The CANSO 2015 Global Air Navigation Services Performance Report is designed to provide insight into worldwide ANSP performance using a series of common key performance indicators (KPI) – thereby encouraging communication between ANSPs and driving global improvements.

Common KPIs enable more accurate comparison between different air navigation service providers (ANSP), and help to track global air navigation services (ANS) trends.

As in previous years, the focus of the latest CANSO report is on cost efficiency. Non-staff operating costs, depreciation and capital costs all contribute to the overall cost efficiency calculation. But with ATCO employment costs representing 27% of total ANSP costs, ATCO productivity is an area of particular attention.

It is positive to note that, this year, the majority of the participating ANSPs reported an increase in ATCO productivity. In other words, cost efficiency in the vital area of ATCO employment costs has improved.

A vehicle for change

One ANSP that is embracing the report as a vehicle for change and improvement is AEROTHAI. Its spokesperson explains that improving performance is a constant challenge...
for any ANSP as comparison with other competitors is difficult given that most ANSPs are the sole service provider over a national airspace.

“CANSO’s annual Global Air Navigation Services Performance Report allows an ANSP to identify industry best practices; collaborate with other ANSPs to improve performance; view its global standing in a number of areas; and increase understanding of global trends in terms of benchmarking an ANSP’s cost effectiveness,” she says.

“Through close collaboration with members of the CANSO Global Benchmarking Workgroup (GBWG), AEROTHAI has been able to use the KPIs in the report to better understand the areas of our operation that need attention for performance improvement and – by comparison with other similar ANSPs – explore what can be done differently to produce effective outcomes,” she adds. “The valuable information from the report has served as an input to help set goals and drive future programmes since the report started in 2010.”

Benchmarking is an important tool to demonstrate to stakeholders and customers that AEROTHAI provides the best possible service at the most reasonable cost.

In an industry where cost flexibility is difficult to manage due to the need for a highly skilled labour force with a lengthy training process, and the added difficulty of supplying service for traffic demands beyond the control of the ANSP, being able to demonstrate the delivery of effective human resource and support cost management is essential.

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While safety is the number one priority for every ANSP, AEROTHAI also wants to emphasise cost efficiency and productivity. In 2016, AEROTHAI will develop plans for improving organisational cost effectiveness and ATCO employment costs. It will utilise the CANSO report’s top level KPI of cost efficiency and investigate its drivers through the underlying productivity KPIs.

“The goal is not just to reduce cost, but to allocate cost more effectively while improving productivity,” says the spokesperson. “AEROTHAI has set up teams of experts to study and analyse these contributing factors, identify initiatives for improvement and set the milestones for long-term goals.”

AEROTHAI’s longer term goal is to develop plans to improve support costs, looking into these costs relative to ATCO employment costs.

Meaningful comparisons

The CANSO report reveals there are many different factors affecting ATCO productivity and measuring these more accurately is the goal of future reports.

Some factors relate directly to the ATCO workload. ANSPs with larger airspaces will, in general, have a higher measure of ATCO productivity, for example. This is due to the longer sector times and increased frequency of flights.

Another factor that may affect the ATCO productivity figure is the proportion of ATCO work in arrivals and departures. ATCOs in smaller countries will have a higher proportion of such work, which can distort the figures.

Future CANSO reports will attempt to properly differentiate between the different ANSPs to further assist meaningful comparisons. “The representation of ATCO productivity used in the CANSO report is IFR Flight Hours/ATCO in operations (OPS) Hours and this metric has a number of known issues that the GBWG has been investigating to create a more meaningful set of measures,” says the Chair of the GBWG, Paul Cripwell.

The GBWG has already started developing a series of new measures that will be available in future reports. One will serve

Global Benchmarking Workgroup Update

The annual CANSO Global Air Navigation Services Performance Report has reached a new level of maturity and is expected to continue to be published with the same structure for the foreseeable future.

With a stable report structure, the group is able to concentrate on the development of new KPIs that will make the report even more relevant to CANSO Members. New areas of importance, such as an increased focus on non-ATCO costs, will also feature.

The benchmarking framework of critical KPIs allows for comparison between ANSPs, and the development of the new underlying KPIs will also assist an ANSP in understanding which elements of any KPI require their attention.

For example, the cost per IFR hour metric has three underlying measures: ATCO employment cost per ATCO hour, IFR hours per ATCO hour and costs excluding ATCO employment cost per IFR hour. By examining their own values and trends for these metrics an ANSP is able to determine which areas are most affecting their overall cost per IFR flight hour.
to separate out en-route ATCOs to calculate the IFR hours per en-route ATCO hour.

In concert with this, a second measure of IFR movements per approach/tower ATCO is under consideration, which would reflect the ratio of the workload between each controller type.

The GBWG also recognises that there is ATCO workload associated with visual flight rules (VFR) flights, though this varies considerably between ANSPs. The workgroup is discussing this topic, with the expectation that secondary KPIs will be developed that include the impact of VFR traffic where appropriate.

**Airspace complexity**

Other factors affecting ATCO productivity are more to do with the nature of the airspace. The metric needs to be understood in terms of airspace complexity, the collective effect of the many variables that make up ATM.

EUROCONTROL’s ATM Cost-Effectiveness (ACE) Benchmarking Report has made an interesting contribution to the debate. It divides air traffic control centres (ACC) into four sections: dense upper airspace; fewer than seven sectors with low complexity; greater than seven sectors with low complexity; and lower airspace with high structural complexity.

There are several interesting results from this data collection. The first is simply the average productivity of the different groups. Lower airspace with high structural complexity has very low average productivity, consistently the lowest productivity of the four groups. By contrast, the productivity of dense upper airspace is consistently high. This would suggest that airspace complexity significantly affects ATCO productivity.

**MUAC Case Study**

An interesting case to consider is the performance of Maastricht Upper Area Control Centre (MUAC), which is significantly more productive than similar ACCs. Several suggestions have been put forward as to why this might be the case:

- An advanced ATC system and procedures mean that all MUAC ATCOs receive the same information from the human-machine interface, which increases situational awareness and reduces co-ordination times among air traffic controllers.
- Enhanced airspace and capacity management through the progressive introduction of the tactical capacity manager role improves the co-ordination of capacity delivery sector-wide.
- The implementation of much more flexible roster arrangements allows for better staff deployment to match traffic demand.
- The work environment produces highly motivated staff.

It is also interesting to note that, while lower airspace with high structural complexity has reasonably consistent productivity from ACC to ACC, the other three have huge variance between ACCs. This reveals that while the airspace is a factor, other drivers must be involved and future work needs to determine what these might be.

Airspace density is clearly an issue though. The CANSO report indicates that ANSPs with the highest ATCO productivity, in general, have the densest airspace. An analysis of different area control centres (ACCs) confirms this fact.

The capacity of the ANSP is also relevant. An ANSP operating at close to capacity will have much better ATCO productivity than an ANSP that is not.

High seasonal variability and – for small regional airports – staff requirements for an airport with minimal movements per day illustrate the point. These types of capacity challenge can lead to inefficiencies and a high cost per movement.

In such circumstances, technology could improve ATCO productivity. For example, remote towers may allow the same workload – in terms of IFR flight movements – to be handled by a smaller number of ATCOs, which could help with the capacity problems for smaller airports.

To support efforts to increase the number of contributing ANSPs to the CANSO Global Air Navigation Services Performance Report, AEROTHAI will be hosting the spring meeting of GBWG, 30 March – 1 April in Bangkok, Thailand.

Remote towers could be a solution to capacity problems at small airports.