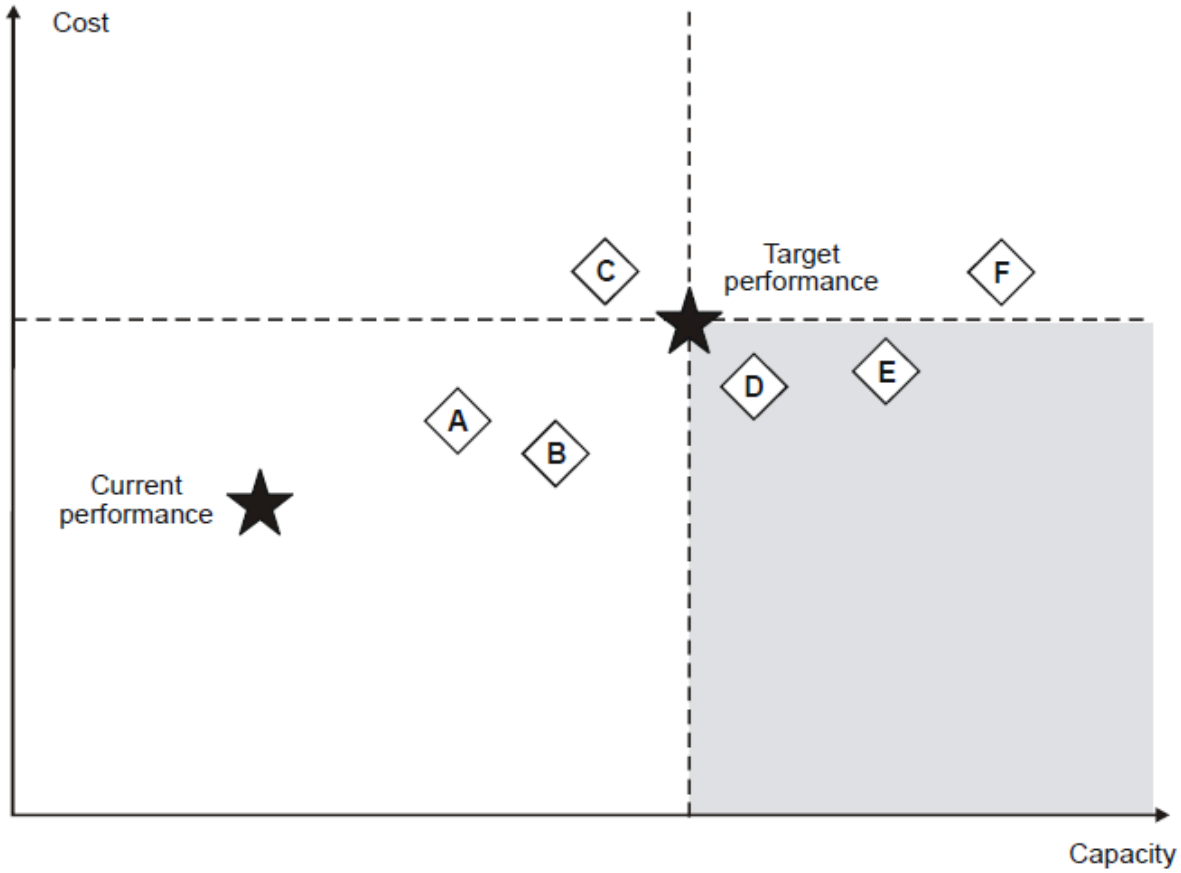


Figure I-2-2. Expected performance of candidate solutions (example)

In the above graph, several candidate solutions (A – F) are evaluated in two dimensions: capacity and cost. The target performance defines what the ideal is in terms of the required capacity and possible cost. In this case, solutions A, B and C do not meet the capacity requirements. Solution F meets the capacity requirement, but is above the cost constraint. Solutions D and E are within the area of feasibility.

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