ARRIVAL MANAGER
The Orthogon Arrival Manager (AMAN) helps air traffic controllers to efficiently manage incoming flights in order to make best use of available runway and airspace capacities. AMAN provides decision support for all controllers managing arrival traffic and, if required, in a multi-runway configuration and multi-airport environment.

The system offers a set of advanced features like route, holding and speed advice, calculation of take-off times for short-route flights and What-if probing. With the help of these advanced features, aircraft holding is reduced to a minimum resulting in more efficient and predictable flight operations.

DEPARTURE MANAGER
The Orthogon Departure Manager (DMAN) provides optimized planning of outbound flights based on selectable planning and optimization strategies. DMAN maximizes runway capacity utilization, minimizes fuel burn and provides significant improvements of outbound traffic predictability.

DMAN advanced functions include: Minimum Departure Intervals to support efficient TMA management, stand contentions to de-conflict push-backs from adjacent stands and coupling with A-SMGCS or Surface Management (SMAN) systems.

COUPLED AMAN — DMAN
For runways operated in mixed mode, AMAN/DMAN can be coupled to efficiently balance arrival and departure flights. AMAN/DMAN supports the coordination between tower and approach controllers. Arrival and departure traffic is planned in an optimized mixed-mode runway sequence.

The Orthogon product was used within the scope of SESAR work package for Coupled AMAN/DMAN. In October 2014, the validation exercises were successfully completed.

Increased capacity, efficiency and predictability

BENEFITS
> Improves efficiency by balancing arrivals and departures
> Optimizes planning for inbound and outbound flights
> Reduces costs and environment impacts caused by capacity imbalances
> Enables Air Traffic Flow Management (ATFM) through additional functionality
EFFICIENT OPERATIONS
The reduction of costs and environmental impact caused by demand capacity imbalances has become a high priority objective. Orthogon AMAN/DMAN has been designed to increase resource capacity, efficient operations and traffic predictability. Air Navigation Service Providers, airports, airlines and other stakeholders are supported when minimizing delays and collaboratively manage traffic flows.

KEY FOR ATM MODERNIZATION
AMAN and DMAN are key components of the ICAO Aviation System Block Upgrades (ABSU): “Metering allows ATM to sequence arriving flights such that terminal and aerodrome resources are utilized effectively and efficiently. Departure management tools maximize the use of airspace capacity and assure full utilization of resources.” The Orthogon systems provide enhanced coupling supporting optimized, flexible and efficient usage of mixed mode runways in alignment with ICAO ASBU Block 2.

PRE-DEPARTURE SEQUENCING
Orthogon provides all Pre-Departure Sequencing capabilities, as required for Airport CDM implementation, including the calculation of Target Take-Off Times (TTOT) and Target Start-Up Approval Times (TSAT), based on Variable Taxi Times. Orthogon AMAN and DMAN are operational at the A-CDM airports London Gatwick and Singapore Changi supporting efficient runway management.

EXTENDED HORIZON
Orthogon AMAN provides the functionality to extend the planning horizon. In London, the Extended AMAN horizon was a key enabler for the successful Cross Border Arrival Management project, providing fuel costs savings for airlines of 7.5 million € per year. Martin Rolfe, Managing Director, Operations at NATS, commented, “This is the first cross border arrival management—or XMAN—trial of its kind anywhere in the world and a great example of partnership working for the benefit of our customers and a potential future model for the industry.”

PROVEN REFERENCES
Orthogon software is the application of choice for Air Navigation Service Providers, airports, system integrators and research organizations worldwide. As every airport and airspace has specific characteristics and requirements for ATC software systems, Orthogon AMAN and DMAN are highly adaptable, interoperable and are consistently advanced and improved. The strong technical competence and operational experiences gained throughout the high number of projects allows Harris Orthogon to offer and implement a decision support solution that is fully tailored to the individual customers’ needs, ensuring operational and cost efficiency. The Orthogon team offers comprehensive service and support after implementation.

“Orthogons’ Arrival Manager software meets all technical and operational requirements as well as the Safety Management and Quality Assurance objectives. Avinor judged the Orthogon AMAN the most user-friendly and the most mature arrival management software on the market.”

-Kristian Pjaaten,
Project Team Manager at Avinor