The newly revised and ACI-endorsed Level of Service (LoS) framework provides airports with a single set of globally accepted passenger service guidelines, writes IATA’s senior manager for airport consulting, Jurgen Renner.

As global air travel continues its steady growth, so too does the competition among airports to capture more of this potentially lucrative business.

In an ideal world, airports should, of course, have the facilities in place that will allow them to expand their market share and handle increased demand, although as we know only too well, many do not have this luxury.

How would your airport fare? Would more passengers cause congestion, long lines and overall poor service levels? If so, this could not only result in traffic leakage to alternate airports and subsequent revenue loss, but also damage to the local economy.

So, how do you make your facility an airport of choice for travellers while remaining cost efficient, now and in the future?

The answer is in finding a delicate balance of size, efficiency and cost – and definitely not in creating a mega airport “trophy-project” with disproportionately oversized facilities and related excessive operating costs or inaction.

Just like passengers, airport operators want speed, quality and efficiency. The shorter the waiting time for customers, the longer they have in commercial areas, potentially generating revenue for the airports.

In addition, if passengers don’t get stuck in long queues, they normally don’t miss their flights, which is not only good for them but also essential for an efficient boarding process and the airlines’ on-time departure performance.

Many airport operators struggle to determine the right metrics and model to accurately assess their overall performance. Today’s airport operators need to know how they compare to their peers on the world stage. This is where the Level of Service (LoS) concept comes into play.

How can the new LoS concept help?

Developed by IATA in partnership with ACI World, the LoS concept is the answer to measuring an airport’s passenger terminal against optimal industry performance and cost efficiency.

Whether gauging current service levels or planning for future infrastructure development, LoS is vital for airports to maximise returns on their capital and operating expenditures, while keeping a great passenger experience at the centre of their operations.

Stripped to its basic function, LoS is an aggregated guidance framework for the planning of new terminal facilities, as well as for monitoring the operational service performance of existing facilities.

The LoS concept builds upon the guidance material in IATA’s Airport Development Reference Manual (ADRM) pertaining to airport planning, capacity definition and design that has helped shape airport development for decades.

The 10th edition of the ADRM in 2014 saw a complete revision of the LoS concept in collaboration with ACI World. In comparison to the six letter grades (A to F) in the previous version, the new framework comes with only four categories – Under-Provided; Sub-Optimum; Optimum; and Over-Design.

For terminal processing facilities and corresponding waiting areas, the new LoS framework can be reflected in a space-time matrix, which can be used for defining the resulting service level (see space graphic above). The new LoS Concept also comes with clearly defined LoS guidelines, which can be used for either assessing the existing service level or for planning and constructing new Optimum terminal facilities.

For each terminal facility, quantitative LoS parameters for space provision and maximum waiting time are provided, clearly specifying what is considered Over-Design, Optimum and Sub-Optimum.
Optimum terminal sub-systems

Terminal facilities that operate at an Optimum service level provide adequate space and resources to accommodate all necessary functions in a comfortable environment.

They allow fluid passenger flows with acceptable waiting times as well as overall satisfactory service to passengers, while keeping capital expenditures (CAPEX) and operational expenditures (OPEX) at reasonable levels.

Ultimately, Optimum facilities balance economic terminal dimensions with passenger expectations, based on global industry benchmarks.

Proof of its success

Our confidence in the merits of LoS as a critical benchmark for airport operators was clearly demonstrated during IATA’s recent work at Flamingo International Airport (BIA) in Bonaire in the Dutch Antilles.

Bonaire is a small Dutch island nestled in the sunny southern Caribbean. In recent years, its tourism economy and air traffic demand have developed faster than its airport infrastructure. As a result, long winding lines and space constraints were commonplace at this seaside airport during peak periods.

With further growth on the horizon, BIA contracted IATA Consulting to perform a comprehensive LoS Assessment Study of a planned terminal expansion.

In order to provide the most accurate assessment, IATA strengthened its team with experts from ACI World (processes review) and German-based international engineering and consulting firm Airport Research Center (terminal simulation).

The general objective of BIA’s terminal development plan is to handle future peak demand, providing an Optimum service level, until 2020.

By systematically analysing all terminal sub-systems on departures and arrivals, IATA performed a professional capacity and service level analysis of the planned terminal expansion layouts, taking into account future peak traffic demand and its assumed structure (passenger profiles and operational requirements).

This study was supported by the application of an advanced terminal simulation tool – CAST Terminal.

Armed with extensive insight into worldwide airport best practices, IATA’s team of experts also provided BIA with recommendations for operational improvements. This was done by conducting a detailed review of current passenger handling processes during peak demand and comparing them to international standards.

By simulating future operations in the expanded terminal, certain capacity bottlenecks and service level shortcomings were identified.

Proposed alterations to the planned check-in facility, for instance, resulted in a significant improvement of passenger flow and capacity provision.

With IATA’s new LoS concept as an evaluating framework, the team were able to identify certain design weaknesses and propose an improved layout, significantly shortening waiting times and reducing line lengths, optimising space utilisation.

The design change came with minimal additional costs, but considerably enhances the passenger experience and the operational efficiency of the process. And this is just one example of many improvements the LoS Assessment Study brought.

The beauty of using a simulation tool is that we can actually visualise passenger flows in videos that show the current and future operations. Therefore, where problems arise, you can simulate and even visualize any proposed recommendations for improvements.

This is very powerful and convincing, especially for non-technical clients and decision makers.

The graphic above shows the situation of the initial expansion design for BIA in comparison to the improved layout proposed by IATA, which utilises more self-service kiosks and additional mobile check-in counters.

IATA’s overall LoS assessment results and related recommendations allowed BIA’s architects to modify the initial expansion design before carrying out the actual construction work.

The revised expansion design ensures that the future facilities will be capable of handling expected peak demand at an optimum service level. This will provide sufficient space to accommodate all necessary functions in a comfortable environment and, at the same time, keep processing and waiting times at acceptable levels.

In addition to providing an Optimum LoS to BIA’s passengers, the recommendations will allow the airport operator to balance economic terminal dimensions and resources with passenger expectations.

“The IATA team were very committed to delivering a high quality product,” says Michael Nicolaas, CEO of BIA. “They carried out extensive research to understand the needs of Bonaire Flamingo International Airport and this allowed them to develop a revised terminal expansion plan that balanced infrastructure design and costs.

“In my opinion, IATA’s work in terms of service quality, timely delivery and value for money exceeds the competition – I definitely highly recommend IATA Consulting for all airport development projects.”

Without doubt superb collaboration with the BIA team resulted in the efficient delivery of a challenging study and the excellent and detailed findings allowed us to derive valuable recommendations for improvements that are very beneficial for BIA.