



MDWG-ASBU/2

**MULTI-DISCIPLINARY WORKING GROUP
ON THE ECONOMIC CHALLENGES LINKED TO THE IMPLEMENTATION OF THE
AVIATION SYSTEM BLOCK UPGRADES
(MDWG-ASBUs)**

SECOND MEETING

**Montréal, Canada
9 to 10 February 2015**

REPORT

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1. INTRODUCTION

1.1. The second meeting of the Multi-Disciplinary Working Group on the economic challenges linked to the implementation of the Aviation System Block Upgrades (MDWG-ASBUs) was held at ICAO Headquarters in Montréal, Canada, from 9 to 10 February 2015.

1.2. On behalf of Ms. Nancy Graham, Director of the Air Navigation Bureau (ANB), Mr. Richard Macfarlane, Deputy Director of Air Navigation Capacity and Efficiency, welcomed participants and opened the meeting at 0930 hours. He reminded the audience the aim to include Air Transport Policies and other outcomes resulted from the work of this Multi-disciplinary Working Group in the Block Upgrade Demonstration Showcase and Symposium (BUDSS) and in the next edition of the *Global Air Navigation Plan* (Doc 9750, GANP 2016). At the same time, he recognised that for the future edition of the GANP, to be released in 2019, a much more implementation focused approach will be taken and due consideration will be made to cost and benefits analyses (CBA) and business case development. Finally, he highlighted the importance of the GANP when considering the modernization of airspace and the need to ensure equality with regard to incentives that are expected to accompany the modernization process.

1.3. On behalf of Mr. Boubacar Djibo, Director of the Air Transport Bureau (ATB), Mr. Toru Hasegawa, Deputy Director of the Economic Development, also welcomed participants and remarked that a considerable amount of work has been accomplished by the members of the four sub-working groups and four reports have been produced. He said that the findings resulting from the work during the next two days will be presented to the Airport Economics Panel (AEP) and the Air Navigation Services Economics Panel (ANSEP) to determine if and how the existing guidance could be amended accordingly and also to determine whether such practices are consistent with ICAO's principles on non-discrimination.

1.4. The meeting was informed that the technical and operational findings of the Multi-disciplinary Working Group will be presented to the Air Navigation Commission (ANC) through informal briefings on the update of the GANP through 2015..

2. ATTENDANCE

2.1. The meeting was attended by members, advisors and observers nominated by nine Member States and eight international organizations, as presented in **Appendix A**. A total of thirty participants attended the meeting.

3. OFFICERS AND SECRETARIAT

3.1. Mr. Toru Hasegawa and Mr. Richard Macfarlane were co-secretaries of the meeting.

3.2. Mr. Marinus De Jong, Mrs. Olga De Frutos, Mr. Saulo Da Silva, Mr. Geoffroy Ville, and Mr. Antonin Combes served as advisors to the meeting.

4. EXISTING BACKGROUND

4.1 Air traffic is growing worldwide, in spite of the recession that has affected global economy during the end of the first decade of this century. According to ICAO projections, scheduled passenger traffic around the world is expected to more than double, from 3 billion in 2013 to 6 billion annually in 2030. To answer to this evolution of the demand, the number of flights should increase from 32 million in 2013 to more than 60 million in 2030. The challenge for the aviation community is to accommodate the continued strong demand for air travel, while keeping or improving the current levels of safety and minimizing the impact on the environment. In order to achieve this goal, new technologies, procedures

and concept of operations must be developed and implemented. The dissimilar level of adoption of new technologies and procedures by different States and stakeholders is an issue that cannot be addressed with a static approach. The solution to this impasse lies at the heart of ICAO's core mission and values. Only by bringing together the States and stakeholders from every corner of the aviation community can a viable solution to twenty-first century air navigation be determined.

4.2 The air navigation system is increasingly being discussed in terms of performance. It is, therefore, necessary to adopt a Performance Based Approach (PBA) when planning, implementing, operating and monitoring. The notion of a PBA emanated from good industry practices that have emerged over many years. The PBA is strongly focused on results, collaborative decision making and reliance on facts and data for decision making. In order to adopt such an approach, ICAO gathered feedback from all around the world during different events, such as the *Twelfth Air Navigation Conference (AN-Conf/12)*, to define the Aviation System Block Upgrade (ASBU) methodology, gathered in the GANP and which have become one of ICAO's 10 Key Air Navigation Policy Principles. Within the framework of ICAO 2014-2015-2016 Strategic Objectives, this methodology allows all States and stakeholders to realize the global-harmonization; at the same time it increases capacity, improves efficiency, enhances security and facilitation, and minimizes the adverse environmental effects of civil aviation activities, in a safe and economically-viable way.

5. TERMS OF REFERENCE

5.1. The MDWG-ASBU is composed of experts from States, international organizations and industry, more specifically; those involved in air traffic management (ATM) modernization programmes in which the notion of incentives is applied.

5.2. The working group is to actively assist the Secretariat in the work required as follow-up to the *Sixth Worldwide Air Transport Conference (ATConf/6)*, Conference Recommendation 2.7/1 b) refers, and report on its progress to the Council during the first quarter of 2015, as follows:

- a) develop a benchmark of current best practices for similar approaches in the aviation system block upgrade implementation and/or others ATM modernization programmes;
- b) consider the definition and applicability of economic and operational incentives as well as mandates. In doing so, consider the aspects of equipage, training, certification and operational approval, etc.;
- c) determine the parameters and definitions of access, equity and service priority and financial incentives policies;
- d) consider how the policies might be applied in practice at a State level or regional level;
- e) evaluate to the extent possible the effectiveness of these policies;
- f) consider how they could be reflected in existing ICAO's policies and other guidance material; and
- g) present the economic and financial findings to the AEP and the ANSEP to determine if and how the existing guidance could be amended to incorporate the findings. It is noted that, determining whether such practices are consistent with ICAO's policy on non-discrimination, is necessary.

6. AGENDA OF THE MEETING

6.1. The agenda of the meeting focussed on presentations from States, international organizations and industry stakeholders. The presentations were as follows:

Day	Title of presentation	Presented by
Day 1	Introduction and Setting the Scene	Toru Hasegawa, Deputy Director, Economic Development, ICAO Antonin Combes, Air Transport Economic Analyst, ICAO
	Introduction	Richard Macfarlane, Deputy Director, Air Navigation Capacity and Efficiency, ICAO
Day 1	Sub-Working Group 1 – Identification of best practices for incentives (including operational and financial incentives) supporting the implementation of ASBUs	Jeffrey Wharff, Senior Economic Advisor, Federal Aviation Administration
	Discussion	Moderated by Toru Hasegawa and Richard Macfarlane
	Sub-Working Group 2 – Business cases and Cost Benefit Analysis for ASBUs implementation	Bernard Miaillier, Head of Division “ATM Strategies”, EUROCONTROL
	Discussion	Moderated by Toru Hasegawa and Richard Macfarlane
	Sub-Working Group 3 – Schemes to finance the ASBUs implementation	Eugene Hoeven, Director ICAO Affairs, CANSO
	Discussion	Moderated by Toru Hasegawa and Richard Macfarlane
	Sub-Working Group 4 – ICAO’s Policies	David Reble, Senior Policy Advisor, National Airports and Air Navigation Services Policy
	Discussion	Moderated by Toru Hasegawa and Richard Macfarlane
	BUDSS Presentation	Mr. Geoffroy Ville
Day 2	Needs from the WG to update GANP 2016	Mr. Geoffroy Ville and Mr. Marinus Jong
	Needs from the WG for AEP-ANSEP	Toru Hasegawa
	Needs from the WG to support ASBUs implementation	Mr. Saulo Da Silva
	Discussion	Moderated by Toru Hasegawa and Richard Macfarlane
	Summary of discussion, Volunteers for the BUDSS and close of the meeting	Toru Hasegawa and Richard Macfarlane

7. WORKING ARRANGEMENTS

7.1. The working group met as a single body. The meeting was conducted in English. This report of the meeting will be issued in English only.

7.2. The presentations listed above, as well as other meeting documentation are available on the MDWG-ASBUs secure portal website under *Meeting Documentation - MDWG-ASBUs/2 from 9 to 10 February 2015* <https://portal.icao.int/MDWG-ASBU/Pages/default.aspx>.

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8. SETTING THE SCENE

(Presented by Toru Hasegawa and Antonin Combes, Air Transport Bureau, ICAO)

8.1. The ICAO Secretariat recalled the genesis of the MDWG and the establishment and organization of the four ad-hoc Sub-Working Groups. They also outlined the expected outcomes from the meeting highlighting that for the effective implementation of the modules outlined in the ASBUs, the support of MDWG providing generic guidance on cost benefit analysis, how to provide incentives and schemes to finance the implementation is crucial and this should be delivered by the end of the meeting.

8.2. The Secretariat reminded the participants on the need to modernize the ATM system to accommodate the growth of traffic in the coming years, given that air traffic growth expands two-fold once every fifteen years.

9. STORY LINE OF THE FOUR SUB-WORKING GROUPS

(Presented by Bernard Miaillier, Head of Division “ATM Strategies”, EUROCONTROL)

9.1. Discussion

9.1.1 The presentation recalled that the objective of the MDWG is to provide guidance to States and Regions to define, justify and decide on the ATM improvements implementation from an economic point of view, including financial and non-financial incentives possibilities. It proposed to assemble the MDWG materials along a backbone, the “story line”, to privilege a pragmatic “user manual” style. The story line describes the different steps leading from the need of improvement of a given situation to the plan that contains all the necessary tools (scenario, financing, deployment). From a starting point, it was suggested that the stakeholders should follow the following steps:

- Performance analysis of the operational scenario;
- decision to improve the ATM performance in a given airport or portion of airspace;
- selection of the right solution in order to build a scenario, taking into account the solutions adopted by neighbouring States/Regions (WG2);
- perform a business case and CBA for the scenario (WG2);
- Address the financing aspects (WG3);
- Assess the need of incentives (WG1);
- If scenario is satisfactory, then launch and deployment.

9.1.2 This approach would provide guidance and tools for States/Regions wishing to improve their ATM performance. Mr. Miaillier suggested that it would be valuable to assemble all the MDWG material in one single document and use it as supporting material during the BUDSS.

9.2. Conclusion

9.2.1. The storyboard on how to use this material from a high level perspective seems to be clear: performance analysis to be aware of how the system is performing (starting point). If the ATM system is

not performing well, what could be done to improve it? Once the possible options have been defined, how is the CBA? Positive or negative? If negative, which incentives can be applied to have a more positive business case? The meeting discussed if this information was available and could be compound and reflected in the GANP 2016. The Secretariat will make a proposal.

9.2.2. The meeting agreed to organise the input to the BUDSS according to the story line provided by Mr. Miaillier, including as a first step the evaluation of the needs according to current operational scenario facing a particular State or Region.

10. SUB-WORKING GROUP 1 – IDENTIFICATION OF BEST PRACTICES FOR INCENTIVES (INCLUDING OPERATIONAL AND FINANCIAL INCENTIVES) SUPPORTING THE IMPLEMENTATION OF ASBUs

(Presented by Jeffrey Wharff, Senior Economic Advisor, Federal Aviation Administration)

10.1. Discussion

10.1.1. On behalf of sub-working group one (WG1), Mr. Wharff presented the result of the work carried out. The task of sub-working group 1 was to provide the Secretariat with information on how incentives could be used to encourage ASBU implementation.

10.1.2. Successful ASBU implementation requires a collaborated effort between stakeholders, investors, and the State (sometimes more than one). Frequently, the key to success requires a synchronized investment and deployment schedule among all of the relevant parties. Lacking this synchronized schedule, the benefit of ASBUs implementation can be greatly diminished, in the short-run, and may cause certain stakeholders to experience a negative business case that may further delay implementation. The primary challenge to ensuring a synchronized investment schedule is what is known as the “last mover problem.” This occurs when it is financially advantageous for stakeholders to delay their investment in technology until the last possible moment.

10.1.3. The use of operational and financial incentives can help States overcome this problem and other impediments to ASBUs implementation. In particular, incentives can encourage the relevant stakeholders to invest in time in a co-ordinated manner in order to commit resources on the desired roadmap (for implementation) and to encourage early action to create critical mass.

10.1.4. Incentives can take different forms and target different impediments. In general, incentives can be classified as follows:

Operational: to reward stakeholders who invest in operational improvements by granting them operational performance benefits. More specifically, they allow or give priority to more capable flights to operate in a manner that makes the best use of the stakeholder’s investment (capabilities and training), and this without necessarily disadvantaging non-capable aircraft.

Financial: to support stakeholders to invest in operational improvements – e.g. in case of unfavourable CBA or low return on investment (ROI) or to elicit certain behaviour from an airspace user. These incentives can be structured as a loan program, a financial grant, or implemented through a charging scheme to encourage users to act in ways that will lead to the desired outcomes.

Regulatory: frequently rulemaking is required to ensure compliance and implementation. This form of incentive was not, however, discussed in the report.

10.1.5. Regardless of the type of incentive, there are a set of key principles that should be observed with regard to their development and implementation. These principles are summarised as follows:

- Effectiveness (likelihood of success)
- Intended effect (i.e. improved use of RNP)
- Transparency (simple and observable incentive mechanism)
- Non-discrimination (consistent with the standard ICAO definition)
- Non-cross subsidization (amongst stakeholders)
- Time specificity (finite duration)

10.1.6. To help facilitate the construction and use of incentives a number of examples based on current practices were assembled. To organize these “best practices” a structure was created to consider, among other things, the nature of the incentive, its geographical application, who benefits from the incentive, the purpose of the incentive, and its relationship to the GANP.

10.1.7. Guidance was provided on the application of incentives and their impact, in particular with regard to the most appropriate form of incentive to be used depending on the degree of maturity and deployment of the capability/technology under consideration. In conclusion, the report notes that incentives should not be considered a silver bullet to ensure implementation of the GANP. At best, they can boost a weak business case and help achieve a critical mass. They need to be considered in systematic fashion to ensure that they are used efficiently and not at cross-purposes; and they should be developed based on the key principles noted above.

10.2. Conclusion

10.2.1. Finally, the report emphasises that incentives should be considered in concert with the material developed by the other sub-working groups. The report makes three additional specific recommendations:

- To avoid the “last mover problem”, delays in modernization, States should consider the use of incentives.
- States should, furthermore, embed this consideration into their normal modernization process.
- The criteria for working with and developing incentives should be transparent and documented.

10.2.2. The meeting agree that a very useful catalogue of incentives has been provided, however, the challenge to address and organise the incentives by ASBUs Module is pending and should be considered as a future step for the MDWG. The meeting also proposed another future step that entails the definition of how the incentives may be employed (steps to be taken, at what time...) to achieve desired objectives. The meeting focused on the information currently available that could be reflected in the GANP in order to make it visible. It was also highlighted the different nature of safety and air navigation capacity and efficiency standards (mandatory vs. voluntary) concerning implementation and acknowledged that the future steps could be to adopt a much more particular ASBUs approach based on performance improvements.

10.2.3. The meeting agreed that further work has to be done to involve the PIRGs in implementation and that a more particular approach may involve the analysis of lower level of detail of the ASBUs. In order to support this approach and clarify the ASBU Modules’ concept, these are being analysed by the pertinent groups of experts (Panels) and the Air Traffic Management Requirements and Performance Panel (ATMRPP) will compile them. The meeting believes that once this is updated, best practices and lessons learnt might be able to be shared from implementation experiences by different stakeholders.

10.2.4. The meeting also agreed to deliver guidance material more readable in order to promote implementation and was requested for advice.

10.2.5. Mrs. Ruth Stiwell from IFATCA, sent some comments via email that were agreed by the meeting. Thus, Mr. Jeffrey Wharff was tasked to rephrase the report in order to include these comments and clarify some points.

10.2.6. The meeting raised an issue regarding the different charges and modulated charges and particularly, regarding the terminology used to name them. It was agreed that this issue should be addressed by the ANSEP as suitably.

11. SUB-WORKING GROUP 2 – BUSINESS CASES AND COST BENEFIT ANALYSIS FOR ASBUs IMPLEMENTATION

(Presented by Bernard Miaillier, Head of Division “ATM Strategies”, EUROCONTROL)

11.1. Discussion

11.1.1 Mr. Miaillier presented and defined on behalf of sub-working group two (WG2) the different tools to determine the financial implications of a project. The available tools are Business Case (BC), Cost-Benefit Analysis (CBA), Cost-Effectiveness Analysis (CEA) and Economic Impact Analysis (EIA). The key steps that need to be undertaken are:

To define the objective, scope and base case: In this regard, it is necessary to define the time scale, the boundaries (geographic/stakeholder) and to identify from whose perspective the CBA is being done. In the ASBU perspective, the cross-countries impact needs to be considered.

To specify the assumptions: The assumptions will be made to fill the data gaps. For example, those assumption will often be for passenger and freight forecasts, equipment life, aircraft characteristics, value of passenger time, etc. It is required to identify the monetary values for costs and benefits, in order to translate operational impacts into monetary value.

Identification of costs and benefits: Two approaches can be used to identify costs and benefits. The first option is to put all costs and benefits in real terms and then use a real interest rate to discount. The second option is to leave all costs and benefits in nominal terms and then use a nominal interest rate to discount for inflation and real value of money simultaneously.

11.1.2 The comparison of costs and benefits can be achieved through three techniques: net present value, benefit-cost ratio and internal rate of return. Following the result, a recommendation will be made.

11.1.3 A sensitivity analysis can be done and be presented with the recommendation.

11.2. Conclusion

11.2.1. The meeting agreed that further work should be done together with the Secretariat in order to align definitions used by the MDWG and the ones existent in the ICAO documentation.

11.2.2. The meeting discussed an impact of a technology-based approach vs. operational improvement approach when defining the objective and scope of the work.

11.2.3. The meeting also acknowledged the existence of possible interrelations among Modules (i.e. double counting of benefits or costs in addressing the implementation analysis of a group of

Modules). It was recognized that this issue should be considered in the future, particularly when aggregating the ASBUs based on the air navigation work programme.

11.2.4. The meeting agreed not to quantify benefits associated to a specific operational scenario at a global scale nor to conduct high-level business cases at a regional/State level; instead develop some illustrative examples of CBAs with very different parameters by using agreed guidance on these analyses.

11.2.5. The meeting emphasized the importance of Performance Cases, analysis of the baseline and the potential use of statistical traffic data to promote implementation.

12. SUB-WORKING GROUP 3 – SCHEMES TO FINANCE THE ASBUS IMPLEMENTATION

(Presented by Eugene Hoeven, Director ICAO Affairs, CANSO, with the contribution of ACI)

12.1. Discussion

12.1.1. Mr. Eugene Hoeven (CANSO), Rapporteur of sub working group three (WG3), gave an overview of the scope of work, which was to establish an inventory of existing financing schemes. Specifically, the “Identification of mechanisms to support operational improvements for financing, notably infrastructure and equipment.” The work was broken down into four work streams:

1. Definitions and attributes;
2. Inventory of financing schemes;
3. Financing criteria;
4. Recommendations.

12.1.2. For work stream one, it was pointed out that there needed to be clarity and a distinction made between the terms financing versus funding, as these terms were frequently used interchangeably. The former had to do with the issuance of debt (e.g. a bond issue or a loan) or equity (e.g. share capital), while the latter had to do with securing a revenue stream, whether from charges or taxes or an internal or external financing arrangement. The key deliverable for this activity was a review of existing ICAO guidance material, and it was found that definitions were generally well-covered, or are generally available in any finance or economics text.

12.1.3. For work stream two, provided an overview of a vast array of financing schemes that are generally available in a business or commercial setting. Access to or availability of such schemes to an airport, ANSP or aircraft operator is largely dependent on the governance and institutional arrangements under which it operates. It was pointed out that aircraft operators, operating in a more commercial business environment would potentially have more flexibility or greater access to the large variety of financing schemes. The deliverable for work stream two was an overview document of the various financing schemes that do exist, which became the sub working group three (WG3) report, largely put together by Zaheer Aleem (ACI).

12.1.4. Financing criteria and fundamentals, identified as work stream three, was felt to be particularly important. However, this was dealt with by WG2 and therefore not carried out. From the work conducted, there were some potential carry-over items that were not covered in the WG3 report that could be considered for additional work:

- Bond underwriting and marketability

- Bond rating and pricing
- Non-aeronautical revenue as an (internal) source of financing.

12.2. Conclusion

12.2.1. The meeting agreed that the information provided by sub-working group three would be an added value to the already available information in the ICAO documents. It consists of a very useful contact list, which can be used much more widely than only for the ASBUs.

12.2.2. The meeting raised an issue concerning the promotion of the current information. The circulation of manuals and guidance material is extremely limited, even if this information is to be included in these publications. Information should be more readily available to everybody, however, in order to use this information for implementation, further technical work, refinement, needs to be done. This first iteration of the GANP should point the result from the MDWG in order to be populated. Future refinement is expected for future iterations.

12.2.3. The meeting also agreed that the future material should consider best combinations of mechanisms to support the deployment of a group of ASBUs; however, some issues are expected due to the specificities of the different operational scenarios.

13. SUB-WORKING GROUP 4 – ICAO POLICIES

(Presented by David Reble, Senior Policy Advisor, National Airports and Air Navigation Services Policy, Transport Canada)

13.1. Discussion

13.1.1. On behalf of sub-working group four (WG4), Mr. Reble explained why the existing ICAO *Policies on Charges for Airports and Air Navigation Services* (Doc 9082) were sufficient to address the use of “financial” incentives designed to encourage implementation of the ASBUs. It was also explained why the new policy material, whether in existing documents or in a stand-alone document, would be required to address “operational” incentives.

13.1.2. WG4 explained which elements from the reports of all working groups could be included in the current *Manual on Air Navigation Services Economics* (Doc 9161), in a manner suitable for general application, and that the same material, with appropriate changes, could also be included in the *Airport Economics Manual* (Doc 9562). WG4 believes that the reports of the other sub-working groups, in particular those for sub-working groups two and three, could be sent to the fifth joint meeting of the AEP-ANSEP as working papers, with a recommendation that the Panels consider whether they should be issued as stand-alone guidance material.

13.2. Conclusion

13.2.1. The group reached the following recommendations:

- It is recommended that, once the MDWG-ASBUs has reached its conclusions, they be transmitted to the AEP-ANSEP for the consideration of the Panels. The way of presenting the results in several working papers or in a single one should be decided by the Secretariat and would follow the story line presented by Mr. Miailler.

- It is recommended that no changes be made to the existing ICAO *Policies on Charges for Airports and Air Navigation Services* (Doc 9082). The existing Policies provide ample cover for financial incentives of the sort contemplated by the MDWG, and there is no need to introduce new complexities into the existing framework.
- It is recommended that key elements of the reports of the three sub-working groups be included in the *Manual on Air Navigation Services Economics* (Doc 9161), and, with appropriate modification, in the *Airport Economics Manual* (Doc 9562) or as stand-alone guidance material. Any text added to Docs 9161 and 9562 should be general in nature and, while useful in the context of the ASBUs, should not be specifically geared to that process. The Reports prepared by the sub-working groups could be provided as working papers for the next AEP-ANSEP meeting for the consideration of the joint panel meeting which will make such recommendations as it sees fit.
- The meeting recognised that neither policy or guidance material has been developed; however a very useful gap analysis on the existence, absence or contraposition of the gathered material has been performed. It is recommended that ICAO, in a joint effort from ANB and ATB, develop new policy and guidance material, in the GANP, or elsewhere determined to be appropriate, for operational incentives, which draws on the model found in Doc 9082 pertaining to financial incentives. The new material should also, at least, make reference to material on economic incentives in Docs 9082 and 9161. In particular, the new material should identify the need to ensure that:
 - such incentives do not inadvertently encourage unsafe behaviour;
 - they do not discriminate between domestic and foreign users;
 - they are clear and transparent with obvious criteria for application; and
 - they are directly linked to the outcome to be achieved.

13.2.2. The meeting agreed that consultation with users should be included in the guidance due to the relevant role they play in the implementation phase.

13.2.3. Finally, the meeting decided to split the work to be done by ATB and ANB due to the different official procedures and templates to be followed regarding the results of the work from the MDWG depending if they are economic or operational related (report to the Air Transport Committee and Air Navigation Commission, respectively). However, the meeting urged to continue coordination between the two parts (work to be done is much related) and to present the result to the States as a single outcome.

14. CONCLUSIONS FOR THE DAY 1

14.1. The meeting thanked the four sub-working groups for their efforts to develop guidance to help States, air navigation service providers and international organizations in the planning and implementation of the ASBUs modules considering the operational and economics aspects of it.

14.2. The material developed by the sub-working groups will be analysed by the Secretariat to verify the best way to make reference to them. If proposing amendments to current provisions or developing a standalone guidance is a subject for future deliberations.

14.3. The meeting also concluded that a summary of the material developed by the sub-groups would be of value to be referenced in the GANP. This will be done by the Secretariat in due time.

15. BLOCK UPGRADE DEMONSTRATION SHOWCASE AND SYMPOSIUM (BUDSS) PRESENTATION

(Presented by Mr. Geoffroy Ville, ICAO Secretariat)

15.1 Discussion

15.1.1 Presentation made by Mr. Ville highlighted that the text to be developed with the contribution from the MDWG for the GANP update would also contribute to the realization of the Block Upgrade Demonstration Showcase and Symposium (BUDSS) to be held in ICAO Headquarters from 19 to 21 May 2015. The BUDSS intends to demonstrate in an interactive manner the operational improvements that the ASBUs can bring and ICAO wants to use the material developed by the MDWG-ASBUs work to provide financial insights to help the audience in building their investment plan.

15.1.2 Based on the objectives of the BUDSS, and the importance to showcase the economic aspects of the ASBUs modules implementation in terms of CBA, financial mechanisms and incentives (which are subjects under discussion in the MDWG-ASBUs), Mr. Ville requested the possibility of the participant States and international organizations to provide volunteers for presentations on the subjects at the BUDSS.

15.2 Conclusion

15.2.1 The meeting agreed that demonstrations such as the ones to be done in the BUDSS would help all stakeholders to better understand the goals of the ASBUs. Participants from IATA, CANSO (tbc), FAA, (performance improvement area 3), EC and EUROCONTROL agreed to nominated speakers to the BUDSS.

16. NEEDS FROM THE MDWG TO UPDATE GLOBAL AIR NAVIGATION PLAN 2016 (GANP 2016) PRESENTATION

(Presented by Mr. Geoffroy Ville and Mr. Marinus Jong, ICAO Secretariat)

16.1 Discussion

16.1.1 Mr. Ville presented the necessary contribution from the MDWG-ASBUs to the ongoing review of the GANP, a new edition of which will be released in 2016. Mr. Ville proposed that the group could develop a few pages of relevant material concerning elements to be considered in the ASBUs implementation based on the MDWG-ASBUs sub-working groups reports.

16.1.2 It was proposed that the draft material could be developed by the Secretariat and circulated for comments by the MDWG-ASBUs by March 2015. It was informed that the next iteration of the GANP, to be released in 2019, is expected to focus more on the implementation of the modules and as such, the material developed by the MDWG-ASBUs would be included as guidance on the economic aspects of it.

16.2 Conclusion

16.2.1 The meeting agreed that the Secretariat should develop the material and circulate to the MDWG-ASBUs for comments aiming its publication in the version of the GANP to be released in 2016.

17. NEEDS FROM THE MDWG FOR AEP-ANSEP

(Presented by Mr. Toru Hasegawa, ICAO Secretariat)

17.1 Discussion

17.1.1 Mr. Hasegawa presented the following steps related to the material developed by the MDWG-ASBUs. He informed that a paper will be written to the AEP-ANSEP meeting and depending on the discussions with the panels, the material would be presented to the ICAO Air Transport Committee (ATC) and to the Council for consideration in terms of possible amendments to the ICAO policies and guidance.

17.1.2 Some participants highlighted the need to have both operational and economics guidance in the same place to facilitate access to the information by stakeholders. Mr. Macfarlane informed that this can be possible through the use of hyperlinks in the GANP.

17.2 Conclusion

17.2.1 The meeting acknowledged the next steps and offered to help writing the content of the paper to the AEP-ANSEP meeting if the Secretariat sees the need.

18. NEEDS FROM THE MDWG TO SUPPORT ASBUS IMPLEMENTATION

(Presented by Mr. Saulo Da Silva, ICAO Secretariat)

18.1 Discussion

18.1.1 Mr. Da Silva made a presentation on a possible way forward regarding the development of necessary guidance material and tools to support the implementation of the modules of the ASBUs based on global, regional and/or local operational needs.

18.1.2 Mr. Da Silva highlighted that one of the first steps is to provide guidance to States on how to determine their current performance and through a gap analysis identify their needs. The mentioned needs can then be attended using the different elements described in the modules of the ASBUs, aiming to solve operational issues. States would then, in assessing their performance and through collaboration with airspace users, define their needs and perform the necessary CBA to be used in the decision making process for implementation of operational improvements.

18.1.3 To follow the mentioned approach, Mr. Da Silva suggested some basic steps to be followed by the Secretariat with the help of the MDWG-ASBUs as listed below:

- Prioritize Modules (which ones to approach first for analysis): At least three to be addressed during 2015.
- Modules Interpretation (concept)

- Definition of Key Performance Indicators and Metrics
- Define impact of modules in (Key Performance Areas) KPAs
- Design Influence Diagrams: one influence diagram per ASBU module per KPA
- Develop the Influence Model associated with each Influence Diagrams
- Run one trial example of each Influence Model
- Validate Influence Models with experts in operational scenarios where ASBUs modules has already been implemented
- Development of the business case associated to each of the three ASBUs modules for one specific environment as an example

18.1.4 In recognizing the multidisciplinary nature of the tasks to be performed, it was proposed that some of the tasks be carried out by the Secretariat in consultation with the necessary experts and some by the MDWG-ASBUs.

18.1.5 Regarding the MDWG-ASBUs tasks, consisting of 1) the validation of the Influence Models where ASBUs module has already been implemented, and 2) the development of the business case associated to each of the three ASBUs modules for one specific environment as an example; it was proposed that a new sub-working group be created under the MDWG-ASBUs.

18.1.6 This new sub-working group, namely WG5, should be composed of experts from States, international organizations and industry; more specifically, experts in air navigation services and airport operations, familiar with modernization programmes, including economic implementation aspects.

18.1.7 Particularly, the group would:

- Develop practical guidance material related to business cases in order to promote and support ASBUs modules implementation;
- Develop a catalog of examples of simple ASBUs modules business bases related to different operational scenarios.
- Identify the stakeholders impacted by each Module implementation.
- Consider aspects of capabilities, certification and operational approval in the business case.
- Consider the impact of financial and operational incentives in those business cases.
- Consider how the material could be presented in future updates of the GANP.

18.1.8 Draft terms of reference for WG5 was presented and will be circulated by the Secretariat to the members of the MDWG-ASBUs for comments and proposals.

18.2 Conclusion

18.2.1 The meeting recognized the efforts of the Secretariat to provide the best guidance possible aiming the implementation of the ASBUs modules. Some participants highlighted that the analysis should not be restricted to Block 0, considering that in some regions other modules in Block 1 are already in advanced stage of development and the inclusion of Block 1 modules in the analysis should also be beneficial. The Secretariat commented that the restriction to Block 0 is based on the need to validate the models before its recommendation to States, but it is open to include modules in Block 1 also if the necessary data is available.

18.2.2 There was consensus that the implementation of the modules should be based on the needs of the air navigation system to improve the performance of the services provide to airspace users. It was also recognized that the needs will vary from State to State and from Region to Region and as such the guidance provided should be generic enough to allow local or regional adaptations.

18.2.3 The meeting recognized that one important aspect of the implementation process is how to present the modules to different stakeholders considering that each of them have different needs and expectations and the non-mandatory aspect of the modules.

18.2.4 In the prioritization of the modules analysis for the year 2015, the meeting recommended that the Secretariat should prioritize the modules which may serve as baseline or first step towards improvements to the system as a whole. It was highlighted that this prioritization is to accomplish the work on development of guidance material for implementation and not as a recommendation for which module should have priorities in terms of implementation, what will be defined at a local or regional level depending on specific operational needs. In this regard, it was recommended that the work done by the Committee on Aviation Environmental Protection (CAEP) on the environmental benefits analysis of the modules should also be considered.

18.2.5 The meeting recognized that the plan is very ambitious but at the same time necessary to guarantee the harmonized implementation of the modules by different stakeholders, taking into account that one solution may not attend all stakeholders and as such a local deep analysis is also necessary what makes the need of general guidance more valuable.

18.2.6 The Secretariat highlighted that help from the MDWG-ASBUs on the economic aspects of the modules implementation is required to guarantee that all stakeholders understand the impact of the modules not only in operational terms but mainly on the financial impacts and benefits that can come from the implementation.

19. CONCLUSIONS FOR DAY 2

19.1.1 The meeting agreed that a set of harmonized guidance on the implementation of the ASBUs placed in a single document is the best way forward to guarantee that all stakeholders have easy access to all necessary operational and economics information necessary in the process of decision making for the implementation of the modules.

19.1.2 The meeting also agreed with the establishment of the MDWG-ASBUs WG5, aiming to produce examples of CBA to support the modules implementation and to review the draft terms of reference in **Appendix B** and send feedback to the Secretariat for future developments. If the need of a face-to-face meeting of WG5 is necessary, this would be left to the end of 2015 after the analysis work proposed by the Secretariat. The date of the meeting would be coordinated later among the participants and the Secretariat.

19.1.3 The meeting was closed by Mr. Macfarlane and Mr. Hasegawa, who thanked the participants for the support to the tasks highlighting the importance of the work of the MDWG-ASBUs which are crucial for the success of the implementation of the ASBUs modules.

MDWG-ASBUs/2

Appendix A – List of Participants

State / Organization	Name of participant	Member – Observer - Advisor	E-mail
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Terms of Reference for WG5¹

The working group five (WG5) of the MDWG will be composed of experts from States, international organizations and industry; more specifically, experts in air navigation services and airport operations, familiar with modernization programmes including operational and economic/financial implementation aspects.

The working group will actively assist the Secretariat in the work required as follow-up to the Sixth Worldwide Air Transport Conference (AT/Conf/6), Conference Recommendation 2.7/1 b) refers and the 12th Air Navigation Conference, Conference Recommendation 1/2-Implementation and Conference Recommendation 1/15- Performance Monitoring and measurement of air navigation systems refer, as well as the endorsement of the GANP at the 38th Assembly, including its update cycle.

WG/5 will produce additional guidance material to support ASBUs implementation in particular illustrate how to achieve economic and performance benefits through e.g. influence diagrams and influence models.

WG/5 will capitalize on the results of WG/1, 2, 3 and 4.

Particularly, the group will:

- Develop guidance material to support the economic assessments² of the benefits of ASBUs implementation, consistent with performance improvement needs.
- Develop a catalog of illustrative examples of economic assessments, including stakeholder impacts, and related to different operational scenarios; assessments will focus on individual ASBU modules and/or relevant groups of modules, taking into account enabling technologies;
- Consider the operational aspects of implementation of the ASBUs and the impact of possible economic/financial and operational incentives in those economic impact assessments.
- Consider how the work of the MDWG WG5 can be presented in future update of the GANP.

WG/5 will in a first step, by end of 2015, validate the proposed approach by creating a first comprehensive example and a plan for future work if needed. WG/5 will start working by correspondence and will report progress at the end of 2015.

The main target of WG/5 work is to deliver material to support the 2019 Edition of the Global Air Navigation Plan (GANP) related to economic aspects associated to the ASBUs implementation.

— END —

¹ The Terms of Reference for WG5 are still under consideration by the MDWG and may not reflect the final version.

² Understood to include as appropriate the different forms described by WG/2: EIA, BC, CBA