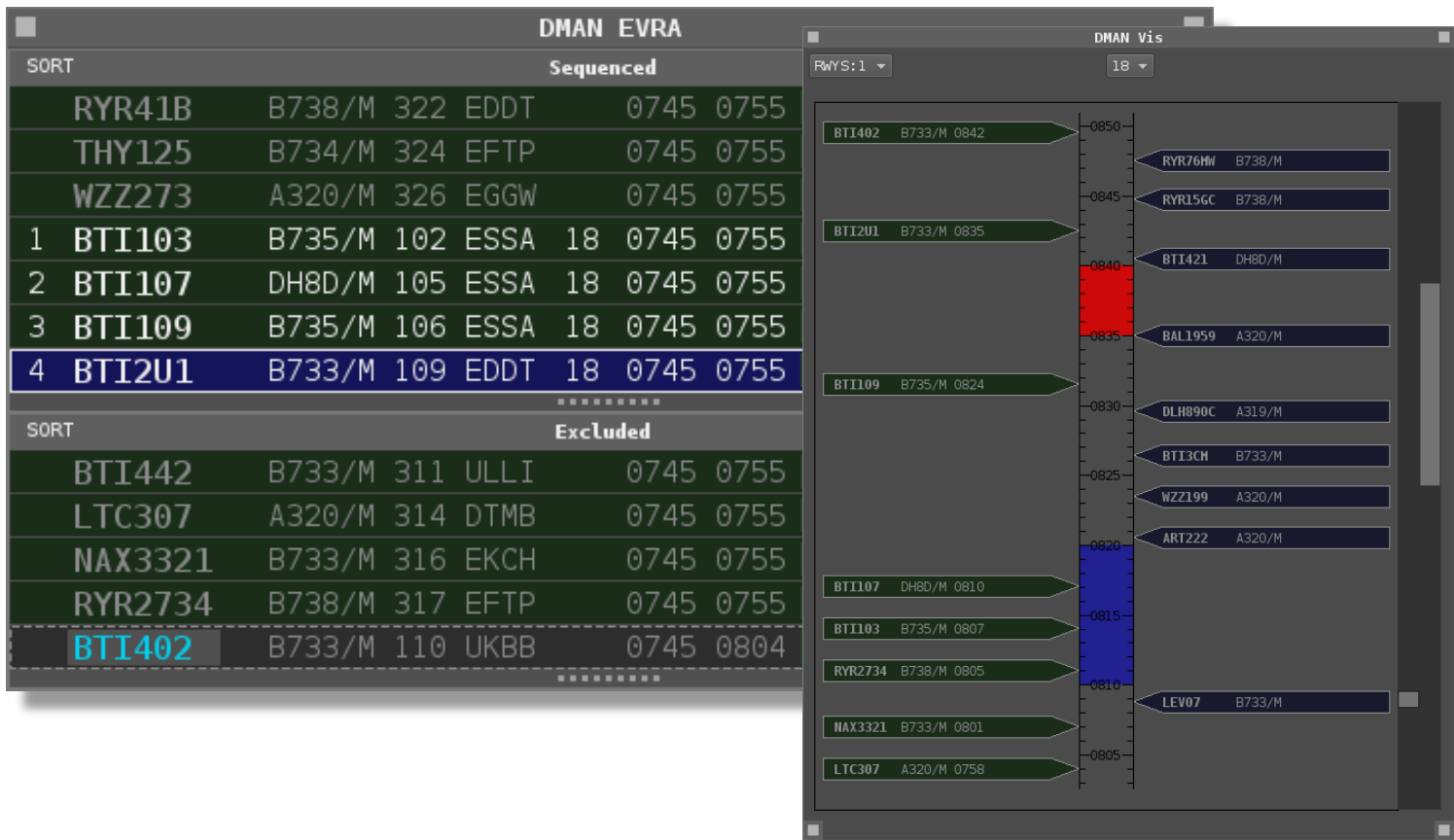




# DMAN

## Departure Manager

*Can be delivered as part of ATMSys, as a standalone tool or integrated within a third-party ATM system. Fully adaptable – content, layout and parameters can easily be tailored to individual requirements.*



- **Optimised runway usage**
- **Improved efficiency and throughput**
- **Improved coordination and anticipation for downstream Controllers**
- **Calculation of departure sequence**
- **Considerations of the resource limitations (e.g. runways in use, capacity)**
- **Consideration of arrival traffic**



## Operation

DMAN is an automated application that provides an optimised departure sequence for Ground and Tower Controllers. Predictability of the planned departure flow from the airport is increased, thereby providing ATC with more accurate information for the departing traffic.

DMAN calculates target take off times (TTOT) and target startup approval times (TSAT). It determines the optimised sequence for each runway based on multiple separation constraints and preferred ATC strategies (e.g. multiple runways operations). The overall goal is to increase punctuality, reduce delays and operational costs while decreasing environmental impact.

DMAN is highly flexible, accommodating changes in runway configuration, ground area closures, EOBT vs TOBT, ATC regulations such as flow management restrictions from CFMU/NMOC etc.

						EOBT	TOBT	TSAT	CTOT	TTOT
DMAN EVRA DMAN_EVRA										
SORT SEQUENCED										
1	JUSH334	A388/J		EGNX	18G	E1420		T1423		T1431
2	DHAN015	B738/M	27	EGSS	18	E0830	T1242	T1456	T1505	T1505
	JUSH335	A388/J		EGNX		E1430		T1459		T1507
	JUSH336	A388/J		EGNX		E1436		T1502		T1510
*****										
SORT UNSEQUENCED										
	DHAN001	B735/M	27	LGAV	18	E0900				
	RWY1133	A388/J		EVRA		E1133		T1136		T1144
	RWY1134	A388/J		EVRA		E1134		T1137		T1145
	RWY1310	M339/L		EVRA		E1310		T1343		T1351
	RWY1311	M339/L		EVRA		E1310		T1343		T1351
	DHAN011	A388/J		EGSS		E1341		T1344		T1352
	DHAN016	M339/L		EVRA		E1341		T1344		T1352
	DHAN012	A388/J		EGSS		E1342		T1345		T1353
	DHAN017	M339/L		EGNX		E1342		T1345		T1353
	DHAN013	M339/L		EGSS		E1343		T1346		T1354
	DHAN019	A388/J		EGNX		E1343		T1346		T1354
	DHAN014	B748/H		EGSS		E1344		T1347		T1355
	DHAN018	B738/M		EGNX		E1344		T1347		T1355
*****										



## Basic functionality

DMAN opens in a dedicated window containing flights which are planned to depart within a parameter-set time, known as the “planning horizon”. All times calculated by DMAN are presented on the Controller’s electronic flight strips (EFS) as well as the DMAN window, allowing the Controller to adhere to the departure sequence without having the DMAN window open. The basic sequence of events is as follows:

1. When a departure flight plan is received, DMAN extracts data such as aircraft type, wake vortex category, SID and TOBT in order to calculate a target takeoff time (TTOT) for that flight.
2. DMAN places the flight in the departure sequence, presented in the DMAN window, and provides the necessary separation between all departing flights.
3. A Target Startup Approval Time (TSAT) is calculated by subtracting calculated taxi times from the TTOT based on the aircraft’s current location/stand to the departure runway. This is presented to the Controller.
4. Flow restriction messages are fully supported (slot allocation/revision/cancellation, flight suspension/de-suspension) and TSAT/TTOT are recalculated to achieve departure within slot restrictions.
5. The departure sequence is regularly updated based on changing traffic situations (e.g. low visibility, runway capacity, arrivals etc) recalculating TTOT and TSAT where appropriate.
6. Flights which are committed to departure, e.g. following flight plan activation, pushback/engine clearance etc, are “frozen” within the sequence and are unaffected by DMAN sequence recalculation.

DMAN window

DMAN EVRA										
Sequenced										
1	BTI136D	F50/M	EETN	18	1002	1012	1012	1019		
2	BRU842	CRJ1/M	UMMS	18	1033	1043	1043	1050		
	BTI402	B733/M	UKBB		1036	1046	1046	1053	EXCL	
	NR09658	T134/M	UUWV		1039	1049	1049	1056	EXCL	
Excluded										

Electronic Flight Strips

OUTBOUND BAY													
Taxi Out													
Pushback													
Active													
BTI136D	F50/M	A	18	SOKVA1F	A40	1012	1012	1019	Pb	En	Di	CL	
BRU842	CRJ1/M	A	18	TUSAS1F	A40	1043	1043	1050	Pb	En	Di	CL	
Pending Departure													
BTI402	B733/M					1046	1046	1053	Pb	En	Di	CL	ACT
NR09658	T134/M					1049	1049	1056	Pb	En	Di	CL	ACT

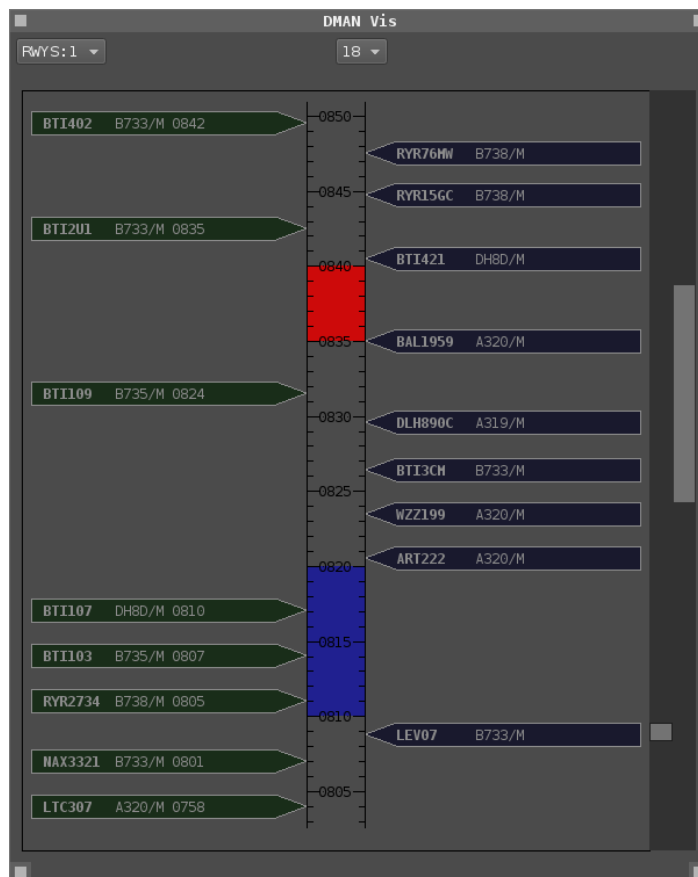
DMAN is compatible with multiple runways and considers relevant ground surface constraints, separation rules, airport layout, pushback procedures, taxi preferences, etc. and is easily integrated with A-CDM, AMAN and A-SMGCS for easier data sharing.



## AMAN/DMAN synchronisation

Where available, the DMAN system can synchronise with an Arrival Manager (AMAN), which allows DMAN to provide the necessary separation following an arrival flight. This separation will be based on a flight's actual position rather than relying on an estimated time of arrival (ETA).

Our DMAN system includes a visual timeline of AMAN-sequenced arrivals and departures, providing enhanced situational awareness and planning possibilities:



Using our ATMSys HMI, The Tower/Ground Controller has the possibility of creating “runway blocks” (red, above), used for temporary runway closure due to, for example, snow clearance, FOD removal etc. Once a block has been created, the synchronised AMAN will recalculate its arrival sequence so as not to plan any arrivals during the closure time, while DMAN re-sequences so as not to plan any departures during this time.

It is also possible to request “departure windows” (blue, above) if there are many departures but too few safe gaps in arrival traffic. In this case, the synchronised AMAN will recalculate its arrival sequence so as not to plan any arrivals during this period, which frees up a period of time during which DMAN will sequence flights for departure.