



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

**AIR NAVIGATION SERVICES PERFORMANCE MEASUREMENT
AND BENCHMARKING**

(Presented by the Civil Air Navigation Services Organisation (CANSO))

EXECUTIVE SUMMARY

CANSO's strategic goals are focused on improving global air navigation services performance. As such, its mission is to provide a global platform for customer- and stakeholder-driven civil air navigation services, with emphasis on safety, efficiency and cost effectiveness. Air navigation services performance measurement and global benchmarking lie at the heart of this objective. It is recognised that the ability to monitor and measure performance is a key requirement for any business or industry in identifying areas for improvement and setting performance-based targets. This paper provides an overview of the work CANSO and its Member air navigation services providers (ANSPs) have been carrying out in the field of performance measurement and benchmarking.

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.

1. INTRODUCTION

1.1 The Civil Air Navigation Services Organisation (CANSO) and its Members are bound by a common objective – to improve global air navigation services performance. Air traffic management (ATM) performance measurement and global benchmarking lie at the heart of this objective. It is recognised that the ability to monitor and measure performance is a key requirement for any business or industry in identifying areas for improvement and setting performance-based targets.

1.2 It is for this reason that CANSO launched its global benchmarking work programme, supported by its Global Benchmarking Workgroup (GBWG). One of the key objectives for this ANSP

¹ Arabic, Chinese, French, Russian and Spanish versions provided by CANSO.

initiative is to support the establishment of performance-based ATM. Improved transparency of air navigation services performance and the visibility of performance of others, promotes understanding of what drives good performance. Further, it will support improved decision-making and facilitate target-setting. Overall, CANSO's aim is to develop a set of key global performance indicators for air navigation services, identify international best practices, support constructive dialogue with customers and other stakeholders, and assist individual ANSPs in optimising their performance.

1.3 An appropriate global performance measurement framework for ATM that is developed by ANSPs themselves, in consultation with customers and other stakeholders, can also aid the oversight process by giving oversight bodies greater visibility of an ANSP's performance against its targets, thereby reducing the need for separate developments by such bodies which may otherwise be necessary.

1.4 The CANSO global benchmarking initiative acknowledges the significant achievements in the field of performance measurement and benchmarking by the Eurocontrol Performance Review Unit (PRU). The approach taken by the Workgroup sought to draw from a range of existing initiatives, including those of the Eurocontrol PRU, the Asia Pacific ANSP benchmarking initiative, the International Air Transport Association (IATA) work on air navigation services performance, and individual ANSP international benchmarking studies and harmonisation efforts.

2. DISCUSSION

2.1 The CANSO GBWG has been developing global performance indicators in air navigation services productivity, cost-effectiveness and quality of service. Safety metrics are also being developed by the CANSO Safety Standing Committee.

2.2 The ultimate goal for the CANSO GBWG is to develop robust reports suitable for external publication. However, it is acknowledged that before this can be achieved more work is required to refine supporting processes, improve the speed of data collection and validation processes, and establish an appropriate scope of measures.

2.3 Phase 1 activities focused on establishing an active network of global benchmarking focal points and CANSO was successful in establishing a process to collect performance data. The selection of the first set of Key Performance Indicators (KPIs) was largely based on readily available data and was regarded as an initial starting point. The GBWG identified a number of common data points and conducted trial data collection to support the computation of five KPIs pertaining to air navigation services productivity and cost-effectiveness:

- a) instrument flight rules (IFR) Movements and/or km and/or Flight Hours per Air Traffic Controller (ATCO) in Operations;
- b) oceanic IFR Movements and/or km and/or Flight Hours per ATCO in Oceanic Operations;
- c) total Air Navigation Services Costs per Total IFR Movements and/or km and/or Flight Hours Controlled by ANSP;
- d) total ATCO in Operations Cost per ATCO Hour; and
- e) employment Cost of ATCOs in Operations as per cent of Total Air Navigation Services Costs.

2.4 The Workgroup completed the Phase 1 CANSO Global Benchmarking Report in late 2006 and highlighted a number of key issues and opportunities for improving the quality of output for Phase 2.

2.5 In Phase 2 a small Analytical Sub-group was established to support data collection, detailed analysis and validation of data. This had a significant impact on the effectiveness of the GBWG as the underlying processes supporting the Workgroup were enhanced.

2.6 In Phase 2, the scope of the KPIs covered by the Workgroup was extended to include:

a) Continental IFR Performance Measures:

- 1) Continental IFR Movements per Continental ATCO in Operations;
- 2) Continental IFR Flight Hours per Continental ATCO in Operations;
- 3) Continental ATCO Employment Cost (in US dollars) per Continental ATCO Hour;
- 4) Continental ATCO Employment Cost (in US Dollars) per Continental ATCO in Operations;
- 5) Price per Kilometer flown for a B737-300 by each ANSP; and
- 6) Price per Kilometer flown for a B747-400 by each ANSP.

b) Oceanic IFR Performance Measures:

- 1) Oceanic IFR Flight Hours per Oceanic ATCO in Operations;
- 2) Oceanic Cost per Oceanic IFR Flight Hour;
- 3) Oceanic ATCO Employment Cost (in US Dollars) per Oceanic ATCO Hour; and
- 4) Oceanic ATCO Employment Cost (in US Dollars) per Oceanic ATCO in Operations.

c) General Performance Measures:

- 1) Average Annual Working Hours for ATCOs in Operations;
- 2) Capital Cost as a percentage of Total Cost (Continental); and
- 3) ATCO Cost as a percentage of Operating Cost (Continental).

2.7 For Phase 3, the GBWG identified a list of key areas for action:

2.7.1 *Improving data collection and timeliness of data availability* – In Phase 3 the GBWG established a reporting schedule that has allowed a more timely delivery of data. The GBWG is working towards standardization and automation, which will provide a more streamlined approach to data collection and integration.

2.7.2 *Broadening the scope of KPIs* – In addition to the KPIs established by the GBWG, a number of other workgroups have investigated the development of KPIs in other areas such as human resources, the environment, and safety.

2.7.2.1 The *Human Resources Workgroup* has been comparing ATCO remuneration schemes and examining the challenge that some CANSO Members face in operating with increasing ATCO shortages. The effective deployment of scarce resources is essential to improvements in performance.

2.7.2.2 The *Environment Workgroup* has produced a CANSO *Environmental Voluntary Code of Conduct*. This was approved by the CANSO Executive Committee in May 2007 and, as part of this work, will begin to identify appropriate environmental performance metrics to be reported on annually.

2.7.2.3 CANSO's *Safety Standing Committee* continues to seek ways to share best practice and has developed a practical implementation guide for CANSO Members. This guide identifies the essential elements that should be present in any fully functioning Safety Management System (SMS). The Safety Committee has also begun to exchange safety data and has begun work to establish safety metrics starting with IFR-IFR Losses of Separation (LoS). The group is also examining this metric in the context of severity/risk assessment schemes; understanding causal factors and measuring; safety occurrence reporting and safety culture.

2.7.3 *Quality of Service* – Balanced comparisons of ANSPs must take into consideration not only cost and productivity measures, but also quality of service. CANSO has issued a questionnaire to determine KPIs that could be used for a variety of quality of service measures, including delays and flight efficiency. A short-term sub-group or task force will be established to evaluate the measures that are currently used by ANSPs to measure both flight delay/flight efficiency with the goal of identifying a common metric that could be used to support global comparison and understanding. This sub-group will coordinate the work to develop an agreed set of criteria for understanding/comparing complexity. In more recent work, the *Environmental Workgroup* and *Quality of Service Workgroup* are developing the notion that reduced delay translates to reduced emissions. These two workgroups are now working towards a single performance report.

2.7.4 *Understanding Complexity* – Work is ongoing to develop a proxy measure that describes/demonstrates the complexity associated with individual ANSP operations. Identifying the characteristics that make an operation complex may provide a way of ranking/grouping levels of complexity and provide a suitable group for comparing performance.

2.7.5 *Improving understanding of cost and financial data* – More work is required to better understand the nature and components of ANSP costs. It is clear that consistency in the reporting of costs is essential to improving comparability of cost-related KPIs. Improving understanding of the relevant accounting standards that are applied by CANSO Members will provide additional clarity about the comparability of financial data.

2.7.6 *Public Distribution* – Reports have been produced every year following a common format. In the early years there were two versions, one confidential and one public, the latter being a *de-identified* version. Starting with the 2010 report, which reflects the results for the 2009 calendar year, the *Global Performance Benchmarking Report* has become a public document that includes graphics in which the ANSPs are named. ANSPs do have the option of being included in the public document or not.

2.7.7 *Annual Production* – The 2012 report covering 2011 year data was released as a public document in January 2013. This report includes 28 ANSPs that voluntarily contributed data to the

collection effort. In return for this participation, the ANSP obtains access to the source data. In this manner they are able to construct their own tables and graphs comparing ANSPs similar to themselves.

3. **CONCLUSION**

3.1 CANSO Member ANSPs have through their own initiative, and the demands and expectations of their customers, placed a great deal of importance on performance measurement and benchmarking. The CANSO global benchmarking initiative has and will continue to provide an essential opportunity to share knowledge and collaborate globally. It will promote understanding of what drives good performance in ATM, reveal best practice that will assist individual ANSPs in optimising their performance, and serve the needs of air navigation services oversight bodies.

4. **RECOMMENDATIONS**

4.1 The Conference is invited to:

- a) note that a global ATM performance measurement framework is being developed by ANSPs, in consultation with customers and other stakeholders; and
- b) consider that such a framework can also aid the oversight process by giving oversight bodies greater visibility of an ANSP's performance against its targets, thereby reducing the need for separate developments by such bodies which may otherwise be necessary.

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