



**WORKING PAPER**

**WORLDWIDE AIR TRANSPORT CONFERENCE (ATCONF)**

**SIXTH MEETING**

**Montréal, 18 to 22 March 2013**

**Agenda Item 2: Examination of key issues and related regulatory framework**

**Agenda Item 2.7: Economics of airports and air navigation services**

**GUIDING PRINCIPLES FOR SERVICE PRIORITY POLICY**

(Presented by Airports Council International (ACI), Civil Air Navigation Services Organisation (CANSO) and International Air Transport Association (IATA))

**EXECUTIVE SUMMARY**

Traffic growth and environmental objectives will require a significant capacity enhancement and efficiency improvement of air traffic management (ATM) systems. This paper outlines guiding principles for the development of provisions for service priority policy in support of ATM system modernisation.

**Action:** The Conference is invited to agree to the recommendations presented in paragraph 4.

*References:* ATConf/6 reference material is available at [www.icao.int/meetings/atconf6](http://www.icao.int/meetings/atconf6).

**1. INTRODUCTION**

1.1 As the world economy grows, air traffic and airspace congestion grow, exerting increasing pressure on infrastructure and facilities already stretched to the limit in many parts of the world. It is clear that to safely and efficiently accommodate the increase in air traffic demand – as well as respond to the diversified needs of airspace users, the environment and other inherent issues – ATM systems need to be renovated in a manner that provides the greatest operational and performance benefits to the system as a whole. Future ATM systems will consist not only of enhanced ground capabilities, but also upgrades and new systems on board the aircraft. However, it is necessary that these improved ground and airborne capabilities be introduced in a synchronised manner. On the airborne side, it is expected that airspace users will be at various stages in their capability upgrade and deployment programmes. There is a need to consider a balanced means of incentivizing implementation in order to achieve the best system efficiency within the transition process.

1.2 The timing of service provision upgrades and their adoption by operators is one of the greatest implementation complexities for any air navigation service provider (ANSP) who must endeavour to accommodate operators with differing capabilities, while at the same time ensuring an acceptable level of safety and overall system capacity and efficiency. Dealing tactically on the day of

operations with a mixed capable fleet, especially in the terminal area where aircraft would have to be re-sequenced so that more capable flights have landing or departure priority, or getting advantages as the availability of faster routes, poses a lot of practical difficulties. Nevertheless, improvements in ATM system performance and delivery of benefits to more capable and qualified flights are of high priority to both ANSPs and airspace users, and will require policy and regulatory approaches to be addressed to allow for early and better planning of flight operations in different environments of service provision capabilities. Even with regulatory requirements, a transition period will be taken into account, during which the dilemma for early investors remains. If incentives are considered, this needs the authorisation of the regulator, in particular for financial/economic incentives. For this, the regulator would like to refer to ICAO documentation, in which the principles are described, so that it is clear that incentives apply to any stakeholder that is capable, without discrimination amongst capable stakeholders. As incentives may be vital to influence the introduction of new technology and procedures, and to determine the duration of a transition phase, incentives may be part of the business case.

1.3 The Twelfth Air Navigation Conference (AN-Conf/12) noted the need for operational performance incentives to obtain early benefits in those operational environments where not all stakeholders have reached the higher capabilities provided by new technologies and procedures, but for which a critical mass had been reached. Industry stakeholders were to present appropriate information to the Sixth Air Transport Conference (ATConf/6) on financial/economic incentive principles for capability enhancement, with a view that these be considered and further developed by ICAO as required. AN-Conf/12 recommended that ICAO develop an appropriate set of operational and financial/economic incentive principles to allow early benefits of new technologies and procedures, as described in the aviation system block upgrade (ASBU) modules that form part of the revised *Global Air Navigation Plan* (GANP, Doc 9750), to support operational capability improvements, while ensuring an acceptable level of safety and maximizing capacity and overall system efficiency.

## 2. BACKGROUND

2.1 The notion of “First Come, First Served” is generally applied to manage air traffic flows, as provided for in Annex 11 — *Air Traffic Services* and in the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) regarding the relative prioritisation of different flights. Non-priority flights should under normal circumstances be handled without discrimination, with priority being given to the aircraft that is first using a certain resource, be it a runway or airspace.

2.2 However, the notion of “First Come, First Served” can also produce inefficient outcomes, by slowing the take-up of new, improved and more capable and efficient ground and airborne ATM systems and procedures, since it implies that all flights should be handled as if none were able to use these new ATM capabilities. The notion of “First Come, First Served” therefore needs to be complemented with the notion of “Best Equipped, Best Served”.

2.3 Application of a complementary notion of service priority such as “Best Equipped, Best Served” and its variants have recently been the subject of much discussion, whereby flights that are more capable are given service priority over those that are less capable. To tactically provide service priority in a mixed capable flight environment introduces additional levels of complexity such as assessing the qualifications and avionics capabilities carried by airspace users, as well as simultaneously running dual procedures. These complexities need to be balanced against the system efficiencies gained by financially and economically incentivizing capability enhancements and the complimentary notion needs to be embedded already in the early planning of flight operations and service provisions.

2.4 Qualified and capable flights with, for example, required navigation performance (RNP), automatic dependent surveillance — broadcast (ADS-B), and data link shall be identified in the early

collaboration of planning flight operations and identification included in their respective flight plans, and so be easily recognized by controllers and be allowed to plan for their preferred altitude and route or be allowed to go to the head of the departure queue at an airport, thus providing a very real competitive advantage for those that are capable. However, such an approach needs to be evaluated against a critical proportion of fleet capability mix that can produce the proper incentive while optimizing the safety, efficiency and capacity objectives for the ATM system.

2.5 There already exist a number of examples where access to aerodromes and services is differentiated depending on aircraft and crew capabilities, such as minimum navigation performance specification (MNPS) airspace over the North Atlantic, the access to reduced vertical separation minimum (RVSM) airspace, or the ability to land under precision approach conditions, not to mention airspace categories. These examples are however defining broad categories and generally do not imply a different individual treatment. More examples and background information can be made available to ICAO, when relevant guidance material is to be updated.

2.6 Financial/economic incentives to equip have also existed for some time. *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082) allow for differential charges such as preferential charges, rebates, or other reductions in the charges normally payable for the use of air navigation services and facilities, as long as these are cost-related, are introduced in a transparent and non-discriminatory manner in consultation with airspace users, and are offered on a temporary basis. However, whether such differential charges would provide sufficient incentive for operators to equip is not always ascertainable and needs study and further consideration.

2.7 The principle of incentives is to speed up the modernization of the ATM-system by giving benefits to early investors. When a critical mass of capable airspace users has been achieved and capabilities have become mandatory, the financial/economic incentives are no longer needed. A methodology for determining this critical mass threshold will need to be agreed.

### **3. GUIDING PRINCIPLES FOR SERVICE PRIORITY POLICY**

3.1 Service priority policy needs to take into account several important issues or principles for it to succeed in its objective. Firstly, while the goal of any enabling policy must be to improve overall system capacity and efficiency, there may be instances when granting priority to equipped capable flight does not produce an improvement in system performance. It may only be after a certain percentage of aircraft have the capability needed that overall benefit is achieved. However, it should be recognised that in order to induce sufficient number of aircraft to equip with the new capability it will be necessary to provide benefit to the already capable flights before this threshold is met. When operational benefits to more capable flights are not substantial in a first phase, economic/financial incentives – also within the charging system – may be even more important to encourage a fast introduction of new equipment to reach this threshold.

3.2 Second, it may be the case that the only practical way to direct performance benefits to more capable flights aircraft is to induce a degradation in performance to some non-capable flights some of the time, as in imposing a hold on an non-capable flight. It must be accepted that those flights that are not capable will be relatively disadvantaged over the long-term. This being said, it may be part of the deployment strategy and business case to determine what magnitude and frequency differences in services are necessary to achieve the required system performance.

3.3 Third, it must be considered that flight capability upgrade decisions, and the related training and certification of flight crews, need to be supported by a positive business case. Operators

should expect a return on their investment according to a realistic and agreed timeframe, and the direct benefits received through financial and operational capability incentives should therefore be considered an integral part of the analysis.

3.4 Fourth, service priority policy must be targeted and tied to a specific service performance improvement objective. A basket of operational and/or financial measures exist or can be created, and choices will need to be made as to their suitability in meeting the performance improvement objective. The measure to be applied will depend on the fleet capability mix, aircraft equipage and crew capability, the type of operating environment (terminal versus en route or oceanic), and the air traffic planning phase (strategic, pre-tactical and tactical) that is being considered. If operational measures will have a positive financial/economic impact, such as less fuel burn and saved flight time, operational measures are more easily introduced in the en route or oceanic environment, while it may be needed to introduce financial/economic measures in congested or complex terminal operating environments as a first step before operational benefits become significant at a larger scale – until such time that operational measures can be more easily applied at a larger scale in that particular environment.

3.5 Fifth, performance metrics need to be defined that will measure and evaluate the implementation of the service priority policy. A performance baseline should be set in relation to the intended system performance goals.

3.6 Sixth, operational and/or financial measures need to be considered in the early planning phase, especially if multiple States/ANSPs are involved, and introduced in a transparent and non-discriminatory manner in collaboration with airspace users. Further, financial measures need to be offered on a temporary basis, until such time when more capable flights form a distinct majority and overall system performance improvements have been achieved.

3.7 Seventh, if direct financing of airborne equipment is provided by the State which is implementing new systems to the airspace users under their registration, the benefits versus effects it might have on fair competition for international aviation need to be assessed.

3.8 And lastly, but most importantly, a collaborative planning process involving all relevant stakeholders (regulatory authorities, ANSPs, airlines and other aircraft operators, airports, military and security organisations, pilots and air traffic controllers) is the best path to success in the design and implementation of service priority policy.

## 4. RECOMMENDATIONS

4.1 The Conference is invited to:

- a) request ICAO to establish a multi-disciplinary work group to develop appropriate guidance material on service priority policy, taking into account the guiding principles outlined in paragraph 3 and relevant material produced by major programmes for ATM (such as SESAR, NextGen and others);
- b) request ICAO to update the guidance material in *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082) and develop other guidance material where relevant, to better include the option of incentives; and
- c) urge States and international organizations to contribute to this work.