International Civil Aviation Organization

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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

IMPROVING THE PERFORMANCE OF THE AIR NAVIGATION SYSTEM THROUGH THE AVIATION SYSTEM BLOCK UPGRADES

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This paper presents and encourages the adoption of a globally harmonized performance management process for the modernization of the air navigation system and clarifies the role of the aviation system block upgrade (ASBU) framework within this process. It also emphasizes the difference between implementation and performance metrics and highlights the importance of global, regional and national planning alignment to attain a globally harmonized performance management process.

Action: The Conference is invited to agree to Recommendation 4.3/x – Improving the performance of the air navigation system, in paragraph 3.

Strategic Objectives:	This working paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives.
Financial implications:	*Impact for the aviation community:* The costs of improvement to the air navigation system can be significant in some economic, geographical and operational scenarios; however, the aviation community and the society at large will benefit from a safer and more efficient air navigation system. *Impact for ICAO (relative to the current Regular Programme Budget resource levels):* Since ICAO's current Standards and Recommended Practices (SARPs) development and implementation roll-out will continue over the next triennia, additional resources are required, both financial and human, to support ICAO's efforts in planning and implementation of air navigation improvements.
References:	Annex 19 – *Safety Management* AN-Conf/13-WP/18 AN-Conf/13-WP/19 AN-Conf/13-WP/22 AN-Conf/13-WP/30 Doc 9750, *Global Air Navigation Plan* Doc 9828, *Report of the Eleventh Air Navigation Conference (2003)* Doc 9848, *Assembly Resolutions in Force* (as of 8 October 2004) Doc 9883, *Manual on Global Performance of the Air Navigation System*

1. INTRODUCTION

1.1 The Eleventh Air Navigation Conference (Montréal, 22 September to 3 October 2003) (AN-Conf/11, Recommendation 4/2 — Investigation of performance-driven planning and implementation methods) and the 35th Session of the ICAO Assembly in 2004 endorsed a performance-based approach to air navigation planning and implementation. However, there has not been worldwide adoption of this approach for planning the modernization of air navigation systems.

1.2 The performance-based approach is a decision-making method based on three principles: a strong focus on the desired/required results; informed decision-making driven by those desired/required results; and a reliance on facts and data for decision-making. The performance-based approach has many advantages, inter alia, transparent policy-making, stakeholder accountability, cost-effective implementation, optimum resource allocation and success in reaching goals.

2. DISCUSSION

2.1 The six-step ICAO performance management process

2.1.1 Although there are several ways the air traffic management (ATM) community could apply a performance-based approach, ICAO advocates, in the *Manual on Global Performance of the Air Navigation System* (Doc 9883), a globally harmonized performance management process based on six well-defined steps (see Appendix A). These steps define a sequence for a repetitive and continuous process.

2.1.2 By systematically following these steps, members of the ATM community will gain confidence in their ability to apply a performance-based approach in a successful manner and benefit from participating in a globally harmonized approach.

2.1.3 When insufficient data are available, the initial steps of the performance management process can be executed in a qualitative way. In order to support the defining of performance objectives in step two (Identify Opportunities, Issues and Set (new) Objectives), ICAO has developed a performance objectives catalogue, accessible at https://www4.icao.int/ganpportal, that contains performance objectives expressed in a qualitative and focused way within eleven key performance areas. In addition, ICAO is developing new key performance indicators to be included in the list of potential key performance indicators presented in the current edition of the GANP, accessible at https://www.icao.int/airnavigation/Documents/GANP-Potential_Performance_Indicators.pdf. These key performance indicators are linked to the relevant objectives in the performance objectives catalogue to support the execution of step three (Quantify Objectives) of the six-step ICAO performance process.

2.1.4 One of the aspects to be considered when selecting the optimal solution for deployment in step four (Select Solutions to Exploit Opportunities and Resolve Issues) is a cost-benefit analysis. ICAO has therefore developed guidance on cost-benefit analysis considerations for ASBU implementation (AN-Conf/13-WP/22 refers).

2.1.5 To support the aviation community in adopting a performance-based approach, ICAO has delivered several regional workshops with hands-on exercises on how to apply this method. In addition, ICAO is developing the air navigation system performance assessment (AN-SPA), a tool to support the application of the six-step ICAO performance process focused on the implementation of the aviation system block upgrades (ASBU) framework.

2.2 Aviation system block upgrade (ASBU) framework

2.2.1 The ASBUs are a group of operational improvements organized in key feature areas of the air navigation system (ASBU threads) and scheduled in time of availability (ASBU blocks). As a framework, it does not define a particular process to be followed for implementation; however, the performance benefits associated with the outlined operational improvements (ASBU elements) support the adoption of a performance management process.

2.2.2 It is important to highlight that the level of confidence associated with the performance benefits expected from each operational improvement depends on its level of maturity (conceptual, validation, standardization or ready for implementation). In this regard, the level of confidence increases as the operational improvement matures and the necessary validations and cost-benefit analyses are performed.

2.2.3 It is also important to highlight that the applicability of a performance management process is not limited to the implementation of the ASBUs, but that the operational improvements described in the framework represent a list of potential solutions (a menu) to address specific operational needs. To facilitate the identification of potential operational improvements that could solve specific operational needs (execution of step four), the ongoing review of the ASBU framework (ANConf/13-WP/19 refers) includes a performance assessment of the operational improvements.

2.2.4 This performance assessment consists in identifying, from the performance objectives catalogue, the performance objectives to which each operational improvement contributes; an example is shown in Appendix B.

2.3 Global, regional and national air navigation planning alignment: performance vs. implementation metrics

2.3.1 In 2014, the ICAO Council approved a new template for the Regional Air Navigation Plans to better align global and regional planning. Volume III of the template is used as a tool for monitoring and reporting the implementation status of dynamic/flexible plan elements related to the implementation of the air navigation system and its modernization in line with the ASBUs and the technology roadmaps described in the GANP.

2.3.2 In this regard, the ICAO regions, through their planning and implementation regional groups (PIRGs), have established implementation targets to advance the capabilities of the air navigation system. However, as highlighted by the performance-based approach, each operational environment is unique and has different needs and varying optimal solutions. Therefore, the commonality is not in the implementation of a particular solution, but in the delivery of an agreed level of performance. Nevertheless, there might be specific needs to be addressed at a regional level to ensure the interoperability of systems or harmonization of procedures.

2.3.3 ICAO is therefore urging States and regions to: adopt the six-step performance management process and reflect it in their regional and national air navigation plans as a strategic part of their national development plans (AN-Conf/13-WP/30 refers); continue monitoring and reporting implementation, or to start monitoring and reporting performance in order to measure the benefits of this implementation using the global key performance indicators defined in the GANP and in the performance objectives catalogue; refrain as much as possible from prescribing specific solutions; and set regional performance objectives aligned with the proposed global performance ambitions and based on regional needs to ensure a minimum quality of service.

2.3.4 To ensure global and regional planning, ICAO is developing a tool for the publication and amendment of the regional air navigation plans that will be available at the beginning of 2019 (AN-Conf/13-WP/18 refers).

3. CONCLUSION

3.1 The adoption of a globally harmonized performance management process for the modernization of the air navigation system is necessary to align global, regional and national planning. A performance management process should be applied, not only to the implementation of the ASBUs which represent an extensive list of potential solutions to address specific air navigation operational needs, but also to the implementation of other air navigation operational improvements. Although the monitoring and reporting of air navigation implementation is important, it is also necessary, within a performance-based approach, to monitor and report the benefits achieved with this implementation. The conference is invited to agree to the following recommendation:

Recommendation 4.3/x – Improving the performance of the air navigation system

That the Conference:

a) encourage ICAO regions to embrace a performance-based approach and adopt the six-step performance management process, described in the *Manual on Global Performance of the Air Navigation System* (Doc 9883), by reflecting it in Volume III of the Regional Air Navigation Plans;

b) encourage States to adopt the six-step performance management process for the planning and implementation of air navigation improvements and reflect this process in their national air navigation plans;

c) urge States to align national air navigation plans with regional plans to attain a globally harmonized performance management process and support the achievement global performance objectives; and

d) request ICAO to continue the development of the performance objectives and key performance indicators catalogue as defined in the *Global Air Navigation Plan* (Doc 9750).

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APPENDIX A

THE SIX-STEP ICAO PERFORMANCE PROCESS

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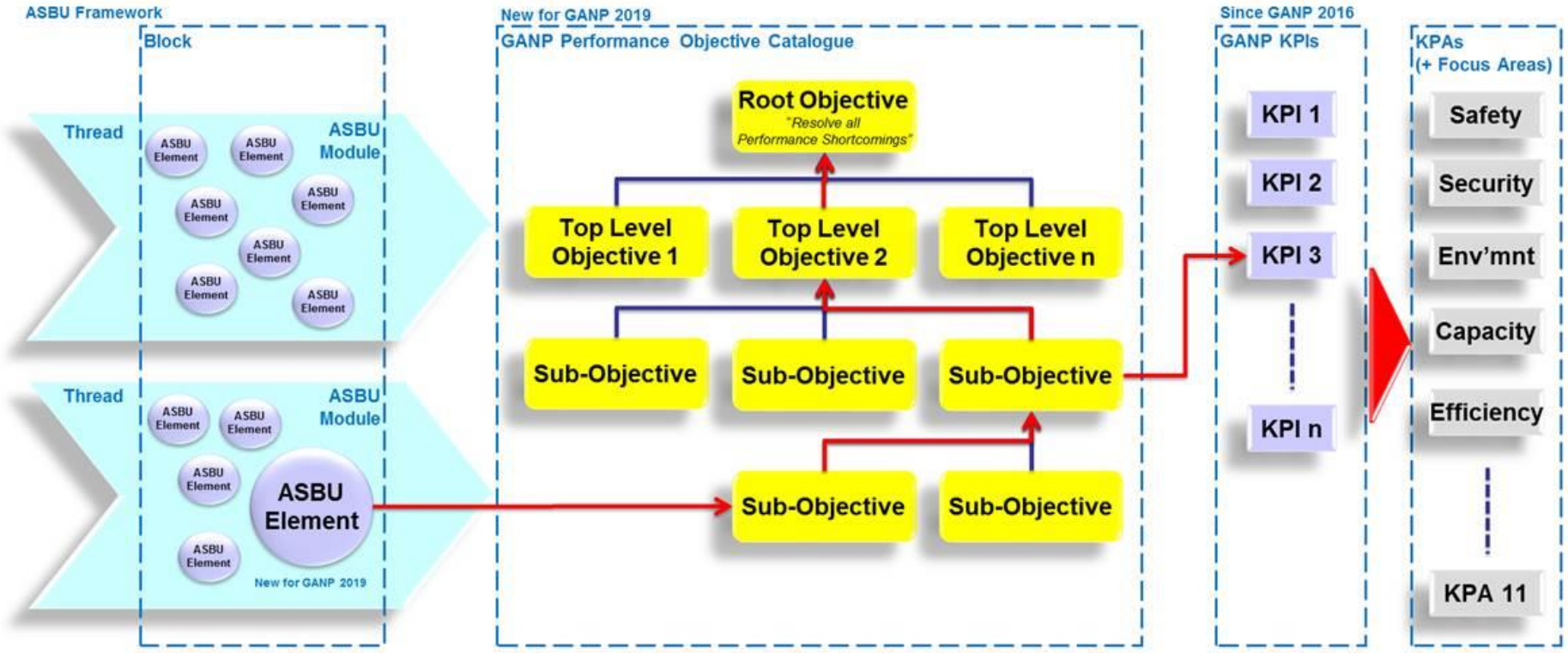
APPENDIX B

EXAMPLE OF ASBU ELEMENT LINKAGE TO PERFORMANCE OBJECTIVE



Note: KPI: Key Performance Indicator; KPA: Key Performance Area

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