OFA 05.01.01 Final OSED

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Abstract

This document is the fourth and last edition '(Edition 4.0) of the Operational Services and Environment Description (OSED) related to the Airport Operations Management element (OFA05.01.01) of the SESAR operational concept.

The SESAR Solution #21 'Airport Operations Plan and AOP-NOP Seamless Integration' consists of a set of airport performance services and a suite of enabling applications to maintain performance in normal, adverse and exceptional operating conditions. The Solution is grounded in two new services: Steer Airport Performance - establish the performance goals and KPI thresholds - and Monitor Airport Performance - monitor current and forecast performance against the goals and automatically trigger a warning to ATM stakeholders if predefined thresholds are exceeded.

The full Airport Operations Management concept developed within OFA05.01.01 envisages two additional new services that have not yet reached maturity, namely the ability to Manage Airport Performance and to Perform Post-Operations Analysis. This OSED captures the future operating method and associated requirements pertaining specifically to Solution #21 as well as to the full airport operations management concept.

The OSED is divided into three separate documents (Part1a, Part1b and Part 2). This document represents Part 2 with the appendices.

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Appendix A Initial Airport Performance Framework

The Performance Framework described in this Appendix was developed early in SESAR1, particularly in the project 6.5.1 led by SEAC. As a result, this framework was driven by the airports themselves and corresponded to the necessity to have a number of 'high level' indicators describing the evolution of airport performance against a number of KPIs. However, it has become clear in the V2 gaming exercises that the current 'high level' indicators defined in the OSED, whilst perhaps being relevant for post operations analysis, are actually of little utility in the area of performance monitoring and management. Significant work has started in the area of performance dashboard design offering 'drill down' capabilities to allow problem root cause identification and mitigation. As stated in Chapter 1.2, this work, whilst offering highly encouraging initial results, is the subject for further study and validation.

KPA	Focus Areas	KPI			
		Concept	Representation	Metric / Unit	Target
Capacity	Airport Capacity	Runway Capacity Shortage - Landings - Take-offs - Total movements	Absolute CAP shortage: AC – DC Relative CAP shortage: 1 - AC / DC AC = Available Capacity DC = Demand for Capacity	[#Movm.] [%] and [#Hours]	Capacity shortage of X Movm. or Y % during a maximum of Z hours within a predefined time frame
		Ground Movement Capacity Shortage - Inbound taxiing - Outbound taxiing - Total taxiing	Absolute CAP shortage: AC – DC Relative CAP shortage: 1 - AC / DC AC = Available Capacity DC = Demand for Capacity	[#Movm.] [%] and [#Hours]	Capacity shortage of X Movm. or Y % during a maximum of Z hours within a predefined time frame
		Apron Capacity Shortage	Planning phase: Stand allocation mismatch Execution phase: Number of aircraft with AIBT – EIBT ≥ X minutes due to non availability of parking stand	[#aircraft] and [Hours]	Not more than Y aircraft waiting more than X minutes for a parking position during a maximum of Z hours within a predefined time frame
	TMA Capacity	TMA Capacity Shortage - Inbound flights - Outbound flights - Total flights	Absolute CAP shortage: AC – DC Relative CAP shortage: 1 - AC / DC AC = Available Capacity DC = Demand for Capacity	[#Movm]. [%] and [#Hours]	Capacity shortage of X Movm. or Y % during a maximum of Z hours within a predefined time frame

KPA	Focus Areas	KPI			
		Concept	Representation	Metric / Unit	Target
Predictability	Flight Operation Variability	Arrival Predictability	ALDT-ELDT (RBT) ALDT-SLDT (SBT) AIBT-EIBT (RBT) [AIBT-SIBT (SBT)]	t = Time window (minutes)	-3,+3 (for RBT)
		Turnaround Predictability	ATTT-ETTT (RBT) ATTT-STTT (SBT)	t = Time window (minutes)	(-4, +4)
		Departure Predictability	AOBT-TOBT (RBT) [AOBT-SOBT (SBT)] ATOT-TTOT (RBT) ATOT-STOT (SBT)	t = Time window (minutes)	-3,+3 (for RBT)
	Knock-On Effect	SBT impact due to late ARR	A/C changes	No (or %) A/C changes	50% of A/C changes compared to 2010 baseline
			Flight cancellation	No (or %) cancelled flights	50% of cancelled flights compared to 2010 baseline
	Service Disruption Effect	Reduced capacity below demand	Arrival Predictability degradation	$\Delta t = \Delta$Time window (minutes)	To be fixed per airport depending on disruption types, but minor than $\pm Y_{max}$ (min)
			Turnaround Predictability degradation	$\Delta t = \Delta$ Time window (minutes)	
			Departure Predictability degradation	$\Delta t = \Delta$ Time window (minutes)	

<table>
<tr><th rowspan="2">KPA</th><th rowspan="2">Focus Areas</th><th colspan="5">KPI</th></tr>
<tr><th colspan="2">Concept</th><th>Representation</th><th>Metric / Unit</th><th>Target</th></tr>
<tr><td rowspan="7">Flexibility</td><td rowspan="2">Business Trajectory Flexibility</td><td rowspan="2">Accommodation of SBT for scheduled flights</td><td>Frequency</td><td>% of SBT accepted within time window of 3' of the requested time</td><td>(Number of flights delayed <= 3') / Number of Requests

[%]</td><td>98 %</td></tr>
<tr><td>Severity</td><td>Average difference between SBT allocated and SBT requested</td><td>EOBT – Requested EOBT

[Min]</td><td>3 ’</td></tr>
<tr><td rowspan="2">Flexible access-on-demand for non-scheduled flights</td><td rowspan="2">Accommodation of SBT for non-scheduled flights</td><td>Frequency</td><td>% of SBT accepted within time window of 3' of the requested time</td><td>(Number of flights delayed <= 3') / Number of Requests

[%]</td><td>98 %</td></tr>
<tr><td>Severity</td><td>Average difference between SBT allocated and SBT requested</td><td>EOBT – Requested EOBT

[Min]</td><td>3 ’</td></tr>
<tr><td rowspan="3">Service flexibility</td><td colspan="2">Ground Handling Headroom</td><td>Relation between Demand and Ground Handling Capacity</td><td>Demand / Ground Handling Capacity

[%]</td><td>TBD</td></tr>
<tr><td colspan="2">Airport Capacity Headroom</td><td>Airport slot opportunities per time window</td><td>Declared Capacity – Demand

Movm. per Time Window</td><td>TBD</td></tr>
<tr><td colspan="2">Landside Operations Headroom</td><td>Terminal Building Facilities Headroom</td><td>Number of terminal building facilities operating / Number of terminal building facilities available

[%]</td><td>TBD</td></tr>
</table>

KPA	Focus Area	KPI			
		Sub Focus Area	Representation	Metric / Unit	Target
Efficiency	Temporal Efficiency	Flight	Flight Delay	[min] and [%]	X% < Y min delay
		TMA	TMA delay	[min] and [%]	X% < Y min delay
		Runway	Runway delay	[min] and [%]	X% < Y min delay
		Ground Movement	Ground Movement	[min] and [%]	X% < Y min delay
		Apron and/or Stands	Turn Around Delay;	[min] and [%]	X% < Y min delay
	Infrastructural Efficiency	TMA/CTR	TMA Infrastructural Efficiency	[%]	> X%
		Runway	Runway Infrastructural Efficiency	[%]	> X%
		Ground Movement	Ground Movement Infrastructural Efficiency	[%]	> X%
		Apron and/or Stands	Apron/Stand Infrastructural efficiency	[%]	> X%

KPA	Focus Areas	KPI			
		Concept	Representation	Metric / Unit	Target
ENVIRONMENT AL SUSTAINABILITY	Noise	Noise contours	Calculated by noise model; presentation of contour plots and enclosed areas	[m^2]	
		Noise impact	Calculated by noise impact model; numbers of noise exposed houses, highly annoyed people and people experiencing sleep disturbance	[#houses]	Number of exposed houses < xxx
				[#people]	Number of highly annoyed people < xxx
				[#people]	Number of people with sleep disturbance < xxx
		Number of movements within specified noise categories	Calculated from Operational Database (AOP)	[#Movm.]	Number of marginally compliant Chapter 3 aircraft < xxx
		Number of movements per time period	Calculated from Operational Database (AOP)	[#Movm.]	Total number of movements < xxx
				[#Movm.]	Number of night movements < xxx
		Noise levels at specific points	Calculated by noise model/ Noise measurement system	[dB]	(Average) noise level < xxx
		Deviations from flight track tolerance bands/ 4D trajectories	Calculated / measured from flight tracking (Radar) system	[%]	< xxx %
	Local Air Quality	Concentration of air pollutants (NO, NO2, CO, SO2, PM10, PAH)	Air pollutants measurement system	µg/m^3	weight unit per unit of volume
		Total emissions in the TMA in relation to traffic units or passenger during flight	computed by appropriated calculation software	Tons CO2 Tons CO2 per TU*	Total weight Total weight relative to TU*
		Total emissions during approach, taxi in, taxi out, take off, climb out in relation to traffic units or passenger	computed by certified software	Tons CO2 Tons CO2 per TU*	Total weight Total weight relative to TU*
		Total amount of emissions during the engine test runs	computed by appropriated calculation software	Tons CO2	Total weight
		Total APU emissions during turn around	computed by appropriated calculation software	Tons CO2 Tons CO2 per turn around	Total weight Total weight relative to turn around
		Total amount of emission from vehicles operate don the apron	computed by appropriated calculation software	Tons CO2	Total weight

Appendix B Detail of the Rules Engine

Medium & Short Term Planning Timeframe

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level1	Alert Level2	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
AIRFIELD CAPACITY										
Runway Arrival Capacity Shortage	Declared Runway Arrival Capacity; SLDT	# Movements in a set time period	Runway Arrival Capacity – Runway Arrival Demand = x mvts avoid handling negative values	If x ≤ warning or alert level Then issue warning or alert			# movements	Operational Day split by Hour	Tower Supervisor	AOM26
		%age in a set time period	SLDT/Declared;	IF percentage of uncovered demand ≥ warning or alert level THEN issue warning or alert			%			

1 Expected to be reviewed on a regular basis by the Airport Performance Steering Service
2 Expected to be reviewed on a regular basis by the Airport Performance Steering Service

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level1	Alert Level2	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
			Runway Arrival Demand=∑SLDT per time period	IF demand has changed attribute reason "demand"; IF capacity has changed attribute reason "capacity"						
Runway Departure Capacity Shortage	Declared Runway Departure Capacity; STOT	# Movements in a set time period	Runway Departure Capacity – Runway Departure Demand = x mvts avoid handling negative values	IF x ≥ warning or alert level THEN issue warning or alert			# movements	Operational Day split by Hour	Tower Supervisor	AOM26
		%age in a set time period	STOT/Declared	IF percentage of uncovered demand ≥ warning or alert level THEN issue warning or alert			%			

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level1	Alert Level2	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
			Runway Arrival Demand=∑STOT per time period	IF demand has changed attribute reason "demand"; IF capacity has changed attribute reason "capacity"						
Total Airport Capacity Shortage	Declared Total Airport Capacity; SLDT STOT	# Movements in a set time period	Total Airport Capacity – Total Airport Demand = x mvts avoid handling negative values	IF x ≥ warning or alert level THEN issue warning or alert			# movements	Operational Day split by Hour	APOC Supervisor	AOM27
		%age in a set time period	SLDT+STOT/Declared;	IF percentage of uncovered demand ≥ warning or alert level THEN issue warning or alert			%			

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level1	Alert Level2	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
			Demand=∑SLDT+∑STOT per time period	IF demand has changed attribute reason "demand"; IF capacity has changed attribute reason "capacity"						
Operational Departure Demand	SOBT STOT	# Movements in a set time period	Sum the S OBT for the given time period AND Sum the STOT for the given time period	N/A	N/A	N/A	# movements	Operational Day split by Hour	N/A	N/A
Operational Arrival Demand	SIBT SLDT	# Movements in a set time period	Sum the S for the given time period AND Sum the S for the given time period	N/A	N/A	N/A	# movements	Operational Day split by Hour	N/A	N/A
ARRIVAL										
TMA DCB: STAR Loading Balance	Declared STAR capacity SLDT	# flights	Actual Demand = # flights counted for each STAR (based on actuals) Declared STAR capacity – actual STAR demand = x	If x < warning or alert value. Then issue warning or alert			X # flights	Operational Day split by Hour	Tower Supervisor	AOM29
TURN										

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level1	Alert Level2	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Apron Capacity Shortage: Stand Occupancy	Total # stands Apron Demand	# stands	# Available – Demand = x	If x < 0 Then issue warning or alert			X min	Operational Day split by Hour	Stand Allocation Unit Supervisor	AOM30
Apron Demand	SIBT SOBT	# stands	# movements with SIBT within the time period - # movements with SOBT within the time period	N/A	N/A	N/A	#	Operational Day split by Hour	N/A	N/A
Apron Efficiency: Operational Use of Stands	Apron Demand Total # stands	% available	Apron Demand / Total * 100 = y %	If y% < warning or alert level Then issue warning or alert			Y%	Operational Day split by Hour	APOC Supervisor	
DEPARTURE										
TMA DCB: SID Loading Balance	Declared SID capacity SOBT	# flights	Actual Demand = # flights counted for each SID (based on actuals) Declared capacity – actual SID demand = x	If x < warning or alert value. Then issue warning or alert			X # flights	Operational Day split by Hour	Tower Supervisor	AOM29

Execution Timeframe (including Actuals to be shown during the Post Ops Timeframe)

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
MET										
Wind Direction	Actual Wind Direction Forecast Wind Direction Declared capacity (Nominal Conditions) Wind Direction	Degrees	Actual – Nominal = xo difference Forecast – Nominal = xo difference	If xo > warning or alert value. Then issue warning or alert	N/A		Actual Wind Direction	Operational Day split by Hour	Tower Supervisor	MET01
Surface Wind Speed	Actual Wind Speed Forecast Wind Speed Trigger Wind Speed Declared capacity (Nominal Conditions) Wind Speed	Knots	Actual = x kts Forecast – Nominal = x kts difference	If x kts > warning or alert value. Then issue warning or alert	N/A		Actual Wind Speed	Operational Day split by Hour	Tower Supervisor	MET02

3 Expected to be reviewed on a regular basis by the Airport Performance Steering Service
4 Expected to be reviewed on a regular basis by the Airport Performance Steering Service

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Surface Wind Speed Probability	Forecast Wind Speed Trigger Wind Speed (set by Airport Performance Steering) Probability of Forecast Wind Speed	%	N/A	If Forecast Wind Speed is > Trigger Wind Speed; Then if Probability > warning or alert value Then issue warning or alert	N/A		Actual Wind Speed Probability	Operational Day split by Hour	Tower Supervisor	MET02
Winds Aloft Wind Speed	Actual Wind Speed Forecast Wind Speed Declared capacity (Nominal Conditions) Wind Speed	Knots	Actual – Nominal = x kts difference Forecast – Nominal = x kts difference	If x kts > warning or alert value. Then issue warning or alert	N/A		Actual Winds Aloft Wind Speed	Operational Day split by Hour	Tower Supervisor	MET02
Winds Aloft Wind Speed Probability	Forecast Wind Speed Trigger Wind Speed (set by Airport Performance Steering) Probability of Forecast Wind Speed	%	N/A	If Forecast Wind Speed is > Trigger Wind Speed; Then if Probability > warning or alert value Then issue warning or alert	N/A		Actual Winds Aloft Wind Speed Probability	Operational Day split by Hour	Tower Supervisor	MET02

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Headwind Component	Actual Headwind Speed Forecast Headwind Speed Runway in Use Direction	Knots	Calculation of Headwind component done by Met provider	If x kts > warning or alert value. Then issue warning or alert	N/A		Headwind Speed Component	Operational Day split by Hour	Tower Supervisor	MET02
Headwind Component Probability	Forecast Headwind Trigger Headwind (set by Airport Performance Steering) Probability of Forecast Headwind	%	N/A	If Forecast headwind is > Trigger headwind; Then if Probability > warning or alert value Then issue warning or alert	N/A		Headwind Speed Component Probability	Operational Day split by Hour	Tower Supervisor	MET02
Crosswind Component	Actual Crosswind Speed & gusts Forecast Crosswind Speed & gusts Runway in Use Direction	Knots	Calculation of Crosswind component done by Met provider	If x kts > warning or alert value. Then issue warning or alert	N/A		Crosswind Speed Component	Operational Day split by Hour	Tower Supervisor	MET02

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Crosswind Component Probability	Forecast Crosswind Trigger Crosswind (set by Airport Performance Steering) Probability of Forecast Crosswind	%	N/A	If Forecast Crosswind is > Trigger Crosswind; Then if Probability > warning or alert value Then issue warning or alert	N/A		Crosswind Speed Component Probability	Operational Day split by Hour	Tower Supervisor	MET02
Tailwind Component (negative Headwind)	Actual Headwind Speed Forecast Headwind Speed Runway in Use Direction	Knots	Calculation of Headwind component done by Met provider	If x kts < warning or alert value. Then issue warning or alert	N/A		Tailwind Speed Component	Operational Day split by Hour	Tower Supervisor	MET02
Visibility - RVR	Actual RVR Forecast RVR Declared capacity (Nominal Conditions) RVR	metres	Actual – Nominal = x m difference Forecast indicates LVP	If x m > warning or alert value. Then issue warning or alert	N/A		RVR metres	Operational Day split by Hour	Tower Supervisor	MET03

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Visibility - RVR Probability	Forecast Visibility - RVR Trigger Visibility - RVR (set by Airport Performance Steering) Probability of Visibility - RVR	%	N/A	If Forecast Visibility - RVR is > Trigger Visibility - RVR ; Then if Probability > warning or alert value Then issue warning or alert	N/A		RVR metres Probability	Operational Day split by Hour	Tower Supervisor	MET03
Visibility – Horizontal Probability	Forecast Visibility - Horizontal Trigger Visibility - Horizontal (set by Airport Performance Steering) Probability of Visibility - Horizontal	Knots	N/A	If Forecast Visibility - Horizontal is > Trigger Visibility - Horizontal ; Then if Probability > warning or alert value Then issue warning or alert	N/A		Horizontal visibility metres Probability	Operational Day split by Hour	Tower Supervisor	MET03

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Visibility - Horizontal	Actual Horizontal Forecast Horizontal Declared capacity (Nominal Conditions) Horizontal	metres	Actual – Nominal = x m difference Forecast indicates LVP	If x m > warning or alert value. Then issue warning or alert	N/A		Horizontal visibility metres	Operational Day split by Hour	Tower Supervisor	MET03
Visibility – Ceiling or Vertical	Actual Ceiling or Vertical Forecast Ceiling or Vertical Declared capacity (Nominal Conditions) Ceiling or Vertical	metres	Actual – Nominal = x m difference Forecast indicates LVP	If x m > warning or alert value. Then issue warning or alert	N/A		Ceiling or Vertical visibility metres	Operational Day split by Hour	Tower Supervisor	MET03

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Visibility – Ceiling or Vertical Probability	Forecast Visibility - Ceiling or Vertical Trigger Visibility - Ceiling or Vertical (set by Airport Performance Steering) Probability of Visibility - Ceiling or Vertical	%	N/A	If Forecast Visibility - Ceiling or Vertical is > Trigger Visibility - Ceiling or Vertical ; Then if Probability > warning or alert value Then issue warning or alert	N/A		Ceiling or Vertical visibility metres Probability	Operational Day split by Hour	Tower Supervisor	MET03
Precipitation	Forecast Precipitation Actual Precipitation	Rain Showers Freezing rain snow	N/A	If actual is different forecast Then issue warning or alert	N/A		Forecast Precipitation	Operational Day split by Hour	APOC Supervisor	MET04
Precipitation Probability	Forecast Precipitation Trigger Precipitation (set by Airport Performance Steering) Probability of Precipitation	%	N/A	If Forecast Precipitation is > Trigger Precipitation Then if Probability > warning or alert value Then issue warning or alert	N/A		Forecast Precipitation Probability	Operational Day split by Hour	APOC Supervisor	MET04

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Temperature (2m) - High	Actual Temperature	Degrees Celsius	N/A	If Actual > warning or alert value. Then issue warning or alert	N/A		Forecast Temperature	Operational Day split by Hour	Tower Supervisor	MET05
Temperature (2m) - High Probability	Forecast Temperature (2m) - High Trigger Temperature (2m) - High (set by Airport Performance Steering) Probability of Temperature (2m) - High	%	N/A	If Forecast Temperature (2m) - High is > Trigger Temperature (2m) - High Then if Probability > warning or alert value Then issue warning or alert	N/A		Temperature (2m) - High Probability	Operational Day split by Hour	Tower Supervisor	MET05
Temperature (2m) - Low	Actual Temperature	Degrees Celsius	N/A	If Actual > warning or alert value. Then issue warning or alert	N/A		Forecast Temperature	Operational Day split by Hour	Tower Supervisor	MET06

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Temperature (2m) - Low Probability	Forecast Temperature (2m) - Low Trigger Temperature (2m) - Low (set by Airport Performance Steering) Probability of Temperature (2m) – Low	%	N/A	If Forecast Temperature (2m) - Low is > Trigger Temperature (2m) - Low Then if Probability > warning or alert value Then issue warning or alert	N/A		Temperature (2m) - Low Probability	Operational Day split by Hour	Tower Supervisor	MET06
Surface Temperature - Low	Actual Surface Temperature	Degrees Celsius	N/A	If Actual > warning or alert value. Then issue warning or alert	N/A		Forecast Temperature	Operational Day split by Hour	APOC Supervisor	MET06

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Surface Temperature - Low Probability	Forecast Surface Temperature - Low Trigger Surface Temperature - Low (set by Airport Performance Steering) Probability of Surface Temperature – Low	%	N/A	If Forecast Surface Temperature - Low is > Trigger Surface Temperature - Low Then if Probability > warning or alert value Then issue warning or alert	N/A		Surface Temperature - Low Probability	Operational Day split by Hour	APOC Supervisor	MET06
Thunderstorms / CB Activity / Lightening	Forecast Probability of Thunderstorms / CB Activity / Lightening		N/A	If Probability > warning or alert value Then issue warning or alert			Forecast Thunderstorms / Convection Currents Probability	Operational Day split by Hour	Tower Supervisor	MET07
Precipitation Intensity	Actual and forecast precipitation intensity Probability of precipitation intensity	light Moderate heavy	N/A	If Probability > warning or alert value Then issue warning or alert	N/A		Precipitation Intensity Probability	Operational Day split by Hour	Tower Supervisor	MET04

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Dew point Temperature	Actual and forecast moisture level Probability of Dew point Temperature	Degrees	N/A	If Probability > warning or alert value Then issue warning or alert	N/A		Actual dew point Probability	Operational Day split by Hour	APOC Supervisor	
Turbulence	Forecast Turbulence Probability of Turbulence	%	N/A	If Probability > warning or alert value Then issue warning or alert			Probability of Turbulence & location	Operational Day split by Hour	Tower Supervisor	MET07
Wind Shear	Forecast Wind Shear Probability of Wind Shear	%	N/A	If Probability > warning or alert value Then issue warning or alert			Probability of Wind Shear and location	Operational Day split by Hour	Tower Supervisor	MET07
Low level Temperature inversions	Forecast low level temperature inversion Probability of low level temperature inversion	Height in feet	N/A	If Probability > warning or alert value Then issue warning or alert			Probability of Low level Temperature inversions	Operational Day split by Hour	Tower Supervisor	MET07

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Cloud base height	Forecast Cloud base height Probability of Cloud base height	Height in feet	N/A	If Probability > warning or alert value Then issue warning or alert	N/A		Probability of Cloud base height	Operational Day split by Hour	Tower Supervisor	MET08
Cloud amount	Forecast Cloud amount Probability of Cloud amount	%	N/A	If Probability > warning or alert value Then issue warning or alert	N/A		Probability of Cloud amount	Operational Day split by Hour	Tower Supervisor	MET08
AIRFIELD CAPACITY										
Runway Arrival Capacity Shortage	• Planned Operational (Practical) Runway Arrival Capacity (resulting from internal automatic Airport-DCB optimization based on current runway configuration plan) • ELDT (best time principle based on SLDT, FUMs, AMAN times)	# Movements in a set time period	Runway Arrival Demand -Runway Arrival Capacity = x mvts	IF x ≥ warning or alert level THEN issue warning or alert			# movements	Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours	Tower Supervisor	AOM26

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
			Demand = ∑ELDT per time period Actual Times are for post ops only							
Runway Departure Capacity Shortage	• Planned Operational (Practical) Runway Departure Capacity (resulting from internal automatic Airport-DCB optimization based on current runway configuration plan) • ETOT (best time principle based on STOT, EOBT+EXOT, TOBT+EXOT, TSAT+EXOT)	# Movements in a set time period	Runway Departure Capacity – Runway Departure Demand = x mvts Demand = ∑ETOT per time period	IF x ≥ warning or alert level THEN issue warning or alert			# movements	Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours	Tower Supervisor	AOM26

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Total Airport Capacity Shortage	• Sum of Planned Operational (Practical) Runway Arrival and Departure Capacities (resulting from internal automatic Airport-DCB optimization based on current runway configuration plan) • ETOT (best time principle based on STOT, EOBT+EXOT, TOBT+EXOT, TSAT+EXOT • ELDT (best time principle based on SLDT, FUMs, AMAN times)	# Movements in a set time period	Total Airport Demand-Total Airport Capacity = x mvts Demand = ELDT+ETOT or ALDT+ATOT if available Demand =∑ELDT+∑ETOT	IF x ≥ warning or alert level THEN issue warning or alert			# movements	Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours	APOC Supervisor	AOM27

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Operational Departure Demand	EOBT/TOBT/AOBT ETOT/ATOT	# Movements in a set time period	Sum the E/T/AOBT for the given time period AND Sum the E/ATOT for the given time period FILTERED for duplicates based on Flight ID	N/A	N/A	N/A	# movements	Operational Day split by Hour	N/A	N/A
Operational Arrival Demand	EIBT/AIBT ELDT/ALDT	# Movements in a set time period	Sum the E/AIBT for the given time period AND Sum the E/ALDT for the given time period FILTERED for duplicates based on Flight ID	N/A	N/A	N/A	# movements	Operational Day split by Hour	N/A	N/A
Practical Airport Departure Capacity	• current runway configuration plan • current KPI trade-off setting	# Movements in a set time period	Refer to P 6.5.3 - Sum of departure capacities selected from current available airport capacity distributions (bottleneck) based on current runway configuration plan that satisfies current KPI trade-off setting best	N/A	N/A	N/A	# movements	Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours	N/A	N/A

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Practical Airport Arrival Capacity	• current runway configuration plan • current KPI trade-off setting	# Movements in a set time period	Refer to P 6.5.3 - Sum of arrival capacities selected from current available airport capacity distributions (bottleneck) based on current runway configuration plan that satisfies current KPI trade-off setting best	N/A	N/A	N/A	# movements	Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours	N/A	N/A
Practical Airport Capacity per runway	• current runway configuration plan • current KPI trade-off setting	# Movements in a set time period	Refer to P 6.5.3 - Runway capacities selected from current available airport capacity distributions (bottleneck) based on current runway configuration plan that satisfies current KPI trade-off setting best	N/A	N/A	N/A	# movements	Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours	N/A	N/A

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Total Practical Airport Capacity	• current runway configuration plan • current KPI trade-off setting	# Movements in a set time period	Refer to P 6.5.3 - Sum of arrival and departure capacities selected from current available airport capacity distributions (bottleneck) based on current runway configuration plan that satisfies current KPI trade-off setting best	N/A	N/A	N/A	# movements	Operational Day split by Hour Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours	N/A	N/A
Total Practical Runway capacity	• practical runway capacity distributions	# Movements in a set time period	Average value of sums of capacities of all possible runway capacity distributions in a set time period	N/A	N/A	N/A	# movements	Operational Day split by Hour AND next three hours split by 10, 15 or 20 minutes AND Rolling next 24 hours		

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Total Practical Apron Capacity	Estimate by experienced Ground Movement Supervisor.	# Movements in a set time period	N/A	N/A	N/A	N/A	# movements	Operational Day split by Hour	N/A	N/A
ARRIVAL										
Arrival Punctuality (Predictability)	SIBT EIBT AIBT	# Movements in a set time period	SIBT – AIBT = x min delay positive figure OR EIBT – SIBT = x min (if AIBT is not available)	Count # movements with x < 3minutes = y Count # movements with x < 15minutes = m y/total # arrivals= z % m/total # arrivals= n % if n and/or z ≥ warning or alert level then issue warning or alert			n & z %	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	AOM2 8+

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Arrival Delay Block	• SIBT (RBT data, not schedule) • EIBT • AIBT	minutes	AIBT – SIBT = x min OR EIBT – SIBT = x min (if AIBT is not available) Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	CDM16
Arrival Delay Runway	• SLDT (RBT data, not schedule) • ELDT • ALDT	minutes	ALDT- SLDT = x min OR ELDT – SLDT = x min (if ALDT is not available) Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	CDM??

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Air Holding Delay	EIAT / AIAT (Estimate / Actual stack entry) Estimate / Actual Stack exit (? ELDT / ALDT - min from stack)	minutes	Est. Stack Exit – EIAT = x min Actual Stack Exit – AIAT = x min (if actuals available) Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	Operational Day split by Hour	APOC Supervisor	CDM17
Apron DCB: Taxi Time In (AXIT / EXIT)	ALDT AIBT EXIT	minutes	AIBT – ALDT = x If actual times not available, then; x = EXIT = (EIBT-ELDT)	If x > warning or alert level Then issue warning or alert			X min	Operational Day split by Hour	Ground Control Supervisor	CDM15
TMA DCB: STAR Loading Balance	Declared STAR capacity SLDT / TLDT / ELDT / SIBT / TIBT whichever is available)	# flights	Actual Demand = # flights counted for each STAR (based on actuals) Declared STAR capacity – actual STAR demand = x	If x < warning or alert value. Then issue warning or alert			X # flights	Operational Day split by Hour	Tower Supervisor	AOM29

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Estimated In-Block Time (EIBT)	ELDT EXIT	HH:MM	EIBT = ALDT + EXIT If no ALDT available then EIBT = ELDT + EXIT	N/A	N/A	N/A	EIBT	N/A	N/A	N/A
Target In-Block Time (TIBT)	TLDT EXIT TXIT	HH:MM	TLDT + TXIT = TIBT only if no EIBT is available yet, value to check vs. SIBT	N/A	N/A	N/A	TIBT	N/A	N/A	N/A
Arrival Alert	Aircraft Flight Status – AIR for inbound flight X - adjustable value for each origin	Aircraft Flight Status	N/A	IF AIR message not received at EIBT-X Then issue warning or alert			message	N/A	AOC	CDM06
Diversion Alert	DIV ELDT EIBT	Minutes	If DIV is set, then ELDT & EIBT values [blanked] in AOP until update	If triggered then issue warning			CDM16A flag + message	N/A	AOC	CDM16
Indefinite Holding Alert	IDH TTA	[value]	If IDH is set, then ELDT & EIBT values to be blanked until update	If triggered then issue warning			CDM17A flag + message	N/A	AOC	CDM17

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Gate Conflict Alert	EIBT PKARR PKDEP TOBT	Minutes	Check if EIBT + PKARR combo “overlaps”” TOBT + PKDEP at same stand by x [P 6.5.2 calculation: at TOBT/TSAT –Y minutes, the departing aircraft (at stand) presents a TOBT or TSAT>EIBT (of the arriving aircraft) (Y is a adjustable value) at ALDT : TOBT(TSAT) > EIBT’ based on ALDT at TOBT/TSAT –X minutes, the departing aircraft (at stand) presents a TOBT or TSAT>EIBT (of the arriving aircraft) (X is a adjustable value)]	If x > [local value, -20 min] then issue warning			CDM18A flag + message	N/A	Stand Allocation Unit Supervisor	CDM18

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Inbound #pax / #bags Alert	Arrival Baggage Transfer Baggage Arrival Passengers Transfer Passengers	[value]	If AIR flight state is set, check [valid] values are in AOP, or X	If X, then issue alerts			AOM22 flag + message	N/A	AOC	AOM22
TURN										
Apron Demand	EIBT/AIBT EOBT/AOBT	# stands	# movements with E/AIBT within the time period - # movements with E/AOBT within the time period [Actual timestamps always take precedence over Estimates]	N/A	N/A	N/A	#	Operational Day split by Hour	N/A	N/A
Apron Capacity Shortage: Stand Occupancy[5]	# Available (not in use) Demand (# movements with TIBT within the time period)	# stands	# Available – Demand = x	If x < 0 Then issue warning or alert			X min	Operational Day split by Hour	APOC Supervisor	AOM30

5 This is designed as a leading indicator that contains an element of risk as it does not detail a/c type vs. multi-use stand scenarios. To do so would require defining an entire stand allocation resource tool – these are already available on the market and used in the industry.

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Apron Efficiency: Operational Use of Stands	# In Use Demand (# movements with TIBT within the time period) Total # stands	% available	# In Use / Total * 100 = y %	If y% < warning or alert level Then issue warning or alert			Y%	Operational Day split by Hour	APOC Supervisor	AOM30

Estimated Off-Block Time (EOBT)	TOBT
	TSAT
	SOBT
	AIBT
	MTTT6
		HH:MM	EOBT = TSAT
			If no TSAT available then
			EOBT = TOBT
			If no TOBT available then
			EOBT = SOBT if SOBT is > (AIBT+MTTT)
				N/A	N/A	N/A	EOBT	N/A	N/A	N/A

EOBT Discrepancy	EIBT MTTT EOBT	Minutes	EOBT – (EIBT + MTTT) = x min	If x > +10 or < -5 then issue warning	N/A		CDM07 flag + message	N/A	AOC	CDM07
TOBT Discrepancy	EIBT MTTT TOBT	Minutes	TOBT - (EIBT+MTTT) = x min	If x > [local value, 5 min] then issue warning	N/A		CDM07G flag + message	N/A	GH	CDM07a
AIBT + MTTT discrepancy with TOBT	AIBT MTTT TOBT	Minutes	TOBT - (AIBT+MTTT) = x min	If x > [local value, 5 min] then issue warning	N/A		flag + message	N/A	GH	

6 AU's are against MTTT or ETTT being used to make any assumptions about departure time. This calculation can only be used for warning/alert purposes.

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
EOBT Compliance Alert	EOBT EXOT CTOT	Minutes	(EOBT + EXOT) - CTOT = x min	If x > +10 or < -5 then issue then issue alert	N/A		CDM08 flag + message	N/A	NM	CDM08
Boarding Not Started	TOBT ASB(T)	Minutes	TOBT – ASBT = x min	If x > [local value] => 10, then issue alert	N/A		CDM09 flag + message	N/A	GH	CDM09
TOBT Rejected or Deleted	TOBT EOBT CTOT TTOT TSAT	Minutes	[algorithm under discussions in A-CDM HTF]	If x > [local value] <=5 and no TOBT update, then issue alert	N/A		CDM10 flag + message	N/A	GH	CDM10
Automatic TOBT Generation not Possible	EIBT MTTT	Minutes [value]	Check if EIBT & MTTT both have a [valid] value	If no valid value then issue alert	N/A		CDM14 flag + message	N/A	GH	CDM14
Non-In-block Alert	EIBT ALDT EXIT AIBT	Minutes	(ALDT+EXIT) – EIBT = x min, if no AIBT received	If x > [local value, 5 min] then issue warning	N/A		CDM15A flag + message	N/A	Ground Control Supervisor	CDM15
A-CDM (Flight Plan discrepancies) WARNINGS & ALERTS										
No Airport Slot Available, or Slot already correlated	SOBT ADST	Minutes	SOBT vs. ADST correlation; i.e. SOBT-ADST = x min	If x > [local value off-slot for that time bracket] or no ADST match, then issue alert	N/A		CDM01 flag + message	N/A	AOC	CDM01

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Aircraft Type discrepancy	ATYP ARCCOD	[value]	Compare ATYP vs. ARCCOD [AOP and NOP] for positive correlation (look-up table)	If no match, then issue alert	N/A		CDM03 flag + message	N/A	AOC	CDM03
Aircraft Registration discrepancy	REG	[value]	Compare REG value from AOP vs. REG value of flight plan	If no match, then issue alert	N/A		CDM04 flag + message	N/A	AOC	CDM04
First Destination discrepancy	ADES DEST	[value]	Compare ADES from NOP to DEST from AOP value	If no match, then issue alert	N/A		CDM05 flag + message	N/A	AOC	CDM05
DE-ICING										
Actual De-Icing Duration Time (ADIT)	AEZT ACZT	Minutes	AEZT – ACZT= ADIT	N/A	N/A	N/A	ADIT	N/A	N/A	N/A
Estimated Commencement of De-icing Time (ECZT)	ERZT De-Icing Position	HH:MM	If De-Icing Position is On-stand: ECZT = TOBT - EDIT. If De-Icing Position is remote: ECZT = TTOT/CTOT - EXOT - EDIT	N/A	N/A	N/A	ECZT	N/A	N/A	N/A
Estimated De-icing Time Duration (EDIT)	EDIT as provided by the Di-Icing Management Tool	Minutes	If a DIMT is not in use, refer to the EDIT look up table)	N/A	N/A	N/A	EDIT	N/A	N/A	N/A
Estimated End of De-icing Time (EEZT)	ECZT EDIT	HH:MM	ECZT + EDIT = EEZT	N/A	N/A	N/A	EEZT	N/A	N/A	N/A

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Operational Remote De-Icing Capacity	De-Icing Position	# a/c in a set time period	Sum the # a/c allocated/planned for a remote De-Icing position	N/A	N/A	N/A	# a/c	Operational Day split by Hour	N/A	N/A
Operational On-stand De-Icing Capacity	De-Icing Position	# a/c in a set time period	Sum the # a/c allocated/planned for on-stand or near-stand De-Icing position	N/A	N/A	N/A	# a/c	Operational Day split by Hour	N/A	N/A
De-Icing Hold Over time adherence	ETOT ACZT HOT (Holdover Time)	Minutes	ETOT – ACZT = x min	If x > De-Icing Hold over time Then issue warning or alert			Minutes	Operational Day split by Hour	Ground Control Supervisor	
Flight not compliant with TOBT for de-icing	TOBT ECZT	Minutes	TOBT – ECZT = x min for on-stand de-icing	If x > [local value, 5 min] then issue alert	N/A		CDM14 flag + message	N/A	GH	CDM11
Stand De-Icing Waiting Time	DIWT	Minutes	DIWT = x min = average [ACZT – ARZT]	If x > [local value, 5 min] then issue warning, if larger 10 min then issue alerts			AOM23 flag + message	N/A	GH / AOC	AOM24

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Remote De-Icing Waiting Time	DIWT	Minutes	DIWT = x min = average [ACZT – ARZT]	If x > [local value, 5 min] then issue warning, if larger 10 min then issue alerts			AOM23 flag + message	N/A	Ground Control Supervisor / AOC	AOM25
DEPARTURE										
Departure Punctuality (Predictability)	• SOBT • estimated off-block time EOFB, best time principle EOBT, TOBT, TSAT) • AOBT	# Movements in a set time period	AOBT-SOBT = x min OR EOFB – SIBT = x min (if AOBT is not yet available)	Count # movements with x < 3minutes = y Count # movements with x < 15minutes = m y/total # arrivals= z % m/total # arrivals= n % if n and/or z ≥ warning or alert level then issue warning or alert			n & z %	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	AOM
Departure Delay Block	• SOBT (RBT data, not schedule) • estimated off-block time EOFB, best	minutes	AOBT- SOBT = x min OR EOFB – SOBT = x min (if AOBT is not available)	Peak: if x is > warning or alert value. Average: if y is > warning or alert value.			Peak: x Average: y	rolling per hour with update every 10,15 or 20	APOC Supervisor	CDM

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
	time principle EOBT, TOBT, TSAT) • AOBT		Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Then issue warning or alert				minutes starting one hour in the past until 24h forecast, display entire day		
Departure Delay Runway	• SLDT (RBT data, not schedule) • ETOT (best time principle based on STOT, EOBT+EXOT, TOBT+EXOT, TSAT+EXOT • AOBT	minutes	ALDT- SLDT = x min OR ELDT – SLDT = x min (if ALDT is not available) Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	CDM

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Departure Delay	SOBT EOBT AOBT	minutes	SOBT – EOBT = x min If AOBT available then SOBT – AOBT = x min Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	Operational Day split by Hour	APOC Supervisor	AOM31
SOBT vs. EOBT discrepancy	SOBT EOBT	Minutes	EOBT-SOBT = x min	If x > +10 or < -5 then issue alert	N/A		CDM02 flag + message	N/A	AOC	CDM02
Flight not Compliant with TOBT/TSAT	TOBT TSAT ASRT	Minutes	algorithm under discussions in A-CDM HTF]	If x > [local value] <=5 and no TOBT update, then issue alert	N/A		CDM11 flag + message	N/A	GH	CDM11
TSAT not respected by ATC	TSAT ASRT ASAT	Minutes	ASRT – TSAT = x min ASAT – TSAT = y min	If x <= +/- 5 AND y => +5 then issue alert	N/A		CDM12 flag + message	N/A	Tower Supervisor	CDM12
No ATC Flight Plan Available	tbd	[value]	Correlation AOP vs.NOP	If no match, then issue alert	N/A		CDM13 flag + message	N/A	AOC	CDM13
Missed TSAT Alert: update TOBT	TSAT ASRT TOBT	Minutes	ASRT – TSAT = x min	If x > [local value, 5 min] then issue alert	N/A		CDM19A flag + message	N/A	GH	CDM19

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
TTA Alert	TTA ETA (NOP)	Minutes	TTA – ETA = x min	If x > [local value, 5 min] then issue alert	N/A		AOM23 flag + message	N/A	AOC	AOM23
TOBT Update Alert	# TOBT updates made	#	N/A	If the # of TOBT updates > warning or alert value. Then issue warning or alert	N/A		#		GH	
On stand Delay (start up delay)	TOBT ASAT TSAT	minutes	IF ASAT not available then use TSAT	If ASAT > TOBT – warning or alert value Then issue warning or alert			X min	5, 10 & 15 min	APOC Supervisor	CDM11
Apron DCB: Taxi Time Out (AXOT/EXOT)	AOBT / EOBT ATOT / TOTT TSAT EXOT	minutes	AOBT – ATOT = x If actuals not available then EXOT	If x > warning or alert level Then issue warning or alert			X min	Operational Day split by Hour	APOC Supervisor	AOM31

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Runway Efficiency: Runway Occupancy Time	Line up clearance given (time) ATOT	seconds	ATOT – line up clearance time = x Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	No warnings or alerts. For Post Operations: Perhaps for flight by flight where flight exceeds target ROT by % margin	N/A	N/A	Peak: x min Average: y	Per flight	N/A	N/A
Departure Separation	Actual achieved departure spacing Declared spacing DMAN Operational spacing	Distance (NM) or Time (MM:SS)	Declared / Operational – Actual = x	No warnings or alerts. For Post Operations: Perhaps for flight by flight where flight exceeds target separation by % margin	N/A	N/A	X (MM:SS)	By Aircraft type Hour	N/A	N/A
CTOT Compliance	ATOT CTOT	%	ATOT – CTOT = x min If: – 5 min > x < 10 min Then: count as 1 Sum of count = y (total – y)/total*100 = z%	If z% > warning or alert level Then issue warning or alert	N/A	N/A	z%	Operational Day split by Hour	N/A	N/A

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Non-Airborne Alert	ATOT TTOT ETOT	Minutes	If actual time is TTOT+10 (or local value) and no ATOT set	If x then issue warning			CDM06 flag + message	N/A	AOC	CDM06
TTOT Accuracy	TTOT ATOT	minutes	TTOT – ATOT = x	If x > warning or alert value. Then issue warning or alert	N/A	N/A	X min	Per flight	N/A	N/A
TSAT Accuracy	TSAT ASAT	minutes	TSAT – ASAT = x P 6.5.2 calculation: alert if no Off-Block (AOBT) at TSAT + tolerance takes place. (tolerance is an adjustable value)	If x > warning or alert value. Then issue warning or alert	N/A	N/A	X min	Per flight	N/A	N/A
TOBT Accuracy	TOBT Ready Call Time	minutes	TOBT – Ready Call Time = x	If x > warning or alert value. Then issue warning or alert	N/A	N/A	X min	Per flight	N/A	N/A
TMA DCB: SID Loading Balance	Declared SID capacity SOBT / TOBT / TSAT (whichever is available)	# flights	Actual Demand = # flights counted for each SID (based on actuals) Declared capacity – actual SID demand = x	If x < warning or alert value. Then issue warning or alert			X # flights	Operational Day split by Hour	Tower Supervisor	AOM29

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Estimated Take-Off Time (ETOT)	EOBT EXOT	HH:MM	EOBT + EXOT = ETOT	N/A	N/A	N/A	ETOT	N/A	N/A	N/A
Target Take-Off Time (TTOT)	TSAT EXOT	HH:MM	TSAT + EXOT = TTOT	N/A	N/A	N/A	TTOT	N/A	N/A	N/A
COMBINED										
Overall Punctuality (Predictability)	• 3min arrival punctuality • 3 min departure punctuality • 15min arrival punctuality • 15 min departure punctuality	%	Average of arrival and departure punctuality (3 and 15 min)	If percentage of punctual flights ≤ warning or threshold value then issue warning or alert			%	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	AOM

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Overall Delay Block	• average departure delay block • average arrival delay block • # arrivals • # departures	minutes	weighted average of arrival and departure delay (#departures*departure delay+#arrivals*arrival delay)/(#arrivals+#departures)	if overall average delay above warning or alert threshold issue warning or alert			%	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	AOM
Overall Delay Block	• average departure delay runway • average arrival delay runway • # arrivals • # departures	minutes	weighted average of arrival and departure delay (#departures*departure delay+#arrivals*arrival delay)/(#arrivals+#departures)	if overall average delay above warning or alert threshold issue warning or alert			%	rolling per hour with update every 10,15 or 20 minutes starting one hour in the past until 24h forecast, display entire day	APOC Supervisor	AOM
POST OPERATIONAL										

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Knock-on Effect: Flight Cancellations	# Flights Cancelled	No (or %) cancelled flights	Count for set time periods	N/A	N/A	N/A	# Flights Cancelled	Operational Day split by Hour	N/A	N/A
Landing Delay	ELDT ALDT	minutes	ALDT – ELDT = x min Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	Operational Day split by Hour	APOC Supervisor	AOM3 1
Take-Off Delay	ETOT ATOT	minutes	ATOT – ETOT = x min Peak: x value that is the largest of the data set being analyzed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	Operational Day split by Hour	APOC Supervisor	AOM3 1

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level3	Alert Level 4	Display	Time periods	Assigned Stakeholder	War-ning / Alert Code
Taxi In Delay	EXIT AXIT	minutes	AXIT – EXIT = x min Peak: x value that is the largest of the data set being analyzed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	Operational Day split by Hour	APOC Supervisor	AOM31
Taxi Out Delay	EXOT AXOT	minutes	AXOT – EXOT = x min Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	Peak: if x is > warning or alert value. Average: if y is > warning or alert value. Then issue warning or alert			Peak: x Average: y	Operational Day split by Hour	APOC Supervisor	AOM31

Post Ops Timeframe (excluding Actuals to be shown during the Execution Timeframe)

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level[7]	Alert Level[8]	Display	Time periods	Assigned Stakeholders	Warning / Alert Code
AIRFIELD CAPACITY										
Total Ultimate Airport Capacity	Ultimate Runway Capacity Ultimate Apron (stand) Capacity	# Movements in a set time period	If: Ultimate Runway Capacity > Ultimate Apron (stand) Capacity Then: = Ultimate Apron (stand) Capacity Else: = Ultimate Runway Capacity	N/A	N/A	N/A	# movements	Operational Day split by Hour	N/A	N/A
Ultimate Runway Capacity	Actual # arrival movements on the runway Actual # departure movements on the runway	# Movements in a set time period	Actual # total movements on the runway	N/A	N/A	N/A	# movements	Operational Day split by Hour	N/A	N/A
ARRIVAL										

7 Expected to be reviewed on a regular basis by the Airport Performance Steering Service
8 Expected to be reviewed on a regular basis by the Airport Performance Steering Service

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level7	Alert Level8	Display	Time periods	Assigned Stakeholders	Warning / Alert Code
Runway Efficiency: Runway Occupancy Time	ALDT Exit Runway (Actual)	seconds	Exit Runway time – ALDT = x Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	No warnings or alerts. For Post Operations: Perhaps for flight by flight where flight exceeds target ROT by % margin (If x/target*100 > warning or alert)	N/A	N/A	Peak: x min Average: y	Per flight	N/A	N/A
Arrival Separation	Actual achieved arrival spacing Declared spacing AMAN Operational spacing	Distance (NM) or Time (MM:SS)	Declared / Operational – Actual = x	No warnings or alerts. For Post Operations: Perhaps for flight by flight where flight exceeds target separation by % margin (If x/target*100 > warning or alert)	N/A	N/A		By Aircraft type Hour	N/A	N/A
TURN										

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level7	Alert Level8	Display	Time periods	Assigned Stakeholders	Warning / Alert Code
Apron Turnaround Delay (Predictability)	ATTT STTT	minutes	STTT – ATTT = x	If x > warning or alert level Then issue warning or alert	N/A	N/A	X min	Per flight	N/A	N/A
Actual Turn-round Time (ATTT)	AIBT AOBT	minutes	AOBT – AIBT = ATTT	N/A	N/A	N/A	ATTT	N/A	N/A	N/A
DEPARTURE										
Departure Punctuality (Predictability)	SOBT AOBT	# Movements in a set time period	AOBT – SOBT = x	Count # movements with x < warning or alert level = y Then y/total # movements*= z %	N/A	N/A	y & z %	3 & 15 min	N/A	N/A
Departure Punctuality – due to regulations (Predictability)	SOBT TSAT	# Movements in a set time period	TSAT – SOBT = x	Count # movements with x < warning or alert level = y Then y/total # movements*= z %	N/A	N/A	y & z %	3 & 15 min	N/A	N/A

KPI / PDI	Inputs	Metric	Calculate Value	Rule for KPI Comparison	Warning Level7	Alert Level8	Display	Time periods	Assigned Stakeholders	Warning / Alert Code
Runway Efficiency: Runway Occupancy Time	Line up clearance given (time) ATOT	seconds	ATOT – line up clearance time = x Peak: x value that is the largest of the data set being analysed Average: sum all x values/ total number of values = y	No warnings or alerts. For Post Operations: Perhaps for flight by flight where flight exceeds target ROT by % margin	N/A	N/A	Peak: x min Average: y	Per flight	N/A	N/A
Departure Separation	Actual achieved departure spacing Declared spacing DMAN Operational spacing	Distance (NM) or Time (MM:SS)	Declared / Operational – Actual = x	No warnings or alerts. For Post Operations: Perhaps for flight by flight where flight exceeds target separation by % margin	N/A	N/A	X (MM:SS)	By Aircraft type Hour	N/A	N/A
POST OPERATIONAL										
Knock-on Effect: A/C changes	# ATV amendments	No (or %) a/c changes	Count	N/A	N/A	N/A	# ATV amendments		N/A	N/A

Appendix C List of Warnings / Alerts message codes

Warning Code	Alert Code	Description	Message Text
	CDM01	No Airport Slot Available, or Slot already correlated	Flt ID/CDM01/Timestamp/ADEP Airport Slot SOBT not available or Slot already correlated. Immediate update of ATC Flight Plan EOBT or request new Airport Slot.
	CDM02	SOBT vs. EOBT discrepancy	FLT ID/CDM02/Timestamp/ADEP ATC Flight Plan EOBT is not consistent with Airport Slot SOBT. Immediate update of Airport Slot or ATC Flight Plan EOBT needed.
	CDM03	Aircraft Type discrepancy	FLT ID/CDM03/Timestamp/ADEP Aircraft Type inconsistency between ATC Flight Plan and Airport Database. Immediate update of ATC Flight Plan or Airport Database needed.
	CDM04	Aircraft Registration discrepancy	FLT ID/CDM04/Timestamp/ADEP Aircraft Registration inconsistency between ATC Flight Plan and Airport Database. Immediate update of ATC Flight Plan or Airport Database needed.
	CDM05	First Destination discrepancy	FLT ID/CDM05/Timestamp Destination inconsistency between ATC Flight Plan and Airport Database. Immediate update of ATC Flight Plan or Airport Database needed.
CDM06		Non-Airborne Alert	FLT ID/CDM06/Timestamp/ADEP No information that inbound flight is airborne, SIBT / EIBT might not be respected. Check outbound flight and ATC Flight Plan and update if required.
CDM07		EIBT + MTTT discrepancy with EOBT	FLT ID/CDM07/Timestamp/ADEP EIBT of inbound FLT ID + MTTT is not consistent with outbound ATC Flight Plan EOBT. Check outbound flight and ATC Flight Plan and update if required.
CDM07a		EIBT + MTTT discrepancy with TOBT	Outbound flight, with GH/AO confirmed TOBT, projected NOT to be able to respect TOBT based on [EIBT + MTTT] projection for that flight; CDM07A alert raised to GH/AO to provide updated TOBT.
	CDM08	EOBT Compliance Alert	FLT ID/CDM08/Timestamp/ADEP Received TOBT is out of ATC Flight Plan EOBT tolerance window. Immediate update of ATC Flight Plan EOBT needed.
	CDM09	Boarding Not Started	FLT ID/CDM09/Timestamp/ADEP At TOBT – <local parameter> boarding was not initiated. Update TOBT if needed
	CDM10	TOBT Rejected or Deleted	FLT ID/CDM10/Timestamp/ADEP TOBT was rejected or deleted. A new TOBT is required.
	CDM11	Flight not Compliant with TOBT/TSAT	FLT ID/CDM11/Timestamp/ADEP Flight not compliant with TOBT/ TSAT. This flight will be re-sequenced on receipt of new TOBT

Warning Code	Alert Code	Description	Message Text
	CDM11a	Flight not compliant with TOBT for de-icing	Outbound flight [projected] not to be compliant with confirmed TOBT for de-icing, triggered if flight at TOBT/ECZT is not yet ready for on-stand de-icing; CDM11a alert raised to GH/AO to update or cancel TOBT.
CDM12		TSAT not respected by ATC	FLT ID/CDM12/Timestamp/ADEP At TSAT plus tolerance aircraft has not been granted start up or push-back. This flight needs to be re-sequenced.
	CDM13	No ATC Flight Plan Available	FLT ID/CDM13/Timestamp/ADEP The ATC Flight Plan is not available. Submission of new ATC Flight Plan needed.
	CDM14	Automatic TOBT Generation not Possible	FLT ID/CDM14/Timestamp/ADEP The TOBT could not be automatically generated because it does not match with the associated CTOT. Manual input of TOBT required.
CDM15		Non-In-block Alert: Update Outdated In-Block Time	Inbound flight expected in-blocks after ALDT received by AOP, but no AIBT received at [ALDT + EXIT]; Non-In-block Alert raised to Apron Control to provide updated EIBT / manual AIBT.
CDM16		Diversion Alert: Provide new estimate landing time	Inbound flight disrupted for unforeseen reason such as forced-return, en-route diversion etc; ELDT & EIBT become unknown [blanked in AOP]; Diversion Alert raised to GH/AO to provide new ELDT.
CDM17		Indefinite Holding Alert: prepare for diversion	Inbound flight unable to continue approach to FNL and starts holding with unknown Target Time of Arrival for Final Approach; Indefinite Holding Alert raised to GH/AO to coordinate with Flight Crew on recommended diversion airport.
	CDM18	Gate Conflict Alert: Solve gate conflict	Inbound flight [projected] unable to go in-blocks because assigned parking position is still occupied by previous Outbound flight for some reason; Gate Conflict Alert raised to Apron Control to update EIBT and/or assigned parking position.
	CDM19	Missed TSAT Alert	Outbound flight, based on its TOBT, expected to be ready for start-up, but no ASRT received before TSAT + 5 min; Missed TSAT alert raised to GH/AO to provide new TOBT, in order to be re-sequenced.
AOM22	AOM22a	Inbound #pax / #bags Alert	For Inbound flight, ultimately after AIR flight state from arrival airport is reached, the actual number of passengers & checked-in bags [and specification for destination of transfer] should be provided to the AOP of the destination airport; Pax/Bag alert raised to AO and GH(s) to update AOP with required information.
AOM23	AOM23a	TTA Alert	Inbound flight TTA [projected] not to be achieved due to some en-route reason(s), based on info from AO/flight crew; TTA alert raised to NM to update TTA based on en-route ANSP latest estimate
AOM24	AOM24a	Stand De-Icing Waiting Time Alert	Average stand de-icing waiting time exceeds the performance threshold.

Warning Code	Alert Code	Description	Message Text
AOM25	AOM25a	Remote De-Icing Waiting Time Alert	Average remote de-icing waiting time exceeds the performance threshold.
AOM26	AOM26a	Runway Capacity Shortage (ARR/DEP)	Runway capacity for arrivals or departure exceeded by demand
AOM27	AOM27a	Airport Capacity Shortage	Airport capacity exceeded by actual demand
AOM28	AOM28a	Arrival Punctuality	Arrival Punctuality below the performance threshold.
AOM29	AOM29a	SID/STAR Loading Balance	Demand for SID or STAR routes exceeds capacity.
AOM30	AOM30a	Apron Capacity Shortage	Demand for stand occupancy exceeds apron capacity
AOM31	AOM31a	Airport Efficiency Reduced	In air or on ground holding is indicating in-efficiencies of the operation and/or poor adherence to plans. This is increasing costs to Airspace Users and reduced Environmental performance of the airport. Expect compounding impact on operations and on-time performance.
MET01	MET01a	Wind Direction variance	The prevailing or forecast wind direction is significantly different to nominal conditions and may require a runway change to ensure safety
MET02	MET02a	Wind Speed variance	The prevailing or forecast wind speed is significantly different to nominal conditions a likely to be impacting runway utilisation.
MET03	MET03a	Reduced Visibility	The prevailing or forecast visibility is reduced and may be impacting operations.
MET04	MET04a	Precipitation Alert (Rain, Showers, Freezing Rain, Snow)	The prevailing conditions or forecast reflects precipitation that may impact operations.
MET05	MET05a	Temperature – High	The prevailing conditions or forecast reflects temperatures which may impact aircraft take-off performance.
MET06	MET06a	Temperature - Low	The prevailing conditions or forecast reflects temperatures which may require anti-icing or de-icing of aircraft and airfield surfaces.
MET07	MET07a	Adverse operational conditions (Thunderstorms /CB/Lightening, Turbulence, Wind shear, Low Level Temperature Inversions)	The prevailing or forecast weather conditions indicate adverse operational conditions. Conditions may result in diversions, holdings or go-arounds; non-standard routing; evacuation of personnel from the Ramp area.
MET08	MET08a	Cloud Alert	The prevailing or forecast weather conditions indicate a cloud height and amount (coverage) that may impact VFR or Cat I operations.

Table 1. Warning and Alert Codes and Descriptions

Appendix D

D.1 UC's for Long Term Planning Phase OS

D.1.1 UC 601(a). Establish agreed Performance Indicators and associated thresholds for alerts and warnings

UC 601(a). Establish agreed Performance Indicators and associated thresholds for alerts and warnings	
Item	**Specification**
Purpose	This Use Case comprises the establishment of mutually agreed thresholds for the Performance Framework Key Performance Indicators (KPIs), Performance Driver Indicators (PDIs) and other indicators on which the Airport Performance Monitoring Service is based. The airport stakeholders deliberate in a collaborative manner on the newly proposed thresholds. This includes alignment with already existing and/or aggregated thresholds to make sure that there is no conflict (i.e. they are unambiguous in interpretation and understanding). Each airport stakeholder can initiate this Use Case to set or update Performance Baseline indicators and associated thresholds for alerts and warnings.
Stakeholders	**Airport Performance Steering Administrator (or Chairperson)** – i.e. the person that coordinates and/or facilitates stakeholder meetings in order to undertake the decision-making required in the Airport Performance Steering Service. This person also maintains communication with the Post Operations Analysis Service (role), the Airport Performance Monitoring (role) and the Airport Performance Management (role). **Airport Performance Steering Committee** – i.e. the group of stakeholders that undertake the decision-making required in the Airport Performance Steering Service. The Committee consists of relevant stakeholders at the airport including representatives from the Airport Operator, the ANSP and the Airline Operating Committee9. Other stakeholders that may be included are the Network Manager, the MET provider, de-icing agent(s), ground handler(s) and the National Supervisory Authority or regulator (NSA).
Input	• Existing Performance Measures • Existing Performance Targets • Applicable Performance Regulations e.g. RP1/RP2
Output	• Commonly agreed Performance Measures, their targets (alert levels) and warning levels
Control Constraint	• Performance indicators and thresholds
Pre-condition	• Commonly agreed list of involved stakeholders is available • Stakeholder(s) strategy and expectations are developed
Post-condition	• Commonly agreed set of conflict-free performance indicators and thresholds • The results of this Use Case are recorded or stored in the Airport Performance Monitoring System

[9]The Airline Operating Committee (AOC) is an existing body in most airports, which consists of representatives from all of the airlines (Airspace Users) operating at the airport. The committee has an AOC Chair that is elected by the members of the committee. In some cases, there are also AOCs for each terminal to address terminal-specific topics.

UC 601(a). Establish agreed Performance Indicators and associated thresholds for alerts and warnings	
Item	**Specification**
Process Flow	1. The airport stakeholders appoint an administrator for this Use Case 2. The administrator collects and collates all existing key performance measures currently used at the airport, including all existing key performance targets currently in use or applicable at the airport 3. The administrator sends the key performance measures and key performance targets to the Airport Performance Steering Committee 4. The Airport Performance Steering Committee agrees which existing key performance measures and key performance targets will continue to be used 5. The Airport Performance Steering Committee proposes and agrees any new key performance measures to be used in the future; and agrees key performance targets to be used in the future 6. The Airport Performance Steering Committee agrees the warning level to be applied for each key performance measure to be used in the future 7. The Airport Performance Steering Committee sends the key performance measures and key performance targets that will be used in the future, including the warning levels applied, to the administrator 8. The administrator collates the list of key performance measures that will be used in the future, their associated targets and the warning levels to be applied 9. The administrator sends the list of key performance measures that will be used in the future, their associated targets and the warning levels to be applied, to the Airport Performance Monitoring System administrator 10. The Airport Performance Monitoring System administrator updates the key performance measures, their associated target (alert) and warning levels in the Airport Performance Monitoring System 11. The Airport Performance Monitoring System administrator also updates the Airport Performance Management service and the Post-Operations Analysis service
Alternative Flow	None

D.1.2 UC 601(b). Establish or review local airport performance targets

UC 601(b). Establish or review local airport performance targets	
Item	**Specification**
Purpose	This Use Case comprises the establishment of a mutually agreed Performance Baseline (targets). The airport stakeholders deliberate in a collaborative manner on the newly proposed performance targets. This includes alignment with other related performance targets and ensures that they are unambiguous and practicable. Each airport stakeholder can initiate this Use Case to set or update the Performance Baseline targets.
Stakeholder	Airspace users, airport operator, ANSP, ground handler(s), the network manager and AOP Supervisor
Input	• Draft specification performance targets
Output	• Specification of commonly agreed performance targets
Control Constraint	• Performance targets
Pre-condition	• Commonly agreed list of involved stakeholders is available • Stakeholder(s) strategy and expectations are developed
Post-condition	• Commonly agreed unambiguous and practicable performance targets • The results of this Use Case are recorded or stored in the AOP • The Performance Baseline is set for the coming season
Process Flow	1. The airport stakeholders appoint a coordinator for this Use Case 2. The coordinator receives a formal request to set or update a performance target in the Performance Framework baseline from one or more stakeholders[10] 3. The coordinator checks if the request complies with the pre-defined quality rules (e.g. properties, support, motivation) 4. In case there is a failure at this point, the coordinator defers the request until compliance is reached, or aborts on withdrawal 5. If the request complies with the quality rules, the coordinator notifies all relevant stakeholders about the request and asks them to commit to it 6. The coordinator waits on the reasoned votes of the relevant stakeholders 7. The coordinator moves to the waiting state 8. If the relevant stakeholders all vote in favour of the requested performance target, the request is approved and confirmed. The Performance Baseline is then updated accordingly 9. In case that some of the relevant stakeholders vote against the new performance target, the request is postponed 10. The coordinator investigates the arguments and starts a discussion with the relevant stakeholder in order to find a mutually agreeable solution 11. In the event that the coordinator succeeds and a mutually agreed performance target is established, the request is approved and confirmed. The Performance Baseline is then updated accordingly in the AOP; otherwise the request is aborted 12. All stakeholders at the airport will be notified of the updated performance target
Alternative Flow	None

[10] Can be any airport stakeholder, including the airport operator or coordinator.

D.1.3 UC 603. Establish preferred airport operational configurations

UC 603. Establish preferred airport operational configurations	
Item	**Specification**
Purpose	This Use Case comprises the establishment of the preferred airport operational configurations and their associated implementation. The selected operational configuration has a direct influence on airport capacity in certain circumstances.
Stakeholder	Airport Operator
Input	• Available infrastructure • constraining factors (e.g. terrain& topography, prevailing wind direction, environmental restrictions, etc.)
Output	• Diverse operational configurations
Control Constraint	• Performance rules
Pre-condition	• Approved Infrastructure • Clearly defined constraints
Post-condition	• Commonly agreed set of operational configurations (e.g. night curfew, runway combinations for certain wind direction, stand classifications) • The results of this Use Case are recorded or stored in the AOP
Process Flow	1. The airport operator collects all available data on infrastructure and constraints 2. The airport operator evaluates all available resources 3. The airport operator determines operational configurations according to resources 4. The operational configurations must be checked against common published aviation rules and standards (IATA, ICAO, etc.) 5. The operational rules will be published for all stakeholders 6. All stakeholders must agree to follow the operational requirements 7. In the case of a stakeholder revealing a discrepancy, the relevant operational configuration must be revised by the airport operator
Alternative Flow	None

D.1.3a UC 653 05. Define Standard Capacity Values – Look-up tables

UC 653 05. Define Standard Capacity Values – Look-up tables	
Item	**Specification**
Purpose	This Use Case describes how the Standard Capacity Values for different operating conditions (look-up table) are generated for use by the system. Determination takes place during the Midterm planning phase (well before 7 days before day of operation).
Stakeholder	- ANSP experts – wants to determine the standard capacity value for each possible runway / taxiway configuration and operating condition readily available in the Airport-DCB system - Airport Operator experts – Wants to know the impact of planned maintenance work on runway and taxiway capacity
Input	• Available infrastructure, operating rules and conditions
Output	• Capacity Look-up tables
Control Constraint	• Performance Rules
Pre-condition	• All possible runway configurations and restrictions are known. • All possible taxiway configurations and restrictions are known. • All planned runway and taxiway maintenance work is known.
Post-condition	• The Look-up table is filled with standard capacity values for each possible combination of runway/taxiway configuration and operating condition as also for those remaining runway/taxiway configurations when maintenance work is in progress.
Process Flow	**Trigger** The Use Case starts when a (new / updated) look-up table for standard capacity values needs to be made. **Main Flow** 1. The Experts checks the availability of all input needed to perform an airside (runways and taxiways) simulation study. 2. The Experts performs a simulation for a combination of runway/taxiway configuration and operating condition for a given traffic sample (distribution related to arrival/departure, aircraft size – Heavy/Medium/Light etc). 3. The simulation tool determines for the combination of runway/taxiway configuration and operating condition the associated KPI delay value as also the number of movements (arrivals/departures) per time frame – often 1 hour. 4. If the KPI delay value is below the target (threshold) the Experts gradually increases the traffic volume, the simulation is repeated and KPI recalculated. 5. The iterative process stops when the KPI delay value is (almost) equal to the threshold. 6. Number of movements (arrivals/departures) per time frame (often 1 hour) associated with that KPI value is the capacity value for that specific combination of runway/taxiway configuration and operating condition. 7. The capacity value is entered in the Look-up table 8. The Use case ends when for each possible combination of runway/taxiway configuration and operating condition the associated capacity value has been determined, otherwise the use case continues again at step (2)

UC 653 05. Define Standard Capacity Values – Look-up tables	
Item	**Specification**
Alternative Flow	**Alternative to Step (2):** The experts want to input manually (no simulation) the capacity value for the combination of runway/taxiway configuration and operating condition. 9. In coordination with operational experts (often the Airport Tower Supervisor) the capacity value for a combination of runway/taxiway configuration and operating condition is determined based on operational judgement. 10. The capacity value is entered in the Look-up table. 11. The Use case ends when for each possible combination of runway/taxiway configuration and operating condition the associated capacity value has been determined, otherwise the use case continues again at step (9).

D.1.4 UC 608. Planning for the management of external issues (adjacent airport operations)

UC 608. Planning for the management of external issues (adjacent airport operations)	
Item	**Specification**
Purpose	This Use Case comprises the involvement of external issues in performance planning. If there is a potential interference or conflict between adjacent airports, the integration of the ATM system must be maintained.
Stakeholder	Airport Operator, ANSP
Input	• Available airspace capacity, other constraining factors (e.g. adjacent airports, military training areas, etc.)
Output	• Operational limitations to performance
Control Constraint	• Performance rules
Pre-condition	• Clearly defined airspace capacity and flight routes
Post-condition	• Commonly agreed performance criteria for the local airspace • The results of this Use Case are stored in the AOP
Process Flow	1. The airport operator and local ANSP collect all possible data on capacity and constraints 2. The airport operator and local ANSP evaluate all available resources 3. The airport operator and local ANSP determine external limitation issues 4. The operational limitations must be checked against common published aviation rules and standards (IATA, ICAO, etc.) 5. The limiting external issues will be published for all stakeholders 6. All stakeholders must agree to follow these external limitations 7. In the case of a stakeholder revealing a discrepancy, the relevant limiting issue must be revised by the airport operator and local ANSP
Alternative Flow	None

D.1.5 UC 610. Establish pre-seasonal capacity declaration

UC 610. Establish pre-seasonal capacity declaration	
Item	**Specification**
Purpose	This Use Case comprises the establishment into the AOP of mutually agreed performance capacity values. The airport stakeholders deliberate in a collaborative manner on the newly proposed performance values, regarding pre-seasonal capacity declaration. This includes alignment with other related performance targets and ensures that they are unambiguous and practicable. Each airport stakeholder and outputs from Airport-DCB can initiate this Use Case.
Stakeholder	Airspace users, airport operator, ANSP, ground handler(s), the network manager and AOP Supervisor
Input	• Draft specification performance capacity values, taking Airport-DCB into account
Output	• Specification of commonly agreed capacity values
Control Constraint	• Performance targets
Pre-condition	• Commonly agreed list of involved stakeholders is available • Stakeholder(s) strategy and expectations are developed
Post-condition	• Commonly agreed unambiguous and practicable capacity values and the influence on associated performance targets • The results of this use case are recorded or stored in the AOP • Performance baseline is set for the coming season
Process Flow	1. The airport stakeholders appoint a coordinator for this Use Case 2. The coordinator receives a formal request to set or update a performance target (capacity values) in the Performance Framework baseline from one or more stakeholders[11] 3. The coordinator checks if the request complies with the pre-defined quality rules (e.g. properties, support, motivation) 4. If there is a failure at this point, the coordinator defers the request until compliance is reached, or aborts on withdrawal 5. If the request complies with the quality rules, the coordinator notifies all relevant stakeholders about the request and asks them to commit to it 6. The coordinator waits on the reasoned votes of the relevant stakeholders 7. The coordinator moves to the waiting state 8. If the relevant stakeholders all vote in favour of the requested capacity values and the impact on the associated performance targets, the request is approved and confirmed. The Performance Baseline is then updated accordingly 9. If some of the relevant stakeholders vote against the new performance target, the request is postponed 10. The coordinator investigates the arguments and starts a discussion with the relevant stakeholder in order to find a mutually agreeable solution 11. In the event that the coordinator succeeds and mutually agreed capacity values and the impact on associated performance values are established, the request is approved and confirmed. The Performance Baseline is then updated accordingly in the AOP; otherwise the request is aborted 12. All stakeholders at the airport will be notified of the updated capacity values and the associated performance targets
Alternative Flow	None

[11] Can be any airport stakeholder, including the airport operator or coordinator.

D.1.6 UC PSS 01. Establish performance rules

UC PSS 01. Establish performance rules	
Item	**Specification**
Purpose	This Use Case describes the establishment of mutually agreed performance rules (e.g. rules, trade-off priorities and constraints). The airport stakeholders agree in a collaborative manner on the newly proposed performance rules. This includes alignment with existing rules to ensure there is no conflict (e.g. conflicting or overlapping interests). Each airport stakeholder can initiate this Use Case to set or update performance rules.
Stakeholder	Airspace users, airport operator, ANSP, ground handler(s), the network manager and AOP Supervisor
Input	• Draft specification performance rules
Output	• Specification of commonly agreed performance rules
Control Constraint	• Performance rules
Pre-condition	• Commonly agreed list of involved stakeholders is available • Stakeholder(s) strategy and expectations are developed
Post-condition	• Commonly agreed set of conflict-free performance rules (e.g. rules, trade-off priorities and constraints) • The results of this use case are recorded in the AOP
Process Flow	1. The airport stakeholders appoint a coordinator for this Use Case 2. The coordinator receives a formal request to set or update a performance rule in the Performance Framework baseline from one or more stakeholders[12]. 3. The coordinator checks if the request complies with the pre-defined quality rules (e.g. properties, support, motivation) 4. If there is a failure at this point, the coordinator defers the request until compliance is reached, or aborts on withdrawal 5. If the request complies with the quality rules, the coordinator notifies all relevant stakeholders about the request and asks them to commit to it 6. The coordinator waits for the reasoned votes of the relevant stakeholders 7. If the relevant stakeholders all vote in favour of the requested performance rule, the request is approved and confirmed. The Performance Baseline is updated accordingly 8. If (some of) the relevant stakeholders vote against the new performance rule, the request is postponed 9. The coordinator investigates the arguments and starts a discussion with the relevant stakeholder in order to find a mutually agreed solution 10. If the coordinator succeeds and a mutually agreed performance rule is established, the request is approved and confirmed. The Performance Baseline is updated accordingly in the AOP; otherwise the request is aborted 11. All stakeholders at the airport are notified of the updated performance rule
Alternative Flow	None

[12] A typical rule may be the superseding rule between several KPI's, for example which KPI prevails in a solution when not all performance targets can be met.

D.1.7 UC PSS 02. Establish airport specific information elements that are not part of the AOP Core

UC PSS 02. Establish airport specific information elements that are not part of the AOP Core	
Item	**Specification**
Purpose	This Use Case comprises the establishment of mutually agreed airport-specific local information elements that are not part of the AOP Core. The AOP Core is mandatory to every airport, while the airport-specific local information elements established in this Use Case are not. The local airport stakeholders deliberate in a collaborative manner on the newly proposed information elements to be added to the local AOP. This information is a local implementation decision at the airport concerned. It is not required by, nor shall it influence the operations within the ATM network. Each airport stakeholder can initiate this Use Case to set or update the airport-specific information baseline.
Stakeholder	Airspace users, airport operator, ANSP, ground handler(s), the network manager and AOP Supervisor.
Input	• Draft specification of local information elements
Output	• Specification of commonly agreed local information elements
Control Constraint	• Local information elements
Pre-condition	• Commonly agreed list of involved stakeholders is available • Stakeholder(s) strategy and expectations are developed
Post-condition	• Commonly agreed unambiguous and practicable local information elements • The results of this Use Case are recorded or stored in the AOP • Local information elements are available after implementation
Process Flow	1. The airport stakeholders appoint a coordinator for this Use Case 2. The coordinator receives a formal request to add or remove an information element from local information in the AOP from one or more stakeholders[13] 3. The coordinator checks if the request complies with the pre-defined quality rules (e.g. properties, support, motivation) 4. If there is a failure at this point, the coordinator defers the request until compliance is reached, or aborts on withdrawal 5. If the request complies with the quality rules, the coordinator notifies all relevant stakeholders about the request and asks them to commit to it 6. The coordinator waits on the reasoned votes of the relevant stakeholder. 7. The coordinator moves to the waiting state 8. If the relevant stakeholders all vote all in favour of the requested change or update to local information elements, the request is approved and confirmed. The local information elements are then updated accordingly 9. If (some of) the relevant stakeholders vote against the change or update to local information elements, the request is postponed 10. The coordinator investigates the arguments and starts a discussion with the relevant stakeholder in order to find a mutually agreed solution 11. If the coordinator succeeds in obtaining mutual agreement amongst the stakeholders, the local information AOP content is established and the request is approved and confirmed. The local AOP information content is then updated accordingly; otherwise the request is aborted 12. All stakeholders at the airport are then notified of the updated local information AOP content
Alternative Flow	None

[13] Can be any airport stakeholder, including the airport operator or coordinator

D.1.8 UC 661 11. Establish MET parameters for alert and warning generation

UC 661 11. Establish MET parameters for alert and warning generation	
Item	**Specification**
Purpose	This Use Case comprises the establishment of mutually agreed airport-specific local parameters/thresholds for setting up the MET data provision and MET alert and warning generation. This thresholds/parameters are a local implementation decision at the airport concerned
Stakeholder	Airspace users, airport operator, ANSP, ground handler(s), ATC and AOP Supervisor, MET Service Provider.
Input	• Draft specification of thresholds/parameters
Output	• Specification of commonly agreed local thresholds/parameters
Control Constraint	• Local weather scenarios
Pre-condition	• Commonly agreed list of involved stakeholders is available • Stakeholder(s) strategy and expectations are developed
Post-condition	• Commonly agreed unambiguous and practicable local information elements • The results of this Use Case are recorded or stored in WISADS/IWIS • Local thresholds/parameters are available after implementation
Process Flow	1. The MET Service Provider is the coordinator for this Use Case 2. The coordinator collects the needs of all stakeholders regarding MET parameter provision and threshold values for alert and warning generation concerning the consequences of weather scenarios on their work. 3. The coordinator checks if the needs comply with the state of the art MET data provision capabilities. 4. If there is a mismatch at this point, the coordinator will consolidate until compliance is reached, or aborts on withdrawal 5. If the request complies with the capabilities of the MET Service Provider, the coordinator notifies all relevant stakeholders about the request and asks them to commit to it 6. The coordinator waits on the reasoned votes of the relevant stakeholders. 7. If the relevant stakeholders all vote in favour of the requested thresholds/parameters, the request is approved and confirmed. The local thresholds/parameters are then updated accordingly 8. If (some of) the relevant stakeholders vote against the setup, the request is postponed 9. The coordinator investigates the arguments and starts a negotiation process with the relevant stakeholders in order to find a mutually agreed solution 10. If the coordinator succeeds in obtaining mutual agreement amongst the stakeholders, the MET parameter provision/ thresholds for alerts and warning generation are established and the request is approved and confirmed. The local WISADS/IWIS/DIMT. information content is then updated accordingly; otherwise the request is aborted 11. All stakeholders at the airport are then notified of the updated local thresholds/parameter setup.
Alternative Flow	None

D.1.9 UC 661 12. Refine MET parameters for alert and warning generation

UC 661 12. Refine MET parameters for alert and warning generation	
Item	**Specification**
Purpose	The Post Operations Analysis Platform shall be used by the OSB to report about MET thresholds/parameters, which are not satisfying for all relevant stakeholders
Stakeholder	APOC Supervisor, Assigned stakeholder and additional stakeholders; MET Service Provider
Input	• Post Operations Analysis Reports
Output	• OSB setup new or updated MET thresholds/parameters
Control constraint	• MET Conditions/Scenarios at a given airport
Pre-condition	• Post Operations Analysis Reports must be available and dissatisfied performance results must appear.
Post-condition	• New or updated MET thresholds/parameters will be established
Process flow	1. Post Operations Analysis Reports will indicate that MET thresholds/parameters are not satisfying or all stakeholders 2. Regularly OSB meeting will start a negotiation process with the relevant stakeholders in order to find a mutually agreed solution and define together with MET Service provider new or updated MET thresholds/parameters. 3. If the coordinator succeeds in obtaining mutual agreement amongst the stakeholders, the new or updated MET parameter provision/ thresholds for alerts and warning generation are established. The local WISADS/IWIS/DIMT. information content is then updated accordingly; otherwise the request is aborted 4. All stakeholders at the airport are then notified of the updated local thresholds/parameter setup.
Alternative Flow	None

D.2 UC's for Medium / Short Planning Phase OS

D.2.1 UC AOM 01. Instantiate the Airport Operations Plan

UC AOM 01. Instantiate the Airport Operations Plan	
Item	**Specification**
Purpose	This Use Case describes the creation of the AOP. The operational traffic demand specification starts with the availability of the inbound and outbound shared business trajectories provided by airspace users. Based on this traffic demand, elements are filled with expected operational data derived from the airlines' schedules. This can also be augmented with expected operational data from ground handling agents and ANSPs. The Operational Airport Resources and Capabilities elements are filled with expected operational data derived from capacity and demand information concerning the airport and ground handling agent resources and capabilities. The AOP Airport Operational Context elements are filled with expected operational data derived from airport configuration specification, the airport usage and restriction rules; and the Performance Baseline.
Stakeholder	Airport operator, Slot Coordinator, Airspace users, ANSP, ground handling agent(s) and AOP Supervisor.
Input	• The airspace user provides the shared business trajectories (SBT) information • The Slot coordination authority provides the operational runway slots • The Airport operator provides its airport resource capability and capacity • The ground handling agent(s) provide resource and equipment capabilities • The Airport operator provides its airport configuration specification • The Airport operator provides the airport usage and restrictions rules • The Airport Declared Capacity and the Airport Performance Framework are captured from the Long Term Planning Phase
Output	• The results of this Use Case are recorded or stored in the AOP • Expected Operational Airport Capabilities element, including the airport resources availability plan
Control Constraint	• Airport operational restrictions (military etc.) • Airport performance constraints (environmental etc.)
Pre-condition	• AOP framework, but not filled with operational data
Post-condition	• Success End State: Traffic demand elements, Operational Airport Capabilities element and Airport Operational Context elements are filled with expected operational data • Failure End State: A consistent AOP cannot be created, or the AOP content is not compatible with the performance targets from the Long Term Planning Phase

UC AOM 01. Instantiate the Airport Operations Plan	
Item	**Specification**
Process Flow	**Main flow** The main flow covers the case where the AOP information is treated in a normal situation, without any special decision-making process. 1. The Declared Capacity and Airport Performance Framework are adopted from the Long Term Planning Phase 2. The airport operator introduces the Operational Airport Capabilities elements in the system 3. The airport operator introduces the Airport Operational Context elements in the system 4. The airport operator introduces its airport configuration specification in the system, in the respective airport operational context element 5. The airport operator enters its airport usage and restriction rules in the respective airport operational context element 6. The airport enters its airport resource capabilities and capacity in the respective Operational Airport Capabilities elements 7. The airport enters its storage and maintenance capabilities in the respective Operational Airport Capabilities elements 8. The airspace user and the Slot Coordinator provide the shared business trajectories to the airport 9. The airport operator consolidates the Schedule 10. The airport operator introduces the consolidated schedule in the system 11. The ground handling agent(s) enter handling capabilities in the respective Operational Airport Capabilities elements 12. The airport operator, airspace user and ground handling agent(s) determine a first generic availability plan. The airport operator consolidates the outcome and enters the airport resource availability plan into the respective Operational Airport Capabilities elements 13. The initial AOP is created in the system and will serve as the main reference for further evolution of the planning 14. End of Use Case
Alternative Flow	**Alternative flow** If a special event takes place during the season: 15. The stakeholder involved in the operation of the special event, together with the airport operator and ANSP, organise and agree on the operational requirements for the event 16. The airport operator consolidates the schedule and resources for the special event 17. The flow continues at step 9 **The System detects that the AOP is not compatible with the Airport Performance Framework** 18. The System alerts the APOC that the performance targets (typically related to Airport-DCB and environment at this stage) are not compatible with the schedule 19. The APOC launches a collaborative process to adapt the plan to the objectives 20. The new plan is agreed between the stakeholders 21. The airport operator consolidates the schedule The flow continues at step 9

D.2.2 UC AOM 14. Create expected Operational Airport Resources and Capabilities

UC AOM 14. Create expected Operational Airport Resources and Capabilities	
Item	**Specification**
Purpose	The Operational Airport Resource and Capability elements are filled with expected operational data derived from capacity and demand information concerning the airport. The cornerstones of the plan will be centred around • Movements per hour • Permissible Aircraft types • Constraint such as night curfew Once these elements have been established, the next activity will concern the definition of the ground handling agent resource requirements, both human and equipment. In addition the necessary capacity requirements relating to Passenger, Baggage and Cargo resources will be defined. The provided information is possibly augmented with expected operational planning information from involved stakeholders.
Stakeholder	Airport operator, Ground-handling agent and airspace user.
Input	• Airport operator provides their airport resource capability and capacity. • Ground-handling agent provides their resource and equipment capabilities. • Airport operator provides necessary Passenger, Baggage and Cargo capabilities
Output	• Expected Operational Airport Capabilities element, including the airport resources availability plan and (possibly) the airport resources allocation plan
Control constraint	• Allocations in Operational Airport Capabilities element.
Pre-condition	• AOP framework instantiated, but not filled with expected operational data.
Post-condition	• AOP Operational Airport Capabilities elements are filled with expected operational data.
Process flow	1. The Declared capacity and Airport Performance Framework are adopted from the Long Term Planning Phase. 2. The airport operator instantiates the Operational Airport Capabilities elements. 3. The airport operator enters their airport resource capabilities and capacity in the respective Operational Airport Capabilities elements. 4. The airport operator enters their Passenger, Baggage and Cargo capabilities in the respective Operational Airport Capabilities elements. 5. The ground-handling agents enter their handling capabilities in the respective Operational Airport Capabilities elements. 6. The airport operator, airspace user and ground-handling agents determine the resources availability plan. The airport operator consolidates the outcome and enters the airport resource availability plan into the respective Operational Airport Capabilities elements.
Alternative Flow	None

D.2.3 UC AOM 15. Create expected Operational Traffic Demand

UC AOM 15. Create expected Operational Traffic Demand	
Item	**Specification**
Purpose	The operational traffic demand specification starts with the availability of the inbound and outbound shared-business trajectories (SBTs) provided by the airspace users. Based on this traffic demand elements it will be necessary to construct the equivalent airport transit views (ATV). Fundamental to this requirement is the necessity to link inbound and outbound flights in the AOP. This will require the active participation of the airspace users particularly in those airports where the 'home based' carrier has more flexibility in managing their flight operations.
Stakeholder	Airport operator and airspace user
Input	• Airspace user provides the shared business trajectories (SBT) information. • Slot coordination authority provides the operational runway slots, if appropriate.
Output	• The results of this procedure are available in the AOP.
Control constraint	• Allocation of visiting capability.
Pre-condition	• AOP framework instantiated, but not filled with expected operational data.
Post-condition	• Traffic demand elements are filled with expected operational data.
Process flow	1. The airspace user provides their shared business trajectories (SBTs) to the airport. 2. The airport operator provides the slot capacity and schedules. 3. The airport operator instantiates an ABT element based on the associated inbound and outbound flight for this airport. 4. The airport operator specifies the ABT element with relevant expected operational information from the associated inbound and outbound flight for this airport. 5. In the end the airport operator, airspace user and ground-handling agents enters their initial allocations of resources into the airport resources allocation plan of the respective Operational Airport Capabilities elements.
Alternative Flow	None

D.2.4 UC AOM 16. Create expected Operational Airport Context

UC AOM 16. Create expected Operational Airport Context	
Item	**Specification**
Purpose	The AOP Airport Operational Context elements are filled with expected operational data derived from airport configuration specification, the airport usage and restriction rules, and the performance baseline.
Stakeholder	Airport operator, Airspace user, ANSP and Ground-handling agent and AOP Supervisor.
Input	• Airport provides their airport configuration specification. • Airport provides the airport usage and restrictions rules.
Output	• Expected Operational Airport Context element.
Control constraint	• Values assignment in performance baseline.
Pre-condition	• AOP framework instantiated, but not filled with expected operational data.
Post-condition	• AOP Airport Operational Context elements are filled with expected operational data.
Process flow	1. The airport operator instantiates the Airport Operational Context elements. 2. The airport operator enters their airport configuration specification in the respective airport operational context element. 3. The airport operator enters their airport usage and restriction rules in the respective airport operational context element. 4. The airport operator enters their performance baseline in the respective airport operational context element.
Example	An example could be the allowable runway configurations on certain wind directions.
Alternative Flow	None

D.2.5 UC AOM 09. Create new element in AOP

UC AOM 09. Create new element in AOP	
Item	**Specification**
Purpose	The AOP can be augmented with a new element (group of information fields) or a new information field. This can be done after a mutually agreed decision from the lead stakeholders. This means a local adaptation of the AOP.
Stakeholder	Airport operator and AOP Supervisor.
Input	• The Airport Operator provides element or information field specification. • The Airport Operator provides the rules of engagement (i.e., an arrangement on how the handle this element or information field).
Output	• Updated AOP framework.
Control constraint	• Not applicable.
Pre-condition	• AOP framework instantiated.
Post-condition	• Updated AOP framework. • The stakeholder responsible for maintaining this particular content element up to date and accurate is clearly identified and agreed
Process flow	1. The airport operator checks of all mandatory update procedures are executed. 2. The airport operator checks the consistency of the element and/or information field specification. 3. The airport operator creates a new element and/or information field in the existing AOP framework. 4. The airport operator executes the verification and validation test scenarios to validate the new configuration of the AOP framework. *5.* The airport operator notifies the airport stakeholders about the modification in the AOP framework.
Example	The necessity to classify individual flights according to a previously undefined category.
Alternative Flow	None

D.2.6 UC AOM 12. Integration of landside process information in the AOP

UC AOM 12. Integration of landside process information in the AOP	
Item	**Specification**
Purpose	This Use Case describes the integration of the passenger process information in the AOP, specifically the impact of a potential passenger delay on the TOBT. This integration improves the visibility of the landside process information related with passengers, by taking into account its impact on the ATV process management and its effect on flight indicators.
Stakeholder	Airport operator, Security agents, Airlines, ground handling agent(s) and AOP Supervisor.
Input	• Security PAX control provides the AOP information about passengers that have passed through the boarding card readers. • The airport provides the AOP with the security flow queue time: queue time before screening, screening process time, queue time at the passport control and time to gate (TTG) information from out screening zone (average walking time between the end of security and the gate). • The AOP receives flights information from the AODB. • The AOP receives information from NOP via SWIM. • The AOP is connected to the local ANSP. • The ground handlers provide number of checked passenger during checking time and at checking closure.
Output	• Updated AOP with passenger process information.
Control Constraint	• Performance indicators and thresholds.
Pre-condition	• The airport has an AOP. • The Airport staff is aware and trained in the procedures. • The airline is always informed and the decision that is supposed to be made by the handler comes effectively from a discussion between the airline and its handler.
Post-condition	• The information is available, clear and accepted, the alarms are perceived useful. • There is a positive impact on punctuality: the percentage of delayed scheduled flights (affected by passenger delays) has reduced. The corresponding indicator is AOBT-SOBT for alarmed flights. • There is a positive impact on flexibility: • Start time for handlers in case of a “no-show” scenario is earlier. The corresponding indicator is Original TOBT – Activation time alarm. • The stakeholders accept and are confident on the process of mitigating “no-show” situations. • There is a positive impact on predictability: the variability of AOBT-TOBT decreases.

UC AOM 12. Integration of landside process information in the AOP	
Item	**Specification**

Process Flow	**MAINFLOW**
	The main flow covers the case where passengers are predicted to arrive late at the gate.
	
	1. The system identifies the flights that are candidates to the process, through a threshold before which the system ignores the flight (e.g. TOBT – 40' for aircraft with more than 220 passengers, TOBT – 30' for those between 100 and 220 and TOBT – 20' for the others)
	2. The system calculates the Time at gate based on the screening process time, the queue time at the passport control (for Non-Schengen flights), and the average walking time between the end of security and the gate.
	3. If TOBT – 15min < Actual Time + TZ + TS + TG => Warning Candidate (The Warning Candidate is the lower level of severity. For this case, the algorithm is considering the TZ or Queue Time, which means that it is not known in which position is the passenger within the queue. In the worst case the passenger could not be at the queue or have just joined it, but he could be at the middle of the queue. This uncertainty about the pending passenger positions is what defines the lower severity.)
	4. If TOBT – 15min < Actual Time + TS + TG => Alert Candidate. (The Alarm Candidate represents the higher level of severity. This case means that no matter where are the pending passengers within the queue, even if they are just to be detected by the boarding card reader, SCAFIS, they will not be at the boarding gate at the threshold selected (TOBT – 15min)).
	5. The Airport operations centre triggers the last minute track procedure.
	6. The airport operation centre contacts the Security and indicates which flights have to be redirected by the last minute track.
	7. The passenger in the queue which flight has been activated for a last minute track procedure is warned through TV screens/whiteboard to proceed through the fast track lane.
	8. The passenger is identified at the entrance of the Security check when scanning his boarding card.
	9. The security control activates the PA and guides the passengers to the last minute track.
	10. The handlers send an operational ACK (acknowledgement) to the airport operations centre.
	11. The system recalculates the Time at gate based on the screening process time at the last minute track, the queue time at the passport control (for Non-Schengen flights), and the average walking time between the end of security and the gate.
	12. If TOBT – t2' < Time at Gate, the AOP triggers a New Default TOBT alarm and proposes a new TOBT to the handler (t2 is a commonly agreed time parameter).
	13. The handlers decide between the two following solutions:
	  a. Set a new TOBT to wait for delayed passengers based on their distance to the gate.
	  b. Maintain the TOBT with risk of leaving these passengers on ground.
	14. The handlers send an operational ACK (acknowledgement) to the airport operations centre.
	15. The handlers decide between the two following solutions:
	  a. Set a new TOBT to wait for delayed passengers based on their distance to the gate.
	  b. Maintain the TOBT with risk of leaving these passengers on ground.
	16. The passengers arrive before the TOBT at the gate and embark.
	17. The aircraft is off-block (AOBT).
	18. Any action/incidence for the flight is recorded.
	19. A post-analysis is done during which the post-conditions are validated.
	20. End of Use Case.

UC AOM 12. Integration of landside process information in the AOP	
Item	**Specification**
Alternative Flow	**There are no late passengers** 3. There are no alarm candidates. Go to step 15. **The handlers decide not to update the TOBT after the New Default TOBT alarm:** 14. The handlers maintain the TOBT. 15. The passengers don't make it to the gate in time and don't embark. Go to step 16. **The handlers don't acknowledge the "New Default TOBT" alarm.** 13. The handler agent doesn't acknowledge the alarm and doesn't take it into account. 14. The TOBT doesn't change. 15. The passengers arrive too late at the gate and don't embark. Go back to step 16. **Actions or incidences are not recorded** 17. Actions/incidences are not recorded. 18. The post-analysis presents false results due to a lack of information. 19. Failure and End of Use Case.

D.2.7 UC AOM 17. Planned Operational interruption on an E-CRA airport

UC AOM 17. Planned Operational interruption on an E-CRA airport	
Item	**Specification**
Purpose	This Use Case describes the flow of measures taken in case of a planned event occurring on an E-CRA airport that temporarily stops the operations. This use case emphasizes the information sharing between the stakeholders, as well as the information updates, critical for a better optimisation of resources. The process also integrates the use of a what-if simulation tool, in order to plan a better recovery of the operations.
Stakeholder	• Airport operator • Local ANSP • Airlines • Ground handler • Network manager
Secondary actors	• MET Service
Input	• The airport is connected to the Network manager, it receives FUMs. • The AOP receive flights information from the AODB, as well as parking stands information. • The AOP gets the actual landing and take-off times from the local ANSP, as well as the TSATs. • The MET service provides weather observation and forecast. • The ground handling agents provide resource and equipment capabilities, and TOBT updates to the AOP.
Output	• Updated planning. • Performance indicators.
Control Constraint	• Throughput capacity (RWY, TWY) depending on the location of the event and its impact on the RWY and TWY
Pre-condition	• The airport has an AOP and it is the exclusive data exchange platform to exchange information amongst all airport stakeholders and with the network. • The time of beginning has been determined using a simulation-based approach. • The Airport staff is aware and trained in the procedures.
Post-condition	• The flight planning proposed by the simulations is implemented. • The performance indicators show a full recovery of the operations.

UC AOM 17. Planned Operational interruption on an E-CRA airport	
Item	**Specification**
Process Flow	**MAINFLOW** 1. From EOBT – 3h: The network manager starts to send FUM concerning flights to and from the airport. 2. The ground handler plans resources according to the flight updates messages. The airport operator manages the aircraft stands according to the ELDT updates. 3. The AOP updates its information based on the FUMs received. 4. 15 minutes later, the ANSP optimizes the departure and arrival sequence, adjust runway configuration and capacity, change runway orientation based on the MET information available in the AOP. 5. The airport operator updates the resources planning, based on the ANSP information. 6. The airport operator manages stands according to the ELDTs updated by the AOP. 7. From T-time – 1h, the ground handlers update the TOBTs. 8. The ANSP uses the simulation tool to consider a recovery flight planning. 9. At T-time – 5': The ANSP optimises the arrivals and departure sequences by using the simulation tool. 10. The ANSP updates the TSATs according to the TOBTs. 11. At T-time, the disruptive event starts. 12. All along the operation, the stakeholder responsible updates the time of the resumption of operations. 13. From these updates, the ANSP updates the recovery flight planning by using the simulation tool. 14. The airport operator updates the AOP using the flight planning. 15. The airlines manage their operations according to the AOP updates. 16. The event ends. 17. A-DPIs are sent to the network manager for departing flights. 18. After a pre-determined period of time, all the stakeholders operate under normal conditions. 19. End of Use case. **ALTERNATIVE FLOW** **The event doesn't finish on time:** 16. After the pre-determined period of time, the event hasn't finished. 17. The stakeholder responsible updates the estimated end time. **Go back to step 12.**

D.2.8 UC AOM 18. Determination of the best time to start a disruptive event using simulations ("what-if")

UC AOM 18. Determination of the best time to start a disruptive event using simulations ("what-if")	
Item	**Specification**
Purpose	This Use Case describes the implementation of a "what-if" simulation that can help decision making on regional airports (E-CRA) in case of a disruptive event (meteorological or other). The goal is to optimize the impact on commercial aviation of this event, by simulating it, at a given time, depending on the current conditions. The user can modify any parameter concerning the capacity of the airport, time separations, … Once the simulation ends, It provides a flight planning considering the impacts of the disruptive events. This helps the users to consider an action plan and recovery strategy.
Stakeholder	• Airport operator. • Network manager. • Ground handlers. • ANSP operator (here called "the user").
Secondary actors	• MET Service. • Airlines.
Input	• The system is connected to the airport AOP. • The system gets the parking stands information from the AODB • The system receives the actual landing times and take-off times from the ANSP, as well as the TSATs. • The system is connected to the Network Manager. • Window of time during which operations are going to be impacted by the event. • Impact of the event (e.g. runway closure)
Output	• • A flight planning taking into account the perturbations caused by the disruptive events.
Control Constraint	• Throughput capacity (RWY, TWY) depending on the location of the incident and its impact on the RWY and TWY. • Performance framework of the airport.
Pre-condition	• An algorithm is implemented, which simulates the behaviour of the airport, following pre-determined rules (separations, capacity…). This algorithm is used by the simulation. • The system updates its information from the AODB and NOP every 5 minutes. • The user is trained to use the system.
Post-condition	• The predictability has improved. • The impact of disruptive events on commercial aviation has reduced.
Process Flow	1. The user chooses the parameters of the simulation. 2. The user launches the simulation. 3. The system calculates the new flight planning in order to recover from the delays that are induced by the disruptive event. To do so, it freezes the parameters from the Network manager and the AODB (AOP?) as they were at the time the user launched the simulation. 4. The system returns a new flight planning. 5. The user can then test with other parameters, in order to optimize the operations (e.g. finding the best window for a runway sweeping, by testing different times of beginning). 6. The user considers an action plan and a recovery strategy depending on the simulation results. 7. End of Use Case.

D.2.9 UC AOM 02. Maintain the Airport Operations Plan (AOP)

UC AOM 02. Maintain the Airport Operations Plan (AOP)	
Item	**Specification**
Purpose	This Use Case describes how the AOP is updated and managed by the airport stakeholders during the Medium/Short Term Planning and the Execution Phases. The maintenance of the AOP is an activity which manages the modifications to the planned operations through the insertion of available information on the airport's demand and capacity. The core objective of AOP maintenance is to have a continuously up-to-date AOP representing the actual situation and its evolution, in order to be able to evaluate and monitor the airport performance as a basis for the dialogue with the Network Manager.
Stakeholder	Airport stakeholder representatives in the APOC (including MET Service provider), APOC Supervisor
Input	• Latest version of the AOP • Information on current and planned airport operations that cannot be automatically fed in the AOP • Solution to a deviation from the plan
Output	• Updated AOP
Control Constraint	• Triggering of the individual procedures (activities and mechanisms)
Pre-condition	• An AOP is available
Post-condition	• The refined Airport Operation Plan is recorded to the System and available to the airport stakeholders according to defined and agreed access rights
Process Flow	1. The Airport Operator updates the existing AOP and RBTs based on information from decision support tools and according to the latest accurate data received from the responsible Flight Crew Station Manager 2. The Airport Operator/Duty Manager/Stand Planner in particular update AOP information regarding: a. Airport configuration and flight procedure b. Expected temporary constraints in infrastructure, operational recourses etc. c. Available airport facilities for usage and applied restriction rules d. Information on operational capacity and expected demands with resulting resources allocation 3. The handling agents define and refine their operational plans – recourses, infrastructure, equipment availability and allocation for all the assigned ground and turnaround processes. Based on these updates they continuously communicate the relevant information for adjustment of the RBT 4. The TWR Controller/ACC approach supervisor and responsible Ground Apron Controller define and update the RWY and TWY allocation and the ground movement rules (taxi routes) if necessary. Departure management planning (sequencing) is updated 5. The Network Manager updates RBTs based on the Network constraints and maintains the consistency of the NOP with the AOP 6. The MET Service provides the most up-to-date MET information. This includes observations, forecasts and forecasts using probability. 7. The APOC supervisor confirms and validates the refined AOP, including resolution of inconsistencies and detection of hot spots and potential demand/capacity imbalance
Alternative Flow	None

D.2.10 UC AOM 04. Detect and Resolve demand and capacity imbalance during the Medium Term planning phase.

UC AOM 04. Detect and Resolve demand and capacity imbalance during the Medium Term planning phase.	
Item	**Specification**
Purpose	The instantiated AOP will be updated in a variety of ways. This might lead to an imbalance of demand and capacity during the Medium Term planning phase (i.e. the period before the day of operation).
Stakeholder	Airport operator, Airspace user, ground handler
Input	• Demand from flight schedule • Available Resources
Output	• Re-balanced AOP with the available demand and capacity
Control constraint	• Condition at a given airport (capacity, rules, regulations)
Pre-condition	• AOP is instantiated and balanced • Demand shall be calculated for 1 hr time intervals per runway for arrivals and departure using scheduled times derived from SBT data • Airport-DCB system detects an imbalance
Post-condition	Updated plan
Process flow	1. Airport-DCB shall determine the (planned/forecasted) demand 2. Airport-DCB shall determine planned/forecasted capacity 3. Airport-DCB shall calculate forecasted capacity shortage 4. Airport-DCB shall calculate forecasted delay 5. Airport-DCB shall calculate forecasted punctuality 6. Demand – Capacity imbalance alert will be triggered if calculated capacity shortage, delay or punctuality exceeds a pre-agreed threshold. 7. forecasted Airport Demand and Capacity values for total airport movements, for arrivals and for departures, and also for each runway shall be provided to AOP by the Airport-DCB. 8. Negotiation process will be started to solve the Demand Capacity imbalance 9. Based on the agreed solution(s) for the imbalance, the AOP will be updated.
Alternative Flow	None

D.2.11 UC AOM 06. Record and store AOP information

AOM 06. Record and store AOP information	
Item	**Specification**
Purpose	This Use Case describes how all the data and events transferred into the AOP during its lifecycle are recorded and stored for post operations analysis. This Use Case is corresponding to the Record Airport Performance Data process of the Perform Post Operations Analysis service.
Stakeholder	AOP Supervisor
Input	AOP (static and dynamic information) and its evolution • Planned and actual operational data from the stakeholder; • Alert messages and warning messages; • Overall Impact message and Solution message to a deviation
Output	• Data related to the operational evolution along the AOP lifecycle (AOP data and decisions made on the different situations that occurred): • Recorded data: o Recorded Planned and actual operational data from the stakeholder; o Recorded ***Alert messages*** and ***warning messages***; o Recorded ***Overall Impact message*** and ***Solution message***
Control Constraint	• The post operations analysis service needs to ensure consistency of data, to raise alerts for the affected departments or distributors; and harmonise discrepancies (e.g. measurement units such as lbs/kg, UTC/local) if possible
Pre-condition	• The post operations analysis service should be based on commonly agreed acronyms and should be designed in a sensible manner. Therefore hierarchical classifications and correlations to KPIs as well as a short description of the content of a timestamp should be displayed
Post-condition	• A well organised and consistent set of information regarding Airport Operations
Process Flow	1. The criteria for record of the information needed for the Post-operation analysis is fixed 2. Information associated with each timestamp should be automatically recorded internally when the AOP is updated by each stakeholder 3. The originator (system or organization or person) of the data is associated to the data. 4. A check of consistency, completeness and quality of the data delivered from the stakeholders, the airport and the NOP is completed 5. The new or updated data is recorded.
Alternative Flow	None

D.2.12 UC AOM 10. Refine Scheduled Flights (Updating SBT to RBT/ATV)

UC AOM 10. Refine Scheduled Flights (Updating SBT to RBT/ATV)	
Item	**Specification**
Purpose	After the instantiation of the AOP there is a balanced plan with the available capacity and the known demand from all airspace users. This is just a snapshot for that given moment. During the AOP lifecycle there might be changes in the demand of airspace users. The change can be typically manifested through the creation of additional flights, change of scheduled time, change of aircraft type or a change to the 'target' times associated to the CDM process and continually being monitored and updated during the execution phase.
Stakeholder	Airport operator, airspace user, ANSP, ground handler and the AOP Supervisor.
Input	• Balanced Plan with available resources. • Change in demand.
Output	• Decision if additional demand can be managed. • Updated AOP reflecting modified demand (4D).
Control constraint	• Condition at a given airport (capacity, rules, regulations)
Pre-condition	• AOP is instantiated
Post-condition	• Updated plan.
Process flow	1. Request for additional or changed demand. 2. AOP supervisor and airport operator checks request against existing capacity rules and regulations. 3. If the request can be managed it will be inserted into the AOP. 4. If the demand cannot be managed it will be refused or an alternative will be proposed to the airspace user. 5. In addition to this, the links between inbound RBTs and outbound RBTs are reviewed in order to check the ABTs identified being updated in consonance. 6. The AOP will be updated accordingly.
Alternative Flow	None

D.2.13 UC AOM 11. Resource Refinement

Resource Refinement	
Item	**Specification**
Purpose	After the instantiation the AOP is a balanced plan with the available capacity and the known demand from all airspace users. This is just a snapshot for that given moment. During the AOP lifecycle there might be changes in the airport usage rules, the possible airport configuration and the airport resource available capacity plan (due a new resources allocation, for example). Some changes are subject of negotiation some are not.
Stakeholder	Airport operator, airspace user, ANSP, ground handler and the AOP Supervisor.
Input	• Available planning with resources, rules and configurations. • Change of mentioned elements.
Output	• Updated availability plan.
Control constraint	• New constraints need to be implemented
Pre-condition	• AOP framework instantiated.
Post-condition	• Updated plan.
Process flow	1. Capacity restriction will be predefined by external authorities or through the airport operator. 2. Airport operator meets with affected airspace users and deliberates on a solution with lowest implication. 3. The Restriction is established and published to all stakeholders who will update the relevant elements in the AOP. 4. If there is no collaborative solution found the AOP supervisor will act as arbitrator.
Alternative Flow	None

D.2.14 UC AOM 13. Refinement of Steering Parameters

UC AOM 13. Refinement of Steering Parameters	
Item	**Specification**
Purpose	The Post Operations Analysis Platform shall be used by the OSB to setup regularly meetings to negotiate about new or updated steering parameters for the airport performance framework. During the medium-term planning and short-term planning phases, the *Steer Airport Performance* service will perform a possible refinement of the *Current Airport Performance Framework.* This will be achieved through the “check applicability of predefined goals and criteria” activity of the *Manage Airport Performance* service (see section 3.2.4). As a consequence the *Steer Airport Performance* service will not introduce any new SESAR operating method in that phase.
Stakeholder	APOC Supervisor, Assigned stakeholder and additional stakeholders
Input	• Post Operations Analysis Reports
Output	• OSB setup new or updated steering parameters
Control constraint	• Condition at a given airport (performance levels, regulations, etc.)
Pre-condition	• Post Operations Analysis Reports must be available and dissatisfied performance results must appear.
Post-condition	• New or updated steering parameters will be established
Process flow	1. Post Operations Analysis Reports will indicate unsatisfying performance. 2. Regularly OSB meeting will define new or updated performance parameters. 3. New or updated performance parameters will be established
Alternative Flow	None

D.3 UC's for Airport Operations Management during the Execution Phase OS

D.3.1 UC AOM 07. Compare actual operations versus planned operations

UC AOM 07. Compare actual operations versus planned operations	
Item	**Specification**
Purpose	This Use Case describes the automatic comparison the system performs between the actual operations (actual events and data) and the operations planned in the AOP.
Stakeholder	APOC Supervisor
Input	• Actual operations (actual events and data) • Weather observations • Latest plan contained in the AOP: o Planned overall airport performance o Planned aircraft processes for each ATV o Planned passenger processes o Planned baggage/cargo processes o Planned airport demand o Planned airport capacity o Weather forecasts and observations • KPIs and PDIs in the Airport Performance Framework
Output	Quantified deviations between: • Weather observations and weather forecasts/observations • Actual and planned overall airport performance • Actual and planned aircraft processes • Actual and planned passenger processes • Actual and planned baggage/cargo processes • Actual and planned airport demand • Actual and planned airport capacity
Control constraint	• Airport Performance Framework
Pre-condition	• The system is able to compare the actual operations against the plan according to predefined rules (KPIs and PDIs)
Post-condition	• **Success end state:** o The system has recorded the deviation between the actual operations against the plan • **Failed end state:** o The system has recorded the notification to the APOC Supervisor about the fact that there is no planned data/event corresponding to the actual data/event in the AOP
Process Flow	1. The System receives an actual data/event from the AOP 2. The System retrieves the corresponding planned data/event in the AOP 3. The System retrieves the KPI/PDI that will allow the comparison to take place in the Airport Performance Framework 4. The System performs the comparison between the actual and the planned data/event using the retrieved KPI 5. The Use Case ends when the System records the result of the comparison (i.e. quantitative deviation) in the AOP
Alternative Flow	None
Failure Flow	**[2] The System detects that there is no planned data/event corresponding to the actual data/event in the AOP:** 6. The System notifies the APOC Supervisor that there is no planned data/event corresponding to the actual data/event in the AOP 7. The Use Case ends when the System records the notification in the AOP

D.3.2 UC AOM 08. Alert the relevant stakeholder in case of significant deviation from the plan

UC AOM 08. Alert the relevant stakeholder in case of significant deviation from the plan	
Item	**Specification**
Purpose	This Use Case describes the automatic process that takes place in the case that a deviation from the operations planned in the AOP reaches the thresholds set in the Airport Performance Framework. The purpose of the Use Case is to alert the relevant airport stakeholder and prompt the stakeholder to react.
Stakeholder	APOC Supervisor, any airport stakeholder
Input	• Quantified deviations between: o Weather observations and weather forecasts/observations o Actual and planned overall airport performance o Actual and planned aircraft processes o Actual and planned passenger processes o Actual and planned baggage/cargo processes o Actual and planned airport demand o Actual and planned airport capacity • Deviation thresholds from the Airport Performance Framework • Alert/warning levels from the Airport Performance Framework
Output	• Alert/warning on a deviation
Control Constraint	• Airport Performance Framework
Pre-condition	• The System is able to compare a deviation from the plan to a threshold set in the Airport Performance Framework and raise an alert/warning to the relevant stakeholder when necessary
Post-condition	• **Success end state:** o The System has recorded the alert/warning sent to the relevant airport stakeholder about a significant deviation in the AOP, or the system has recorded the acceptable deviation in the AOP • **Failed end state:** o None
Process Flow	1. The System retrieves the deviation between the actual and the planned operations from the AOP 2. The System retrieves the corresponding threshold in the Airport Performance Framework 3. The System compares the deviation from the plan with the threshold. 4. The System detects that the deviation is equal or greater than the threshold 5. The System determines the airport stakeholder(s) responsible for the data/events affected by the deviation 6. The System selects the appropriate level of alert/warning. 7. The System raises an alert/warning to the selected airport stakeholder(s) and to the APOC Supervisor 8. The Use Case ends when the System records the alert/warning in the AOP
Alternative Flow	[4] **The System detects that the deviation is smaller than the threshold:** 9. The Use Case ends when the System records the acceptable deviation in the AOP
Failure Flow	None

D.3.3 (a) UC 653 02. Change Runway Operating Mode

UC 653 02.	Change Runway Operating Mode
Item	**Specification**
Purpose	This Use Case describes how the Tower Supervisor uses the Airport-DCB system during Execution phase to change departure or arrival runway to mixed mode operations, maintaining the current configuration.
Stakeholder	• Airport Tower Supervisor (primary) – wants to change departure or arrival runway usability • ACC/Approach supervisor (off-stage) – wants to coordinate arrival flights according to the new situation • Tower Clearance Delivery Controller – wants to coordinate departures (TSAT) according to the new situation • APOC staff (off-stage) – wants to be aware of any update the AOP with the new runway operating mode
Input	• Current and forecasted Demand and Capacities at the runway level • Current runway operating mode • All possible other runway operating modes for the current runway configuration • Current and forecasted weather and operating conditions
Output	• New proposed operating mode for the current runway configuration • modified target times • Updated AOP
Control Constraint	• Maximum capacities • Possible runway operating modes for current runway configuration
Pre-condition	• The system knows the current runway configuration and any possible mode of operation for that runway configuration • The system knows the characteristics of the unexpected change in demand (additional inbound and/or outbound flights).
Post-condition	Successful end state • The AOP is updated with the new runway operating mode. Failed end state • The runway operating mode remains unchanged in the AOP and is nu capable of handling the changed traffic demand.
Process Flow	**Trigger** The use case starts when the Airport Tower supervisor checks Airport-DCB in order to change the departure or arrival runway to mix-mode. **Main Flow** – Change runway mode The Airport-DCB monitor presents the current runway configuration The Airport Tower supervisor performs what-if assessments to adjust capacity to demand 3. The Airport Tower Supervisor changes the departure or arrival runway to mix mode for a selected time period. 4. The Airport-DCB assesses the selected runway mode solution 5. The Airport-DCB recalculates KPI's and the KPI Runway delay returns to acceptance level in case the assessed Airport-DCB solution is applied. 6. The Airport Tower supervisor validates the new departure / arrival runway mode as internal Airport-DCB solution. 7. On acceptance of the proposed solution by the Airport Tower Supervisor, the AOP is updated with the new runway mode for the time period. 8. The use case ends.
Alternative Flow	**Alternative Flow** Alternative to Step [5]: KPI for Runway delay doesn't return to acceptance levels 9. The Tower Supervisor extends in time the mix mode configuration. 10. Or The Airport Tower Supervisor changes the runway mode (revised distribution between Arrivals and departures for a/the mixed mode runway)

UC 653 02. Change Runway Operating Mode	
Item	**Specification**
	The use case resumes at step (4)

D.3.4 (b) UC 653 03. Change Runway/Taxiway Configuration

UC 653 03. Change Runway/Taxiway Configuration	
Item	**Specification**
Purpose	This use case describes how the Tower Supervisor uses the Airport-DCB system during the execution phase to change the current runway/taxiway configuration due to an unexpected change in operating conditions.
Stakeholder	• Airport Tower Supervisor (primary) – wants to change runway/taxiway configuration ahead of changing operating conditions • ACC/Approach supervisor (off-stage) – wants to coordinate arrival and departure flows according to comply with the new runway/taxiway configuration • APOC staff (off-stage) – wants to be aware of any update the AOP with respect to the new runway/taxiway configuration and/or operating conditions
Input	• Current and forecasted Demand and Capacities at the runway level • Current runway/taxiway configuration • All possible other runway/taxiway configurations • Current and forecasted weather and operating conditions
Output	• New proposed runway/taxiway configuration • modified target times • Updated AOP
Control Constraint	• Maximum capacities • Available runway/taxiway configurations
Pre-condition	The system knows the current runway/taxiway configuration and operating conditions as the forecasted operating conditions. The system knows the capacity (and restrictions) of any possible combination of runway/taxiway configuration and operating condition (e.g. weather)
Post-condition	Successful end state • The AOP is updated with the new runway/taxiway configuration and associated capacity value. Failed end state • The new runway/taxiway configuration and/or associated capacity value cannot be updated in the AOP.
Process Flow	**Trigger** The use case starts when the Tower supervisor checks Airport-DCB in order to change the runway/taxiway configuration to comply with changing operating conditions **Main Flow** – Change runway/taxiway configuration 1. The Airport-DCB monitor presents the current runway/taxiway configuration and operating condition 2. The Airport-DCB monitor presents the forecasted operating conditions for a selected time 3. The Airport-DCB system proposes all possible runway/taxiway combinations and associated capacity values applicable for the forecasted operating conditions (selection from look-up table) 4. The Airport Tower Supervisor selects a runway configuration for a selected time period. 5. The Airport-DCB assesses the selected Airport-DCB solution (new runway configuration and/or operating condition) 6. The Airport-DCB calculates KPI's and the KPI delay returns to acceptance level in case the assessed Airport-DCB solution is applied. 7. The Airport Tower supervisor validates the new runway configuration and operating condition as internal Airport-DCB solution. 8. On acceptance of the proposed solution by the Airport Tower Supervisor, the AOP is updated with the new runway configuration and/or operating condition for the time period.

UC 653 03. Change Runway/Taxiway Configuration	
Item	**Specification**
	9. The use case ends. 7.
Alternative Flow	**Alternative Flow** 7. Alternative to Step [6]: KPI for delay doesn't return to acceptance levels 8. The Airport Tower Supervisor selects another runway configuration and/or operating mode The use case resumes at step (4)

D.3.5 (c) UC 653 04. Refine Capacity

UC 653 04. Refine Capacity	
Item	**Specification**
Purpose	This Use Case describes how the Airport Tower Supervisor uses the system during the execution phase to refine runway capacity to face forecasted degradation of weather conditions.
Stakeholder	• Airport Tower supervisor (primary) – wants to update the runway capacity value to set a preventive flow rate before degraded weather conditions occur in order to avoid severe deviations of the associated performance indicators. • APOC Supervisor (off stage) – wants to be aware of any change in the airports capacity value in order to take required actions (APOC active) when necessary. • FM (off stage) – wants to know the capacity value in order to apply flow restrictions when necessary.
Input	• Current and forecasted Demand and Capacities at the runway level • Current runway/taxiway configuration • All possible other runway/taxiway configurations • Current and forecasted weather and operating conditions
Output	• New proposed runway/taxiway configuration • modified target times • Updated AOP
Control Constraint	• Maximum capacities • Available runway/taxiway configurations
Pre-condition	• The current and forecasted weather conditions are known to the System. • The current runway/taxiway capacity is known to the System. • The expected departure and arrival demand for the next period is known to the System. • The preventive measures for different degrading weather conditions are known to the system. • The airport operating parameters for different degrading weather conditions, as also the associated capacity values are known to the System.
Post-condition	Successful end state • The new capacity value(s) can be determined and correctly updated in AOP. Failure End State • The new capacity value(s) cannot be determined and not recorded in AOP.
Process Flow	**Trigger** The Use Case starts when the Airport Tower Supervisor starts using Airport-DCB to change capacity values **Main Flow** 1. The Airport Tower Supervisor checks all input needed to perform a capacity assessment / determination. 2. The Airport-DCB monitor displays the current runway/taxiway configuration, operating condition and capacity to the Airport Tower Supervisor. 3. The Airport Tower Supervisor performs a what-if by adjusting capacity to constraints by applying a preventive capacity reduction. 4. Airport-DCB assesses runway demand and capacity to validate that the new capacity value is compliant with the performance targets 5. KPI's are forecasted for the proposed Airport-DCB solution. 6. The indicators meet the performance targets for the period under study. 7. The Tower Supervisor validates the new capacity value as Airport-DCB Solution. 8. The new capacity value is updated in the AOP. 9. The APOC staff and the FM are informed about the Airport-DCB solution. 10. The Use Case ends when KPI's are updated according to the Airport--DCB

UC 653 04. Refine Capacity	
Item	**Specification**
	Solution.
Alternative Flow	**Alternative Flow [3]** 3. Alternative to Step [3]: the Tower Supervisor wants to input manually the new capacity values 4. The Tower Supervisor informs Airport-DCB that he will not validate the proposed Airport-DCB solution 5. The Tower Supervisor edits manually the capacity value and perform a new what-if assessment 6. The use case resumes at step [4]

D.3.6 UC DCB 01. Optimizing Runway Closure

UC DCB 01. Optimizing Runway Closure	
Item	**Specification**
Purpose	This Use Case describes how APOC members use Airport-DCB to find the best point in time to perform runway inspection or snow sweeping (if tolerances apply)
Stakeholder	APOC supervisor uses Airport-DCB tool to decide on runway closure point in time APOC members use Airport-DCB tool to suggest point in time for runway closure.
Input	• manual input on runway capacity (value of zero for time period concerned)
Output	• modified target times • KPI values • Updated AOP
Control Constraint	•
Pre-condition	• Runway closure is required. point in time is flexible to a certain extent
Post-condition	• Target times produced by the Airport-DCB (beyond AMAN/DMAN horizon) need to be acknowledged or overwritten by network constraints • AMAN and DMAN respect Airport-DCB capacities
Process Flow	1. When a runway closure becomes necessary APOC supervisor or other APOC members specify the time period through manual entry in the Airport-DCB HMI in What-if mode 2. The Airport-DCB calculates KPI forecasts 3. APOC supervisor and/or APOC members assess the impact and possibly specify other time period and repeat the process until KPIs indicate satisfactory values 4. Calculation of a new Airport-DCB solution according to the Airport-DCB “Detect and Resolve demand/capacity imbalance use case” might be triggered if warning/alert is raised due to that action [UC DCB 02 Detect and resolve demand/capacity imbalance use case] 5. APOC or tower supervisor will consult with APOC members before activating the runway closure 6. Airport-DCB will pass the periods with zero capacities on to AMAN and DMAN. If applied in the time horizon beyond the scope of AMAN and DMAN, Airport-DCB Management will assign new target times to the flights 7. The new target times (and new runway capacities) are then written into the AOP to be exchanged with the network
Alternative Flow	None

D.3.7 UC DCB 02. Detect and Resolve Demand & Capacity imbalance during the Short Term planning and Execution phases.

UC DCB 02. Detect and Resolve Demand & Capacity imbalance during the Short Term planning and Execution phases.	
Item	**Specification**
Purpose	This Use Case describes how DCB Monitoring detects a demand/capacity imbalance, generates an alert or warning and how DCB Management resolves it during the Short Term planning and Execution phases (i.e. the day of operation).
Stakeholder	• Airport Tower Supervisor (primary) – wants to be informed about any demand-capacity imbalance with enough prior notice and accuracy to plan the actions. • APOC Supervisor (off–stage) - wants to be acknowledged of any demand-capacity imbalance
Input	• KPI threshold values • Demand and capacities at the runway level • Current runway configuration plan
Output	• Agreed solution on new runway configuration and/or demand limitation • Updated AOP • KPI values
Control Constraint	• Maximum capacities • Available runway configurations
Pre-condition	• The AOP provides all necessary information to calculate accurate demand • The DCB is provided with Met info for calculating capacity • The Steer Airport Performance service provides thresholds for warnings and alerts with respect to the defined KPIs
Post-condition	• Target times produced by the DCB (beyond AMAN/DMAN horizon) acknowledged or overwritten by network constraints • AMAN and DMAN respect DCB capacities
Process Flow	**Trigger** The use case starts on the day of operation with the DCB function active. **Main Flow** – Detect demand & capacity imbalance 1. The DCB retrieves the necessary AOP information and MET information 2. The DCB aggregates the Intentional Demand 3. The DCB calculates the possible distribution of ultimate Capacities and Practical Capacities 4. The DCB continuously monitors Intentional Demand versus Practical Capacity for KPI capacity shortage; and versus ultimate Capacities for KPIs delay and punctuality. This is done per runway, based on the current plan of runway configuration 5. DCB raises a warning and/or alert if one of the KPI thresholds defined by performance steering is exceeded 6. The APOC supervisor, or the Airport tower supervisor assesses the situation and if action is required triggers a recalculation of the DCB solution 7. The DCB calculates KPI forecasts for different alternative runway configurations and capacity distributions 8. DCB will filter the best solutions and display them to the APOC or the tower supervisor 9. The APOC or Airport tower supervisor may, through manual inputs, test other solutions that are not automatically tested by DCB. This may include shifting departure streams to other runways, thus altering the demand

UC DCB 02. Detect and Resolve Demand & Capacity imbalance during the Short Term planning and Execution phases.	
Item	**Specification**
	10. The APOC or Airport tower supervisor compares the KPIs of the different solutions, and after consultation with APOC members makes a decision on which solution is to be implemented and activates that solution (Maintain AOP activity) 11. DCB will use the capacity distribution (and possibly altered demand location) of this solution and will pass these capacity distribution on to AMAN and DMAN for the time horizon in which they are active 12. For the time horizon beyond the scope of AMAN and DMAN, DCB Management will assign new target times to the flights 13. If demand was shifted, DCB will also update the to each flight assigned Runway where necessary to those flights 14. The new target times (and possibly new runways) are written into the AOP to be exchanged with the network (NOP)
Alternative Flow	**None**

D.3.8 UC 662 01. Handle De-icing after exceeded HOT

UC 662 01. Handle De-icing after exceeded HOT	
Item	**Specification**
Purpose	Organize the de-icing activities for new de-icing due to exceeded HOT for minimizing the de-icing delays and improving the predictability of departure time
Stakeholder	• Aircraft operator • APOC Supervisor • De-icing coordinator • De-icing operator • Remote De-icing coordinator • Ground Controller
Input	• Procedures for de-icing management are published and implemented • Pilot has made a new de-icing request due to Exceeded HOT
Output	• Renewed de-icing performed
Control constraint	• Safety • Winter procedures.
Pre-condition	• The HOT is determined by the pilot
Post-condition	• Network knows which time aircraft is ready and able to start in order to further predict TTOT and other relevant A-CDM milestone parameters
Process flow	1. When starting the de-icing, the pilot provides the EHOT. 2. When HOT is exceeded, renewed de-icing needs to be performed. 3. Pilot requests new de-icing and an ERZT is determined. 4. De-icing agent provides an ECZT in response. 5. When allocated on de-icing area an ARZT is delivered. 6. De-icing is performed following the correspondent process depending to the designed de-icing process (on-stand, after push, remote) and new HOT applied. *7.* The process ends when the new de-icing starts.
Alternative Flow	None

D.3.9 UC 662 02. Handle After Push back De-icing

UC 662 02. Handle After Push back De-icing *According to the De-icing processes described in the 6.6.2 – OSED V2.*	
Item	**Specification**
Purpose	Organize the After push back de-icing activities for minimizing the de-icing delays and improving the predictability of departure time
Stakeholder	• Aircraft operator • APOC Supervisor • De-icing coordinator • De-icing operator • Ground Controller
Input	• Procedures for de-icing management are published and implemented • Airline together with the de-icing company have planned and agreed upon when the aircraft will be loaded and boarded and when the de-icing can start and when it would end. • The predefined parameters table for de-icing vehicles serves as input in creating a driving list for the de-icing operator. • Pilot has made a de-icing request or • Such weather conditions exist that pilot with a high certainty is expected to make a de-icing request.
Output	• Aircraft safely de-iced • Minimization of delays • Time milestones shared by airport partners and by Network Manager
Control constraint	• Safety • Winter procedures.
Pre-condition	• Airport has an infrastructure which allows airport to provide de-icing operations in close connection to the aircraft primary parking areas • De-icing procedure is described in such a way that it is managed and recorded after the A-CDM turnaround phase • Airport has de-icing equipment, de-icing coordination and de-icing vehicles available • The drive up times between different de-icing positions are calculated for setting the driving parameters table • If requested, aircraft is pushed/towed to a stand where de-icing is allowed
Post-condition	• Network knows which time aircraft is ready and able to start in order to further predict TTOT and other relevant A-CDM milestone parameters.
Process flow	1. The Airport Operator publishes plan of usage of de-icing facilities 2. The Aircraft Operator provides the constraints and limitations for de-icing operation after push/short tow 3. The Aircraft de-icing Coordinator produces a short term de-icing plan (de-ice stand/area allocation has been made in the earlier phase) 4. The aircraft requests a de-icing after push back 5. The Aircraft Operator provides a TOBT and a TSAT must have been issued by ATC 6. In case of after push de-icing, the Aircraft Operator requests push/ tow from the ATC within valid A-CDM time frames (TOBT/TSAT) 7. The de-icing Operator confirms the de-icing request with an ECZT (Estimated Commence of De-icing Time) consistent with the TOBT and TSAT and including the push back duration 8. The confirmation of the order is used to update the de-icing operator's plan 9. The Aircraft Operator prepares the aircraft for de-icing operation 10. The De-icing Operator monitors the actual start, end and duration of de-icing times and adjusts parameters if needed 11. The de-icing Operator executes the de-icing 12. The Aircraft Operator operates the aircraft according to given A-CDM parameters

UC 662 02. Handle After Push back De-icing *According to the De-icing processes described in the 6.6.2 – OSED V2.*	
Item	**Specification**
	13. The process ends when the aircraft taxies out from the de-icing position
Alternative Flow	None

D.3.10 UC 662 03. Handle On Stand De-icing

UC 662 03. Handle On Stand De-icing *According to the de-icing processes described in the 6.6.2 – OSED V2.*	
Item	**Specification**
Purpose	Organize the On-stand de-icing activities for minimizing the de-icing delays and improving the predictability of departure time
Stakeholder	• Aircraft operator • APOC Supervisor • De-icing coordinator • De-icing operator • Ground Controller
Input	• Procedures for de-icing management are published and implemented • Airline together with the de-icing company have planned and agreed upon when the aircraft will be loaded and boarded and when the de-icing can start and when it would end. • The predefined parameters table for de-icing vehicles serves as input in creating a driving list for the de-icing operator. • Pilot has made a de-icing request or • Such weather conditions exist that pilot with a high certainty is expected to make a de-icing request.
Output	• Aircraft safely de-iced • Minimization of delays • Time milestones shared by airport partners and by Network Manager
Control constraint	• Safety • Winter procedures.
Pre-condition	• Airport has an infrastructure which allows airport to provide de-icing operations in close connection to the aircraft primary parking areas. • De-icing procedure is described in such a way that it is managed and recorded after the A-CDM turnaround phase. • Airport has de-icing equipment, de-icing coordination and de-icing vehicles available. • The drive up times between different de-icing positions are calculated for setting the driving parameters table.
Post-condition	• Network knows which time aircraft is ready and able to start in order to further predict TTOT and other relevant A-CDM milestone parameters.
Process flow	1. The Airport Operator publishes plan of usage of de-icing facilities 2. The Aircraft Operator provides the constraints and limitations for de-icing operation On stand or After push/short tow 3. The Aircraft De-icing Coordinator produces a short term de-icing plan (de-ice stand/area allocation has been made in the earlier phase) 4. The Aircraft Operator plans the aircraft handling in a way that they are able to provide a TOBT to the A-CDM platform according to A-CDM process requirements 5. The aircraft requests a de-icing on stand 6. The De-icing Operator confirms the de-icing request with an ECZT (Estimated Commence of De-icing Time) 7. The confirmation of the order is used to update the de-icing operator's plan 8. The Aircraft Operator prepares the aircraft for de-icing operation 9. The De-icing Operator monitors the actual start, end and duration of de-icing times and adjusts parameters if needed 10. The De-icing Operator executes the de-icing 11. The Aircraft Operator requests start up from the ATC according to given TSAT window 12. The Aircraft Operator operates the aircraft according to given A-CDM parameters

UC 662 03. Handle On Stand De-icing *According to the de-icing processes described in the 6.6.2 – OSED V2.*	
Item	**Specification**
	13. The process ends when the aircraft roll out from the stand
Alternative Flow	None

D.3.11 UC 662 04. Handle Remote De-icing

UC 662 04. Handle Remote De-icing *According to the De-icing processes described in the 6.6.2 – OSED V2.*	
Item	**Specification**
Purpose	Organize the Remote de-icing activities for minimizing the de-icing delays and improving the predictability of departure time
Stakeholder	• Aircraft operator • APOC Supervisor • De-icing coordinator • De-icing operator • Remote De-icing coordinator • Ground Controller
Input	• Procedures for de-icing management are published and implemented • Pilot has made a de-icing request or • Such weather conditions exist that pilot with a high certainty is expected to make a de-icing request.
Output	• Aircraft safely de-iced • Minimization of delays • Time milestones shared by airport partners and by Network Manager
Control constraint	• Safety • Winter procedures.
Pre-condition	• Airport has an infrastructure which allows airport to provide a specific area for remotely operated de-icing. • Remote de-icing is usually performed with all engines running or only one engine shut down at a time. • Procedures for remote de-icing management are published and appropriate procedures are implemented. • Airport has de-icing equipment, remote de-icing coordination equipment and de-icing units available.
Post-condition	• Network knows which time aircraft is ready and able to start in order to further predict TTOT and other relevant A-CDM milestone parameters.
Process flow	1. The Airport Operator publishes plan of usage of de-icing facilities 2. The Aircraft Operator provides the constraints and limitations for de-icing remote operations 3. The Aircraft De-icing Coordinator produces a short term de-icing plan 4. The De-icing Operator reserves de-icing resources according to the airport de-icing plan 5. The Remote De-icing Coordinator prepares to execute the remote de-icing operations plan by monitoring number of available resources and weather conditions and adjusting the planning parameters accordingly 6. The Aircraft Operator plans the aircraft handling in a way to be able to provide a TOBT into the A-CDM platform 7. The Airport De-icing Coordinator monitors the traffic situation at the airport and updates the short term de-icing plan if needed 8. The Remote De-icing Coordinator updates the remote area short term plan if needed 9. The Aircraft Operator operates the aircraft according to given A-CDM parameters 10. The Remote De-icing Coordinator supervises the actual start-up/off block times and adjusts the remote de-icing plan if needed 11. The Aircraft Operator prepares the aircraft for de-icing operation 12. The De-icing Operator monitors the actual start, end and duration of de-icing times and adjusts parameters if needed 13. The Remote De-icing Coordinator allocates the most appropriate track at remote de-icing area. Monitors the actual start, end and duration of de-icing times and adjusts parameters if needed

UC 662 04. Handle Remote De-icing *According to the De-icing processes described in the 6.6.2 – OSED V2.*	
Item	**Specification**
	14. The De-icing Operator executes the de-icing 15. The Aircraft Operator operates the aircraft to the runway departure position 16. The process ends when the aircraft roll out from the de-icing pad
Alternative Flow	None

D.3.12 UC 654 01a/b/c/d. Analyse alert and create Overall Impact Message activity in order to determine the impact on deviations from the plan (normal operations)

UC 654 01a. Analyse a performance alert and instantiate an Overall Impact Message

UC 654 01a. Analyse a performance alert and instantiate an Overall Impact Message	
Item	**Specification**
Purpose	Analysis of a performance alert with its special characteristics and instantiate an overall impact message.
Stakeholder	APOC Supervisor or responsible stakeholder
Input	• Performance Alert
Output	• Analysis of the performance alert with collection of background information about the influence on the airport performance
Control constraint	• Performance rules of the Monitor Airport Performance Service • Performance targets set by the input criteria
Pre-condition	• Reception of a performance alert through the system
Post-condition	• Partly filled Overall Impact Message or closure of the performance alert
Process flow	1. The alert will be indicated in the system to the APOC Supervisor or responsible stakeholder and simultaneously an Overall impact Message is instantiated 2. The system generates automatically an OIM containing the • message ID • Alert ID • Alert Code • Alert Description • Message status 3. The APOC supervisor analysis the alert mainly through (flight schedule, CCTV, phone call to involved stakeholders) to gain information about the performance alert and its implications 4. APOC Supervisor decides whether it is worth continuing analysing with other involved stakeholders and hence start the APOC process 5. The APOC Supervisor assesses the Overall Impact Message and fills in the fields based on the information available at that time, including fields 8 (Responsible Stakeholder) and 9 (Other Stakeholders) 6. The "send" button can be pushed at any time in order to distribute the latest information Next step is to start UC 654 01
Alternative Flow	[4] The APOC Supervisor decides that the alert is not relevant / has no impact on the airport performance 5. The APOC Supervisor changes the Message status to "cancelled" 6. The Use Case ends when the APOC support system records the cancelled OIM
Failure Flow	None

UC 654 01b. Analyse a performance warning in the APOC and possible instantiation of an Overall Impact Message

UC 654 01b. Analyse a performance warning in the APOC and possible instantiation of an Overall Impact Message	
Item	**Specification**
Purpose	Analysis of a performance warning with its special characteristics and instantiate an overall impact message if deemed necessary. A warning my give a hint for a problem with a larger scale and needs to be analysed carefully.
Stakeholder	APOC Supervisor or responsible stakeholder
Input	• Warning from the Performance Monitor
Output	• Analysis of the performance warning with collection of background information about the influence on the airport performance
Control constraint	• Performance rules of the Monitor Airport Performance Service • Performance targets set by the input criteria
Pre-condition	• Reception of a warning from the Performance Monitor through the system
Post-condition	• Partly filled Overall Impact Message or closure of the performance warning
Process flow	1. The warning will be indicated in the system to the APOC Supervisor or responsible stakeholder and simultaneously an Overall impact Message is instantiated 2. The system generates automatically an OIM containing the • Message ID • Warning ID • Warning Code • Warning Description • Message status 3. The APOC supervisor analysis the warning mainly through (flight schedule, CCTV, phone call to involved stakeholders) to gain information about the performance warning and its implications 4. APOC Supervisor decides whether it is worth continuing analysing with other involved stakeholders and hence start the APOC process 5. The APOC Supervisor assesses the Overall Impact Message and fills in the fields based on the information available at that time, including fields 8 (Responsible Stakeholder) and 9 (Other Stakeholders) 6. The “send” button can be pushed at any time in order to distribute the latest information Next step is to start UC 654 01
Alternative Flow	[4] The APOC Supervisor decides that the warning is not relevant / has no impact at the moment on the airport performance 4. The APOC Supervisor changes the status of the warning to “cancelled” 5. The APOC support system stores the warning in the database for later post ops operation and removes it from the HMI 6. The process ends
Failure Flow	None

UC 654 01c. Analyse an event report and instantiate an Overall Impact Message

UC654 01c. Analyse an event report and instantiate an Overall Impact Message	
Item	**Specification**
Purpose	Analysis of an event report transmitted by any means with its special characteristics and instantiate an overall impact message if deemed necessary
Stakeholder	All stakeholders
Input	• Event Report
Output	• Analysis of the event report with collection of background information about the influence on the airport performance
Control constraint	• None
Pre-condition	• Reception of event report through different means of information
Post-condition	• Partly filled Overall Impact Message with all available information
Process flow	1. An message about a disruption at the airport will be transmitted to the APOC Supervisor via any means of communication (Phone, Fax, E-Mail, Chat Message, carrier pigeon, etc.) 2. The APOC Supervisor analyses the message to gain situational awareness (flight schedule, CCTV, phone call to other involved stakeholders on site, etc.) 3. The APOC Supervisor creates an Event Report in the system and decides who will be the responsible stakeholder 4. The system generates the OIM • message ID • Event ID • Event Code: “Event Report” • Message status 6. The system displays the Overall Impact Message to the APOC Supervisor or the responsible stakeholder 7. The APOC Supervisor or the responsible stakeholder assesses the Overall Impact Message and fills in the fields based on the information available at that time, including field 4 (Alarm / Event description) 8. The “send” button can be pushed at any time in order to distribute the latest information Next step is to start UC 654 01
Alternative Flow	[3] The APOC Supervisor decides that the message is not relevant / has no impact on the airport performance 3. The process ends
Failure Flow	None

UC 654 01d. Analyse an escalated process alert in the APOC and instantiation of an Overall Impact Message

UC 654 01d. Analyse an escalated process alert in the APOC and instantiation of an Overall Impact Message	
Item	**Specification**
Purpose	Analysis of an escalated process alert with its special characteristic and instantiate an overall impact message if deemed necessary. This kind of escalated alert is declared as warning on APOC level. The APOC Supervisor will make the assigned stakeholder aware of the escalated process alert.
Stakeholder	APOC Supervisor
Input	• Escalated Process Alert: it is a process alert that is displayed to the APOC supervisor in case a responsible stakeholder does not solve the problem within a specific timeframe
Output	• Analysis of the escalated alert with a collection of background information about the influence to the airport and take action
Control constraint	• Process rules of the Monitor Airport Performance Service • Process targets set by the input criteria
Pre-condition	• Reception of an escalated alert through the system
Post-condition	• Any action taken by the responsible stakeholder.
Process flow	1. Escalated Alert will be displayed in the system to the APOC Supervisor. 2. The APOC Supervisor will make the responsible stakeholder aware of the escalated process alert and discuss the next steps 3. The responsible stakeholder solves the problem and the alert disappears 4. End of process flow
Alternative Flow	[3] The APOC Supervisor detects that the alert is still indicated See UC 654 01a
Failure Flow	None

D.3.13 UC 654 02. Analyse any deviation from the plan on APOC level from 654 01a/b/c/d and complete the Overall Impact Message

UC 654 02. Analyse any deviation from the plan on APOC level from 654 01a/b/c/d and complete the Overall Impact Message	
Item	**Specification**
Purpose	The Overall Impact Message provides background information, an initial indication of the impact on operations (KPI's). Where possible, any relevant information from the past related to comparable situations / conditions is collected. It is prime input for the Make Decision process in order to determine the necessity for individual or collaborative action and the best solution to be taken.
Stakeholder	APOC Supervisor or responsible stakeholder
Input	• Initial but incomplete Overall Impact Message
Output	• Completed Overall Impact Message approved by all involved stakeholders
Control constraint	• Collaborative collection of data and common agreement of the content of the Overall Impact Message
Pre-condition	• Instantiated but incomplete Overall Impact Message filled from the APOC supervisor or responsible stakeholder provided by UC 654 01a/b/c/d
Post-condition	• Completed Overall Impact Message all Items (as far as available) to be filled in • 1. Message Identifier, 2. Alert Identifier, 3. Alert Code, 4. Alert/Event Description, 5. Probability of Occurrence, 6. Disruption duration, 7. Disruption location, 8. Responsible Stakeholder, 9. Other Stakeholder, 10. Possible Impact 11. (forecasted) Overall Impact on KPI, 12. Severity Level, 13. Message status

UC 654 02. Analyse any deviation from the plan on APOC level from 654 01a/b/c/d and complete the Overall Impact Message	
Item	**Specification**
Process flow	1. The APOC Supervisor publishes the Overall Impact Message using the system trough the "send" button 2. The APOC system displays the Overall Impact Message to the assigned stakeholder(s) based on fields 8 (Responsible Stakeholder) and 9 (Other Stakeholder) 3. The responsible and the involved stakeholders retrieves recorded Overall Impact Messages from the past corresponding to the current situation referring to the alert Code 4. The responsible stakeholder asks all involved stakeholders to determine the overall impact of the alert on the agreed KPIs 5. The involved stakeholders perform a local impact assessment on the KPIs via their own systems 6. The involved stakeholders provide the responsible stakeholder with the impact on the agreed KPIs 7. The responsible stakeholder aggregates the KPIs and assesses the impact at airport level using the APOC system 8. The responsible stakeholder updates field 11 ((forecasted) Overall Impact on KPIs) of the Overall Impact Message 9. The responsible stakeholder determines the severity level in collaboration with all involved stakeholders 10. The responsible stakeholder updates the Overall Impact Message with the Severity level (field 12) 11. The responsible stakeholder publishes the Overall Impact Message using the APOC system by pushing the "publish" button 12. The Use Case ends when the APOC system records and displays the Overall Impact Message to the relevant stakeholder(s) based on fields 8 (Responsible Stakeholder) and 9 (Other Stakeholder)
Alternative Flow	[10] The responsible stakeholder decides to set a different severity level from the level suggested by all involved stakeholders 11. The responsible stakeholder sets the severity level in the APOC system. 12. The process flow continues in step [12]
Failure Flow	None

D.3.14 UC 654 03. Acknowledgement of the Overall Impact Message and initiation of a Solution Message

UC 654 03. Acknowledgement of the Overall Impact Message and initiation of a Solution Message	
Item	**Specification**
Purpose	Describing the acknowledgement process activities of the Overall Impact Message and the initiation of the Solution Message activities on the basis of the output of the Assess Overall Impact process
Stakeholder	APOC Supervisor and all involved stakeholders
Input	• Completed Overall Impact Message
Output	• Acknowledged Overall Impact Message by all involved stakeholders • Initiated Solution Message • Additional KPIs to monitor potentially deterioration of the situation • Agreed goals and criteria
Control constraint	• Performance rules of the Monitor Airport Performance Service • Performance targets set by the input criteria
Pre-condition	• The Overall Impact Message is published and recorded
Post-condition	• Partially completed Solution Message, containing of; 1. Solution Message Identifier, 2. Alert/Warning Identifier (consecutive number from Monitor), 3. Overall Impact Message Identifier, 4. Additional temporarily thresholds for KPIs, 5. Additional goals and criteria (if necessary)
Process flow	1. The APOC system displays to the involved stakeholders a message asking to acknowledge the reception of the Overall Impact Message 2. The involved stakeholders acknowledge the reception of the Overall Impact Message using the APOC system 3. The APOC system records that all the stakeholders have confirmed the Overall Impact Message 4. The APOC Supervisor coordinates a collaborative decision for temporary additional KPI thresholds that need to be implemented to monitor deterioration of the situation 5. The APOC supervisor initiates a Solution Message 6. The APOC system generates a Solution Message and automatically fills in the fields: - Solution Message Identifier - Alert/Warning Identifier - Overall Impact Message Identifier 7. The APOC system displays the Solution Message to the APOC Supervisor 8. If necessary the APOC Supervisor fills in the value and period of time fields for additional KPI thresholds 9. End Use Case << The process continues with UC 661 01 Search and find pre-defined Candidate Solution for adverse condition event>>
Alternative Flow	[2] One or multiple other stakeholders have not acknowledged the Overall Impact Message. 3. The APOC Supervisor contacts all involved stakeholders that not have acknowledged the Overall Impact Message and ask them to acknowledge the Overall Impact Message 4. The flow continues at step 5

D.3.15 UC 661 01. Search and find pre-defined Candidate Solution for adverse condition event and finalise Solution Message

UC 661 01. Search and find pre-defined Candidate Solution for adverse condition event and finalise Solution Message

Pre-defined solutions are described in the pre-defined solution table which is stored in the AOP. This UC will help to find a set of appropriate solutions for the occurred events and make it available for the collaborative decision making process. In case no pre-defined solution is available, a new ad-hoc candidate solution has to be developed.

Item	Specification
Purpose	Search and find a candidate solution(s) set to handle and solve the adverse condition event with the most positive impact on the KPAs and the entire performance of the airport under this adverse condition.
Stakeholder	All involved stakeholders
Input	• Initiated Solution Message
Output	• A set of best suitable candidate solutions out of the stored pre-defined solution table in order to assess the impact of the candidate solutions on operations during the entire duration of the disturbance • A set of best suitable predefined solutions to achieve an optimal recovery back to normal operations • Finalised Solution Message
Control constraint	• Performance rules of the decision making process • Performance targets set by the input criteria
Pre-condition	• Retrieved pre-defined solutions • Historical data
Post-condition	• A set of pre-defined solutions • Selected candidate solution • Documentation of the Solution Message, containing of; 1. Solution Message Identifier, 2. Alert/Warning Identifier (consecutive number from Monitor), 3. Overall Impact Message Identifier, 4. Additional temporarily thresholds for KPIs, 5. Additional Goals and Criteria (if necessary), 6. Candidate solution(s), 7. Selected solution
Process flow	1. The APOC Supervisor launches a first search command in the system to retrieve a coarse selection of stored pre-defined solution messages based upon the alert code and alert description 2. The APOC system displays all corresponding pre-defined candidate solutions to all involved stakeholders 3. The APOC Supervisor asks the involved stakeholders to individually refine the search result based on additional event information to select their three (maximum) candidate solutions 4. Each involved stakeholder evaluates if the preferred candidate solutions are applicable through the execution of plausible checks 5. Each involved stakeholder sends the preferred candidate solutions to the APOC Supervisor and other involved stakeholders 6. The APOC Supervisor coordinates a collaborative decision to select a maximum of three best suitable and applicable pre-defined candidate solutions 7. The APOC Supervisor inserts maximum three selected pre-defined candidate solutions in the Solution Message 8. The APOC Supervisor asks all involved stakeholders to assess the impact of the three candidate solutions on the stakeholder's processes 9. The involved stakeholders send the result of the assessment of the candidate solutions to the APOC Supervisor and other involved stakeholders

<table>
<tr><th colspan="2">UC 661 01. Search and find pre-defined Candidate Solution for adverse condition event and finalise Solution Message
Pre-defined solutions are described in the pre-defined solution table which is stored in the AOP. This UC will help to find a set of appropriate solutions for the occurred events and make it available for the collaborative decision making process. In case no pre-defined solution is available, a new ad-hoc candidate solution has to be developed.</th></tr>
<tr><th>Item</th><th>Specification</th></tr>
<tr><td></td><td>10. The APOC supervisor coordinates a collaborative decision for the best suitable candidate solution supported by all involved stakeholders (severity level B)
11. All stakeholders agree on a solution
12. The APOC Supervisor selects the solution
13. The APOC Supervisor publishes the Solution Message and the system stores it into the AOP
14. All stakeholders have to implement the selected solution
15. End Use Case</td></tr>
<tr><td>Alternative flow</td><td>[2] No pre-defined or no applicable Solution Messages are retrieved from the APOC support system
3. The process flow continues in UC 661 02 Develop an ad-hoc candidate solution for adverse condition event if no pre-defined solution is available</td></tr>
<tr><td>Alternative flow</td><td>[10] The severity level is level C or D
11. The APOC Supervisor coordinates a collaborative provisional agreement for the best suitable candidate solution supported by all other stakeholders
12. The APOC Supervisor discusses the proposed candidate solution with the NMOC Supervisor and they agree on the chosen solution
13. The APOC Supervisor communicates the results of the contact with the NMOC Supervisor to the other stakeholders and they collaboratively decide to implement chosen candidate solution
14. The process flow continues at step 11</td></tr>
<tr><td>Alternative flow</td><td>[11] If no collaborative decision is possible
15. The APOC Supervisor decides which selected solution is being implemented</td></tr>
</table>

D.3.16 UC 661 02. Develop an ad-hoc candidate solution for adverse condition event if no pre-defined solution is available

UC 661 02. Develop an ad-hoc candidate solution for adverse condition event if no pre-defined solution is available.

In case no pre-defined solution is available, the stakeholder have to develop a ad-hoc candidate solution to manage the performance and a recovery to normal operation after an adverse condition

Item	Specification
Purpose	Develop an appropriate ad-hoc candidate solution set to handle and resolve the adverse condition event with the most positive impact on the KPAs and the entire performance of the airport under this adverse condition.
Stakeholder	All involved stakeholders
Input	• Initiated Solution Message • Defined goals and criteria • Decision from UC 661 01 that no pre-defined candidate solution set is available.
Output	• Proposal of a set of new ad-hoc candidate solutions, based on the collaborative development to be used in the next steps of the decision making process • Basis for further refinement to elaborate new pre-defined solutions within the post ops analysis process
Control constraint	• Performance rules of the decision making process. • Performance targets set by the input criteria.
Pre-condition	• No pre-defined solutions are available or not applicable
Post-condition	• A set of candidate solutions
Process flow	1. The procedure is launched under two circumstances: • No pre-defined solutions associated to the event are found by the solution search application (launched by assigned stakeholders) in the AOP. (UC 661_01) • Pre-defined solutions retrieved by stakeholders from the AOP (data repository or post-ops) are not applicable and do not meet the criteria of applicability. (UC 661_01) 2. The APOC Supervisor advises, the involved APOC-stakeholders to give inputs and ideas to develop new candidate solutions by sending their candidate solution table by filling in the solution message 3. The process flow continues in UC 661 01 step 4 4. End Use Case
Alternative Flow	None

D.3.17 UC 661 03. Create and/or Update of the pre-defined solution table with a candidate solution

UC 661 03. Create and/or Update of the pre-defined solution table with a candidate solution *Pre-defined candidate solutions will be available in the pre-defined solution table. All stakeholders must have the possibility to update this table with either new candidate solutions or update the existing candidate solutions.*	
Item	**Specification**
Purpose	Update of the pre-defined solution table with new candidate or update existing solutions in order to have suitable candidate solutions
Stakeholder	All assigned APOC Stakeholders
Input	The pre-defined solution table in case of an adverse condition • a questionnaire will determine the preferences of each stakeholder and will be translated into the table as a start of filling in the table as long as no experienced solutions out of the practice are available • a new candidate solution, extracted from a post operations analysis after an adverse condition • an existing preferred solution known out of a previous situation which was a potential candidate solution in a certain circumstance.
Output	• A list of pre-defined candidate solutions to be assessed in an adverse condition.
Control constraint	• Performance rules of the decision making process. • Performance targets set by the input criteria.
Pre-condition	• A table with different kinds of adverse condition situations. Every assigned stakeholder has defined candidate solutions in different adverse condition situations.
Post-condition	• A set of pre-defined candidate solutions on which three best solutions can be chosen to perform an assessment on the impact on the performance under the adverse condition. • Different proper available candidate solutions will make the decision making process much more easy within a reasonable timeframe. Depending on the forecast of an adverse condition or a sudden occurrence, the pre-defined solution table will offer more than one candidate solution for a specific event. Three best solutions for solving the adverse condition are chosen and being assessed upon the impact on operations.
Process flow	1. The monitoring is sending an alert when the airport is running into an adverse condition 2. In case the alert is forecasting an adverse condition long enough prior to the real occurrence, there will the enough time for negotiation and a decision making process in order to decide on possible solutions in order to manage the performance of the airport the best possible way 3. In case of the adverse condition is a sudden event and there is no time for a long decision making process, a set of pre-defined candidate solutions is needed in order to find solutions for the event 4. In the pre-defined solution table eventual candidates solutions are listed, coming from experiences from the past or as a preference of an assigned stakeholder 5. Three best solutions are taken out of the list and are being assessed 6. After each adverse condition a post analyses will be performed 7. In case of the post analysis shows that the pre-defined candidate solutions must be updated or even new candidate solutions must be inserted, every assigned stakeholder will update/insert the candidate solution in the table 8. The updated matrix is stored in the AOP
Alternative Flow	None

D.3.18 Airport arrivals management using TTA procedures.

The enhancement of the airport arrivals management through the use of a Target Time of Arrival (TTA) sent by Network Manager is considered as a first attempt to achieve this objective. So the Network Operations Plan (NOP) could be timely updated with Airport Transit View (ATV) changes, by linking Inbound and Outbound aircraft at the destination airport.

Better knowledge of the TTA by the destination airport as soon as it is known at the origin airport could also improve the airport capacity management process and thus improve the overall network performance by improving traffic evolution monitoring. The Network Manager would have more accurate airport capacity and demand data and new DCB measures could be triggered.

On the other hand, from the destination airport point of view, this arrival monitoring could improve the ground management (park/gate management, handling resources and staff management ...) and reduce or manage the impact on departures.

Within this context, the following Use Cases describes how the TTA information calculated by the Network Management (NM) system could be used for airport operations management purposes:

- Better arrival information due to the TTA will timely allow assessing the impact on the next departure, as well as in the arrival procedures;
- New improved procedures can be introduced to reduce the knock-on effect on the aircraft departure, e.g. using the previous off-block time for the next rotation.

A proper use of that information will allow the airport to move from the reactive management to the proactive management by feeding back with new information exchange with the NM by updating the TTA impact on the airport.

As a consequence, the NM will have to evaluate the possibility of change this constraint, taking into account the severity of the impact on the airport performance and coordinating it at the sub-regional level with all the affected FABs by the aircraft trajectory.

The process flow integrates two data information exchange:

- A TTA data sent by the NM to the Airport (Airport Operator, Aircraft Operator, Handler) and the affected ATSUs;
- An AIMA data sent back from the Airport to the NM including the severity of the TTA impact and a proposed improvement window to be used by the NM.

These data exchange will contain the information needed by both, the Airport and the NM to implement:

- The airport impact assessment procedure to generate the AIMA data;
- The NM procedure to re-allocate the TTAs within the requested by the AIMA.

General Assumptions:

- The destination airport has an Airport Operations Plan (AOP). This plan is considered as the common, coherent and consistent plan for all airport stakeholders and is used as information sharing platform with all of them.
- An Airport Impact Assessment model (AIMA) is used at the destination airport. This model has been previously developed and agreed by all airport stakeholders in a collaborative manner taking into account all possible circumstances, such as traffic peak situation, airport lay-out, capacity limitations, type of traffic, time of the day...;
- If the origin airport belongs to the ECAC area, TTA information will be sent to the destination airport, before take-off, for all arrival flights independently of the level of congestion (both normal and congested situations) and their regulation status (regulated aircraft or not)[14];

[14] Under no congested situations without regulated flights, the Time of Arrival scheduled in the SBT/RBT is assumed as TTA.

- The TTA calculated by the NM system is referred to one final fix defined in the arrival procedures.
- The UDPP processes are out of the scope of these Use Cases;
- The B2B connection with NM system is available at the destination airport.

Actors in the Use Cases:

The actors included in the scope of these Use Cases are:

- **Network Manager (NM):** acts as catalyst and facilitator for an efficient overall network management by all ATM stakeholders, including the airports. In the Medium/Short Term Planning phase, he/she is responsible for the compilation of the Network Operations Plan (NOP), successive integration of Shared Business Trajectories (SBTs), collection and dissemination of constraints and real-time identification of conflicts between (accepted and agreed) Reference Business Trajectories (RBTs) and (newly published) SBTs and the communication of these interactions to the corresponding Airspace Users;
- **Airline Operations and Control Centre (AOC):** is an organisational unit of an airline hosting the roles of Flight Dispatcher, Slot Manager, Strategic and Tactical Manager. The overall responsibility of the AOC is to maintain the integrity of the scheduled Flight Programme and to take in real time the necessary decisions in order to manage all the flights within the airline network. The AOC is responsible for improving airline network performance (integrity) and optimization of the SBT (prior to departure) and RBT (execution phase) to ensure the users' business objectives for a flight are met. It devises solutions for constraints arising from the NOP;
- **Ground Handling Agents:** is responsible for executing the aircraft turn-round agreements established with the Aircraft Operators and the turn-round of all arriving aircraft. Ground Handling covers a complex series of processes that are required to separate an aircraft from its load (passengers, baggage, cargo and mail) on arrival and combine it with its load prior to departure. In particular, the ground handling agents is responsible for defining ground operations staff plans, managing ground handling resource allocation and ground handling activities in accordance with its main on time performance objectives.
- **Airport Operator:** is responsible for the physical conditions on the manoeuvring area, apron and in the environs of the aerodrome. This includes assurance that the scale of equipment and facilities provided are adequate for the flying activities which are expected to take place.

Identified casuistry:

The Impact Assessment performed by the Airport to evaluate for each arrival flight the TTA impact on the AOP and its severity as well as to allocate the TTA improvement window is based on the schedule and the operational situation.

- Severity will be reflected by a number from 0 to 3 (0 no impact; 3 maximum impact) and a letter A.
- The improvement window will be given in minutes

Five different casuistries have been identified depending on the assessed impact according to the following impact table:

Casuistic	Impact	Severity	Proposal for Improvement
1	On time arrival (No impact)	0	None
2	Early arrival with no airport impact	A	Potential use for swapping or shifting

3	Early arrival Expected lack of APT resources	1, 2 or 3	Potential use for swapping or shifting. And also time improvement window in minutes
4	Late arrival with Knock-on effect	2 + *airline contribution	Time improvement window in minutes
5	Late arrival without knock-on effect on that aircraft	1 + *airline contribution	Time improvement window in minutes

* The Airline can increase the severity of the impact calculated by the Airport Impact Assessment Model through an “Airline Contribution” parameter to reflect flight priorities such as connections, curfew issues, etc.

While the Airport sends impact assessments and improvement windows for each arrival TTA, the Network Manager will consider the Airport proposals from a global perspective and will re-allocate TTAs based on the airport data and the assessed impact of a set of flights into the Network

These Use Cases have been developed in the following sections for congested situations which were identified as priority to be developed. The parallel Use Cases for uncongested situations could be considered as simplifications of them.

The operational process takes place at the end of the Short Term Planning phase, i.e. for every flight a certain time ahead of the departure at origin airport, typically two hours.

1. UC 631 01. On time Arrival under congested situation

UC 631 01. On time Arrival under congested situation	
Item	**Specification**
Purpose	This Use Case describes how the TTA procedures are used to optimize network and airports management, in particular, how the destination airport assesses the impact of TTA for the arrival flights on its AOP and how the NM uses the airport feedback. It starts at EOBT-3 hr when the FPL is submitted and ends when de aircraft takes-off at origin airport. All actions take place at the end of the Short Term Planning Phase, when the aircraft is still at the origin airport.
Stakeholder	• Network Manager • Sub-Regional Network Manager • Airspace User • Airport Operator
Input	• The Network Manager sends the TTA calculated by his/her system and the Airport evaluates its impact on the AOP • The NM addresses the possibility of TTA updating taking into account the improvement window proposed by the airport • The Sub-Regional Managers of the involved ACCs and the airspace users are informed on the final TTA
Output	• Optimized network and airport management
Control constraint	
Pre-condition	• Availability of SWIM connection between NM system and the destination airport • The destination airport is operating under congested situation • The TTA at the destination airport is calculated by the NM system as soon as the aircraft is at a predetermined time from its EOBT/TOBT at the origin airport • There are AOP and Impact Assessment Model available at the destination airport and agreed by all airport stakeholders

UC 631 01. On time Arrival under congested situation	
Item	**Specification**
Post-condition	• **Success End State** The TTAs are allocated by the NM taking into account the proposed improvement window, if possible, and the AOP and NOP are updated accordingly. • **Failure End State** The AOP is unable to assess the TTA impact and/or the NOP is unable to process and use the AIMA messages to refine the TTA allocation. **Notes** The impact of the TTAs received from the NM system on the AOP is assessed, evaluating for each arrival aircraft: • Deviation from the planning (deviation from Scheduled In Block Time (SIBT) in minutes); • Severity of the impact on AOP (0 = no impact, 1 = low impact, 2 = medium impact, 3 = high impact), A = early arrival no impact); • Proposed Improvement Window to improve the TTA; • Impact on the associated departure flight in a “Do-Nothing” situation. The airline could increase the Severity of the impact calculated by the Impact Assessment Model through an “Airline Contribution” parameter based on its business interests. The NM analyses the information received from the airport and assesses the possibility of complying with the airport proposals. The NM system sends Updated TTA messages to the airport, ATSUs affected by the aircraft trajectories and the concerned AOCs. The NOP and AOP are updated accordingly. **Triggers** The Use Case starts at EOBT-3 hr when the FPL is submitted.

UC 631 01. On time Arrival under congested situation	
Item	**Specification**
Process flow	**General process flow:** 1. At EOBT-3 hr the AU submits the FPL. FPL is distributed to ATC, Airport and FMP 2. 15 minutes after step 1 the AU send a Change Message containing the Estimated Elapsed Time for the last fix on FPL field 15 and the Taxi out if available. The FPL is updated and distributed as in step 1. 3. Local FMP monitor the traffic demand versus capacity. In case of DCB unbalance request regulation to NMOC 4. After step 3, NMOC publish the regulation and send AIM Message. At that moment Pre-allocated CTOT and TTA are available on the NOP portal and are available to the airport via SWIM 5. At EOBT-2 hr NMOC System allocates CTOT and TTA, send a SAM Message and makes visible TTA on the NOP portal. TTA are available to the airport via SWIM 6. At Off-Block time minus X minutes the Airport Impact Assessment Tool proposes the default Impact Assessment containing the Severity and the TTA window, which is available to the airlines through the AOP. 7. The AU has time until Off-Block time minus Y minutes to update the Impact Assessment with their contribution (Change severity and/or improvement window) following the agreed rules. 8. After step 7 the Airport transfers the Impact Assessment to the NMOC via SWIM. 9. In a continuous mode the NMOC monitor the Impact Assessment against ETFMS slot list 10. Combined with step 9 the NMOC assess the Network Impact of solutions proposed. 11. Few minutes before the Off-Block time the NMOC apply slot list actions into ETFMS and send Slot Revision Message, Slot Cancellation Message and their related updates. 12. After step 11 the assessment (accepted or rejected) is visible on the AOP 13. All AOP fields are updated and the new TTA is visible to the AU. 14. After step 13 the AU send the TTA to the flight crew using ACARS. 15. From take-off the crew manage the flight to target within cost index and TTA tolerance parameters **On time arrival:** The result of the Impact Assessment shows: -t $\leqslant AD \leqslant$ impact on AOP and severity “0 + Airline contribution”, no proposal for improvement window. The severity isn’t changed by the airline (Airline contribution = 0). A tolerance parameter (t) will be used to set the TTA/AOP deviation threshold. AD is used to define the arrival deviation.

UC 631 01. On time Arrival under congested situation	
Item	**Specification**
Alternative Flow	**[1] NM system computes the TTA and sends the message to the destination airport** 16. The NM checks that the flight is closed to the EOBT at the origin airport 17. The Destination Airport doesn't send any feedback message for the arrival flight 18. The NM decides to update the TTA without acceptance from the destination airport. The NM system could calculate a new TTA at this point 19. NM system sends an updated TTA message to the destination airport, ATSUs affected by the aircraft trajectory and the concerned AOC 20. The NOP is updated accordingly 21. The AOP is updated accordingly

2. UC 631 02. Early Arrival with no airport impact under congested situation

UC 631 02. Early Arrival with no impact on AOP under congested situation	
Item	**Specification**
Purpose	This Use Case describes how the TTA procedures are used to optimize network and airports management, in particular, how the destination airport assesses the impact of TTA for the arrival flights on its AOP and how the NM uses the airport feedback. It starts at EOBT-3 hr when the FPL is submitted and ends when de aircraft takes-off at origin airport. All actions take place at the end of the Short Term Planning Phase, when the aircraft is still at the origin airport.
Stakeholder	• Network Manager • Sub-Regional Manager
Input	• The Network Manager sends the TTA calculated by his/her system and the Airport evaluates its impact on the AOP. The NM addresses the possibility of TTA updating taking into account the improvement window proposed by the airport. • The Sub-Regional Managers of the involved ACCs and the airspace users are informed on the final TTA.
Output	• Optimized network and airport management with no impact on AOP due to early arrival
Control constraint	
Pre-condition	• Availability of SWIM connection between NM system and the destination airport • The destination airport is operating under congested situation • The TTA at the destination airport is calculated by the NM system as soon as the aircraft is at a predetermined time form its EOBT/TOBT at the origin airport • There are AOP and Impact Assessment Model available at the destination airport and agreed by all airport stakeholders

UC 631 02. Early Arrival with no impact on AOP under congested situation	
Item	**Specification**
Post-condition	**Success End State** The TTA is re-allocated by the NM taking into account the proposed improvement window and, if possible, the AOP and NOP are updated accordingly. **Failure End State** The AOP and NOP are updated with a TTA set by the NM. **Notes** The impact of the TTAs received from the NM system on the AOP is assessed, evaluating for each arrival aircraft: • Deviation from the planning (deviation from Scheduled In Block Time (SIBT) in minutes); • Severity of the impact on AOP (0 = no impact; 1 = low impact; 2 = medium impact; 3 = high impact); • Proposed Improvement Window to improve the TTA; • Impact on the associated departure flight in a “Do-Nothing” situation. The airline could increase the Severity of the impact calculated by the Impact Assessment Model through an “Airline Contribution” parameter based on its business interests. The NM analyses the information received from the airport and assesses the possibility of complying with the airport proposals. The NM system sends Updated TTA messages to the airport, ATSUs affected by the aircraft trajectories and the concerned AOCs. The NOP and AOP are updated accordingly. **Triggers** The Use Case starts at EOBT-3 hr when the FPL is submitted.
Process flow	**General process flow:** 1. At EOBT-3 hr the AU submit the FPL. FPL is distributed to ATC, Airport and FMP 2. 15 minutes after step 1 the AU send a Change Message containing the Estimated Elapsed Time for the last fix on FPL field 15 and the Taxi out if available. The FPL is updated and distributed as in step 1. 3. Local FMP monitor the traffic demand versus capacity. In case of DCB unbalance request regulation to NMOC 4. After step 3, NMOC publish the regulation and send AIM Message. At that moment Pre-allocated CTOT and TTA are available on the NOP portal and are available to the airport via SWIM 5. At EOBT-2 hr NMOC System allocates CTOT and TTA, send a SAM Message and makes visible TTA on the NOP portal. TTA are available to the airport via SWIM 6. At Off-Block time minus X minutes the Airport Impact Assessment Tool proposes the default Impact Assessment containing the Severity and the TTA window, which is available to the airlines through the AOP. 7. The AU has time until Off-Block time minus Y minutes to update the Impact Assessment with their contribution (Change severity and/or improvement window) following the agreed rules. 8. After step 7 the Airport transfers the Impact Assessment to the NMOC via SWIM.

UC 631 02. Early Arrival with no impact on AOP under congested situation	
Item	**Specification**
	9. In a continuous mode the NMOC monitor the Impact Assessment against ETFMS slot list 10. Combined with step 9 the NMOC assess the Network Impact of solutions proposed. 11. Few minutes before the Off-Block time the NMOC apply slot list actions into ETFMS and send Slot Revision Message, Slot Cancellation Message and their related updates. 12. After step 11 the assessment (accepted or rejected) is visible on the AOP 13. All AOP fields are updated and the new TTA is visible to the AU. 14. After step 13 the AU send the TTA to the flight crew using ACARS. 15. From take-off the crew manage the flight to target within cost index and TTA tolerance parameters **Early arrival with no impact on AOP:** Impact Assessment is started to detect deviation from the AOP, assess its severity and propose an improvement window, if applicable. A tolerance parameter (t) will be used to set the TTA/AOP deviation threshold. AD will be used to define the arrival deviation The result of the Impact Assessment shows: AD [illegible] t "A + Airline Contribution", appropriate TTA but also appropriate delay up to: TTA-AD. The severity isn't changed by the airline (Airline contribution = 0) A feedback message is sent to the NM with the following information: - Severity of the impact on AOP (A = Early arrival no impact); - Proposed Window: [TTA, TTA-AD]
Failure flow	**[1] NM system computes the TTA and sends the message to the destination airport** 16. The NM checks that the flight is closed to the EOBT at the origin airport 17. The Destination Airport doesn't send any feedback message for the arrival flight 18. The NM decides to update the TTA without acceptance from the destination airport. The NM system could calculate a new TTA at this point 19. NM system sends an updated TTA message to the destination airport, ATSUs affected by the aircraft trajectories and the concerned AOCs 20. The NOP is updated accordingly 21. The AOP is updated accordingly

3. UC 631 03. Early Arrival with impact on AOP under congested situation

UC 631 03. Early Arrival with impact on AOP under congested situation	
Item	**Specification**
Purpose	This Use Case describes how the TTA procedures are used to optimize network and airports management, in particular, how the destination airport assesses the impact of TTA for the arrival flights on its AOP and how the NM uses the airport feedback. It starts at EOBT-3 hr when the FPL is submitted and ends when de aircraft takes-off at origin airport. All actions take place at the end of the Short Term Planning Phase, when the aircraft is still at the origin airport.
Stakeholder	• Network Manager • Sub-Regional Network Manager • Airspace User • Airport Operator
Input	• The Network Manager sends the TTA calculated by his/her system and the Airport evaluates its impact on the AOP. The NM addresses the possibility of TTA updating taking into account the improvement window proposed by the airport. • The Sub-Regional Managers of the involved ACCs and the airspace users are informed on the final TTA.
Output	• Optimized network and airport management after assessment of impact on AOP due to early arrival
Control constraint	
Pre-condition	• Availability of SWIM connection between NM system and the destination airport • The destination airport is operating under congested situation • The TTA at the destination airport is calculated by the NM system as soon as the aircraft is at a predetermined time form its EOBT/TOBT at the origin airport • There are AOP and Impact Assessment Model available at the destination airport and agreed by all airport stakeholders

UC 631 03. Early Arrival with impact on AOP under congested situation	
Item	**Specification**
Post-condition	**Success End State** The TTA is re-allocated by the NM taking into account the proposed improvement window and, if possible, the AOP and NOP are updated accordingly. **Failure End State** The AOP and NOP are updated with a TTA set by the NM. **Notes** The impact of the TTAs received from the NM system on the AOP is assessed, evaluating for each arrival aircraft: • Deviation from the planning (deviation from Scheduled In Block Time (SIBT) in minutes); • Severity of the impact on AOP (0 = no impact; 1 = low impact; 2 = medium impact; 3 = high impact), A = early arrival no impact); • Proposed Improvement Window to improve the TTA; • Impact on the associated departure flight in a "Do-Nothing" situation. The airline could increase the Severity of the impact calculated by the Impact Assessment Model through an "Airline Contribution" parameter based on its business interests. The NM analyses the information received from the airport and assesses the possibility of complying with the airport proposals. The NM system sends Updated TTA messages to the airport, ATSUs affected by the aircraft trajectories and the concerned AOCs. The NOP and AOP are updated accordingly. **Triggers** The Use Case starts when the TTA at the destination airport is calculated by the NM system, typically two hours ahead of the departure at origin airport.
Process flow	
Failure flow	**[1] NM system computes the TTA and sends the message to the destination airport** 1. The NM checks that the flight is closed to the EOBT at the origin airport 2. The Destination Airport doesn't send any feedback message for the arrival flight 3. The NM decides to update the TTA without acceptance from the destination airport. The NM system could calculate a new TTA at this point 4. NM system sends an updated TTA message to the destination airport, ATSUs affected by the aircraft trajectories and the concerned AOCs 5. The NOP is updated accordingly 6. The AOP is updated accordingly

4. UC 631 04. Late Arrival with Knock-on effect under congested situation

UC 631 04. Late Arrival with Knock-on effect under congested situation	
Item	**Specification**
Purpose	This Use Case describes how the TTA procedures are used to optimize network and airports management, in particular, how the destination airport assesses the impact of TTA for the arrival flights on its AOP and how the NM uses the airport feedback. It starts at EOBT-3 hr when the FPL is submitted and ends when de aircraft takes-off at origin airport. All actions take place at the end of the Short Term Planning Phase, when the aircraft is still at the origin airport.
Stakeholder	• Network Manager • Sub-Regional Network Manager • Airspace User • Airport Operator
Input	• The Network Manager sends the TTA calculated by his/her system and the Airport evaluates its impact on the AOP. The NM addresses the possibility of TTA updating taking into account the improvement window proposed by the airport • The Sub-Regional Managers of the involved ACCs and the airspace users are informed on the final TTA
Output	• Optimized network and airport management after assessment of impact on AOP due to late arrival with knock-on effect
Control constraint	
Pre-condition	• Availability of SWIM connection between NM system and the destination airport • The destination airport is operating under congested situation • The TTA at the destination airport is calculated by the NM system as soon as the aircraft is at a predetermined time from its EOBT/TOBT at the origin airport • There are AOP and Impact Assessment Model available at the destination airport and agreed by all airport stakeholders

<table>
<tr><th colspan="2">UC 631 04. Late Arrival with Knock-on effect under congested situation</th></tr>
<tr><th>Item</th><th>Specification</th></tr>
<tr><td>Post-condition</td><td>Success End State
The TTA is re-allocated by the NM taking into account the proposed improvement window and, if possible, the AOP and NOP are updated accordingly.
Failure End State
The AOP and NOP are updated with a TTA set by the NM.
Notes
The impact of the TTAs received from the NM system on the AOP is assessed, evaluating for each arrival aircraft:
• Deviation from the planning (deviation from Scheduled In Block Time (SIBT) in minutes);
• Severity of the impact on AOP (0 = no impact, 1 = low impact, 2 = medium impact, 3 = high impact);
• Proposed Improvement Window to improve the TTA;
• Impact on the associated departure flight in a “Do-Nothing” situation.
The airline could increase the Severity of the impact calculated by the Impact Assessment Model through an “Airline Contribution” parameter based on its business interests.
The NM analyses the information received from the airport and assesses the possibility of complying with the airport proposals.
The NM system sends Updated TTA messages to the airport, ATSUs affected by the aircraft trajectories and the concerned AOCs.
The NOP and AOP are updated accordingly.
Triggers
The Use Case or casuistry starts at EOBT- 3hr when FPL is submitted.</td></tr>
<tr><td>Process flow</td><td>General process flow:
1. At EOBT-3 hr the AU submits the FPL. FPL is distributed to ATC, Airport and FMP
2. 15 minutes after step 1 the AU send a Change Message containing the Estimated Elapsed Time for the last fix on FPL field 15 and the Taxi out if available. The FPL is updated and distributed as in step 1
3. Local FMP monitor the traffic demand versus capacity. In case of DCB unbalance request regulation to NMOC
4. After step 3, NMOC publish the regulation and send AIM Message. At that moment Pre-allocated CTOT and TTA are available on the NOP portal and are available to the airport via SWIM
5. At EOBT-2 hr NMOC System allocates CTOT and TTA, send a SAM Message and makes visible TTA on the NOP portal. TTA are available to the airport via SWIM
6. At Off-Block time minus X minutes the Airport Impact Assessment Tool proposes the default Impact Assessment containing the Severity and the TTA window, which is available to the airlines through the AOP
7. The AU has time until Off-Block time minus Y minutes to update the Impact Assessment with their contribution (Change severity and/or improvement window) following the agreed rules
8. After step 7 the Airport transfers the Impact Assessment to the NMOC via SWIM</td></tr>
</table>

UC 631 04. Late Arrival with Knock-on effect under congested situation	
Item	**Specification**
	9. In a continuous mode the NMOC monitor the Impact Assessment against ETFMS slot list 10. Combined with step 9 the NMOC assess the Network Impact of solutions proposed 11. Few minutes before the Off-Block time the NMOC apply slot list actions into ETFMS and send Slot Revision Message, Slot Cancellation Message and their related updates 12. After step 11 the assessment (accepted or rejected) is visible on the AOP 13. All AOP fields are updated and the new TTA is visible to the AU 14. After step 13 the AU send the TTA to the flight crew using ACARS 15. From take-off the crew manage the flight to target within cost index and TTA tolerance parameters **Late arrival with knock-on effect:** - Impact Assessment is started to detect deviation from the AOP, assess its severity and propose an improvement window if applicable calculating the AD, DD, a and d parameters associated to the arrival flight. The AD and d parameters are compared with an arrival (t) and departure (u) parameters respectively. Two tolerance parameters (t, u) will be used to set the TTA /AOP deviation threshold. AD and d will be used to define the arrival and departure deviation, respectively. - The result of the Impact Assessment shows: AD and departure delay, severity "2 + Airline Contribution", improvement window up to TTA-a (only for a contribution = 0). - An AIMA message is sent to the NM with the following information: Severity of the impact on AOP (2 = medium impact); Proposed Improvement Window: [TTA-a, TTA]. The value a is assessed by the Impact Assessment Model. - NM analyses the possibility of complying with the airport proposals to improve the TTA. After this analysis, the NM sets the final TTA. The final TTA will improve the initial one, if possible. In this network analysis, the NM will try to improve the TTA for this flight due to the severity of its impact on the AOP (2 = medium impact).
Failure flow	**[1] NM system computes the TTA and sends the message to the destination airport** 16. The NM checks that the flight is closed to the EOBT at the origin airport. 17. The Destination Airport doesn't send any feedback message for the arrival flight 18. The NM decides to update the TTA without acceptance from the destination airport. The NM system could calculate a new TTA at this point 19. NM system sends an updated TTA message to the destination airport, ATSUs affected by the aircraft trajectories and the concerned AOCs 20. The NOP is updated accordingly 21. The AOP is updated accordingly

5. UC 631 05. Late Arrival without knock-on effect under congested situation

UC 631 05. Late Arrival without Knock-on effect under congested situation	
Item	**Specification**
Purpose	This Use Case describes how the TTA procedures are used to optimize network and airports management, in particular, how the destination airport assesses the impact of TTA for the arrival flights on its AOP and how the NM uses the airport feedback. It starts at EOBT-3 hr when the FPL is submitted and ends when de aircraft takes-off at origin airport. All actions take place at the end of the Short Term Planning Phase, when the aircraft is still at the origin airport.
Stakeholder	• Network Manager • Sub-Regional Network Manager • Airspace User • Airport Operator
Input	• The Network Manager sends the TTA calculated by his/her system and the Airport evaluates its impact on the AOP. The NM addresses the possibility of TTA updating taking into account the improvement window proposed by the airport • The Sub-Regional Managers of the involved ACCs and the airspace users are informed on the final TTA
Output	• Optimized network and airport management after assessment of impact on AOP due to late arrival with knock-on effect
Control constraint	
Pre-condition	• Availability of SWIM connection between NM system and the destination airport • The destination airport is operating under congested situation • The TTA at the destination airport is calculated by the NM system as soon as the aircraft is at a predetermined time from its EOBT/TOBT at the origin airport • There are AOP and Impact Assessment Model available at the destination airport and agreed by all airport stakeholders

UC 631 05. Late Arrival without Knock-on effect under congested situation	
Item	**Specification**
Post-condition	**Success End State** The TTA is re-allocated by the NM taking into account the proposed improvement window and, if possible, the AOP and NOP are updated accordingly. **Failure End State** The AOP and NOP are updated with a TTA set by the NM. **Notes** The impact of the TTAs received from the NM system on the AOP is assessed, evaluating for each arrival aircraft: • Deviation from the planning (deviation from Scheduled In Block Time (SIBT) in minutes); • Severity of the impact on AOP (0 = no impact, 1 = low impact, 2 = medium impact, 3 = high impact) , A = early arrival no impact); • Proposed Improvement Window to improve the TTA; • Impact on the associated departure flight in a “Do-Nothing” situation. The airline could increase the Severity of the impact calculated by the Impact Assessment Model through an “Airline Contribution” parameter based on its business interests. The NM analyses the information received from the airport and assesses the possibility of complying with the airport proposals. The NM system sends Updated TTA messages to the airport, ATSUs affected by the aircraft trajectories and the concerned AOCs. The NOP and AOP are updated accordingly. **Triggers** The Use Case or casuistry starts at EOBT-3 hr when the FPL is submitted.
Process flow	**General process flow:** 1. At EOBT-3 hr the AU submit the FPL. FPL is distributed to ATC, Airport and FMP 2. 15 minutes after step 1 the AU send a Change Message containing the Estimated Elapsed Time for the last fix on FPL field 15 and the Taxi out if available. The FPL is updated and distributed as in step 1 3. Local FMP monitor the traffic demand versus capacity. In case of DCB unbalance request regulation to NMOC 4. After step 3, NMOC publish the regulation and send AIM Message. At that moment Pre-allocated CTOT and TTA are available on the NOP portal and are available to the airport via SWIM 5. At EOBT-2 hr NMOC System allocates CTOT and TTA, send a SAM Message and makes visible TTA on the NOP portal. TTA are available to the airport via SWIM 6. At Off-Block time minus X minutes the Airport Impact Assessment Tool proposes the default Impact Assessment containing the Severity and the TTA window, which is available to the airlines through the AOP 7. The AU has time until Off-Block time minus Y minutes to update the Impact Assessment with their contribution (Change severity and/or improvement window) following the agreed rules 8. After step 7 the Airport transfers the Impact Assessment to the NMOC via SWIM

UC 631 05. Late Arrival without Knock-on effect under congested situation	
Item	**Specification**
	9. In a continuous mode the NMOC monitor the Impact Assessment against ETFMS slot list 10. Combined with step 9 the NMOC assess the Network Impact of solutions proposed 11. Few minutes before the Off-Block time the NMOC apply slot list actions into ETFMS and send Slot Revision Message, Slot Cancellation Message and their related updates 12. After step 11 the assessment (accepted or rejected) is visible on the AOP 13. All AOP fields are updated and the new TTA is visible to the AU 14. After step 13 the AU send the TTA to the flight crew using ACARS 15. From take-off the crew manage the flight to target within cost index and TTA tolerance parameters **Late arrival without knock-on effect:** - Impact Assessment is started to detect deviation from the AOP, assess its severity and propose an improvement window if applicable Two tolerance parameters (t, u) will be used to set the TTA /AOP deviation threshold. AD and d will be used to define the arrival and departure deviation, respectively. - The result of the Impact Assessment shows: AD [severity "1 + Airline Contribution", improvement window up to TTA-a (only for a ☐ 0). - An AIMA message is sent to the NM with the following information: Severity of the impact on AOP (1 = low impact); Proposed Improvement Window: [TTA-a, TTA]. The value a is assessed by the Impact Assessment Model. - NM analyses the possibility of complying with the airport proposals to improve the TTA. After this analysis, the NM sets the final TTA. The final TTA will improve the initial one, if possible. In this network analysis, the NM will try to improve the TTA for this flight due to the severity of its impact on the AOP (1 = low impact).
Failure flow	**[1] NM system computes the TTA and sends the message to the destination airport** 16. The NM checks that the flight is closed to the EOBT at the origin airport 17. The Destination Airport doesn't send any feedback message for the arrival flight 18. The NM decides to update the TTA without acceptance from the destination airport. The NM system could calculate a new TTA at this point 19. NM system sends an updated TTA message to the destination airport, ATSUs affected by the aircraft trajectories and the concerned AOCs 20. The NOP is updated accordingly 21. The AOP is updated accordingly

D.3.19 UC AOM 03. Detect non-compliance of target performance level

UC AOM 03. Detect non-compliance of target performance level	
Item	**Specification**
Purpose	This Use Case describes how the Monitor Airport Performance Platform detects the non-compliance of planning in the AOP with the target performance level. The target may be missed due to various reasons, e.g. sufficient resources may not be available at the airport airside and landside levels. The Use Case ends when the when a non-compliance of a target performance level is detected and the alert function is activated. This process operates continually from the Medium Term Planning Phase until the end of the Day of Execution for which the Plan is applicable.
Stakeholders	Airport Performance Steering Administrator, Airport Performance Monitoring System Administrator, Airport Database, Monitoring System
Input	• Performance targets – from the Airport Performance Steering Service and communicated by the Airport Performance Steering Administrator • Airport Data – automatic amendment of the airport data as triggered by the receipt of new information from any of the Stakeholder systems
Output	• Alert – generated as per the ‘Raise Alert Process’
Control Constraint	• N/A
Pre-condition	• The Airport Operational (Local) Plan determined/revised at the Long Term Planning Phase or last Medium/Short term Airport Operational Plan is known to the System • Airport data (as described by the AOP Content description) is via the Airport Database(s) • Applicable KPI / PDI calculation equations are pre-loaded in the Airport Performance Monitoring System • Applicable KPI / PDI performance targets (high and/or low) can be adjusted by the Airport Performance Monitoring System Administrator
Post-condition	• Alert raised
Process flow	1. The APOC Airport Monitoring function continuously monitors Airport Data to detect deviations from the target performance level 2. As soon as new data is inserted/updated in the Airport Database(s), the monitoring function checks if the plan is still feasible by comparing the altered KPI / PDI figure to the performance target for that KPI / PDI 3. When data is updated to a value that does not permit the plan to comply with the target performance level, an Alert is raised as per the ‘Raise Alert Process’

D.3.20 UC 661 07. Identify and manage a recovery management plan

UC 661 07. Identify and manage a Recovery Management Plan	
Item	**Specification**
Purpose	The aim of this use case is to describe how the airport stakeholders create and maintain a recovery management plan in a collaborative manner when an adverse condition occurs.
Stakeholder	• Airport Operator • Airspace Users / Ground Handlers • ANSP (local) • Network Manager • APOC Supervisor
Input	• In case of meteorological event: MET observations and forecasts • In case of non weather related event: estimated time of the end of the disruption provided by the stakeholder who is the most affected by the incident and / or who manages its effects • In all cases: o TOBT from airspace users / ground handlers o RWY capacity from ATC (if modified)
Output	• The recovery scenario on which the recovery plan is based.
Control constraint	• Throughput capacity (RWY, TWY) depending on the MET conditions or the location of the incident and its impact on the RWY and TWY • Performance indicators
Pre-condition	• Awareness of the airport stakeholders about the start of the recovery management process to return to normal conditions.
Post-condition	• Execution of the agreed recovery plan.
Process flow	1. When receiving information about the improvement of MET conditions or the estimated time when the incident will end, the APOC Supervisor triggers the recovery process and alerts the concerned stakeholders in the APOC 2. The APOC staff enter the required data (reference scenario, RWY capacity and time when this capacity will be reached, time of the return to a normal traffic flow on the RWY or on the TWY after ground disruption, etc.) in the System 3. Each stakeholder checks and confirms the accuracy of the available data in the AOP, especially the TOBTs 4. The APOC Supervisor launches the simulation 5. The System proposes several scenarios, ranked according to their impact on the KPAs 6. If necessary, the APOC staff adjusts the scenario parameters to identify the best solution to the disruption 7. The APOC Supervisor confirms the selected scenario which becomes the recovery plan 8. The recovery plan is inserted in the AOP. It becomes the reference for the coming period 9. The normal process of departure sequence calculation is activated, providing new TOBTs, TSATs and TTOTs and/or CTOTs 10. Each stakeholder implements the plan in line with their responsibilities 11. The APOC staff monitors the effects of the recovery plan on the airport performance 12. The UC ends when the operations are back to normal conditions
Alternative Flow	None

D.3.21 UC 661 08. Agree on and implement a recovery management plan in adverse weather conditions

UC 661 08. Agree on and implement a recovery management plan in adverse weather conditions	
Item	**Specification**
Purpose	This UC describes the processes associated to the detection of an improvement in the weather forecasts, which encourages the airport stakeholders to define and implement a recovery management plan.
Stakeholder	• MET Service Provider • Airport Operator • Airspace Users / Ground Handlers • ANSP (local) • Network Manager • APOC Supervisor
Input	• MET observations and forecasts • TOBT from airspace users / ground handlers • RWY capacity from ATC (if modified)
Output	• Alert about positive evolution • Updated traffic sequences • The airport stakeholders take the appropriate decisions in a collaborative way to prepare the return to normal operations
Control constraint	• Throughput capacity (RWY, TWY) depending on the MET conditions • Performance indicators
Pre-condition	• Detailed and continuous follow up of MET evolution to identify the possible return to better conditions • Continuous update of TOBTs by airspace users / ground handlers
Post-condition	• Readiness of airport stakeholders to start the recovery management plan after the "green light" from the APOC Supervisor

UC 661 08. Agree on and implement a recovery management plan in adverse weather conditions	
Item	**Specification**
Process flow	1. The MET Service Provider identifies an improvement of the weather situation (outside of airport domain/OFA05.01.01) 2. The MET Service Provider uses the MET System to update the weather forecast with new meteorological information (outside of airport domain/OFA05.01.01) 3. The updated and overruled MET data generates (additional) alerts and warnings for the airport stakeholders via IWIS/WISADS, in particular for the TWR Supervisor, the APP Supervisor and the APOC Supervisor 4. In case of questions or doubts, the stakeholders contact the MET Service Provider directly for clarification (using telephone or other means) 5. Based on this weather forecast update, the APOC Supervisor indicates what is the reference scenario which will be the basis on which the recovery plan is built 6. Each stakeholder evaluates the impact of this scenario on his/her operations 7. The TWR Supervisor defines the RWY capacity evolution 8. The APOC Supervisor organises the return to normal operations through CDM processes involving all the airport stakeholders to select the best recovery scenario 9. The APOC Supervisor confirms the selected scenario, which becomes the recovery plan, ("green light") and informs the airport stakeholders 10. The TWR Supervisor uses the DMAN to prepare the next departure sequence 11. The APP Supervisor uses the AMAN to prepare the next arrival sequence 12. The UC ends when the operations are back to normal conditions
Alternative Flow	None

D.3.22 UC 661 09. Agree on and implement a recovery management plan after a technical incident

UC 661 09. Agree on and implement a recovery management plan after a technical incident	
Item	**Specification**
Purpose	This UC describes the processes associated to the detection of an improvement after a technical incident, which encourages the airport stakeholders to define and implement a recovery management plan.
Stakeholder	• Airport Operator • Airspace Users / Ground Handlers • ANSP (local) • Network Manager • APOC Supervisor
Input	• Estimated time of the end of the disruption provided by the stakeholder who is the most affected by the incident and / or who manages its effects. • TOBT from airspace users / ground handlers
Output	• Alert about positive evolution • Updated traffic sequences
Control constraint	• Throughput capacity (RWY, TWY) depending on the location of the incident and its impact on the RWY and TWY Performance indicators
Pre-condition	• Detailed and continuous follow up of the resolution of the incident to identify the possible return to better conditions • Continuous update of TOBTs by airspace users / ground handlers
Post-condition	• Readiness of airport stakeholders to start the recovery management plan after the "green light" from the APOC Supervisor
Process flow	1. The stakeholder who is the most affected by the incident and / or who manages its effects (i.e. Responsible Stakeholder) defines and maintains a resolution plan 2. The APOC Supervisor indicates what is the reference scenario which will be the basis on which the recovery plan is built 3. The Responsible Stakeholder inserts the estimated time of return to normal operations in the system 4. Each stakeholder evaluates the impact of this scenario on his/her operations 5. The TWR Supervisor defines the RWY capacity evolution (if necessary) 6. The APOC Supervisor organises the return to normal operations through CDM processes involving all the airport stakeholders to select the best recovery scenario 7. The APOC Supervisor confirms the selected scenario, which becomes the recovery plan, ("green light") and informs the airport stakeholders 8. The TWR Supervisor uses the DMAN to prepare the next departure sequence 9. The APP Supervisor uses the AMAN to prepare the next arrival sequence 10. The UC ends when the operations are back to normal conditions
Alternative Flow	None

D.3.23 UC 661 10. Prioritise an airport resource in adverse conditions

UC 661 10. Prioritise an airport resource in adverse conditions	
Item	**Specification**
Purpose	This UC describes the prioritisation processes that are triggered in adverse conditions when an airport resource is severely impacted by a disruption. These processes aim at optimising the usage of the resource(s) affected by an adverse condition, guaranteeing their fair and efficient allocation.
Stakeholder	• Airport stakeholder representatives in the APOC • APOC Supervisor
Input	• Quantitative and qualitative impact of the deviation on the airport operations. • Latest plan contained in the AOP: o Planned overall airport performance o Planned aircraft processes for each ABT o Planned passenger processes o Planned baggage / cargo processes o Planned airport demand o Planned airport capacity • Weather forecasts and observations
Output	• Prioritised resource allocation.
Control constraint	• Airport Performance Framework
Pre-condition	• The APOC decision support tools are able to suggest a resource allocation to the airport stakeholder representatives in the APOC and the APOC Supervisor following the rules set by the Steer Airport Performance Service.
Post-condition	**Success end state:** • The APOC decision support tool has recorded the agreed resource allocation in the AOP. **Failed end state:** • The APOC decision support tool has recorded the resource allocation chosen by the APOC Supervisor in the AOP.
Process flow	1. The APOC impact assessment tool presents the resource severely impacted by the adverse condition, its capacity and the planned demand to the airport stakeholder representatives in the APOC and the APOC Supervisor 2. Each airport stakeholder representative in the APOC inserts their refine needs regarding the resource in the APOC decision support tools 3. The APOC decision support tools suggest an allocation of the demand to the resource to the airport stakeholder representatives in the APOC and the APOC Supervisor, following the prioritisation rules set by the Steer Airport Performance Service 4. The airport representatives in the APOC, under the coordination of the APOC Supervisor agree on the resource allocation suggested by the APOC decision support tools 5. The Use Case ends when the APOC decision support tool records the agreed resource allocation in the AOP

UC 661 10. Prioritise an airport resource in adverse conditions	
Item	**Specification**
Alternative Flow	[3] **The APOC decision support tool is not able to identify an allocation of the demand to the resource.** 6. The airport representatives in the APOC and the APOC Supervisor negotiate on the allocation of the demand to the resource following the rules set by the Steer Airport Performance Service 7. The airport representatives in the APOC and the APOC Supervisor agree on a resource allocation 8. The flow returns to step [5]
Failure Flow	[4] **The airport representatives in the APOC and the APOC Supervisor cannot agree on a resource allocation.** 9. The APOC Supervisor chooses a resource allocation 10. The Use Case ends when the APOC decision support tools record the resource allocation chosen by the APOC Supervisor in the AOP
Alternative Flow	None

D.3.24 UC AOM 19. Not planned operational interruption on an E-CRA airport (e.g. Tyre burst on the runway)

UC AOM 19. Not planned operational interruption on an E-CRA airport (e.g. Tyre burst on the runway)	
Item	**Specification**
Purpose	This Use Case describes the flow of measures taken in case of a non-planned immediate event occurring on an E-CRA airport that temporarily stops the operations. This use case emphasizes the information sharing between the stakeholders, as well as the information updates, critical for a better optimisation of resources. The process also integrates the use of a what-if simulation tool, in order to plan a better recovery of the operations.
Stakeholder	• Airport operator • Local ANSP • Ground handler • Rescue and Firefighting resource • Airlines • Network manager
Secondary actors	
Input	• The airport is connected to the Network manager, it receives FUMs. • The AOP receive flights information from the AODB, as well as parking stands information. • The AOP gets the actual landing and take-off times from the local ANSP, as well as the TSATs. • The ground handling agents provide resource and equipment capabilities, and TOBT updates to the AOP.
Output	• Updated planning. • Performance indicators.
Control Constraint	• Throughput capacity depending on the nature of the event and its impact on the operations. • Performance framework of the airport.
Pre-condition	• The airport has an AOP and it is the exclusive data exchange platform to exchange information amongst all airport stakeholders and with the network. • The Airport staff is aware and trained in the procedures. • Crisis scenarios are ready to be implemented.
Post-condition	• The flight planning proposed by the simulations is implemented. • The performance indicators show a faster recovery of the operations.

D.3.25 UC AOM 20. Automation of the milestone process

UC AOM 20. Automation of the milestone process	
Item	**Specification**
Purpose	This Use Case describes the automation of the milestone process. The goal is to facilitate the milestone approach for CDM implementation, especially for regional airports. Any human input is throughout this use case minimized to keep the working load of the stakeholders at their current level, while augmenting their network integration as part of the A-CDM approach. The proposed method automatically calculates the next milestone from the data available and the previous milestones. It then informs the different actors involved of its results.
Stakeholder	• Airport operator • Local ANSP • Airlines • Ground handler

UC AOM 20. Automation of the milestone process	
Item	**Specification**
Secondary actors	• Ground handler
Input	The system must have access to the following data: • AODB. • Incoming flight plans. • FUMs. • TSAT, which will come from the ATC. • AOBT • ATOT • Airline boarding look-up table (gives the time necessary to boarding for an aircraft) • ALDT
Output	• The system automatically sends to the network manager the following DPI messages: A-DPI, E-DPI, T-DPI-t, T-DPI-s. • The system regroups the milestones as follows: o M0: Flight Plan activation o M1: E-DPI delivery o M3: Take-off from Outstation o M4 to 5: Aircraft Status Change to FIR to FINAL o M6 to 10: Aircraft status change from LND to IBK o M10: TSAT issue o M11: Aircraft status change to BRD o M12: Airport CEOPS checks RDY Status at TSAT-5' o M15: Aircraft Off-block
Control Constraint	• Performance indicators and thresholds.
Pre-condition	• There is a link with the network manager for DPI transmission and FUM reception. • All the stakeholders are willing to cooperate • The EXOT and EXIT are calculated and realistic.
Post-condition	• The TOBT updates are done automatically • There is no degradation of the accuracy of the TOBT • There is no degradation of the punctuality • The DPI messages meet the requirements defined in the DPI implementation manual

D.4 UC's for Post Operations Phase OS

D.4.1 UC 661 04. Prepare and publish a standard report

UC 661 04. Prepare and publish a standard report *According to the Post Operations Analysis rules defined by the Steer Performance service, a standard report has to be prepared and published.*	
Item	**Specification**
Purpose	Organize the Post Operations Analysis activities for preparing and publishing a standard report according to the Post Operations Analysis rules defined by the Steer Performance Service.
Stakeholder	• All airport Stakeholders • The Post Operations Analyst

UC 661 04. Prepare and publish a standard report *According to the Post Operations Analysis rules defined by the Steer Performance service, a standard report has to be prepared and published.*	
Item	**Specification**
Input	Output of previous phases, which are: • Planned and actual operational data from stakeholders • Alert messages and warning message from the Monitor Airport Performance • Solution message (completed) and overall impact message from Manage Airport Performance • OSB agreed parameters • Post-Operations Analysis rules defined by the Operational Steering Board (OSB)
Output	• Publish a Standard Post Operations analysis Final Report
Control constraint	• Post Operations Analysis rules
Pre-condition	• The Post Operations Analysis rules have to be defined and available • The data archiving process has to be terminated and the corresponding data have to be available
Post-condition	• The content of the report may be adjusted by additional comments from addressed stakeholders • The KPI's threshold may be adjusted by the Operational Steer Performance Board in case of frequent deviation
Process flow	1. The Post-Operations Analysis platform starts automatically the Post Operations Analysis report process according to the defined rules 2. The Post-Operations Analysis platform checks the list of reports which have to be edited 3. The Post-Operations Analysis platform selects one of the reports according to the defined selection rules by reference to the Post Operations Analysis rules 4. The Post-Operations Analysis platform checks the status of the selected report 5. The selected report is a standard report template corresponding to the system request 6. The Post-Operations Analysis platform selects the corresponding data according to the Post Operations Analysis rules 7. The Post-Operations Analysis platform retrieves the data from the AOP containing the recorded planned and actual operational data 8. Using the Standard Post Operations Analysis report template defined in the Post Operations Analysis rules corresponding to the selected report, the Post-Operations Analysis platform Post-Operations Analysis platform produces a raw report 9. The Post Operations Analyst control and assess the reliability of the raw report and agrees with the content 10. The Post Operations Analyst analyses the report with support of additional information from stakeholders or additional data from recorded data in the AOP 11. A: The Post Operations Analyst confirms his/her choice to The Post-Operations Analysis platform Post-Operations Analysis platform 12. B: The Post Operations Analyst issues additional information to the raw report 13. The Post Operations Analyst enters manually the necessary comments and explanations for improving the understanding of the report 14. The Post-Operations Analysis platform issues a "Complete Post Operations Analysis report" 15. At the requests of the Post-Operations Analysis platform Post-Operations Analysis platform, the Post Operations Analyst decides the report can be

UC 661 04. Prepare and publish a standard report *According to the Post Operations Analysis rules defined by the Steer Performance service, a standard report has to be prepared and published.*	
Item	**Specification**
	published as it is 16. if not a draft report shall be commented by stakeholders 17. The Post-Operations Analysis platform collects the report addresses list 18. The Post-Operations Analysis platform publishes the report to the corresponding stakeholders, to the AOP, the Steer Airport Performance and the Post Operations Analysis Platform 19. The Post-Operations Analysis platform records the published'" report 20. The Post-Operations Analysis platform checks the waiting list of reports to be issued (both standard and ad hoc if the request was introduce in the Post-Operations Analysis platform Post-Operations Analysis platform) 21. The Post-Operations Analysis platform Post-Operations Analysis platform: a) Go to 2) if there are reports on the waiting list b) Go to 19) if not 22. The Post-Operations Analysis platform asks if there is another ad hoc report to be produced manually: a) Go to 2) if there are reports on the waiting list b) Go to 19) if not 23. The Post-Operations Analysis platform ends the process
Alternative Flow	None

D.4.2 UC 661 05. Prepare and publish an "ad-hoc" report

UC 661 05. Prepare and publish an "ad-hoc" report *According to the Post Operations Analysis rules defined by the Steer Performance service, an ad-hoc report has to be prepared and published.*	
Item	**Specification**
Purpose	Organize the Post Operations Analysis activities for preparing and publishing an ad-hoc report according to the Post Operations Analysis rules defined by the Steer Performance Service.
Stakeholder	• All airport Stakeholders • APOC Supervisor • The Post Operations Analyst • *The Operational Steer Performance Board (other possible actor for preparing such a report – has to be confirmed and the use case modified accordingly)*
Input	Output of previous phases, which are: • Planned and actual operational data from the stakeholders • Alert messages and warning messages • Solution message and overall impact message • OSB agreed parameters • Post Operations Analysis rules defined by the Operational Steering Board (OSB) • Post Operations Analysis Ad-hoc report addresses • Post Operations Analysis Ad-hoc report indicators • Request for an ad-hoc report issued by the APOC Supervisor or by authorised persons listed in the Post Operations Analysis rules
Output	• Publish an ad-hoc Post Operations Analysis Final Report
Control constraint	• Post Operations Analysis rules
Pre-condition	• The Post Operations Analysis rules have to be defined and available • The data archiving process has to be terminated and the corresponding data have to be available • The request for an ad-hoc report has to be inserted in Post-Operations Analysis platform
Post-condition	• The content of the report may be adjusted by additional comments from addressed stakeholders • The KPI's threshold may be adjusted by the Operational Steer Performance Board in case of frequent deviation
Process flow	1. The Post-Operations Analysis platform checks the status of the selected report 2. The selected report is an ad hoc report 3. The Post Operations Analyst requests the Post-Operations Analysis platform to start an ad hoc report process 4. At the request of the Post-Operations Analysis platform, the Post Operations Analyst: a) Selects the correspondent KPI in the list of KPI proposed by the Post-Operations Analysis platform b) Selects the corresponding required data in the list of available operational data 5. The Post-Operations Analysis platform proposes reports templates 6. The Post Operations Analyst: a) Selects one of the existing template b) Design a new static Post Operations Analysis report template c) Design a dynamic Post Operations Analysis report template d) Checks or identifies the correspondent addresses of the ad hoc report 7. The Post-Operations Analysis platform retrieves the data from the AOP

UC 661 05. Prepare and publish an "ad-hoc" report *According to the Post Operations Analysis rules defined by the Steer Performance service, an ad-hoc report has to be prepared and published.*	
Item	**Specification**
	containing the recorded planned and actual operational data 8. The Post-Operations Analysis platform produces a raw report 9. The Post Operations Analyst control and assess the reliability of the raw report and agrees with the content 10. The Post Operations Analyst confirms his/her approval to The Post-Operations Analysis platform 11. The Post Operations Analyst issues additional information to the raw report 12. The Post Operations Analyst enters manually the necessary comments and explanations for improving the understanding of the report 13. The Post-Operations Analysis platform issues a "Complete Post Operations Analysis report" 14. At the requests of the Post-Operations Analysis platform, the Post Operations Analyst decides the report can be published as it is 15. The Post-Operations Analysis platform collects the report addresses list 16. The Post-Operations Analysis platform records an ad-hoc Post Operations Analysis report template in the Post Operations Analysis Platform 17. The Post-Operations Analysis platform publishes the report to the corresponding stakeholders, to the Steer Airport Performance Service and to additional audience 18. The Post-Operations Analysis platform records the published report 19. The Post-Operations Analysis platform checks the waiting list of reports to be issued (both standard and ad hoc if the request was introduce in the Post-Operations Analysis platform) 20. The Post-Operations Analysis platform: a) Go to 1) if there are reports on the waiting list b) Go to 19) if not 21. The Post-Operations Analysis platform asks if there is another ad hoc report to be produced manually: a) Go to 1) if there are reports on the waiting list b) Go to 20) if not 22. The Post-Operations Analysis platform ends the process
Alternative Flow	None

D.4.3 UC 661 06. Prepare and publish an "ad-hoc" report with the involvement of some stakeholders

UC 661 06. Prepare and publish an "ad-hoc" report *According to the Post Operations Analysis rules defined by the Steer Performance service, an ad-hoc report has to be prepared and published; the process requires the involvement of some stakeholders.*	
Item	**Specification**
Purpose	Organize the Post Operations Analysis activities for preparing and publishing an ad-hoc report according to the Post Operations Analysis rules defined by the Steer Performance Service; the preparation of this report requests the involvement of stakeholders.
Stakeholder	• All airport Stakeholders • APOC Supervisor • The Post Operations Analyst • *The Operational Steer Performance Board (other possible actor for preparing such a report – has to be confirmed and the use case modified accordingly)*
Input	Output of previous phases, which are: • Planned and actual operational data from Stakeholders • Alert messages and warning messages • Solution message and Overall impact message • OSB agreed parameters • Post Operations Analysis rules defined by the Operational Steer Performance Board (OSB) • Post Operations Analysis Ad-hoc report addresses • Post Operations Analysis Ad-hoc report indicators • Request for an ad-hoc report issued by the APOC Supervisor or by authorised persons listed in the Post Operations Analysis rules
Output	• Publish an ad-hoc Post Operations Analysis Final Report
Control constraint	• Post Operations Analysis rules
Pre-condition	• The Post Operations Analysis rules have to be defined and available; • The data archiving process has to be terminated and the corresponding data have to be available • The request for an ad-hoc report has to be inserted in the Post-Operations Analysis platform Post-Operations Analysis platform
Post-condition	• The content of the report may be adjusted by additional comments from addressed stakeholders • The KPI's threshold may be adjusted by the Operational Steer Performance Board in case of frequent deviation
Process flow	1. The Post-Operations Analysis platform checks the status of the selected report 2. The selected report is an ad hoc report 3. The Post Operations Analyst requests the Post-Operations Analysis platform to start an ad hoc report process 4. At the request of the Post-Operations Analysis platform, the Post Operations Analyst: a) Selects the correspondent KPI in the list of KPI proposed by the Post Operations Analysis system b) Selects the corresponding required data in the list of available operational data 5. The Post-Operations Analysis platform proposes reports templates, 6. The Post Operations Analyst: a) Selects one of the existing template b) Designs a new static Post Operations Analysis report template c) Designs a dynamic Post operations Analysis report template

UC 661 06. Prepare and publish an "ad-hoc" report *According to the Post Operations Analysis rules defined by the Steer Performance service, an ad-hoc report has to be prepared and published; the process requires the involvement of some stakeholders.*	
Item	**Specification**
	d) Checks or identifies the correspondent addresses of the ad hoc report 7. The ad-hoc Post Operations Analysis report template is recorded in the Post Operations Analysis Platform 8. The Post-Operations Analysis platform retrieves the data from the AOP containing the recorded planned and actual operational data 9. The Post-Operations Analysis platform produces a raw report 10. The Post Operations Analyst controls the reliability of the raw report and doesn't agree with the content. Additional information is necessary to issue the report 11. The Post-Operations Analysis platform asks the Post Operations Analyst to indicate how he/she expects to improve the report 12. The Post Operations Analyst asks for expert support from Stakeholders 13. The Post-Operations Analysis platform stands by for the restart decision by the Post Operations Analyst 14. The Post Operations Analyst analyses the reliability and the completeness of the analysed Post Operations Analysis report and decides to continue 15. The Post Operations Analyst adds manually the necessary comments and explanations for improving the understanding of the report 16. The Post-Operations Analysis platform issues a "Complete Post Operations Analysis report" 17. At the requests of the Post-Operations Analysis platform, the Post Operations Analyst decides the report can't be published as it is 18. The Post-Operations Analysis platform collects the list of addresses for comments on this ad-hoc report 19. The Post Operations Analyst confirms or amends the proposed list 20. The Post-Operations Analysis platforms ends the draft report to the designated addresses 21. Each selected stakeholder enters his/her comments in a text free area of the report 22. The Post-Operations Analysis platform displays the comments on the Post Operations Analyst work position 23. The Post Operations Analyst (by himself/herself or after stakeholder request) informs the concerned stakeholder a common analysis is requested for final publication 24. After this common analysis (whatever the form), the Post Operations Analyst modifies the ad hoc draft report 25. The Post-Operations Analysis platform issues a modified Post Operations Analysis report 26. The Post-Operations Analysis platform collects the ad hoc report addresses list 27. The Post-Operations Analysis platform publishes the ad hoc report to the corresponding stakeholders, the AOP, the Post Operations Analysis Platform and to the Steer Airport Performance Service 28. The Post-Operations Analysis platform records the published report automatically in the Post Operations Analysis Platform 29. The Post-Operations Analysis platform checks the waiting list of reports to be issued (both standard and ad hoc if the request was introduce in the Post-Operations Analysis platform). 30. The Post-Operations Analysis platform: a) Go to 1) if there are ad hoc reports on the waiting list b) Go to 30) if not 31. The Post-Operations Analysis platform asks if there is another ad hoc report to be produced manually: a) Go to 1) if there are ad hoc reports on the waiting list b) Go to 31) if not

UC 661 06. Prepare and publish an "ad-hoc" report *According to the Post Operations Analysis rules defined by the Steer Performance service, an ad-hoc report has to be prepared and published; the process requires the involvement of some stakeholders.*	
Item	**Specification**
	32. The Post-Operations Analysis platform ends the process
Alternative Flow	None

D.4.4 UC POP 01. Propose modifications to the Airport Performance Framework following a post operations analysis

UC POP 01. Propose modifications to the Airport Performance Framework following a post operations analysis	
Item	**Specification**
Purpose	Assess the performance reports and the need of new operational scenarios provided by the post-operations analysis service, to extract concrete conclusions that can lead into the developing of specific Airport Performance Framework changes (indicators, thresholds, rules or baseline) that can be implemented at the airport
Stakeholder	Performance Steering Committee members. Analyst staff form the following stakeholders that can include among others: • Airport Operator • Airspace Users (airlines) • Ground Handling Agent • De-icing Agent • ATC Provider
Input	Post-Operations Analysis report on: • Measurements of operational performance at airports • Identified needs of new pre-defined operational scenarios at the airport
Output	• List of potential changes to be introduced in the Airport Performance Framework (to be presented to the Performance Steering Committee), with a clear assessment of the operational improvements and indirect consequences of them. • Potential changes can be related to key performance areas (capacity, predictability, efficiency, flexibility and environmental sustainability) indicators, thresholds and their baseline but also to performance rules, including trade-off priorities and airport operational rules/restrictions.
Control constraint	• Airport operational restrictions (military, etc.) • Airport performance constraints (environmental, etc.)
Pre-condition	• Key performance areas to be analysed are identified • The need of new operational scenarios is identified
Post-condition	• Conclusions on the concrete changes that may be proposed to introduce in the airport Performance Framework to improve identified aspects linked to airport operations

UC POP 01. Propose modifications to the Airport Performance Framework following a post operations analysis	
Item	**Specification**
Process flow	1. The Performance Steering Committee chairman identifies the committee members that must be involved in the assessment of a specific report provided by the post-operations analysis Service, creating a working group. The choice of group members will take into account the performance area to be dealt with (capacity, predictability, efficiency, flexibility or environmental sustainability) and the need for a specific new operational scenario 2. Appointed stakeholders in the working group must analyze the report 3. Appointed stakeholders in the working group must develop their proposed strategy to achieve expected conclusions on the potential changes needed in the Airport Performance Framework, among others: • Requests of additional information to other stakeholders • Development of theoretical alternatives • Request of expert judgment • Making of tests to prove feasibility • Use of simulations, etc. 4. The working group commonly agrees a single strategy, and the list of actions to be taken is developed 5. After carrying out these actions, the results are analyzed by the group. • If results are not satisfactory enough, the need for a second iteration is detected and triggered. The process goes back to point 3 • When the results and the following conclusions are satisfactory, the group prepares a proposal to be presented for approval to the Performance Steering Committee

Appendix E List of OFA 05.01.01 Information Elements to be shared between AOP (X) and NOP.

E.1 Introduction.

Column headings in tables:

The table below consists of the following information:

Column 1 Information element

Column 2 Owner or prime (initial) source of the information element
First alternative in case the owner or prime source cannot provide the information element. For example: The Variable Taxi Time (VTT). The prime information source will be the A-SMGCS. However if the airport is not equipped with an A-SMGCS, the local ATC service provider – Apt Ground (1st alternative) may be the best source to provide the information. If the local ATC service provider is not able to do that, the AOP monitor (2nd alternative) mat provide the VTT determined from a look-up table based on combination of Runway. Runway Exit (or entry) and parking position.
Second alternative for source of information element

Column 3 Distributor of the information element. In case of shared information it can be either NOP → AOP or AOP → NOP. In case of non-shared information it will be only AOP. The label "from" does not mean that this entity (AOP or NOP) is the owner or creator of the information. For example FL ID is owned and created by the AOC (airspace user) and provided to the AOP through the NOP. The AOP synchronizes its information based in the information available in the NOP in order to have both the AOP and NOP contain the same information content.

Column 4 Comments

Colour coding:

Within the tables a colour coding has been used. The colour of the section header (e.g. "Flight Identification and Specification Information") equals the colour coding as used in the OFA 05.01.01 IER file.

Colour	Representation
	AOP – NOP Information sharing of element agreed between representatives of P6.5.4 and P7.6.1
	Information element not shared between AOP and NOP. Remains internal AOP

Table 2. Colour coding of the tables

Owner / Sources:

The following Owners / sources of specific Information elements has been distinguished

Owner / Source	Description
AOC	Airline Operations Centre - represents the Airspace User
AO	Airport Operator
NM	Network Manager / Management
Local ATC	Organisation(s) that provides the local ATC services at the specific airport (ground node / AOP (X))
GH	Ground Handler
DIA	De-Icing Agent
APOC Participants	All local airport stakeholders participating in the APOC (AirPort Operations Centre) of the Ground Node / AOP(X)

Owner / Source	Description
APOC Assign. Part.	A single APOC participant assigned for a specific task / activity
APOC Affect. Part.	The APOC participants affected by that specific task / activity
APOC Supervisor	Individual that acts as final decision maker in the APOC organisation
OSB	Operational Steering Board – of the Ground Node / AOP (X)
MET	MET office / officer
Flight Crew	Cockpit Crew and/or aircraft systems
Airport stakeholder's	All relevant Airport stakeholders, including users and service providers
A-SMGCS	Advanced Surface Movement Guidance & Control System - Surveillance system / tool at the Ground Node / AOP (X)
AMAN	Arrival MANager. Tool of the Local ATC to assist in the planning and management of inbound traffic flows towards the Ground Node / AOP (X)
DMAN	Departure MANager – Tool of the Local ATC to assist in the planning and management of outbound traffic flows from the Ground Node / AOP (X)
AOP Monitor	Airport Operations Plan Monitor - Tool of the Ground Node / AOP (X) that assists in monitoring the local operations
Post Ops Analysis Support Sys.	Tools of the Airport stakeholders to perform analyses and prepare reports

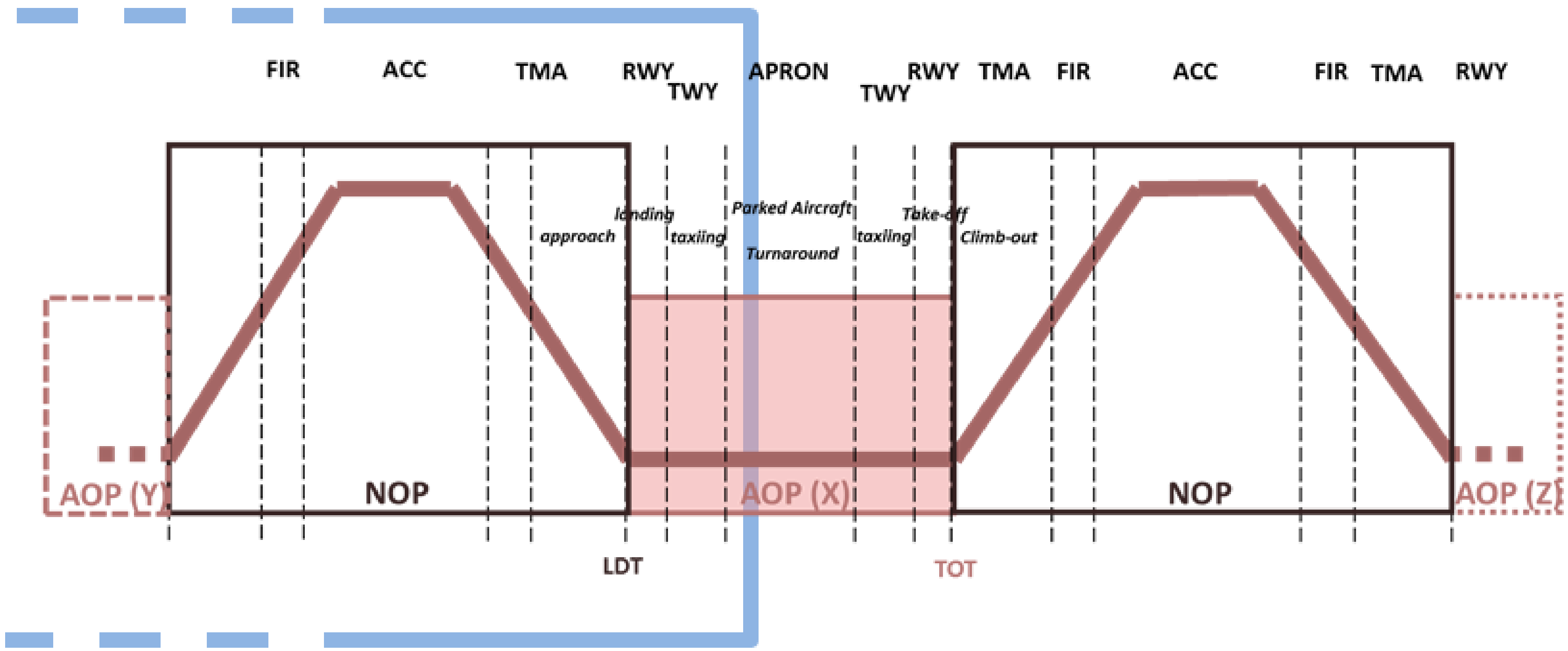
Table 3. Owners / sources of specific Information elements

E.2 AOP-NOP information sharing related to Flight Identification / Specification Information Elements for Trajectories to/from Ground Node / AOP (X)

1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1e alt.	2e alt.	From distributor		To		
Flight Identification and specification information									
FL ID	Flight identification	AOC			AOP	→	NOP		1
Code Share ID(s)	All code shared flight Identifications	AOC			AOP	→	NOP		2
ARCID	ICAO call sign	AOC			NOP	→	AOP		3
DOF	Date of scheduled Flight	AOC			AOP	→	NOP		4
ARRDEP	Arrival / Departure indicator	AO			AOP			ARRDEP not used in NOP	5
GUFI	Global Unique Flight Identifier	AOC			NOP	→	AOP		6
IFPLID	Initial Flight Plan Identifier	NM			NOP	→	AOP		7
AC OP	Aircraft Operator	AOC			NOP	→	AOP		8
FL type	Type of flight	AOC			NOP	→	AOP		9
FL ST	Flight Priority	AOC			NOP	→	AOP		10
Prioritisation Tag	Flight Priority Indicator	AOC			NOP	→	AOP		11
REG	Aircraft Registration	AOC			NOP	→	AOP		12
ARCCOD	Aircraft Code (IATA Aircraft Type)	AOC			AOP	→	NOP	Provided by AOC or converted from ATYP	13
ATYP	Aircraft Type (ICAO Aircraft type)	AOC			NOP	→	AOP		14
WTC	Aircraft Wake Turbulence Category	AOC			NOP	→	AOP		15
TERM ID	Terminal ID	AO	AOC	GH	AOP	→	NOP		16
Flight Identification and specification information – Inbound trajectory specific									
FL ID next	Flight Identification of next movement	AOC			AOP	→	NOP		17
ARCID next	ICAO call sign of next movement	AOC			AOP	→	NOP		465
GUFI next	Global Unique Flight Identifier of next movement	AOC			AOP	→	NOP		466
AAST	Airport Arrival Slot Time	AO	AOC		AOP	→	NOP		18
SIBT	Scheduled In-Block Time	AOC			AOP	→	NOP	Previously known as STA	19
SLDT	Scheduled Landing Time	AOC			AOP				20
ADEP	Aerodrome of Departure (ICAO)	AOC			NOP	→	AOP		21
DEP	Departure Airport (IATA Code)	AOC			AOP	→	NOP	Provided by the AOC or converted from ADEP	22
Flight Identification and specification information – Outbound trajectory specific									
FL ID previous	Flight Identification of previous movement	AOC			AOP	→	NOP		23
ARCID previous	ICAO call sign of previous movement	AOC			AOP	→	NOP		467
GUFI previous	Global Unique Flight Identifier of previous movement	AOC			AOP	→	NOP		468
ADST	Airport Departure Slot Time	AO	AOC		AOP	→	NOP		24
SOBT (previously known as STD)	Scheduled Off-Block Time	AOC			AOP	→	NOP	Previously known as STD	25

1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1e alt.	2e alt.	From distributor		To		
STOT	Scheduled Take Off Time	AOC			AOP				26
ADES	Aerodrome of Destination (ICAO)	AOC			NOP	→	AOP		27
DEST	Destination Airport (IATA Code)	AOC			AOP	→	NOP	Provided by the AOC or converted from ADES	28

E.3 AOP-NOP information sharing related to Flight Progress Information Elements of an Inbound Trajectory to Ground Node / AOP (X)

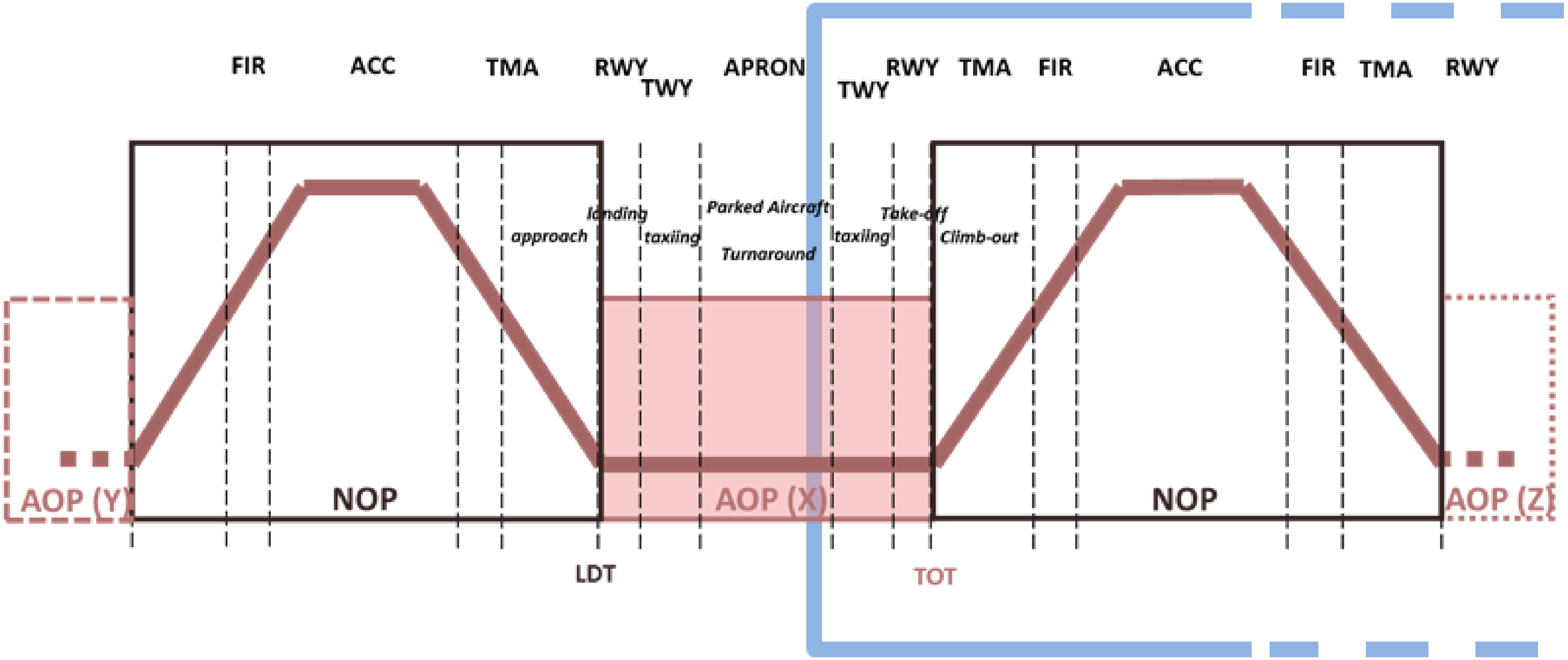


1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1^{e} alt.	2^{e} alt.	From distributor		To		
Flight Progress Information Elements – Inbound trajectory specific									
Flight Plan status	Flight Plan status (Pre-departure, suspended, airborne, diverted)	AOC	Local ATC		NOP	→	AOP	Flight plan status shall be consistent with Flight status	469
API status	Status of the API message (Initiate, update or cancel)	Local ATC	AO		AOP	→	NOP		470
Flight Status – SCH	Scheduled - The aircraft operation is scheduled but not confirmed yet	AOC	Local ATC	NM	NOP	→	AOP		29
Flight Status – CNX	Cancelled - Flight has been cancelled	AOC	Local ATC	NM	NOP	→	AOP		30
Flight Status – INI	Initiated - The aircraft operation has been confirmed (flight plan activated). This status has the equivalent objective as the “Initial” status in CDM	AOC	Local ATC	NM	NOP	→	AOP		31
Flight Status – AIR	Airborne - The aircraft has just taken off from the origin airport	AOC	Local ATC	NM	NOP	→	AOP		32
Flight Status – FIR	Within FIR boundary - The aircraft has entered local FIR in which the relevant airport is located	Local ATC			NOP	→	AOP		33
Flight Status – IDH	Indefinite Holding - Flight in indefinite holding, unable to continue approach	Local ATC			NOP	→	AOP		34
Flight Status – DIV	Diverted - Flight has been diverting	AOC	Local ATC	NM	NOP	→	AOP		35
Flight Status –TMA	Within TMA Boundary - The aircraft has entered local TMA	Local ATC			AOP	→	NOP		36
Flight Status –FNL	On Final Approach - The aircraft has got to the FAF or FAP (Final Approach Fix point) and proceeds to fly the final approach segment towards the airport	Local ATC			AOP	→	NOP		37
Flight Status – GOA	Go-around - Flight has made a go around	Local ATC			AOP	→	NOP		38
Flight Status –TXI	Landed / Taxi-in - The aircraft is on ground and rolling to the stand	A-SMGCS	Local ATC		AOP	→	NOP		39
Flight Status –IBK	In-Block - The aircraft is on the stand.	A-SMGCS	Local ATC	GH	AOP	→	NOP		40
Flight Status –DBR	De-Boarding - The de-boarding of passenger has started	GH			AOP				41
Flight Status –DBC	De-Boarding Completed - The aircraft is on stand and all passengers disembarked the aircraft	GH			AOP				42
TTA	Target Time of Arrival - status Scheduled (TTA-S) for inbound flight Calculated from Scheduled Time of Arrival as published by the Airline / Aircraft operator	AOC			AOP	→	NOP		43a

1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1e alt.	2e alt.	From distributor		To		
	Target Time of Arrival - status Proposed (TTA-P) as initially proposed by Destination airport for medium term planning	Local ATC	AO		AOP	→	NOP		43b
	Target Time of Arrival - status Estimated (TTA-E) as flight plan filed by the airspace user	AOC			NOP	→	AOP		43c
	Target Time of Arrival - status Revised (TTA-R) as provided by the Destination Airport	Local ATC	AO		AOP	→	NOP		43d
	Target Time of Arrival - status Coordinated (TTA-C) as outcome from collaborative process between origin and destination airports and en-route centres	NM			NOP	→	AOP	Collaborative process initiated by NM	43e
	The coordinated Target Time of Arrival - status Agreed (TTA-A) as accepted by Airspace User.	AOC			NOP	→	AOP		43f
CTA	Controlled Time of Arrival at hand over fix (not landing) - with some level of tolerance.	Local ATC	NM		NOP	→	AOP	Unclear about meaning/usefulness of CTA in future ATM system. CTA being replaced in future by TTA	44
TIAT	Target Initial Approach Fix Time	Local ATC			NOP	→	AOP	Discussion around difference between TIAT and TTA (or even CTA). Depends strongly on where TTA is related to, runway or initial approach fix. If runway there is a need for TIAT. If initial approach fix than TTA = TIAT	45
EIAT	Estimated initial Approach Fix Time	NM			NOP	→	AOP		46
AIAT	Actual Initial Approach Fix Time	AMAN	Local ATC	NM	AOP	→	NOP		47
ASET	Actual Stack Entry Time	AMAN	Local ATC	NM	AOP				48
ASXT	Actual Stack eXit Time	AMAN	Local ATC	NM	AOP				49
AFAT	Actual Final Approach fix Time	AMAN	Local ATC	NM	AOP				50
ELDT	Estimated LanDing Time.	AOC	NM	Local ATC	NOP	→ ←	AOP	When flight enter TMA, the Local ATC determines the ELDT and includes that in the AOP. The AOP exchanges the updated ELDT with the NOP	51
TLDT	Target LanDing Time	AMAN	Local ATC	NM	NOP	→	NOP		52
ALDT	Actual LanDing Time	A-SMGCS	Local ATC		AOP	→	NOP		53
ROT – arrival	Runway Occupancy Time – Arrival	A-SMGCS	Local ATC		AOP				54
EIBT	Estimated In-Block Time.	AOP monitor			AOP	→	NOP		55
TIBT	Target In Blocks Time	AOP monitor			AOP				56
AIBT	Actual In-Block Time.	A-SMGCS	Local ATC	GH	AOP	→	NOP		57
ACGT (AGHT)	Actual Commencement of Ground handling Time.	GH			AOP				58
AEGT	Actual End Ground handling Time.	GH			AOP				59

1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1e alt.	2e alt.	From distributor		To		
VTT	Variable Taxi Time.	A-SMGCS	Local ATC	AOP mon.	AOP				60
EXIT	Estimated Taxi-In Time	A-SMGCS	Local ATC	AOP mon.	AOP	→	NOP		61
AXIT	Actual Taxi-In Time	A-SMGCS	Local ATC	AOP mon.	AOP	→	NOP		62
RWYARR Request	Runway identifier of the requested landing runway.	AOC			NOP				63
RWYARR	Runway Identifier of the assigned	Local ATC			NOP	→	NOP		64
STAR	Standard Terminal Arrival Route	Local ATC			NOP	→	NOP		65
RWY Exit	Runway Exit	Local ATC			AOP				66
GATEARR	Gate identifier	AO	AOC		AOP				67
PKARR	Parking stand identifier	AO	AOC		AOP				68
Taxi Route	Taxi route identifier	A-SMGCS	Local ATC		AOP				69
MCT	Minimum Connection Time	AOC	AO	AOP mon.	AOP				70
ADIV	Airport of Diversion (ICAO)	AOC	Local ATC	NM	AOP	→ ←	NOP	If source is NM than ADIV is provided by the NOP to the AOP	71
DIV	Airport of Diversion (IATA)	AOC			AOP			Provided by the AOC or converted from ADIV	72

E.4 AOP-NOP information sharing related to Flight Progress Information Elements of an Outbound Trajectory from Ground Node / AOP (X)

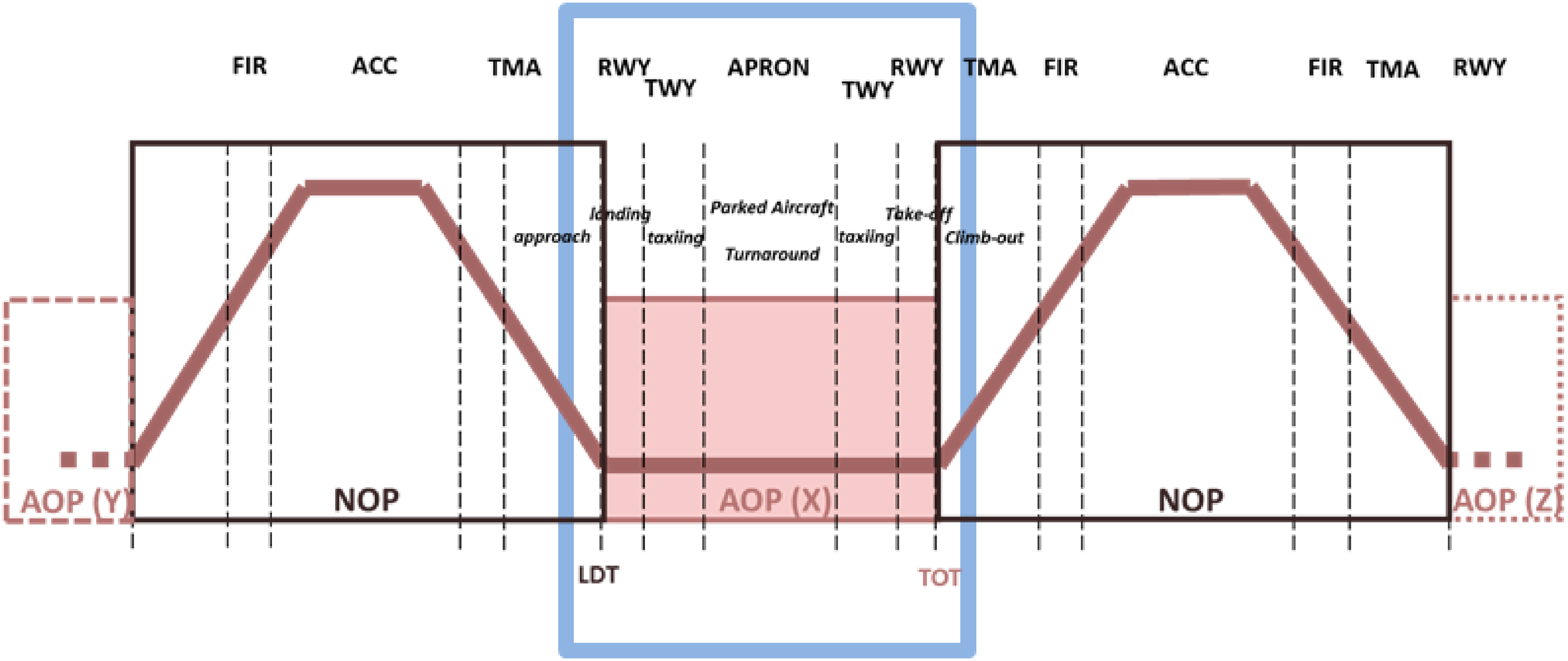


1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1e alt.	2e alt.	From distributor		To		
Flight Progress Information Elements – Outbound trajectory specific									
Flight Plan status	Flight Plan status (Pre-departure, suspended, airborne, *diverted*)	AOC			NOP	→ ←	AOP	Flight plan status “diverted” of outbound trajectory not relevant for origin airport. Flight plan status shall be consistent with Flight status	471
DPI status	Status of the DPI message (initiate, update or cancel)	Local ATC	AO		AOP	→	NOP		472
Flight Status – SCH	Scheduled - The aircraft operation is scheduled but not confirmed yet	AOC			AOP	→	NOP		73
Flight Status – CNX	Cancelled - Flight has been cancelled	AOC			AOP	→	NOP		74
Flight Status – INI	Initiated - The aircraft operation has been confirmed (flight plan activated). This status has the equivalent objective as the “Initial” status in CDM	AOC			AOP	→	NOP		75
Flight Status – RPO	Towing or re-positioning operation - Aircraft is being towed or is taxiing from another stand (e.g. maintenance position, engine test)	A-SMGCS	Local ATC		AOP				76
Flight Status – BRD	Boarding - The aircraft is on stand and the boarding of passengers has started	GH			AOP	→	NOP	Uniformity of information	77
Flight Status – BRC (or GCL)	Boarding Completed (or gate Closed) - The aircraft is on stand and all passengers on board	GH			AOP				78
Flight Status – RDY	Ready - Aircraft ready to depart immediately upon reception of TWR instructions	Flight Crew	GH		AOP	→	NOP	‘Ready’ is a message used by DNM – Not sure that we are taking about the same. Not required by NOP so to be further discussed within AOP	79
Flight Status – SBY	Standby - Indicates that the aircraft is on standby (indefinite holding) awaiting further progress / actions.	AOC			AOP	→	NOP		80
Flight Status – RDI	Ready for de-icing - The aircraft is on the de-icing position (either in the same stand or in a de-icing position)	GH			AOP	→	NOP		81
Flight Status – TXO-D	De Icing Taxi - The aircraft is rolling to the remote de-icing position	A-SMGCS	Local ATC		AOP				82
Flight Status – DEI	De Icing in Progress - The aircraft is on the de-icing position (either in the same stand or in a de-icing position) and de-icing process in progress	DIA			AOP	→	NOP		83
Flight Status – TXO (or OBK or TAX)	Off block / taxi-out - The aircraft is rolling to departure runway (from either the stand or the de-icing remote position).	A-SMGCS	Local ATC		AOP				84

1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1e alt.	2e alt.	From distributor		To		
Flight Status – DEP (or AIR)	Departed - The aircraft has taken off from the airport (flight departed or Airborne)	Local ATC			AOP	→	NOP		85
Flight Status – RTN (or RET)	Returning - Flight returning (before or after airborne)	AOC	Local ATC	NM	AOP	← →	NOP	And vice-versa (in case aircraft returns while already being airborne NOP → AOP)	86
TTD	Target Time of Departure - status Scheduled TTD-S) for outbound flight Calculated from Scheduled Time of Departure as published by the Airline / Aircraft operator	AOC			AOP	→	NOP		87a
	Target Time of Departure - status Proposed (TTD-P) as initially proposed by Origin airport for medium term planning	Local ATC	NM		AOP	→	NOP		87b
	Target Time of Departure - status Estimated) (TTD-E as flight plan filed by the airspace user	AOC			NOP	→	AOP		87c
	Target Time of Departure - status Revised (TTD-R) as provided by the Origin Airport	Local ATC	AO		AOP	→	NOP		87d
	Target Time of Departure - status Coordinated (TTD-C) as outcome from collaborative process between origin and destination airports and en-route centres	NM			NOP	→	AOP	Collaborative process initiated by NM	87e
	The coordinated Target Time of Departure - status Agreed (TTD-A) as accepted by Airspace User.	AOC			NOP	→	AOP		87f
ACGT (AGHT)	Actual Commencement of Ground handling Time	GH			AOP				88
AEGT	Actual End Ground handling Time	GH			AOP				89
ASBT	Actual Start Boarding Time	GH			AOP				90
ARBT	Actual Ready Boarding Time	GH			AOP				91
TOBT	Target Off-Block Time	AOC	GH		AOP	→	NOP		92
EOBT	Estimated Off-Block Time	AOC	GH	AOP Mon.	NOP	← →	AOP	Initially provided by the Flight plan (through NOP). Successive EOBTs provided by the AOP (monitor). During execution phase EOBT will be superseded by TOBT	93
AOBT	Actual Off-Block Time	A-SMGCS	Local ATC	GH	AOP	→	NOP		94
ERDT	Estimated Ready Time	Flight Crew	GH		AOP				95
ARDT	Actual Ready Time	Flight Crew	GH		AOP				96
ASRT	Actual Start-Up Request Time	Local ATC			AOP				97
TSAT	Target Start-Up Approval Time	DMAN	Local ATC		AOP	→	NOP		98
ASAT	Actual Start-Up Approval Time	DMAN	Local ATC		AOP				99
APST	Actual Push-back Start Time	A-SMGCS	Local ATC	GH	AOP				100
APET	Actual Push-back End Time	A-SMGCS	Local ATC	GH	AOP				101
CTOT	Calculated Take Off Time	NM			NOP	→	AOP		102
TTOT	Target Take Off Time.	DMAN	Local ATC		AOP	→	NOP		103

1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1^e alt.	2^e alt.	From distributor		To		
ETOT	Estimated Take Off Time	AOP monitor			AOP				104
ATOT	Actual Take Off Time	A-SMGCS	Local ATC		AOP	→	NOP		105
ROT – departure	Runway Occupancy Time – departure	A-SMGCS	Local ATC		AOP				106
VTT	Variable Taxi Time.	A-SMGCS	Local ATC	AOP mon.	AOP				107
EXOT	Estimated Taxi-Out Time	A-SMGCS	Local ATC	AOP mon.	AOP	→	NOP		108
EXOT – D	Estimated Taxi-Out Time to remote de-icing pad	A-SMGCS	Local ATC	AOP mon.	AOP				109
AXOT	Actual Taxi-Out Time	A-SMGCS	Local ATC	AOP mon.	AOP	→	NOP		110
AXOT – D	Actual Taxi-Out Time to remote de-icing pad	A-SMGCS	Local ATC	AOP mon.	AOP				111
ERZT	Estimate Ready for De-icing Time	Flight Crew	GH		AOP			Needed by NM for ATFM slot compatibility (compliance)check	112
ARZT	Actual Ready for De-icing Time	Flight Crew	GH		AOP				113
ECZT	Estimated Commencement of De-icing Time	DIA			AOP				114
ACZT	Actual Commencement of De-icing Time	DIA			AOP				115
EEZT	Estimated End of De-icing Time	DIA			AOP			Needed by NM for ATFM slot compatibility (compliance ?) check	116
AEZT	Actual End of De-icing Time	DIA			AOP			Useful for post-ops	117
EDIT	Estimated De-icing Time Duration	DIA			AOP				118
ADIT	Actual De-Icing Duration Time	AOP monitor			AOP				119
Name of de-icing position allocated	De-icing Position allocated to the specific flight	DIA			AOP				120
Default De-icing Hold Over time	De-Icing Standard Hold Over Time.	DIA			AOP				121
De-Icing Variable Hold Over Time	De-Icing Variable Hold Over Time	DIA			AOP				122
De-Icing method required	Parts of the aircraft to be de-iced	Flight Crew	GH	DIA	AOP				123
Status – Aircraft Anti-iced	Anti-iced Aircraft.	DIA			AOP				124
DIWT	De-Icing Waiting Time.	DIA			AOP				125
RWYDEP Request	Runway identifier of the requested departure runway	AOC			AOP				126
RWYDEP	Runway identifier of the assigned runway	Local ATC			AOP	→	NOP		127
SID	Standard Instrument Departure Route	Local ATC			NOP	→	AOP		128
RWY Entry	Runway Entry identifier	Local ATC			AOP				129
GATEDEP	Gate Identifier	AO	AOC		AOP				130
PKDEP	Parking stand identifier	AO	AOC		AOP				131
Taxi Route	Taxi route identifier	A-SMGCS	Local ATC		AOP				132

E.5 AOP-NOP information sharing related to Flight Progress Information Elements specific to the Airport Transit View at the Ground Node / AOP (X)



1		2			3		4	
Information Name		Owner / Source			AOP / NOP shared information		Comments	
		Prime	1e alt.	2e alt.	From distributor	To		
Flight Progress Information Elements – ATV specific								
ATV ID	Airport Transit View code	AOP system			AOP			133
MTTT	Minimum Turn-round Time.	AOC			AOP			134
STTT	Scheduled Turn-round Time	AOC			AOP			135
ETTT	Estimated Turn-around Time	GH			AOP		NM may 'retrieve' this information from the expected departure times of following leg	136
ATTT	Actual Turn-round Time	GH			AOP			137

E.6 AOP-NOP information sharing related to relevant Messages for Trajectory Progress to/from Ground Node / AOP (X)

1		2			3			4	
Information Name		Owner / Source			AOP / NOP shared information			Comments	
		Prime	1e alt.	2e alt.	From distributor		To		
Messages									
API message	Arrival Planning information message. Message containing at least the following information elements: - FLID (IATA Arrival Flight identification) - ARCID (ICAO Arrival Flight identification) - DOF (IATA Date of Flight) - REG (aircraft registration) - AAST (Airport Arrival Slot Time) - SIBT (Scheduled In-Block Time) - SLDT (Scheduled Landing Time) - TTA (coordinated Target Time of Arrival = TTA-C) - EIBT (Estimated In-Block Time, from Flight plan) - EXIT (Estimated Taxi-In Time) - DEP (IATA Origin code) - ADEP (ICAO Origin code) - Runway identifier of the assigned Arrival Runway (RWYARR) - Standard Terminal Arrival Route identifier (STAR) - Terminal ID - API status [initiate, update, cancel]	Local ATC	AO		AOP	→	NOP		473

1		2			3			4	
Information Name		**Owner / Source**			**AOP / NOP shared information**			**Comments**	
		Prime	**1e alt.**	**2e alt.**	**From distributor**		**To**		
DPI message	Departure Planning Information message. Message containing at least the following information elements: - FLID (IATA Arrival Flight identification) - ARCID (ICAO Arrival Flight identification) - DOF (IATA Date of Flight) - REG (aircraft registration) - ADST (Airport Departure Slot Time) - SOBT (Scheduled Off-Block Time) - STOT (Scheduled Take-Off Time) - TTD (coordinated Target Time of Departure = TTD-C) - EOBT (Estimated Off-Block Time, from Flight plan) - EXOT (Estimated Taxi-Out Time) - DES (IATA Destination code) - ADES (ICAO Destination code) - Runway identifier of the assigned Departure Runway (RWYDEP) - Standard Instrument Departure route identifier (SID) - Terminal ID - DPI status [initiate, update, cancel]	Local ATC	AO		AOP	→	NOP		474

E.7 AOP-NOP information sharing related to (pay)Load Information Elements of Flights to/from Ground Node / AOP (X)

1		2			3		4	
Information Name		Owner / Source			AOP / NOP shared information		Comments	
		Prime	1e alt.	2e alt.	From distributor	To		
Flight (pay)load information								
ARR BAGS	Arrival Baggage - No. of bags arriving on the aircraft	AOC			AOP	[redacted]		158
DEP BAGS	Departing Baggage - No. of bags departing on the aircraft	AOC			AOP	[redacted]		159
TRF BAGS	Transfer Baggage - No. of bags on the arrival aircraft that are transferring to a departing flight at the same airport	AOC			AOP	[redacted]		160
ARR CARGO	Arrival Cargo - Amount of cargo, in tonnes, arriving on the aircraft	AOC			AOP	[redacted]		161
DEP CARGO	Departing Cargo - Amount of cargo, in tonnes, departing on the aircraft	AOC			AOP	[redacted]		162
TRF CARGO	Transfer Cargo - Amount of cargo, in tonnes, on the arrival aircraft that are transferring to a departing flight at the same airport	AOC			AOP	[redacted]		163
ARR PAX	Arrival Passengers - No. of passengers arriving on the aircraft	AOC			AOP	[redacted]		164
DEP PAX	Departing Passengers - No. of passengers departing on the aircraft	AOC			AOP	[redacted]		165
TRF PAX	Transfer Passengers - No. of passengers on the arrival aircraft that are transferring to a departing flight at the same airport	AOC			AOP	[redacted]		166
BELT ID	Baggage Belt / Carousel ID - Baggage Belt / Carousel allocated for the arriving flight bags	AOC			AOP	[redacted]		167
TOW (actual Take-off weight)	Actual Take-Off Weight in tons as per flight plan	AOC			AOP	[redacted]		168

E.8 AOP-NOP information sharing related to Airport Resource & Capacity Information Elements of Ground Node / AOP (X)

1	2			3			4	5
Information Name	Owner / Source			AOP / NOP shared information			Comments	Ref
	Prime	1e alt.	2e alt.	From distributor		To		
Airport Resource and Capacity Information								
Airport ID (IATA)	AO			AOP	→	NOP		169
Airport ID (ICAO)	AO			AOP	→	NOP		170
Airport Status Code	APOC supervisor	AO	Local ATC	AOP	→	NOP	Details to be further defined	171
Airport Status Description	APOC supervisor	AO	Local ATC	AOP	→	NOP	Details to be further defined	172
Runway State	AO	Local ATC		AOP				173
Stand State	AO			AOP				174
Taxiway State	AO	Local ATC		AOP				175
De-Icing Position State	AO	DIA		AOP				176
Declared Total Runway Capacity	AO	Local ATC		AOP	→	NOP		177
Declared Arrival Runway Capacity	AO	Local ATC		AOP	→	NOP		178
Declared Departure Runway Capacity	AO	Local ATC		AOP	→	NOP		179
Declared Total TMA capacity	Local ATC			AOP				180
Declared inbound TMA capacity	Local ATC			AOP				181
Declared Outbound TMA capacity	Local ATC			AOP				182
Declared Total Ground Movement Capacity	AO	Local ATC		AOP				183
Declared Taxi-in Ground Movement Capacity	AO	Local ATC		AOP				184
Declared Taxi-out Ground Movement Capacity	AO	Local ATC		AOP				185
Declared Aircraft Stands Capacity	AO			AOP	→	NOP	Needed by NM in case of crisis / disruption to know the spare capacities to accommodate diversions for different types of a/c	186
Declared On Stand De-Icing Capacity	AO			AOP				187
Declared Remote De-Icing Capacity	AO			AOP				188
Total declared airport capacity	AO			AOP	→	NOP		189
Declared Airport Arrival Capacity	AO			AOP	→	NOP		190
Declared Airport Departure Capacity	AO			AOP	→	NOP		191
TMA Configuration Plan	Local ATC			AOP				192
Default Total TMA Capacity	Local ATC			AOP				193
Default Inbound TMA Capacity	Local ATC			AOP				194
Default Outbound TMA Capacity	Local ATC			AOP				195
Actual Total TMA Capacity	Local ATC			AOP			Including forecasted Total TMA Capacity	196
Actual Inbound TMA Capacity	Local ATC			AOP			Including forecasted Inbound TMA Capacity	197
Actual Outbound TMA Capacity	Local ATC			AOP			Including forecasted Outbound TMA Capacity	198

1	2			3			4	5
Information Name	Owner / Source			AOP / NOP shared information			Comments	Ref
	Prime	1e alt.	2e alt.	From distributor		To		
Runway (Use) Configuration Plan	Local ATC	AO		AOP	→	NOP	Plan including for each defined time period - the designators of each runway (planned to be) in use, - the operating mode of each runway the STAR / SID assignment for each runway.	199
Airport Capacity and event plan	Local ATC	AO		AOP	→	NOP	Plan including for each defined time period, - the airport operating priority, - the declared runway capacity, - the practical runway capacity, - Event kind / reason for Capacity reduction - Probability of event - Limit factor - Expected recovery scenario	475
Allocated Runway Use distribution plan - Ultimate capacity	Local ATC	AO		AOP	→	NOP		200
Allocated Runway Use distribution plan - practical capacity	Local ATC	AO		AOP	→	NOP	Equals actual runway capacity	201
Allocated Runway Use distribution plan - probability	Local ATC	AO		AOP	→	NOP		202
Manual input Runway Use distribution plan Indicator	Local ATC	AO		AOP	→	NOP		203
Advised Runway Use distribution plan(s) – Saturation capacity	AOP monitor (DCB)			AOP				204
Advised Runway Use distribution plan(s) - probability	AOP monitor (DCB)			AOP				205
Default Total Ground Movement Capacity	Local ATC			AOP				206
Default Taxi-in Ground Movement Capacity	Local ATC			AOP				207
Default Taxi-out Ground Movement Capacity	Local ATC			AOP				208
Actual Total Ground movement Capacity	Local ATC			AOP			Including forecasted Total Ground Movement Capacity	209
Actual Taxi-in Ground Movement Capacity	Local ATC			AOP			Including forecasted Taxi-in Ground Movement Capacity	210
Actual Taxi-out Ground Movement Capacity	Local ATC			AOP			Including forecasted Taxi-out Ground Movement Capacity	211
Stand Allocation Plan	AO			AOP				212
Actual Stand Availability plan (actual stand capacity)	AO			AOP			Including forecasted Stand Availability Plan	213
De-icing stand Allocation Plan	DIA			AOP				214
Actual total Airport Capacity	AO	Local ATC		AOP	→	NOP	Including forecasted Total Airport Capacity	476
Actual Airport Arrival Capacity	AO	Local ATC		AOP	→	NOP	Including forecasted Airport Arrival Capacity	477
Actual Airport Departure Capacity	AO	Local ATC		AOP	→	NOP	Including forecasted Airport Departure Capacity	478
Reason Reduced TMA Capacity - code	Local ATC			NOP				215
Reason Reduced TMA Capacity – description	Local ATC			NOP				216
Reason Reduced Ground Movement Cap. - code	Local ATC			AOP				217
Reason Reduced Ground Movement Cap. – desc.	Local ATC			AOP				218
Reason Reduced Apron (Aircraft stand) Cap.– code	AO			AOP			Needed for post-ops	219
Reason Reduced Apron (Aircraft Stand) Cap.– desc.	AO			AOP			Needed for post-ops	220

1	2			3			4	5
Information Name	Owner / Source			AOP / NOP shared information			Comments	Ref
	Prime	1e alt.	2e alt.	From distributor		To		
Reason Reduced Runway Capacity – code	Local ATC			AOP	→	NOP	Needed for post-ops	221
Reason Reduced Runway Capacity – description	Local ATC			AOP	→	NOP	Needed for post-ops	222
Reason for reduced Airport Capacity – code	AO	Local ATC		AOP	→	NOP		479
Reason for reduced Airport Capacity - description	AO	Local ATC		AOP	→	NOP		480

E.9 AOP-NOP information sharing related to MET Information Elements of Ground Node / AOP (X)

1	2			3			4	
Information Name	Owner / Source			AOP / NOP shared information			Comments	
	Prime	1e alt.	2e alt.	From distributor		To		
General MET								
Meteorological data	MET			AOP	→	NOP		223
METAR	MET			AOP	→	NOP		224
MET REPORT	MET			AOP	→	NOP		225
TAF	MET			AOP	→	NOP		226
TREND	MET			AOP	→	NOP		227
Aerodrome Warning MET	MET			AOP	→	NOP		228
SNOWTAM	MET			AOP	→	NOP		229
Reduced set of MET data	MET			AOP	→	NOP		230
MET data / parameters								
Cloud Base	MET			AOP				231
Ceiling or vertical visibility information	MET			AOP				232
Cloud amount	MET			AOP				233
Mean surface wind direction	MET			AOP				234
Surface wind direction probability forecasts	MET			AOP				235
Mean surface wind speed	MET			AOP				236
Surface wind gusts	MET			AOP				237
Cross wind speed for all runways	MET			AOP				238
Head wind speed for all runways	MET			AOP				239
Winds aloft: mean wind speed	MET			AOP				240
Winds aloft: mean wind direction	MET			AOP				241
Probabilistic winds aloft forecast	MET			AOP				242
Probabilistic winds aloft forecast	MET			AOP				243
QFE	MET			AOP				244
QNH	MET			AOP				245
Visibility	MET			AOP				246
RVR per Runway (segment)	MET			AOP				247
Mean 2m Temperature	MET			AOP				248
Dew Point Temperature	MET			AOP				249
Surface Temperature	MET			AOP				250
Relative Humidity	MET			AOP				251
Precipitation observations	MET			AOP				252
Occurrence of liquid precipitation, snowfall, freezing precipitation	MET			AOP				253
Thunderstorm/CB cell activity/lightning data	MET			AOP				254
Turbulence situation	MET			AOP				255
Wind shear	MET			AOP				256
Occurrence and magnitude of low level temperature inversions	MET			AOP				257
Runway contaminants	MET			AOP				258
Adverse weather	MET			AOP	→	NOP		259
De-Icing	MET			AOP	→	NOP		260

E.10 AOP-NOP information sharing related to Performance Information Elements of Ground Node / AOP (X)

1	2			3			4	
Information Name	Owner / Source			AOP / NOP shared information			Comments	
	Prime	1e alt.	2e alt.	From distributor		To		
Performance Information (Aircraft Process Monitor)								
Operational Arrival Demand	AOP monitor			AOP	→	NOP	Operational Arrival Demand includes local flights.	261
Operational Departure Demand	AOP monitor			AOP	→	NOP	Operational Departure Demand includes local flights	262
Apron Stand Shortage	AOP monitor			AOP				263
Air Holding	AOP monitor			AOP				264
Arrival Capacity Shortage	AOP monitor			AOP				265
Arrival Flight Delay per flight	AOP monitor			AOP				266
Arrival Flight Delay average	AOP monitor			AOP				267
Arrival Flight Punctuality	AOP monitor			AOP				268
Departure Capacity Shortage	AOP monitor			AOP				269
Departure Flight Delay per flight	AOP monitor			AOP				270
Departure Flight Delay average	AOP monitor			AOP				271
Departure Flight Punctuality	AOP monitor			AOP				272
Ground Movement Capacity Shortage (Taxi-in)	AOP monitor			AOP				273
Ground Movement Delay per flight (Taxi-In)	AOP monitor			AOP				274
Ground Movement Delay average (Taxi-In)	AOP monitor			AOP				275
Ground Movement Delay per flight (Taxi-Out)	AOP monitor			AOP				276
Ground Movement Capacity Shortage (Taxi-out)	AOP monitor			AOP				277
Ground Movement Delay average (Taxi-Out)	AOP monitor			AOP				278
Knock-on Effect: A/C changes	AOP monitor			AOP				279
Knock-on Effect: Flight Cancellations	AOP monitor			AOP				280
Landing Capacity Shortage	AOP monitor			AOP				281
Landing Delay per flight	AOP monitor			AOP				282
Landing Delay average	AOP monitor			AOP				283
Landing Punctuality	AOP monitor			AOP				284
Take-Off Capacity Shortage	AOP monitor			AOP				285
Take-Off Delay per flight	AOP monitor			AOP				286
Take-Off Delay average	AOP monitor			AOP				287
Take-Off Punctuality	AOP monitor			AOP				288
TMA Capacity Shortage	AOP monitor			AOP				289
Apron Turnaround Delay	AOP monitor			AOP				290
Apron Turnaround Delay average	AOP monitor			AOP				291
Apron Efficiency	AOP monitor			AOP			For Post Operations Analysis purposes only	292
Runway Efficiency	AOP monitor			AOP				293
Turnaround Predictability	AOP monitor			AOP				294
Arrival Predictability	AOP monitor			AOP				295
Departure Predictability	AOP monitor			AOP				296
CTOT Compliance	AOP monitor			AOP				297
Arrival Separation efficiency	AMAN			AOP			For Post Operations Analysis purposes only	298
Departure Separation efficiency	DMAN			AOP			For Post Operations Analysis purposes only	299
SID Loading	AOP monitor			AOP				300
STAR loading	AOP monitor			AOP				301
Performance Information (Passenger Process Monitor)								

1	2			3		4	
Information Name	Owner / Source			AOP / NOP shared information		Comments	
	Prime	1e alt.	2e alt.	From distributor	To		
Border Control Waiting Time	AOP monitor			AOP			302
Border Control Capacity Imbalance	AOP monitor			AOP			303
Security Control Waiting Time	AOP monitor			AOP			304
Security Control Capacity Imbalance	AOP monitor			AOP			305
Passenger Border Control Flow	AOP monitor			AOP			306
Passenger Security Control Flow	AOP monitor			AOP			307
Walking time to connecting flight	AOP monitor			AOP			308
Alerts & Warnings (Aircraft Process Monitor)							
Alert / warning – aircraft stand shortage	AOP monitor			AOP			309
Alert / warning – Arrival capacity shortage	AOP monitor			AOP			310
Alert / warning – Departure capacity shortage	AOP monitor			AOP			311
Alert / warning – Landing (runway) capacity shortage	AOP monitor			AOP			312
Alert / warning – Take-Off (runway) cap. shortage	AOP monitor			AOP			313
Alert / warning – Ground Mov.(Taxi-in) cap. shortage	AOP monitor			AOP			314
Alert / warning – Ground Mov.(Taxi-out) cap. shortage	AOP monitor			AOP			315
Alert / warning – TMA capacity shortage	AOP monitor			AOP			316
Alert / warning –Arrival Flight Delay	AOP monitor			AOP			317
Alert / warning – Average Arrival Flight Delay	AOP monitor			AOP			318
Alert / warning – Arrival Flight punctuality	AOP monitor			AOP			319
Alert / warning –Departure Flight Delay	AOP monitor			AOP			320
Alert / warning – Average Departure Flight Delay	AOP monitor			AOP			321
Alert / warning – Departure Flight punctuality	AOP monitor			AOP			322
Alert / warning –Landing Delay	AOP monitor			AOP			323
Alert / warning – Average Landing Delay	AOP monitor			AOP			324
Alert / warning – Landing punctuality	AOP monitor			AOP			325
Alert / warning –Take-Off Delay	AOP monitor			AOP			326
Alert / warning – Average Take-Off Delay	AOP monitor			AOP			327
Alert / warning – Take-Off punctuality	AOP monitor			AOP			328
Alert / warning – Average grnd mov. delay (taxi-in)	AOP monitor			AOP			329
Alert / warning – Average grnd mov. delay (taxi-out)	AOP monitor			AOP			330
Alert / Warning – Apron Turnaround Delay	AOP monitor			AOP			331
Alert / Warning – Average Apron Turnaround Delay	AOP monitor			AOP			332
Alert - Stand conflict	AOP monitor			AOP			333
Alert - Airborne Status	AOP monitor			AOP			334
Alert - Take Off	AOP monitor			AOP			335
Alert - Passenger Boarding	AOP monitor			AOP			336

1	2			3		4	
Information Name	Owner / Source			AOP / NOP shared information		Comments	
	Prime	1e alt.	2e alt.	From distributor	To		
Alert / warning - Target Off-Block Time	AOP monitor			AOP			337
Alert - ASBT TOBT	AOP monitor			AOP			338
Alert – TSAT TOBT	AOP monitor			AOP			339
Alert - ASRT TSAT	AOP monitor			AOP			340
Alert - ASAT TSAT	AOP monitor			AOP			341
Warning – TOBT	AOP monitor			AOP			342
Alert – TOBT	AOP monitor			AOP			343
Alert - TOBT EOBT	AOP monitor			AOP			344
Alert / warning – Air Holding	AOP monitor			AOP			345
Alert – landing ROT	AOP monitor			AOP		For Post Operations Analysis purposes only	346
Alert – take-off ROT	AOP monitor			AOP		For Post Operations Analysis purposes only	347
Alert – Adverse Meteorological conditions	AOP monitor			AOP			348
Alert – Industrial action	AOP monitor			AOP			349
Alert – Failure technical systems	AOP monitor			AOP			350
Alert – AOBT TSAT	AOP monitor			AOP			351
Alert – Runway Capacity Change	AOP monitor			AOP			352
Alert – Taxiway Capacity Change	AOP monitor			AOP			353
Alert – TMA capacity Change	AOP monitor			AOP			354
Alert – Apron (Aircraft Stands) Capacity Change	AOP monitor			AOP			355
Alerts & Warnings (Passenger Process Monitor)							
Alert / Warning – Border Control Waiting Time	AOP monitor			AOP			356
Alert / Warning – Border Control Capacity Shortage	AOP monitor			AOP			357
Alert / Warning – Security Control Waiting Time	AOP monitor			AOP			358
Alert / Warning – Security Control Capacity Shortage	AOP monitor			AOP			359
Alert / Warning – Passenger Border Control Flow	AOP monitor			AOP			360
Alert / Warning – Passenger Security Control Flow	AOP monitor			AOP			361
Alert / Warning – Walking time to connecting flight	AOP monitor			AOP			362

E.11 AOP-NOP information sharing related to Performance Management Information Elements of Ground Node / AOP (X)

1	2			3		4	
Information Name	Owner / Source			AOP / NOP shared information		Comments	
	Prime	1e alt.	2e alt.	From distributor	To		
Performance Management (Assess Overall Impact Process)							
Overall Impact Message	APOC (Assign. Part)			AOP	[redacted]		363
Overall Impact Message – Message Identifier	APOC (Assign. Part)			AOP	[redacted]		364
Overall Impact Message - Problem specification	APOC (Assign. Part)			AOP	[redacted]		365
Alert Identifier	AOP Monitor			AOP	[redacted]		366
Problem code	AOP Monitor			AOP	[redacted]		367
Problem description	APOC (Assign. Part)			AOP	[redacted]		368
Probability of occurrence	APOC (Assign. Part)			AOP	[redacted]		369
Problem Duration	APOC (Assign. Part)			AOP	[redacted]		370
Problem Location	APOC (Assign. Part)			AOP	[redacted]		371
Responsible Stakeholder	APOC (Assign. Part)			AOP	[redacted]		372
Other stakeholders affected	APOC (Assign. Part)			AOP	[redacted]		373
Experience(s) from the past	APOC (Assign. Part)			AOP	[redacted]		374
Overall Impact Message - Overall Impact for KPI [n]	APOC (Assign. Part)			AOP	[redacted]		375
Overall Impact Message – Severity Level	APOC (Assign. Part)			AOP	[redacted]		376
Performance Management (Make Decision Process)							
Confirmation request	APOC supervisor			AOP	[redacted]		377
Confirmation request - Stakeholder Identification	APOC supervisor			AOP	[redacted]		378
Confirmation request – Overall Impact Message ID	APOC supervisor			AOP	[redacted]		379
Confirmation request – Confirmation status	APOC supervisor			AOP	[redacted]		380
Confirmation message	APOC (Affect. Part)			AOP	[redacted]		381
Confirmation message - Stakeholder Identifier	APOC (Affect. Part)			AOP	[redacted]		382
Confirmation message – Overall Impact Message ID	APOC (Affect. Part)			AOP	[redacted]		383
Confirmation message – Confirmation status	APOC (Affect. Part)			AOP	[redacted]		384
Candidate solution [X]	APOC supervisor			AOP	[redacted]		385
Impact on candidate solution [X]	APOC participants			AOP	[redacted]		386
Solution Message	APOC Supervisor			AOP	[redacted]		387
Solution Message – Solution message identifier	APOC Supervisor			AOP	[redacted]		388
Solution Message – Alert Identifier	AOP monitor			AOP	[redacted]		389
Solution Message – Overall Impact Message ID	APOC (Assign. Part)			AOP	[redacted]		390
Solution Message – Solution Description	APOC Supervisor			AOP	[redacted]		391
Solution Message – Solution	APOC			AOP	[redacted]		392

1	2			3		4	
Information Name	Owner / Source			AOP / NOP shared information		Comments	
	Prime	1^{e} alt.	2^{e} alt.	From distributor	To		
Description	Supervisor						
Performance Management (Make Decision Process: Adverse Conditions)							
Predefined Solution Table	APOC (Assign. Part)			AOP			393
Stakeholder name	APOC (Assign. Part)			AOP			394
Cancel flight	APOC (Assign. Part)			AOP			395
Delay flight	APOC (Assign. Part)			AOP			396
Change TOBT	APOC (Assign. Part)			AOP			397
Change TSAT	APOC (Assign. Part)			AOP			398
Change TTOT	APOC (Assign. Part)			AOP			399
Change TTA	APOC (Assign. Part)			AOP			400
Re-positioning	APOC (Assign. Part)			AOP			401
Other	APOC (Assign. Part)			AOP			402
Comments	APOC (Assign. Part)			AOP			403
Alert/Warning code	AOP Mon.			AOP			404
Problem description	APOC (Assign. Part)			AOP			405
Candidate solution [X]	APOC supervisor			AOP			406

E.12 AOP-NOP information sharing related to Performance Steering Information Elements of Ground Node / AOP (X)

1	2			3		4	
Information Name	Owner / Source			AOP / NOP shared information		Comments	
	Prime	1^{e} alt.	2^{e} alt.	From distributor	To		
Performance Steering							
Alert – Aircraft Stand shortage Threshold	OSB			AOP	[redacted]		407
Alert – Ground Movement Capacity Shortage Threshold	OSB			AOP	[redacted]		408
Alert - Arrival Capacity Shortage Threshold	OSB			AOP	[redacted]		409
Alert - Departure Capacity Shortage Threshold	OSB			AOP	[redacted]		410
Alert - TMA Capacity Shortage Threshold	OSB			AOP	[redacted]		411
Alert - Average Arrival Delay Threshold	OSB			AOP	[redacted]		412
Alert - Arrival Punctuality Delay Thresholds	OSB			AOP	[redacted]		413
Alert - Average Departure Delay Threshold	OSB			AOP	[redacted]		414
Alert - Departure Punctuality Thresholds	OSB			AOP	[redacted]		415
Alert - Average Ground Mov. Delay Threshold (Taxi-in)	OSB			AOP	[redacted]		416
Alert - Ground Mov. Punctuality thresholds (Taxi-in)	OSB			AOP	[redacted]		417
Alert - Average Ground Mov. Delay Threshold (Taxi-out)	OSB			AOP	[redacted]		418
Alert - Ground Mov. Punctuality thresholds (Taxi-out)	OSB			AOP	[redacted]		419
Alert – Airborne status threshold	OSB			AOP	[redacted]		420
Alert – Take-Off threshold	OSB			AOP	[redacted]		421
Alert – Passenger Boarding threshold	OSB			AOP	[redacted]		422
Alert – TOBT threshold	OSB			AOP	[redacted]		423
Alert – ASBT TOBT threshold	OSB			AOP	[redacted]		424
Alert – TSAT TOBT threshold	OSB			AOP	[redacted]		425
Alert – ASRT TSAT threshold	OSB			AOP	[redacted]		426
Alert – ASAT TSAT threshold	OSB			AOP	[redacted]		427
Alert – TOBT EOBT threshold	OSB			AOP	[redacted]		428
Alert – Air holding threshold	OSB			AOP	[redacted]		429
Alert – Landing ROT	OSB			AOP	[redacted]		430
Alert – Take-Off ROT	OSB			AOP	[redacted]		431
MET parameter thresholds	OSB			AOP	[redacted]		432
Adverse weather thresholds	OSB			AOP	[redacted]		433
End of lightning activity	OSB			AOP	[redacted]		434
MET parameters	OSB			AOP	[redacted]		435
Time resolution of each MET parameter	OSB			AOP	[redacted]		436
Time span of each MET parameter	OSB			AOP	[redacted]		437
Update rate of each MET parameter	OSB			AOP	[redacted]		438
MET parameter thresholds for de-icing conditions	OSB			AOP	[redacted]		439

1	2			3		4	
Information Name	Owner / Source			AOP / NOP shared information		Comments	
	Prime	1e alt.	2e alt.	From distributor	To		
Use and quality of Met data	OSB			AOP [redacted]	[redacted]		440
Time span of the provided MET data	OSB			AOP [redacted]	[redacted]		441
Time resolution of the provided MET forecast data	OSB			AOP [redacted]	[redacted]		442
Probabilistic thunderstorm forecasts	OSB			AOP [redacted]	[redacted]		443
Save relevant MET data	OSB			AOP [redacted]	[redacted]		444
TWY capacity change probability threshold	OSB			AOP [redacted]	[redacted]		445
TMA capacity change probability threshold	OSB			AOP [redacted]	[redacted]		446
practical capacity planning buffer	OSB			AOP [redacted]	[redacted]		447
prioritization rules for arrival and departure	OSB			AOP [redacted]	[redacted]		448
TTA issuance rule	OSB			AOP [redacted]	[redacted]		449
TTA tolerance window	OSB			AOP [redacted]	[redacted]		450
max crosswind	OSB			AOP [redacted]	[redacted]		451
max gust speed	OSB			AOP [redacted]	[redacted]		452
crosswind probability	OSB			AOP [redacted]	[redacted]		453
gust speed probability	OSB			AOP [redacted]	[redacted]		454
delay increase threshold	OSB			AOP [redacted]	[redacted]		455
delay reduction threshold	OSB			AOP [redacted]	[redacted]		456
target function improvement threshold	OSB			AOP [redacted]	[redacted]		457

E.13 AOP-NOP information sharing related to Post Operations Analysis Information Elements of Ground Node / AOP (X)

1	2			3		4	
Information Name	Owner / Source			AOP / NOP shared information		Comments	
	Prime	1e alt.	2e alt.	From distributor	To		
Post Operations Analysis							
Addressee of published post ops analysis report	Airport stakeholder's			AOP		For Post Operations Analysis purposes only	458
Addressees of draft post ops analysis report (review)	Airport stakeholder's			AOP		For Post Operations Analysis purposes only	459
Expert to be contacted by the Post Operations Analyst to get support when defining a post operations analysis report.	Airport stakeholder's			AOP		For Post Operations Analysis purposes only	460
Periodicity of a post operations analysis report	Airport stakeholder's			AOP		For Post Operations Analysis purposes only	461
Draft post operations analysis report for review	Post Ops Analysis Support Sys.			AOP		For Post Operations Analysis purposes only	462
Commented post operations analysis report	Airport stakeholder's			AOP		For Post Operations Analysis purposes only	463
Final post operations analysis report	Post Ops Analysis Support Sys.			AOP		For Post Operations Analysis purposes only	464

Appendix F Airport Operations Plan (AOP)

The Airport Operations Plan (***AOP)*** is the principal source of information used by all involved stakeholders to establish situational awareness. The AOP is mainly a database with several check procedures to ensure that the data updated from a couple of different entities are correct and consistent. It requires individual stakeholders to make changes within their own sphere of operations that are responsible for correctness of their updates.

The ***AOP*** is a plan that interacts with a number of services, systems and stakeholders (gathering information from several systems - MET data, DCB, OSB agreed parameters, aircraft processes, passenger processes, network - and provides that information to the stakeholders). It is able to solve inconsistencies between the different sources of information or indicate irresolvable irregularities.

The ***AOP*** is expected to be the next generation of the Airport – CDM Information Sharing Platform (ACISP) this means all A-CDM milestones are automatically generated by tracking the progress of each flight from the initial planning to take off. Furthermore the ***AOP*** contains the “Variable Taxi Time” that is the key to predictability of accurate take-off and in-block times especially at complex airports.

The ***AOP*** is instantiated (created) at the beginning of the Medium Term Planning phase – typically when the first accurate demand information for an airport becomes available. It will be updated during the Medium Term Planning Phase, the Short Term Planning Phase and the Execution Phase through the responsible entities.

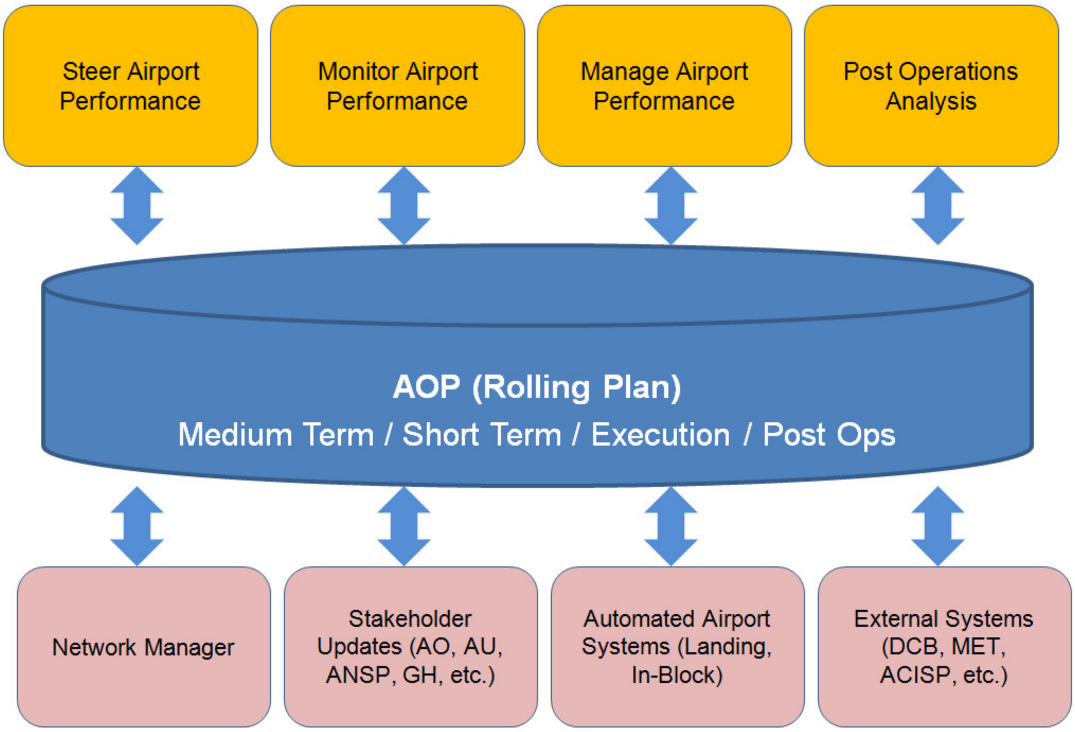


Figure 1. Airport Operations Plan (AOP)

The ***AOP*** is a “rolling plan” which means that, at its creation, only a partial content is available. Subsequently, as more information becomes available and existing information becomes more refined and accurate then the ***AOP*** is populated with this information. This rolling nature of the plan is designed to ensure that ultimately it can be used as a principal tool in the process of airport resource planning and the management of the actual performance. The ***AOP*** has three fundamental characteristics addressing the creation and updating of the ***AOP.***

- The ***AOP*** is a common plan. As such, it is a single reference for all stakeholders.
- The ***AOP*** contains accurate and up to date (real time) information during all stages of its existence.

- The ***AOP*** is the principal means by which airport and overall network integration can be enhanced.

The consequence of these characteristics is therefore a significant degree of interaction between the stakeholders and the ***AOP*** throughout all the ACISP planning phases from its creation until its execution. In addition, there must be appropriate mechanisms in place to ensure that the 'right' information from the 'right' stakeholder at the 'right' time is included in the ***AOP.*** However, the ***AOP*** is not only a 'database' but it also contributes to the airport performance management. In addition to the processes surrounding the stakeholder interaction with the ***AOP***, any future implementation will need to address how the airport performance will be managed from a strategic perspective so that appropriate performance targets can be fully integrated into the ***AOP*** in order to contribute to the airport performance management.

The parts of data in the ***AOP*** are subject to non-disclosure regulations. This function will be used if record sets are necessary for certain services but the data will not be available for the all involved stakeholders.

[REQ-06.05.02-OSED-AOPG.-all-]

[REQ-06.05.02-OSED-FLID.-all-]

[REQ-06.05.02-OSED-FLTP.-all-]

[REQ-06.05.02-OSED-LOAD.-all-]

[REQ-06.05.02-OSED-CAPC.-all-]

F.1 Detailed Concept Description

F.1.1 Instantiation of steering data process

During the last few months of the Long Term Planning Phase, the ***Steer Airport Performance*** service will setup a commonly agreed (i.e., amongst the stakeholders at the airport), performance baseline, trade-offs, alerts/warnings, thresholds, consistency rules for checking, accepting or rejecting proposed AOP modification (i.e.: the ***Current Airport Performance Framework*** or ***OSB agreed parameters***).

The activities listed below, whilst not necessary exhaustive, will fall within the ***Steer Airport Performance*** service. These activities are presented in more detail as specific scenario use cases within Appendix D. They can be initiated by any airport stakeholder and hence the activities can be carried out at any time within the last few months of the Long Term Planning Phase and in any order.

1. **Establish agreed performance rules (e.g. rules, trade-off priorities, and constraints):** This comprises the establishment of mutually agreed performance rules (e.g. rules, trade-off priorities, and constraints). In a collaborative manner the airport stakeholders deliberate on the newly proposed performance rules. This includes alignment with already existing rules and to make sure that they are conflict-free (e.g., conflicting or overlapping interests).

   Examples of this activity cover the establishment of Night flight curfew rules and operational priorities covering the management of capacity, punctuality and environmental performance.

2. **Establish agreed performance baseline indicators and associated thresholds for alerts and warnings:** This comprises the establishment of mutually agreed thresholds for the performance framework, KPIs and PDIs according to the individual airport performance commitment. In a collaborative manner the airport stakeholders deliberate on the newly proposed thresholds. This includes alignment with already existing and/or aggregated thresholds to make sure that they are conflict-free (i.e., unambiguous in interpretation and understanding).

   An example of this activity covers the monitoring of Departure Flight Delay (AOBT – SOBT) to ensure that average values are maintained within predetermined and agreed thresholds.

3. **Establish agreed performance baseline (KPI / PDI target and thresholds values):** This comprises the establishment of mutually agreed performance targets. In a collaborative manner the airport stakeholders deliberate on the newly proposed performance targets. This

includes alignment with other (related) performance targets and to make sure that they are unambiguous and achievable.

An example of this activity covers the collaborative agreement of performance targets in relation to the key performance areas of the airport operations (capacity, flexibility, efficiency, etc.).

4. **Establish airport specific AOP content:** Airports are very different in shape and organisational structure. Thus, individual AOP content can be necessary to manage the airport efficiently.

   An example could be to establish specific local environmental restriction parameters.

F.1.2 AOP Instantiation process

At the start of the Medium Term Planning Phase the **AOP Instantiation** process will instantiate the operational ***AOP elements*** and will bring them into existence. This entails the stakeholders entering relevant operational information into the corresponding ***AOP elements***. These initial elements provide the initial view on the AOP. Whilst the AOP instantiation service is seen as a 'one off' activity, it is important to note that the AOP will be updated until the execution.

The following activities are carried out as part of the **AOP Instantiation** process (not necessarily in this order and possibly simultaneously):

1. **Create expected Operational Airport Resources and Capabilities:** The Operational Airport Resource and Capability elements are filled with expected operational data derived from capacity and demand information concerning the airport. The cornerstones of the plan will be centred around

   - Movements per hour
   - Permissible Aircraft types
   - Constraint such as night curfew

   Once these elements have been established, the next activity will concern the definition of the ground handling agent resource requirements, both human and equipment. In addition the necessary capacity requirements relating to Passenger, Baggage and Cargo resources will be defined. The provided information is possibly augmented with expected operational planning information from involved stakeholders.

2. **Create expected Operational Traffic Demand:** The operational traffic demand specification starts with the availability of the inbound and outbound shared-business trajectories (SBTs) provided by the airspace users. Based on this traffic demand elements it will be necessary to construct the equivalent ***Airport Transit View (ATV)***. Fundamental to this requirement is the necessity to link inbound and outbound flights in the ***AOP***. This will require the active participation of the airspace users particularly in those airports where the 'home based' carrier has more flexibility in managing their flight operations.

3. **Create expected Operational Airport Context:** The Airport Operational Context elements included in the ***AOP*** are filled with expected operational data derived from airport configuration specification, the airport usage and restriction rules, and the performance baseline.

4. **Create new element in AOP:** The ***AOP*** can be augmented with a new element (group of information fields) or a new information field. This can be done after a mutually agreed decision from the lead stakeholders. This means a local adaptation of the ***AOP***.

1.1.1.1.1 AOP Updating process

In this scenario, the ***AOP*** will have to be updated with refined and more accurate information since its instantiation until its execution. These updates will be driven by different events and act on different elements of the ***AOP***, notably 'flight related' elements and 'resource related' elements as described below.

The ***AOP*** can be updated via different 'paths'. These different paths can have several elements in common.

Flight refinement

After the instantiation the ***AOP*** is a balanced plan with the available capacity and the known demand from all airspace users. This is, however, just a snapshot for that given moment. During the ***AOP*** lifecycle there may be changes in the demand. This can result in cancellation/addition of flights as slot allocation updates can still be made after the IATA slot allocation conference. The changes can also include a change of scheduled time or change of aircraft type.

This process will be managed by the airspace user in coordination with the airport operator, ANSP and ground handler.

Resource refinement

During the ***AOP*** lifecycle there may also be changes in the airport resources, covering refinement of usage rules, possible configurations and capacity plans. This refinement is needed because of more detailed information on Resource Availability, especially on the airport: usage rules, configurations, expected works and available capacity.

Constraints applying to the process are either linked to the performance objectives - i.e. Target Performance Levels, or outputs from Balanced Planned Demand and Capacity process - i.e. DCB Solution.

This high level process consists of the following sub-processes:

- Refine Resources Usage Rules; e.g. Terminal allocation for certain airspace users; (within ***Steer Airport Performance*** service)
- Refine Possible Configurations; e.g. capacity for certain wind directions; (within ***Steer Airport Performance*** service)
- Refine Available Resource Capacity Plan, e.g. Stand Planning; (***Manage Airport Performance*** service)

Refine airport resources will be based on capacity figures of available resources, provided by the Airport Operator and the local ANSP, and a refined airport resource allocation and capacity plan is proposed. This plan will contain:

- The availability of resources (for example maintenance scheme);
- A number of standard airport configuration schemes (including runways, taxiways, gates and terminal buildings/ facilities);
- Capacity figures for each main process in each configuration taking account of external conditions like traffic mix, weather conditions, etc.

Resolve an Alert from the Monitor Airport Performance service

The ***Monitor Airport Performance*** service follows and integrates two different approaches: a process approach by integrating the sub-monitors (Aircraft and Passenger) and a performance approach by integrating the KPIs and PDIs from the performance framework. To complete the airport "vision", additional information will be included such as weather forecast.

The ***Monitor Airport Performance*** service will continuously be fed with the latest data available from the ***AOP*** and real-time data representing the actual situation and current operations at an airport. This means all timestamps are continuously updated as soon as new data become available; e.g. new TOBT due to anticipated delay of a flight. Based on this information the Monitor Airport Performance Service will continuously monitor the airport operations.

The service will raise an alert/warning when any of the indicators/milestones exceeds a threshold value. These thresholds/milestones are defined within the ***Steer Airport Performance*** service.

Depending on the type of alert raised by the ***Monitor Airport Performance*** service, different activities will follow within the ***Manage Airport Performance*** service in order to mutually agree a solution among all assigned stakeholders to mitigate the deviation that made arise the alert / warning.

The ***AOP*** is the core mean through which this these three services (Steer, Monitor and Manage) perform their activities, allowing all different stakeholders involved in those activities to play their role.

Linkage between AOP and Perform Post-Operations Analysis service

The ***AOP*** is the main source of information for the ***Perform Post-Operations Analysis*** service to develop the ***standard and ad-hoc Post-Operations Analysis reports.***

F.2 Roles, (internal) Resources, Inputs and Outputs of the AOP.

F.2.1 Roles

1. Airport Operator

The procedures surrounding the creation and updating of the ***AOP*** (IT-infrastructure, communication protocols, etc.) will usually be under the responsibility of the Airport Operator. Such tasks in a complex airport may necessitate the creation of an 'AOP Supervisor' role who will normally be nominated by the Airport Operator. The AOP supervisor will liaise with all AOP stakeholders. He will act as an AOP administrator. This means if an update of the structure of the AOP is necessary the AOP supervisor will be the connecting link between all stakeholders to find a solution. The AOP supervisor also has the task to motivate all stakeholders to participate to the AOP if complaints about the data quality emerge.

In most cases the Airport Operator is also responsible for the allocation for airport resources this includes the airside and the landside.

2. Airspace user

The Airspace User is responsible for its scheduled flights that are saved in the AOP and hence represent the demand for an airport. This demand is characterised by a large percentage of flights planned for each season (in many cases with 'repetitive' flight plans filed with CFMU) through to charter flights and business aviation ('on-demand') flights which are planned often with a short time horizon. All related data to each flight are also under the responsibility of the airspace user. As soon as a change becomes available it shall be inserted in the AOP in order to check the consistence with the allocated resources. The AOP is only able to fulfil its task if the data are up to date. The data transfer towards the AOP shall be realised through appropriate IT- interfaces to avoid manually caused mismatches.

3. Ground handler

The business relationship between an airspace user und its ground handler has in important impact on the process quality of each airspace user. Within the CDM philosophy, the predictability of the departure is enhanced through the Target Off Block Time (TOBT) procedure. The ground handling agent is the entity most able to directly (or indirectly) provide the TOBT to the CDM system and this philosophy should be included in the future system in so far as the ground handling agent can be seen as an actor best able to provide the most accurate progress of the turn-round into the ***AOP***. This is already defined in the CDM Implementation Manual (see part 1 chapter 7).

4. Local ANSP

Within the SESAR time horizon, the execution of airport (Tower) Air Navigation Services may follow a number of different business models with certain activities being 'outsourced' as well as the introduction of the remote tower concept. In any case, a local actor (for scenario purposes referred to as the ANSP) will be responsible for the traffic during the approach and departure phases as well as ensuring the safety of aircraft on the manoeuvring area. This actor will also have a large responsibility in the management of the capacity of an airport. It is in charge of adjusting the capacity, for example due to disturbing weather situations, and will need to ensure that the ***AOP*** is kept up to date in terms of the planning relating to capacity evolutions at the airport.

5. Network manager

Whilst not interacting directly with the ***AOP***, the future SESAR concept sees an improved integration of airports into the network. This will be achieved primarily through the (two-way) 'sharing' of appropriate information between the ***AOP*** and the NOP. As such the Network Manager will benefit from an improved predictability of airport operations and similarly decisions taken at the network level will be known to the airport to enable improved management/mitigation actions. Capacity shortfalls within the network can be detected beforehand and published through the Network Operations Plan (NOP) and hence visible in the ***AOP***. A list of data to be shared can be found in this part in Appendix E.[Appendix E]

6. Weather Information Service provider

The Weather Information Service Provider will deliver weather forecasts and observations to all stakeholders at an airport as well as to the network. The management of the ***AOP*** in the light of such weather information will be performed by the responsible stakeholders using at all times 'common' weather predictions.

The collaborative management of airport operations can benefit from timely weather information available to all stakeholders. As such, the establishment of a direct communication link (internet chat for example) between airport stakeholders and the Weather Information Service Provider can prove beneficial in the management of the ***AOP***.

7. Airport Slot Coordinator

Whilst not interacting directly with the ***AOP***, the slot coordinator has the principal role in balancing the airline requests for slots with the available airport capacity. The means by which this process takes place and the various "rights" involved are unlikely to change significantly in the near future but in any case will not change due to any SESAR initiative. What will change however is the process by which the slot request and award are translated through the creation and updating of the AVT.

F.2.2 Resources

The main resource of the ***AOP*** is a database that is able to share data with several stakeholders. This database shall also be able to establish interfaces to other databases like airline systems, ATC systems or the network manager. The data sharing via interface ensures a quick and accurate exchange of data and avoids mistakes through manual interactions. The main task of the ***AOP*** is to display data in order to gain situational awareness for all involved stakeholders this includes also passengers.

The ***AOP*** may also function as a communication platform between stakeholders either on a peer to peer level or transmitting a message from one stakeholder to several or all. This can be achieved through a chat function to send messages very quick and direct.

F.2.3 Input / Output

The ***AOP*** will be updated through the responsible stakeholders based on own decisions or a negation process.

On the other hand with automated services (e.g.: A-SMGCS system or automated touch down information). Through these automated updates with sensors the ***AOP*** will be enabled to update the A-CDM milestones with appropriate timestamps and hence indicate always the latest status of a flight without any manual action.

All updates will be processed and indicated with appropriate HMI's and displays. Specific data may be suppressed from the display due to data that my stand under security restrictions.

Appendix G Airport-DCB Concept

1. Introduction

This appendix describes the proposed new procedures for balancing demand versus capacity with a main focus on runway operations. Airport-DCB will be an integrated part of the new operating method for Airport Operations Management. The objective of Airport-DCB is to enhance the use of available airport capacity through collaborative planning and pro-active Demand versus Capacity Balancing (Airport-DCB management), implementing local solutions at airport level in co-ordination with increased stake-holder participation (e.g. Airspace Users through UDPP) and integration with network management functions (Network-DCB).

The overall airport capacity is determined based on the capacities of the individual operational elements such as TMA, runways, taxiways and aprons. It cannot be excluded that in some cases the ACC–airspace or even the Network might be the limiting element.

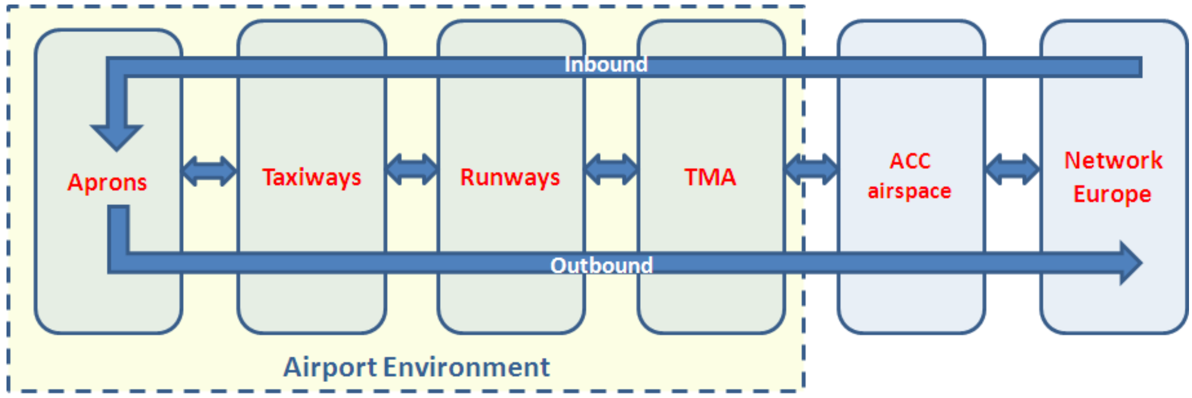


Figure 2. Chain of operational elements

The most constraining element of the chain will determine the overall airport capacity which is presented in an acceptance rate (number of movements per time unit e.g. 20 arrivals per hour) for inbound, outbound and total movements. In most cases the runway capacity will be the strongest constraint. However ground movement constraints could result in taxiway capacity being lower than the available runway capacity. The same is valid for apron and TMA capacity

Airport-DCB will monitor the key airport infrastructure (runways / taxiways) related KPIs, defined as Capacity Shortage, Efficiency and Predictability). In case of capacity shortfall or exceeding a pre-assigned performance target/threshold the Airport-DCB monitor will raise a warning or alert.

In general, Airport-DCB starts during the Medium Term planning phase, analogue to the CFMU planning from about seven days before the day of operation. At this point in time both input parameters “pre-seasonal airport declared capacity” and “seasonal schedule available” are available in the AOP which itself is created at the beginning of the Medium Term Planning Phase.

As the execution phase is getting closer, more specific data become available, more accurate information on expected inbound and outbound demand, initial Airport Transit Views (ATV – the link between an inbound trajectory and an outbound trajectory performed by the same airframe) and also more accurate and reliable weather forecasts required for the determination of runway capacity. Airport-DCB takes this into consideration and forecasted airport performance accordingly. The output (Forecasted KPIs, Airport Configuration and operating modes, Adjusted Demand) will be made available to stakeholders in order to assist their decision-making processes.

In complex situations, requiring intensive stakeholder communication and collaboration, typically within the APOC, Airport-DCB will be a means for providing common situational awareness relating to demand and capacity imbalance issues. The communication amongst the stakeholders involved will ultimately result in the determination of one or more solution ‘scenarios’ which has an impact on the originally planned airport operations (AOP).

A key requirement for Airport-DCB is that it provides clear and unambiguous results in a timely manner. Detected potential imbalances between demand and capacity are required to be provided with sufficient 'advanced notice' so as to serve as an enabler for proactive Demand Capacity Balancing Management (DCBM).

The runway / taxiway related Airport-DCB alerts or warnings shall be analysed and where possible solved by Airport DCB-Management. The alerts or warnings will not be removed directly from the Airport-DCB Monitor by any action from a stakeholder on them. For example, in case of UDPP the alert will only be "automatically" removed when the AOP is updated (flight cancellation, adjusted flight plans etc). This will feed the Airport-DCB Monitor with new values on which it can determine if the earlier detected imbalance is solved or not. This principle is especially useful to track the level of implementation of the agreed solution by the relevant stakeholders and the effectiveness of the solution to solve the imbalance.

The effectiveness of Airport-DCB relies completely on the accuracy and reliability of the input data. Therefore all stakeholders have to provide their "best" information (through the AOP), including their plans and current plan deviations. Naturally, information including a larger planning horizon has a lower quality than information close to the current event.

Airport-DCB provides proposals for change of runway configuration (taxiway configuration has to be derived from that), runway utilization as well as demand adjustment / limitation (potentially including a trigger to launch UDPP). Agreed Airport-DCB output data is mainly forwarded to the AOP and – if needed – will be shared with the NOP and other planning tools via the AOP.

2. Operating Method

As of today, the standard reaction to emerging bottlenecks is to put flow management measures into place. These measures are currently based on rough calculations. The severity and the duration of the congestion are estimated at best. Overall, the current strategy to cope with bottlenecks is coarse and inaccurate.

In general, Airport-DCB is currently performed separately for arrivals and departures with just a weak link provided by co-ordination between tower and approach supervisors. This link is based on the subjective evaluation of the situation by the operators involved. There is no holistic view on the airport and related airport operations. It can be said that current Airport-DCB is in most cases conducted in a very reactive manner instead of being based on plausible forecasts. It generally focuses on the next few hours and does not cover the whole day of operations (or even looking to the day before operations).

The new operating method for Airport-DCB during Medium and Short Term planning phases does not differ much from the method used so far. However improved planning procedures and support tools will improve the capacity determination for the different airport operational elements. More accurate and reliable weather forecasts will increase the predictability of adverse weather conditions and related airport operating mode and thus the available overall airport capacity.

Demand Capacity Balancing will become more refined and the impact of any Demand Capacity imbalance better assessed. Detailed information on the schedule (demand) as also improved planning processes makes it possible to have and use more dynamic capacity figures (e.g. taking into account a changing fleet mix – Heavy, Medium, Light distribution) during the day of operation, especially for the first three hours ahead (execution phase).

Furthermore the impact of operational improvements due to implementation of on-board equipment will have impact on demand capacity balancing if less aircraft will have operating restrictions during certain weather conditions. Improved guidance will increase taxiway capacity during low visibility conditions. In the future the difference between runway and taxiway capacities will decrease as also many related dependencies such as low visibility, strong headwinds and risk of wake turbulence encounters.

The new operating method can therefore be described as:

- fully integrated Airport-DCB into the local AOP and – through the AOP – into the NOP (and Network-DCB)

- providing a comprehensive DCB approach involving all partners at airport level in establishing a decision making processes during normal and exceptional conditions.
- determining relevant airport capacity and demand values based on agreed and harmonized procedures.
- no longer taking capacity values from pre-defined tables defined by controllers based on individual experience instead capacity determination supported by system based forecasts taking constraints and other elements, e.g. forecasted KPIs, into account.
- sharing relevant capacity and demand information amongst all stakeholders involved to increase common situational awareness.
- monitoring and forecasting airport capacity in real time using a European-wide harmonized approach. Cause and severity of any demand / capacity imbalance is detected as early as possible. Alerts or warnings are generated and provided to actors and/or systems to take corrective action.
- bottlenecks at airport level are automatically identified and Airport-DCB to manage identified bottleneck(s) is implemented.
- capacity forecasts are based on more reliable weather forecasts thanks to improved MET-information.

2.1 Airport-DCB input and output

Airport-DCB works on three main areas of information: Demand-, Resource availability and Capacity-, Weather- data. Airport-DCB retrieves this data mainly from AOP. Additional sources of information might be used especially if weather service of MET-information is not part of the AOP-core data.

- **Demand**

  The demand input to Airport-DCB will mainly be retrieved from the Airport Operations Plan (AOP). This is logical since the AOP is a rolling plan, updated by the individual stakeholders as part of their own operations management. The AOP is the single plan through which common situational awareness at the airport is achieved.

  The AOP is updated continuously with new planning information from the different stakeholders and the current traffic evolution so as to ensure that the plan is aligned with reality. The AOP will be able to provide accurate traffic forecast for the next hours to timely feed the demand capacity balance monitor.

- **Capacity**

  Resource capacities like that of runways and taxiways (and aircraft parking positions) are also included in the AOP and provided by the relevant resource owner / operator. Forecasted changes to resource capacity are calculated by Airport-DCB and will be provided to the AOP by the resource owner.

  During seven days prior to the day of operation, the capacities will be assessed and forecasted. The starting point will be the declared capacity on which the schedules of the airspace users are based. Possible runway / associated taxiway configurations and their refined capacities are taken into account to determine the actual expected capacity during the specific conditions forecasted for the day of operation (weather, resources restrictions, etc).

  The forecasted runway / taxiway capacity from Airport-DCB is an advice to the relevant process owner (Airport Tower Supervisor) and might be manually refined. In the execution phase sudden and unforeseen changes that also have a major impact on runway capacity might occur. Such sudden events can be; runway blocked by an aircraft, runway equipment failure, rapid wind shift (due to thunderstorms), rapidly deteriorating braking action etc. For such sudden changes Airport-DCB needs to be able to handle manual input and then produce one or more proposed scenarios for best match per defined KPIs. This human input will allow taking on board elements difficult to be modelled or which are not (yet) covered by the model.

- **Weather**

Weather prediction becomes crucial for the demand – capacity calculations. High risk of sudden changes will have to be captured so that awareness of best alternatives in terms of runway allocation for each aircraft and choice of appropriate and best runway / taxiway combinations are already highlighted depending on, for instance, wind, braking action and visibility changes.

The following figure gives an overview on input and output for Airport-DCB Management. Airport-DCB output will be manually 'activated' by the relevant process owner for storage in the AOP.

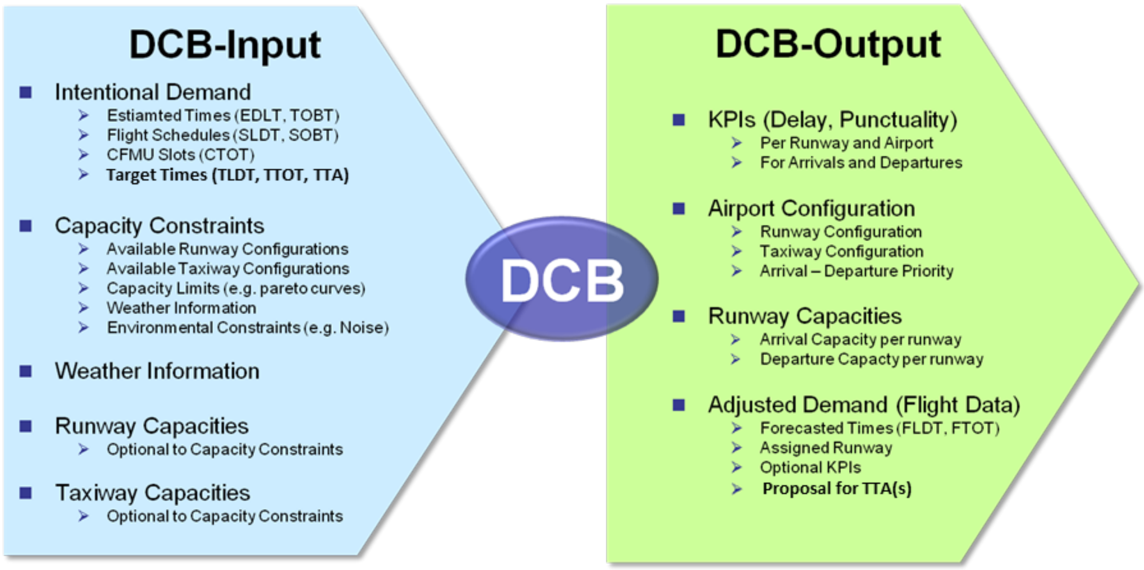


Figure 3. Detailed input and output of Airport-DCB Management

While Airport Configuration and adjusted demand is the key information included in the Airport-DCB output as an advice to the stakeholders implementation (update of AOP), KPI information is used for evaluation of the effectiveness of the proposed solutions.

The information on runway / taxiway capacities is to be used as:

- information for the AOP,
- capacity limits by AMAN and DMAN when operated independently or,
- as ratio between Arrivals and Departures when used as coupled AMAN/DMAN
- by AMAN/DMAN as automated input or as decision support for the operator.

2.2 Airport-DCB Components

Within all phases of the airport operations planning process, Demand and Capacity Balancing takes place continuously. During those planning phases the AOP is updated and adjusted by both the airspace users (refinement of the seasonal schedule – Demand) and the Airport Operator and local Air Navigation Service Provider (resource availability – Capacity).

The refinement and update of Demand and Capacity is continuously monitored to identify any imbalance. A capacity shortage may result in adjustments to the schedule where over-capacity may provide additional flight possibilities for the airspace users and/or time frames for planned maintenance to resources of the Airport Operator / local Air Navigation Service Provider.

At the beginning of the day of operations the AOP should be balanced. That is to say that the planned schedule for the day of operations can be performed without any significant performance degradation. Disruptions on the execution of the schedule are only due to unforeseen causes, like sudden weather degradations, incidents (e.g. aircraft blocks runway) or progressive delays throughout the network.

Procedures for DCB Monitoring and DCB Management will change only in such a way that the operators are supported by tools in their decisions in such a way that the coordination between processes is facilitated.

The support will be that:

- Runway Capacity will be calculated by DCB taking into account constraints as well as demand parameters – Traffic compositions (today this is estimated by the supervisors).
- DCB Monitoring will include forecasted KPI-values (available only post flight today) which are calculated based on the selected capacity.
- DCB Management will suggest solutions and include a what-if analysis functionality which allows evaluation of different options (managing demand or runway capacity). Evaluation will also be based on forecasted KPIs whose computation is done by DCB monitoring

Within Airport-DCB four components are distinguished. **Table 4** presents these four components.

Airport-DCB component	Objective(s)	Rational
Airport-DCB Basic Functions	Determine capacity and demand	Actual and forecasted traffic demand and airport capacity (mainly runway) is determined and provided as input for Airport-DCB monitoring
Airport-DCB Monitoring	Identify any demand & capacity imbalance and generate alerts or warnings	Detected demand & capacity imbalances and generated alerts or warnings are forwarded to be used by the Airport Performance Monitoring Service
Airport-DCB Management	Enhance collaborative decision making	A generic airport capacity model will be used as a decision support mechanism to perform Demand & Capacity Management. Any Airport-DCB related change proposal will be communicated to the Airport Performance Management Service for approval, adjustment or rejection. An agreed change in the AOP, resulting from Airport-DCB Management measures should also be communicated to the NOP. If further demand management at network level is necessary, in order to limit demand to available local capacity, then the UDPP may be initiated. Airport-DCB Management comprises “Balance [Runway] Demand and Capacity” and providing “Forecasted Times” (which can be seen as “early Target Times”)” [TMF]
Airport-DCB Interfaces	Ensure information sharing among all stakeholders involved	Airport-DCB also implies the identification of interfaces among all actors[15] involved in planning or maintaining the AOP and the NOP, or managing Airport-DCB or Network-DCB.

Table 4. The four Airport-DCB components

DCB Monitoring runs in parallel with DCB Management, whereupon DCB Monitoring is a continuous process and DCB Management is event triggered (KPIs exceed defined threshold). As thresholds become more stringent when time moves towards the planned moment of operation (Day of Operation) –, DCB Management activities will occur more frequently.

[15] Depending on the actors involved and with regard to the airport´s specific environment, interfaces to other planning tools might also be needed

3. Airport-DCB Basic Functions

Demand Capacity Balancing practised today relies mainly on scheduled and estimated demand as also on declared and estimated capacity.

For the medium/short term planning phase Scheduled Flight times are the only reference available and are available in the Airport Operations Data Base (AODB). Network and ANSP only have limited information on the demand in that phase, since repetitive flight plans are not used very often anymore or information on RPLs is not accurate.

In the execution phase (on the day of operation) more detailed information is available closer to the actual time of operation. Airport-DCB Monitoring and Management practiced in the execution phase today rely on the Estimated Demand. In the current operating method it is calculated for total arrival and departure movements, but seldom per runway.

Demand is given by the flight plan information provided to CFMU including all updates available at CFMU (Flight Update Messages, DPI-Messages). Co-ordinated demand information is considered by CFMU-Slots which might apply to some flights (for en-route restrictions) or to all arrivals (for TMA restrictions).

Demand forecast from CFMU is presented as histogram (e.g. flights per hour for a sliding window of 20 minutes) or as flight list providing more detailed information.

For the determination of airport capacity, often the declared capacity values are used, and where available updated based on foreseen infrastructure availability (e.g. runway maintenance). On the day of operation these capacities are updated with the most recent information on (expected) weather conditions, translated by the responsible stakeholder (ANSP supervisor) to expected runway configuration (combination of runways, operating mode and conditions, estimated impact of available ground/taxiway infrastructure) and capacity values. This translation is often based on operational experience and/or pre-determined capacity tables.

3.1 Expected / Forecasted Demand

In the proposed operating method more precise and more detailed representations of demand are required. In the Medium Term planning phase demand information is represented by the SBT, which is available through the AOP / NOP and is a relevant input for Airport-DCB.

The demand can be computed for any location to which a timestamp is attached. Normally Airport-DCB is focused on the runway system. Therefore demand is calculated taking the runway times (landing time, take-off time) as reference. Optionally the related block times might be used adding the taxi times for arrivals or subtracting taxi times for departures.

Certain elements of the demand have an impact on the determination of capacity. To assist the ANSP supervisor in more accurate determination of forecasted (runway) capacity, the demand determination shall be performed with the following traffic mix detail.

- **Traffic Mix – Composition of Wake Turbulence Weight Category**

  The determined in-trail separation between successive aircraft depends on the wake turbulence weight category of the respective aircraft. The distribution among these wake turbulence categories (e.g. Super Heavy/Heavy/Medium/Light distribution) needs to be considered when forecasting capacity/traffic flows, both inbound and outbound.

- **Traffic Mix – Departure Traffic Volume per SID**

  Departure capacity also significantly depends on the SID of successive departures. The take-off interval might be enlarged in case two successive departure use the same departure route in order to achieve sufficient (radar) separation. The distribution among SIDs needs to be considered when forecasting outbound capacity/traffic flow(s).

- **Traffic Mix – Arrival Traffic Volume per STAR**

  Arriving traffic in general approaches TMA from different directions over different STARs. If there is a strong imbalance of traffic between the STARs, a specific inbound direction (STAR) might become the bottleneck with holdings as a consequence. The distribution among STARs needs to be considered when forecasting inbound capacity/traffic flow(s).

- **Traffic Mix – Ratio between Arrivals / Departures**

  When there is a large dependency between arrival and departure capacity (e.g. when runways are used in mixed mode) the ratio between arrivals and departures is essential for forecasting arrival and departure capacity.

  The impact of the above mentioned demand compositions on capacity are evaluated by the responsible ANSP supervisor (Airport Tower Supervisor and/or the ACC/Approach Supervisor).

3.1.1 Demand Details

Demand shall be presented as total demand or as a split into arrival and departure demand. Furthermore for Airport-DCB it is important to give the demand for the total airport as also for specific runway(s).

The mix of movements of different aircraft types which make up the demand is an important factor in the determination of runway capacity. The following table gives an overview of the different demand details that might be required for Airport-DCB application.

	Demand [movements per time period]
Airport level	Total movements Arrival movements Departure movements
Runway level	Total movements per runway Arrival movements per runway Departure movements per runway Inbound wake turbulence weight category distribution per runway Outbound wake turbulence weight category distribution per runway SID distribution per runway STAR distribution per runway

Table 5. Demand detailing criteria

This large number of possible demand representations shows the importance of identifying the specific user needs to which demand is of interest.

During the short term planning phase, and certainly during the execution phase of the Day of Operation, the requirement on demand information will be strict, not only on the detailing mention in **Table 5** but also for granularity. Demand presentation in time block intervals of 10 minutes (or even less) within a look ahead time of at least 3 hours is required. For look ahead time of more than three hours, intervals of 30 minutes to an hour might be sufficient.

3.1.2 Determination of Demand

Within the Airport-DCB concept, demand can have different definitions, dependent on its application. The following types of demand can be distinguished:

- Intentional Demand,
- Adjusted Demand,
- Cumulative Demand,

- Reference Demand.

Intentional Demand

Intentional demand will be used for indicating the mismatch between demand and capacity as intentional demand presents the most up to date information given by the airspace users at any time. The intentional demand comprises milestone times (ILDT/ITOT) that reflect the preference of each individual flight as long as constraints or irreversible control measures have not already overridden this preference.

Intentional demand is the input to the Airport-DCB. The aim is to accommodate as much of the intentional demand as possible with the available runway configuration, since this will yield the best KPI values. The first demand information available is represented by the SBT, which is provided through the AOP/NOP. The timestamps for Intentional demand (ILDT/ITOT) shall therefore initially be based on the SIBT and the SOBT.

The milestone used for intentional demand is the flow on the standard runway threshold. In case of multiple runways, the runway to be used for the aggregation of demand shall be based on the local operating rules (e.g. runway allocation can be based on destination/origin, aircraft type/size, location of stand/terminal, SIDs for departure, etc.). Standard taxi times will be provided (as already today available at A-CDM airports) in order to determine the demand on the runways. There might be a kind of variable standard taxi times associated to groupings of stands/gates and taking into account the planned / actual runway threshold. They shall be used in short term planning phase unless even more accurate taxi-times are available through SMAN. For medium term phase the runway configuration and operating direction can only be forecasted with a low probability. Therefore average taxi times relating to the most common runway configuration should be used.

When the actual operation (landing or take-off) comes closer, more accurate information becomes available. ILDT/ITOT will be based on ELDT/EOBT (from NMOC and Airspace Users) and TLDT/TTOT (from AMAN/DMAN) respectively in order to use the most accurate and up to date information. This also means that in the execution phase, the intentional demand comprises a mix of SBT (e.g. not departed yet from origin) and RBT (e.g. on its way to its destination) data. The hierarchy of timestamps that determine the ILDT/ITOT is given in section 8 “Timestamps used in Airport-DCB”.

Adjusted Demand

The adjusted demand is based on the forecasted times (FLDT/FTOT) at which aircraft are expected to arrive at the runway, for inbound or outbound as adapted to the available capacity. On the day of operations it therefore contains the target times that are already the outcome of steering and control measures. These steering and control measures can be initiated by constraints at origin, en-route or at the destination airport.

For the time horizon beyond the AMAN/DMAN planning horizon, target times are assigned directly through the Airport-DCB function. Within the AMAN/DMAN planning horizon (between ‘now’ t=0 and 60 minutes ahead) the AMAN/DMAN will calculate these target times based on the capacity values received from the Airport-DCB.

Cumulative Demand

Cumulative demand is calculated and used as an additional representation to be displayed on the HMI. It can be helpful for visually assessing the delay situation and its source in the timeline of demand and capacity. The cumulative demand shows the number of flights that are expected to be waiting to use the runway at any point in time (i.e. over-demand of movements).

When demand is greater than capacity, a certain number of flights have to be shifted in time (over demand). If a short time interval is chosen, the number of shifted flights can give a qualitative indication on the delay that is generated. This over-demand together with the flights that were previously forecasted for an interval, gives the number of flights that will form the cumulative demand per runway and traffic type at the beginning of every interval. Flights are shifted consecutively based on the capacity chosen for the respective interval.

The cumulative demand changes with any change in demand or capacity and is therefore continuously recalculated. The calculation is based on the intentional demand and the available capacity (manually fixed or from KPI testing in optimization process). Displaying cumulative demand along with capacity will facilitate manual management of capacities and identify period of demand and capacity mismatch better than intentional demand.

When cumulative demand is based on the expected demand instead, it can be used as an indicator of the impact on delay in a degraded capacity situation, as a trigger for recalculation of target times. After a recalculation the expected demand and available capacity are in equilibrium again for the time scope in which target times are issued.

Reference Demand

Reference demand is used in post operations analysis phase in order to identify deviations from the original planning at the time the AOP was initiated by comparing it to actual times. Reference demand is calculated by using reference times. The reference demand in terms of a sum of aircraft is not used in Airport-DCB Management. It can however be useful for HMI display purposes.

3.2 Expected/Forecasted Capacity

Capacities are always expressed as a rate meaning a number of movements per unit of time. This can be arrival, departure or total (arrivals plus departures) number of movements.

For Airport-DCB Monitoring and Management the most constraining capacity value is decisive. This is often runway capacity but the bottleneck may also be another element (e.g. ground movement system – taxiways) of the operational airport chain. Irrespective of the constraining element, the capacity is always expressed in a runway capacity value; number of landings and/or take-offs per time frame.

3.2.1 Runway Capacity

Most restraining airport element for capacity is often the runway or the runway system. Other elements often have more capacity or can easily be adjusted to an increased capacity. For example, adding aprons or taxiways can be done at most airports without an extensive legal and public consultation process, whereas adding new runways or making changes to the way an existing runway is used requires a process that might take years and sometimes decades.

Runway Capacity depends on:

- Locally determined operating rules.
  - environmental (noise) regulations.
- Weather
  - Wind; Visibility,
  - Winter conditions; runway surface condition (acceptable tail and crosswind components),
- Airport Infrastructure,
  - available runway infrastructure (landing systems, location of exits),
  - available taxiway infrastructure,
  - dependencies between runways; Spacing regulations; Departure Intervals.
- Traffic mix,
  - wake vortex mix (heavy, medium, light distribution); aircraft type (approach/climb speed),
  - SID/STAR distribution,
  - arrival/departure ratio.

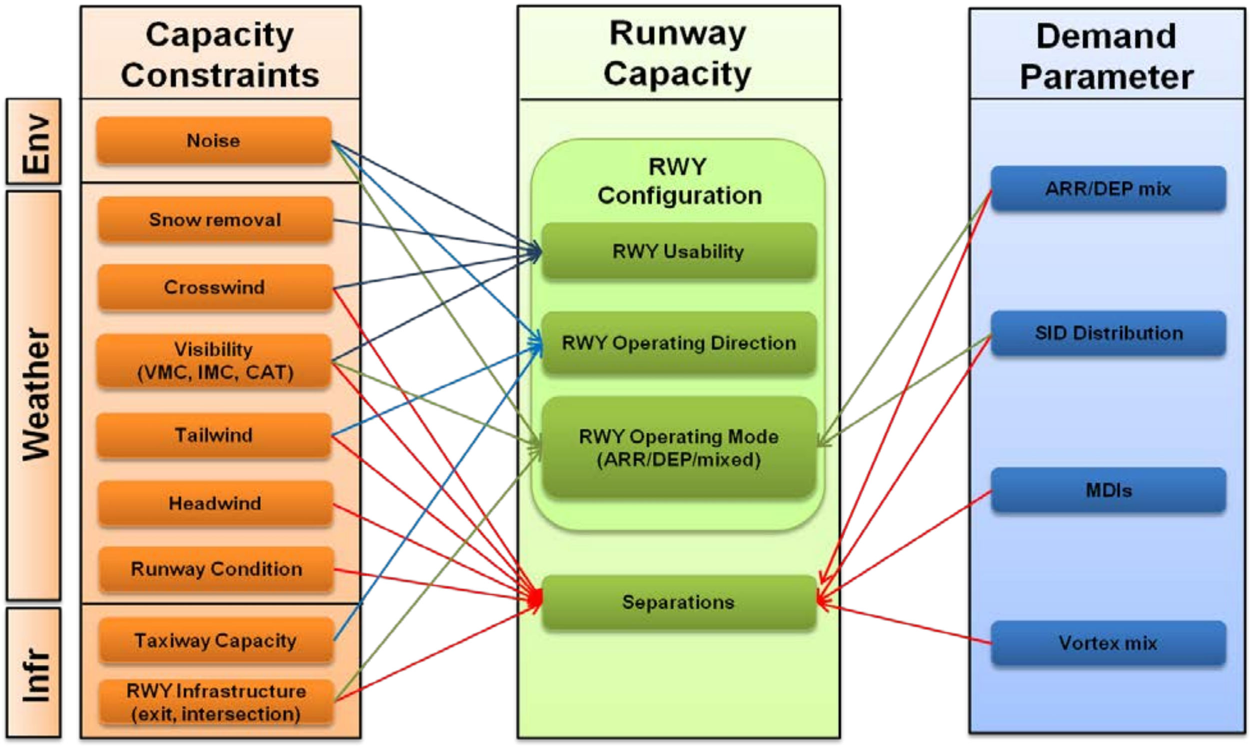


Figure 4. Runway Capacity Influence Diagram

The major parameters influencing the overall airport capacity are runway usability, runway operating direction, runway operating mode, the separations to be applied on a runway as well as the basic airport layout characterizing the taxiway capacity.

The capacity constraints as well as demand parameters influencing capacity have to be monitored continuously. Infrastructure availability and environmental/political constraints (like curfews, aircraft count over certain areas and time, movements per year) do in general not change that suddenly. The Airport Tower Supervisor therefore frequently monitors the weather related capacity constraints and the demand forecast.

The Airport Tower Supervisor estimates the (runway) capacity based on the weather forecast and also based on empirical experience. In many cases standard capacity values are defined depending on operating conditions (e.g. combinations of certain runway configurations and weather conditions) or demand parameters (e.g. traffic mix). The calculation of these standard capacity values differs per airport. For single runway airports such standard capacity table may just be a short list of values. For complex airports with multiple runways in different directions this standard capacity table is often a large matrix representing the entire operating conditions specific for that airport.

Examples of a standard arrival capacity matrix are given in **Figure 5** and **Figure 6**. These examples given in these two figures are for two different airports showing different ways of capacity value presentation.

RWY 28 in use	Heavy AC in %	Headwind Component in 3000 FT				Unusability RWY 16 due to tailwind
		< 15 KT	15 – 25 KT	26 – 35 KT	> 35 KT	
Visual Separation	< 25%	> 39	37	36	<= 33	31 - 32
	25 – 35%	38	36	35	<= 32	
	35 – 40 %	37	35	34	<= 31	
	> 40%	<= 35	<= 34	<= 32	<= 29	
No Visual Separation	< 25%	37	36	35	<= 32	
	25 – 35%	35	34	33	<= 31	
	35 – 40 %	34	33	31	<= 29	
	> 40%	<= 33	32	31	<= 29	
CAT II or III		28 - 32	< 29			

Figure 5. Example 1 for a standard capacity values matrix (fictive values)

OPERATING MODE T-O / LND		VISIBILITY CONDITION				
		GOOD	MARGINAL	LVP -1	LVP-2	LVP-3
1	36 / 06	40/38	35/38	30/32	30/22	20/16
2	24 / 18	40/38	35/38	30/32	30/22	20/16
3	09 / 06	32/32	32/32	30/32	30/22	N.A.
4	24 / 27	40/38	35/38	30/32	30/22	N.A.
5	36 / 36	20/20	18/18	N.A.	N.A.	N.A.
6	18 / 18	20/20	18/18	N.A.	N.A.	N.A.

Figure 6. Example 2 for a standard capacity values matrix (fictive values)

The table given in **Figure 5** gives capacity values dependent on traffic mix (percentage of heavy), wind condition (headwind component) and visibility conditions (visual separation, no visual separation, CATII or III). The colour represents the impact on the "standard" capacity value (nominal capacity) where grey represents "no impact" on this standard capacity and red "severe impact".

Figure 6 shows another example of a standard capacity values matrix. The overall airport capacity values are presented as DEP/ARR movement rates, dependent of airport operating mode (runway configuration – take-off/landing runway) and visibility conditions. The green colour represents no impact on the "nominal" capacity; the red represents the most "severe" impact on capacity and the dark grey means that the specific runway combination is not available during those visibility conditions. Note that in both figures, runway operating modes and capacity values/impact are for fictive airports.

For each cell of the above given matrices a probability of occurrence can be determined. During the medium term planning phase these probabilities will be based on statistical weather data applicable for the relevant season. Evolving closer to the day of operation these probability values will change when more accurate weather forecast data becomes available. Weather forecasts looking five days ahead are not uncommon in current airport operations and may already exclude one or more of the possible operating conditions or runway combinations.

At the start of the short term planning phase the forecast for the next day can give a reasonable and accurate probability of the expected weather conditions and thus the expected overall airport capacity (meaning which cell values of the capacity matrix might become applicable). The ANSP supervisor may already decide on submission of a capacity value at the FMP position in case the expected capacity deviates significantly from nominal capacity. The capacities determined up to this point are the equivalent of a practical capacity value.

In case AMAN/DMAN are available, capacity information is directly adjusted in these systems by the ACC/Approach Supervisor. Note that often a parameter like 'separation distance or time' is updated in these systems instead of a capacity value.

3.2.2 Taxiway Capacity

Whereas for runways the margin of freedom is very limited (they all have to operate on the same strip of concrete; pass the same threshold) there are more options in the use of the taxiway system. The possibility to change the taxi route for bypassing an obstruction or even the possibility to stop a moving aircraft provides more flexibility to the controller. However this also makes calculating absolute taxiway capacities (expressed in a movement rate per time period) difficult and in many cases impossible. The capacity of taxiways is therefore often based on expert judgement, filled with experiences from the past or simulator runs in medium term planning phase.

During low visibility operations or in case of construction work taxiway capacity might be the limiting factor. Therefore taxiway capacity may not be disregarded both during medium term planning and during short term planning phase (including the day of operation).

Main information for taxiway capacity determination is the available taxiway infrastructure, ATC capacity (e.g. controller workload) and airport operational rules (e.g. standard taxi routing). In lookup tables taxiway capacity in terms of total number of ground movements, arrival and departures specific as also per runway are provided for all runway/taxiway configurations, operational conditions (e.g. weather) and traffic distributions (e.g. inbound or outbound peak periods). As long as the taxiway capacity is above the runway capacity for the relevant runway combination/configuration, the ground movement capacity will not be the restraining factor.

The lookup tables are filled with taxiway (ground movement) capacity values based on expert judgement or, where available and practical, simulation exercises. For changes in taxiway infrastructure, known well in advance (medium term planning phase), simulation exercises might be an option to determine the practical taxiway capacity. The purpose of these simulations is to identify potential bottlenecks associated to the schedule that would lead to demand/capacity imbalances. In case a degraded taxi configuration (due to construction work) is encountered in medium term phase, a new simulation based on the altered configuration and known demand will detect whether a problem is to be expected. It will then depend on the nature of the taxi constraint whether a reduction of arrivals, departures or both is advised (operators' assessment). Taxiway capacity (in nominal taxi configuration) can be analysed through simulations by gradually increasing the traffic load and/or altering the ARR/DEP ratio.

For unforeseen and late changes in taxiway availability, simulations study is a too time consuming method and judgement of operational experts, 'overwriting' certain values in the lookup table becomes the only practical way of determining actual taxiway capacity. Also for runway and taxiway configuration not taken care for in the lookup tables, the taxiway capacity has to be based on expert judgment.

3.2.3 Determination of Capacity

Runway capacities will be defined for different planning purposes. It will differentiate in level of detail. For the medium term planning phase the more general declared capacity value is sufficient as also a granularity of capacity (and demand) on half hour or even hourly basis.

On the day of operation and coming closer to the moment "now" more detailed capacity forecast that fits with the actual or expected traffic flow is required as also a granularity of 10 minutes or even less. Only this will guarantee that the Airport-Demand Capacity Balancing will make optimal use of the available capacity and any flow restriction kept to the bare minimum.

Declared Capacity

Declared capacity is the basis for allocating airport slots. It comprises values for declared total capacity, declared maximum arrival capacity and declared maximum departure capacity taking into account airport infrastructure, typical operating conditions and political issues. Declared capacity can/may vary throughout the day accounting for inbound or outbound peak periods, off-peak periods or night-time.

The declared capacity is based on the practical capacity for standard conditions which is mainly determined by simulations in coordination with the relevant airport stakeholders (Local ANSP).

Ultimate Capacity

In the new proposed operating method the ultimate capacity is actively used for forecasting the performance indicators (KPIs). It is more detailed than declared capacity and takes into account dependencies between runways.

Ultimate capacity is the maximum number of aircraft operations that an airfield can accommodate during a specified time period when there is continuous demand for service. It is used in execution phase only by tactical planning tools in order to avoid wasting capacity. For each runway in the possible runway configurations the ultimate capacity is calculated, based on the applicable expected/forecasted traffic mix (wake turbulence weight distribution, SID/STAR distribution. Ratio of arrivals and departures) and can thus vary even if weather conditions remain unchanged.

Within the Airport-DCB capacity determination function the capacities shall be available in 10 minute intervals for the period of three hours ahead and in 1 hour intervals for the remaining part of the short term planning phase (between 3 and 24 hours ahead). The ultimate capacity is not calculated for the medium term planning phase.

Calculation of Ultimate runway capacity for an existing runway system can/may be based on empirical data correlating with previous similar conditions in high traffic.

Practical Capacity

The practical capacity is the number of aircraft operations during a specified time period corresponding to a tolerable level of average delay. Practical capacity is therefore always lower than ultimate capacity. By having a planning buffer relative to the ultimate capacity the risks of creating over demand and additional delay is reduced because the delay effect of demand bunching will not be as severe (see **Figure 7**). The size of the buffer depends on the level of average delay accepted. In the new operating method practical capacity is calculated per runway for arrivals and departures for every runway configuration and operating mode (ratio) and different fleet mixes (wake vortex categories).

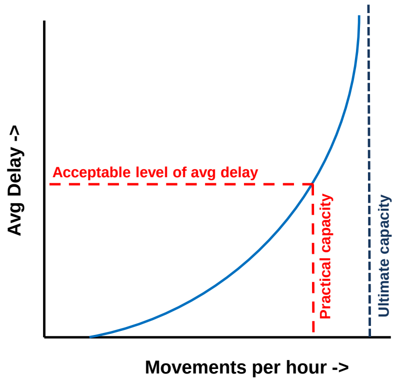


Figure 7. Relation between Ultimate and Practical capacity

Within the Airport-DCB capacity determination function the capacities shall be available expressed in at least 10 minute intervals for three hours ahead and in 1 hour intervals for the remaining period of the short term planning phase. The values should be provided with a probability of occurrence that is associated with the underlying weather conditions.

Both ultimate and practical capacity values can be presented in tables for which in **Table 6** an example is given.

				Runway 1	Runway 2	Runway n
Operating condition n (weather)	Runway Configuration 1	Capacity Distribution 1	Arrivals			
			Departures			
		Capacity Distribution 2	Arrivals			
			Departures			
	Runway Configuration n	Capacity Distribution 3	Arrivals			
			Departures			
		Capacity Distribution m	Arrivals			
			Departures			

Ultimate or Practical Capacities values in Movements p. 10min / Movements p. hr

Table 6. Matrix of Ultimate or Practical Capacity values

3.2.4 Application of the different capacity types within Airport-DCB

Declared capacity is provided as an input to Airport-DCB and used for Demand and Capacity Monitoring in the medium term planning phase where the schedule of the airspace users is still subject to change. Once more accurate data is available from the flight plan and weather forecast, Airport-DCB Monitoring and Management will be based on practical capacity values.

This means when flights have to be re-planned in a new Airport-DCB Management loop, the number of flights in that time interval must not exceed the practical capacity (plus a certain margin).

For a very short time period starting from the present time, where only minor deviations from expected process times are expected the ultimate capacity should be used for Airport-DCB Management instead. A buffer is then no longer needed.

After an Airport-DCB decision is taken the capacity values and distribution that are chosen with help of the Airport-DCB Management are passed on to AMAN and DMAN as well as the resulting forecasted times which are submitted into the AOP.

However for Airport-DCB Monitoring in short term planning phase the practical capacity values are used for the KPI capacity shortage (planning conformance) whereas the ultimate capacity values will be used for KPIs delay and punctuality. It will show when the buffer initially provided by the practical capacity has been used up. **Figure 8** gives an overview on the use of capacity types throughout the different phases.

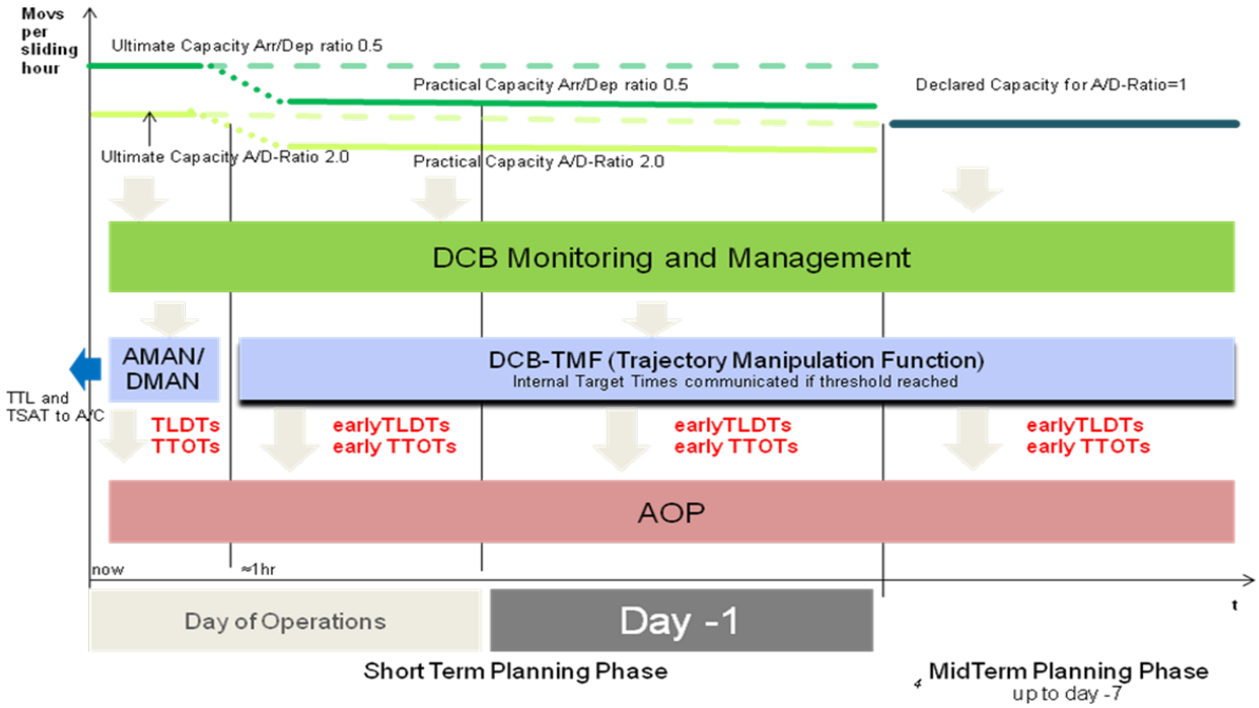


Figure 8. Application of the different capacity types

4. Airport-DCB Monitoring

The monitoring function of Airport-DCB compares demand and capacity. In the medium term planning phase (approx. seven days prior to the day of operation) this is often done by the airport operator using scheduled demand data and the declared capacity values. Demand-Capacity balancing is in this stage straight forward as request for new flights will only be allocated if the total (expected) demand does not exceed the declared capacity by a certain percentage.

Figure 9 gives a representation of demand versus capacity for medium term planning phase.

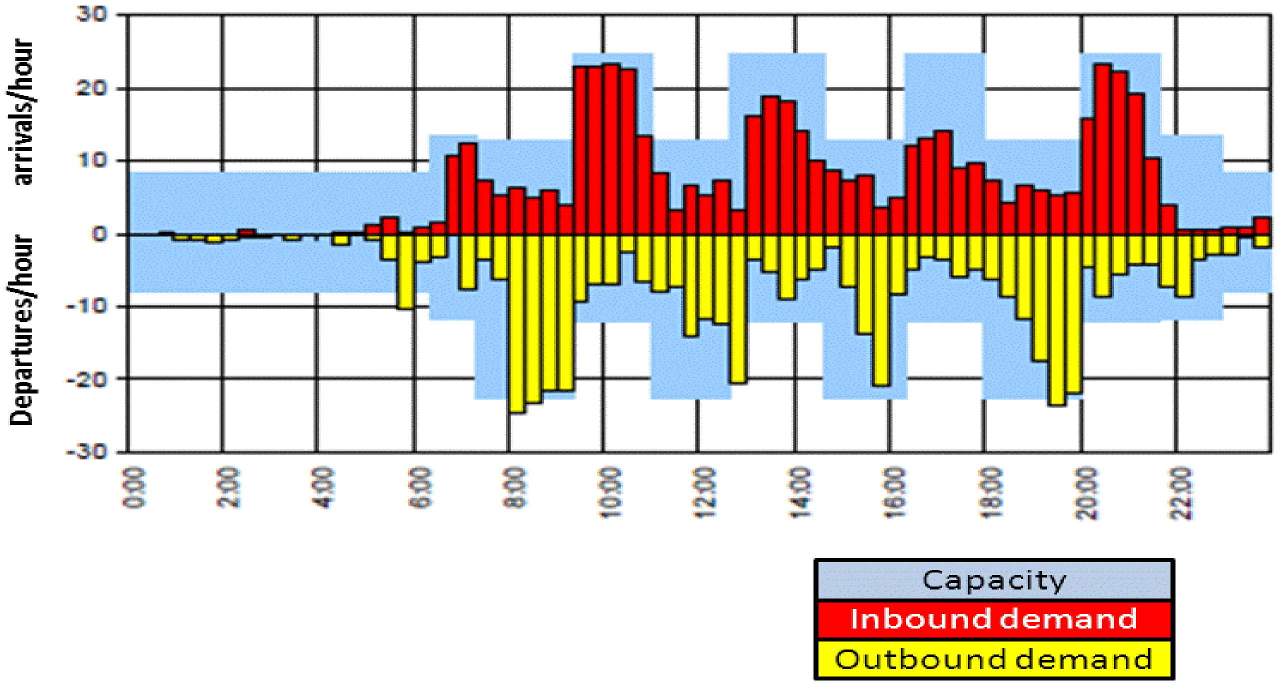


Figure 9. Example of Capacity versus Demand Representation

In the execution phase (from the moment 'now' till 24 hours ahead – often defined as the 'Day of Operation') Airport-DCB Monitoring is performed by the airport tower and approach supervisors as well as, where available, assisted by AMAN/DMAN information.

Inbound and outbound demand will be compared with the actual and forecasted capacity by the airport tower supervisor. Currently this actual and forecasted capacity is often determined by operational judgement taken the experiences operational people and individual supervisors.

4.1 Shortcomings

Shortcomings of current Airport-DCB Monitoring are:

- Information on demand composition of traffic mix is not sufficiently structured, i.e. it has to be estimated by the airport tower and ACC/approach supervisor.
- Capacity forecast has to be estimated by the airport tower supervisor (and depends on demand composition – see above).
- The severity (and occurrence probability) of the imbalance has to be evaluated by the airport tower supervisor.
- A potential interdependency between arrivals and departures is not considered. In general only arrival information is monitored while departures are handled in a reactionary way.
- The information given is rather coarse as the distribution of the traffic across the runways is not given (i.e. the information that there might be a problem on one runway only cannot be retrieved easily).
- There is no display providing an integrated view on arrivals and departures.
- The above mentioned range of shortcomings is of course dependent on local situations. Some of these shortcomings might be applicable to certain airports while at other airports other shortcomings are to be taken into account.

If AMAN/DMAN is available Airport-DCB Monitoring (during the execution phase) will be based on these systems. In this case additional information on target times is available which allows the airport tower supervisor to better estimate the severity of the imbalance. From the target times a delay information can be retrieved (either directly for arrivals or by comparison of TOBT and TSAT for departures) allowing the airport tower supervisor to directly evaluate the severity of the disruption.

4.2 Operating Method

Monitoring of actual and forecasted operating conditions (expectations for a certain number of hours ahead) will be performed automatically. Actual and forecasted performance (KPIs) is calculated and when pre-defined thresholds are exceeded, alerts and warnings are generated. Collaboratively with all relevant actors possible resolutions (scenarios) are analysed and a decision for action taken.

Main objective of Airport-DCB Monitoring is to identify any demand and capacity imbalance based on the KPIs “delay” and “punctuality”. While KPIs will continuously be updated and displayed, an alert or warning will only be triggered when given thresholds are exceeded.

Delay and punctuality will be determined by shifting flight to later time intervals if the capacity in the interval is exceeded and evaluating where the flight was placed compared to the original time. The previously established order of arrivals and departures will be maintained.

Moreover the KPI “Capacity Shortage” is considered within the process of Airport-DCB monitoring. This KPI will however just be used as information and will not be part of internal calculations. The added value of providing the information on the KPI “Capacity Shortage” should be tested within the validation exercises.

The alerts and warnings will primarily be used by supervisors who are responsible for Airport-DCB. In addition to this the alerts and warnings will also be used by the APOC – respective procedures still have to be defined (e.g. Airspace Users might use flight related KPIs in order to take proactive decisions on flight cancellations).

The Preliminary OSED considers taxiway capacity in addition to runway capacity. The lower value represents the bottleneck, which is then to be used for Airport-DCB Monitoring and Management. Bottlenecks have to be identified for arrival and departure respectively. The runway/taxiway configuration upon which the capacity is determined may change throughout the planning phases. The accuracy and reliability of information (especially weather) upon which the selection of the runway/taxiway configuration is based becomes more precise closer to the day of operation.

Table 7 gives an overview of the runway configurations and capacity types to be used in the three planning phases.

Planning Phase	Runway configuration used	Runway Capacity used	Taxiway Capacity used
Medium Term planning phase (seven days prior to day of operation up to day -1)	Standard runway configuration **or** Alternate standard configuration in case of runway unavailability	Declared Capacity - Overall - Arrival - Departure **or** Modified Declared Capacity in case of runway unavailability	TWY capacities previously determined for standard conditions through simulation by varying traffic load and ARR/DEP ratio or expert judgment (i.e. controller experiences).
Short Term planning phase (day -1)	Standard runway configuration or Alternate standard configuration in forecasted prevailing weather conditions if probability for change of operating direction rises above a certain level.	Practical Capacity ranges on “per-runway” basis	Use capacities previously determined (through simulations for applicable demand and ratio or through expert judgment) or estimate and manually enter taxiway capacities in case of degraded taxi configuration - Overall - Arrival - Departure

Planning Phase	Runway configuration used	Runway Capacity used	Taxiway Capacity used
Short Term planning phase (day of operation)	Established runway configuration. Change to divergent configuration in coordination with tower supervisor when probability for change rises above defined level during course of day.	Practical Capacity ranges on "per-runway" basis for "capacity shortage", ultimate capacity for "delay" and "punctuality"	Use lookup table based on previous experience in similar weather conditions in standard taxi configuration **or** Estimate and manually enter taxiway capacities in case of degraded taxi configuration - Overall - Arrival - Departure

Table 7. Runway configurations and Capacities per planning phase

In the medium term planning phase the detection of imbalances between demand and capacity is based on the standard runway configuration. At that time no accurate weather information is available. The standard runway configuration is usually chosen based on the most common (nominal) weather conditions.

This is still valid at the beginning of the short term planning phase. Towards the end of the day prior to the day of operation (day -1), a forecast of the prevailing weather conditions is available with a certain probability of occurrence. If this probability reaches a defined level, the capacities used for Airport-DCB monitoring can be based on the resulting standard runway configuration in the expected operating condition.

During the day of operation Airport-DCB Monitoring will be performed based on the currently selected (active) airport configuration. Any change in demand as well as change in capacity (due to either capacity constraints or demand parameters) will lead to an update of the planning, in general resulting in new KPI values.

If a runway configuration change is likely due to a high probability of weather change, Airport-DCB Monitoring and calculation of KPIs for a predefined number of hours looking ahead should also be based on the changed runway configuration and altered capacities. Calculation of KPIs should happen for both the old configuration as also for the expected changed configuration.

If a runway configuration change is certain (pre agreed runway configuration change e.g. due to hours of curfew), Airport-DCB Monitoring and calculation of KPIs for a predefined number of hours looking ahead, should automatically be based on the changed runway configuration and altered capacities. Presenting KPIs based on the old configuration would be misleading.

Up until and including day-2 only declared capacity (overall, departure and arrival) are used to be compared with the demand. Starting on the day before the day of operations the practical capacity is used based on the expected operational conditions (weather). A probability value should be given along with the practical capacities as well as an indication of deviation from the declared capacity values. Practical capacity provides more detailed information on the distribution of capacity over all runways, not only about aggregated arrival and departure capacity. In complex runway systems this is of high importance.

On the day of operations practical capacity should be used for forecasting capacity shortage and ultimate capacity should be used to determine delay and punctuality.

Where multiple arrival or departure runways will be used, demand is usually assigned to a certain runway, based on their arrival or departure direction (TMA entry/exit fix). In that case evaluating capacity only on airport level (instead of runway level) and comparing it to the aggregated demand is not detailed enough and may lead to wrong conclusions. Overall capacity might be assessed as sufficient, whereas the capacity per runway might be not.

Practical capacity is related to pre-defined performance levels (e.g. acceptable average delay) used for monitoring to avoid that the number of planned flights is exceeded at the same time guaranteeing that the overall delay in the presence of typical process uncertainties will not turn out to be too high.

Practical capacity is also used on the day of operation up to a certain number of hours ahead, when most flights will be about to go airborne. Since weather forecast is more reliable on the day of operation it must be updated again.

If an increase in Practical Capacity is detected additional flights can be serviced. If a decrease is detected, comparing demand and practical capacity together with the relevant KPIs will give indication of the severity of the situation to be expected.

In execution phase demand is also compared against the ultimate capacity, which for the near future will give a more precise prediction of KPIs. Flights have already deviated from their previously planned times. The buffer between practical and ultimate capacity is now being used. Ultimate capacity distributions are also calculated on runway level and compared against the demand on runway level.

Project 6.5.1 provides input on which variables need to be monitored with respect to the KPAs capacity and flexibility. However KPIs for KPAs efficiency and predictability that are given in 6.5.1 relate to post-operations analysis phase only, since “actual times” are considered. Therefore in 6.5.3 new KPIs capable of analysing the forecasted situation need to be established.

Figure 10 gives an example of how HMI representations may look like for monitoring demand versus capacity. KPIs are represented as curves for arrivals and departures per runway over time.

Figure 10. HMI Example KPI Representation

4.3 Alerts

If the Airport-DCB Monitor detects an imbalance an alert will be raised. Alerts can be raised on different levels. Combinations of different alerts may give hints on solution directions to relieve the demand-capacity imbalance.

- Alert on airport level
- Alert per traffic type (inbound or outbound)
- Alert on runway level

Where multiple arrival or departure runways are used, demand is usually assigned to a certain runway, based on their arrival or departure direction (TMA entry/exit fix). In that case evaluating capacity only on overall arrival and departure level (instead of runway level) and comparing it to the aggregated demand, is not detailed enough and may lead to wrong conclusions. Overall capacity might be assessed as sufficient, while the capacity per runway is not.

5. Airport-DCB Management

Airport-DCB management can be initiated at any time but will certainly be triggered when the Airport-DCB Monitoring raises an alert as KPI values exceed pre-defined thresholds. The Airport-DCB Monitor will provide relevant information for the Airport Performance Management Service. Results from the monitor are used as input for impact assessment and decision support services in order to improve and optimize the total airport operations, both in the medium and short term planning phase.

Whenever alerts or warnings are generated by the Airport-DCB Monitor, the responsible supervisors will try to improve the situation by better balancing demand and capacity. A high probability for capacity shortage (demand – capacity imbalance) may result in the decision to take action (e.g. adjust the demand). However, more than only the expected probability of (reduced) overall airport capacity should be used for deciding on any demand adjustment (flow restriction). Also the expected duration of the conditions that result in a demand – capacity imbalance is a factor in the determination of **if** a flow restriction should be applied and how large that flow restriction should be. For an airport with a demand profile with explicit peak periods a reduced overall airport capacity lasting only for less than an hour might be more acceptable than for an airport that operates at maximum capacity for most of the day.

There are different control steps and measures that can be taken within Airport-DCB Management process. **Figure 11** shows an overview.

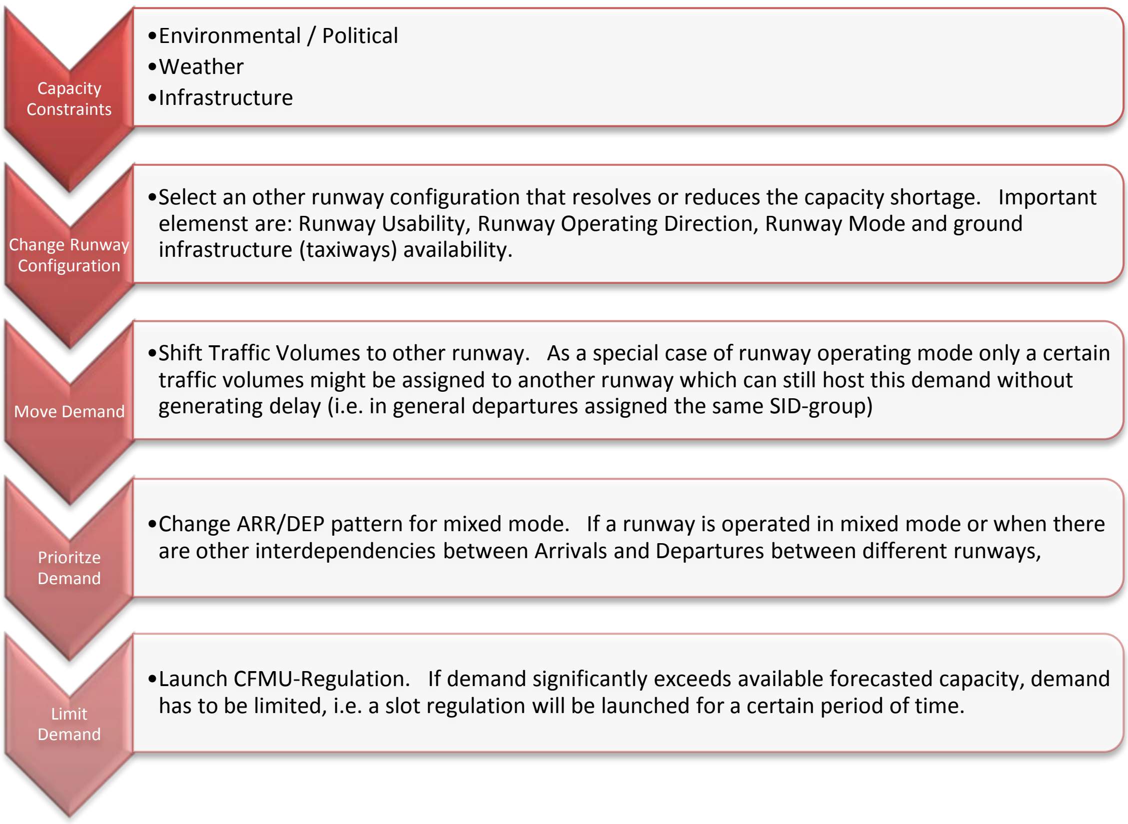


Figure 11. Airport-DCB Management – Process and control steps

It has to be ensured that capacity constraints are always updated. This should be part of Airport-DCB Monitor but might also be part of the activity within the Airport-DCB Management process. For example, environmental constraints might be temporarily lifted if this prevents the airport from total closure.

The first step will always be the assessment of any possible runway configuration (combination) change that suits better with the forecasted demand.

The next actions will always be the selection of the best runway configuration. Possible runway configurations (combinations) to select from are determined by:

- Runway Availability

  Runway availability determines whether a runway can be used or not. A runway might not be available due to hard constraints like infrastructure work, increased bird concentrations or snow/ice removal.

- Runway Usability

  Although a runway is available it might not be usable due to operational constraints (e.g. too much crosswind). The runway usability is defined by aspects like weather conditions (e.g. strong wind or degraded visibility), availability of navigation aids like ILS etc. and results in the definition of the runway operating direction.

- Runway Use

  Most runways can be operated as departure or arrival runways. In this case a decision can be taken to use it in segregated mode for arrivals or departures exclusively or to use it in mixed mode. This might well be determined by the noise abatement procedures to be applied (e.g.no take-offs from certain runway or in specific direction),

When the runway configuration changes are not sufficient to solve the capacity shortage, demand adaptation needs to be applied. Initially measures focused on moving and/or prioritising demand, ultimately limiting demand through flow restrictions.

5.1 Shortcomings

The current Airport-DCB Management process has some shortcomings. These shortcomings are:

- The number of actions and the potential combination of actions which can be taken indicates the complexity of Airport-DCB Management. Current Airport-DCB Management is therefore mainly based on the experience of the operators involved only.
- There is limited system support for the operators to decide on actions to be taken, the necessary duration of the actions as also the magnitude of the actions. There is no impact assessment function to support selection among possible measures. Almost no link between interdependencies for arrivals and departures is considered.
- Where A-CDM is not implemented Airport-DCB Management in general is only co-ordinated between airport tower and approach supervisors.
- Airport-DCB Management is mainly done in a reactive way in the short term phase.
- More forward looking Airport-DCB Management is done only when arrival CFMU-regulations are launched. There is almost no Airport-DCB Management looking ahead for the whole day of operations. The above mentioned range of shortcomings is of course dependent on local situations. Some of these shortcomings might be applicable to certain airports while at other airports other shortcomings have to be taken into account.

5.2 Operating Method

In the new operating method for Airport Operations Management, decision makers (e.g. supervisors) are supported by tools which allow them to evaluate the impact solutions may have on specific KPIs. Optionally they might also be supported by a mathematical optimisation algorithm that continuously searches for the best possible Airport-DCB solution for a preselected KPI.

The process initially starts in shadow mode. It uses a “copy” of the flight plan on which possible solutions/measures are applied to. The Airport-DCB Monitor calculation module will generate a ‘shadow’ flight plan that respects all capacity and operational constraints of the selected (and to be tested) solution (runway operating configuration).

Within the Airport-DCB monitor calculation module all data to calculate possible capacity values and distributions are known and available. Based on the shadow flight plan and the selected capacity values / distribution the resulting KPI values are calculated and forwarded to the Airport-DCB management function. Multiple ‘shadow’ flight plans may exist to permit what-if analysis on different possible solutions/measures.

The ‘shadow’ flight plan is represented by forecasted times (i.e. FTOT/FOBT and FLDT/FIBT) as well as an assigned runway for each flight. As an example, FLDT reflects the landing time forecasted internally by the Airport-DCB tool. In case available capacity is less than the demand FLDTs are generated by shifting flights further in time (to other intervals). If capacity is sufficient, FLDTs reflect the requested time (which was input to Airport-DCB). Shifting flight will comply with general agreed prioritization rules.

In what-if mode the Airport-DCB monitor calculation module generates a ‘shadow’ flight plan for each possible runway configuration, operating rules and associated capacity values as requested by the relevant stakeholder(s) / decision maker(s). Based on the ‘shadow’ flight plan(s) the resulting KPIs are calculated and can be compared for each possible solution in order to select the best performing or most practical one.

When the system operates in the mode where it continuously searches for the most optimal runway configuration, it will evaluate a wide variety of runway combinations, operating conditions and associated capacity values, each resulting in separate ‘shadow’ flight plan. In case of better performing runway configuration(s) than current active one, the Airport-DCB tool will than present those to the relevant stakeholder(s) / decision maker(s) in a list in order of the best performing first.

Only once an Airport-DCB-Management solution (measure) is agreed and implemented, the ‘shadow mode’ flight plan will be activated. The forecasted times (FLDT and FTOT) as proposed in the implemented/activated Airport-DCB solution will be included in the AOP. TSAT and EIBT may be adjusted/updated by the AOP based on these forecasted runway times.

Any capacity adjustment and/or runway configuration change will be included and published in the resource section of the AOP. Demand adjustments or updates, when necessary, shall be included in the AOP by the relevant owner of the business trajectory (e.g. airspace user or its representative). It is essential that every stakeholder acts according to the Airport-DCB solution being ‘activated’ to achieve the best performance proposed by the Airport-DCB solution.

Update of the AOP may also include other results coming out of the Airport-DCB process like information on KPIs, target times and forecasted times, evaluated capacity figures etc.

The way of how the locally determined planning times that represent new target times are communicated and agreed on with Network Management Operating Centre NMOC/NOP still has to be discussed and developed.

A graphical representation of the Airport-DCB management process is given in **Figure 12**.

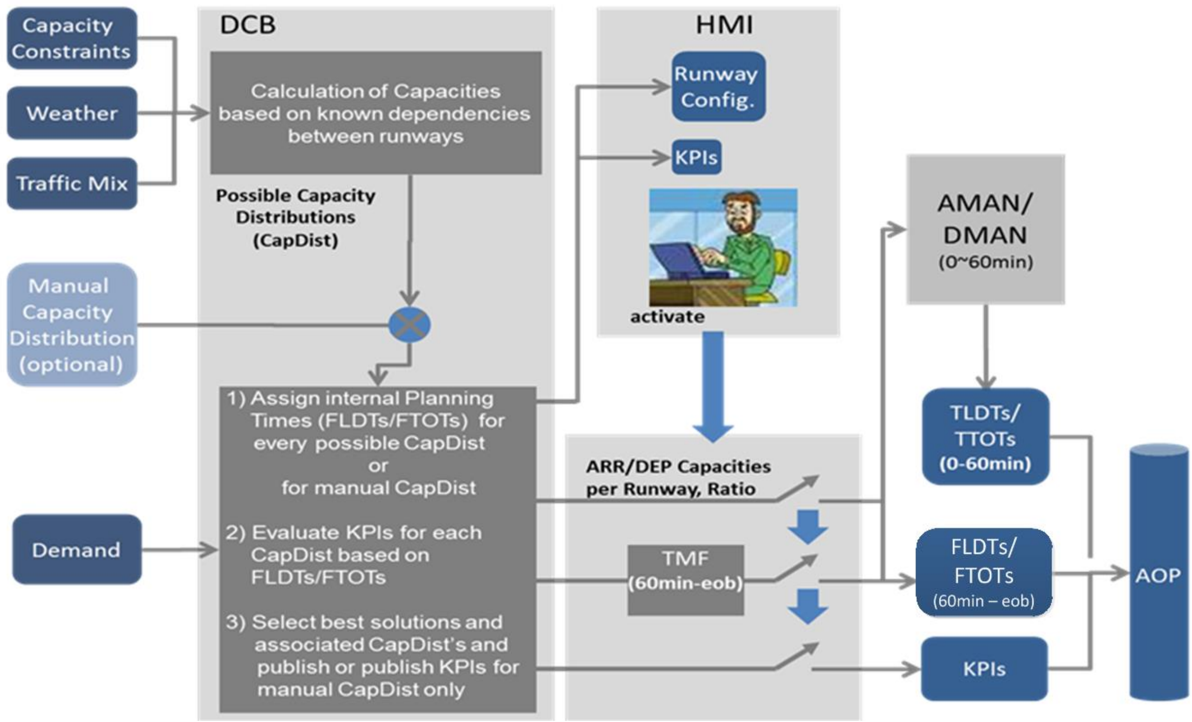


Figure 12. Airport-DCB Management Principle

6. Airport-DCB Interfaces

Today, only basic interfaces between Airport Operations (AOP), local ANSP and Network Operations (NOP) exist. These interfaces mainly exist between individual stakeholders (Airport Operator, ANSP, CFMU – NM) to exchange flight-plan data, departure planning information (DPI), flight update messages (FUM) and calculated take-off times (CTOT). Interfaces to other planning tools exist only at some airport with local solutions. However, they are not (yet) integrated into the European ATM-Network.

Various functional interfaces must be defined and developed to fully integrate Airport-DCB into airport operations management and in the ATM-Network. By describing the information flows, these interfaces ensure that all relevant data is exchanged and that Airport-DCB Basic Functions, -Monitoring and -Management can be performed.

In order to contribute to Airport Performance Monitoring Service, the Airport Performance Management Service and the Post Operations Analysis Service, the Airport-DCB function/tool will have the following interfaces:

- with Airport Operations Plan (AOP content, describing demand, capacity and required performance KPIs)
- Through the AOP with the network (Network Operations Plan)
- With the relevant stakeholder Operations Centre's (through the APOC, if implemented)
- ANSP – ACC/Tower Supervisor
- Airspace User – Operations and Control Centre
- Airport Operations – Airside Operations Control Centre / Terminal Operations Control Centre
- With (from) MET Service
- If needed: To/from other planning tools (e.g. AMAN/DMAN or coupled AMAN-DMAN)

The main interface for Airport-DCB is the one with the AOP. The central input is retrieved from the AOP (content layer). Airport-DCB mainly provides output for several operational components. In an

AMAN, DMAN or coupled AMAN/DMAN environment Airport-DCB interacts via AOP or an additional interface with these components. In case of an additional interface, by-passing the AOP, special attention should be given to data consistency between the Airport-DCB – AMAN/DMAN information exchange and the AOP information content. **Figure 13** gives an overview of the components working on AOP-data and shows which component is responsible for which data at what time during the day of operation.

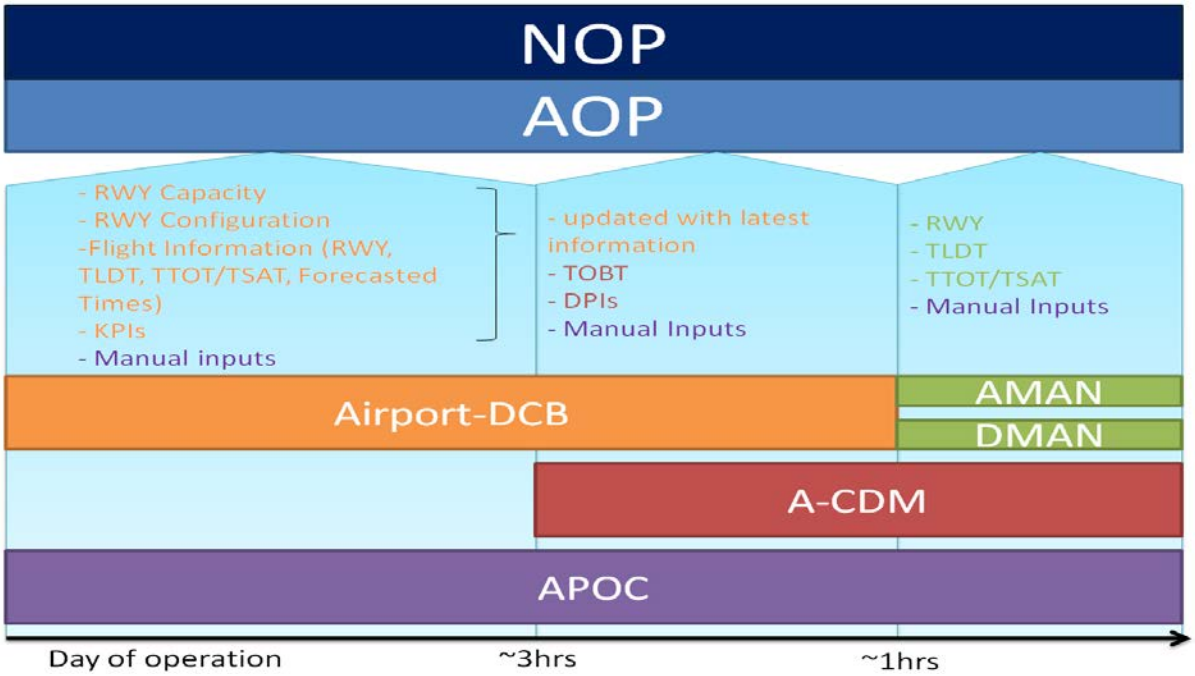


Figure 13. Services working on AOP (NOP)-data

Figure 14 gives a first proposal on how responsibility for AOP data can be shared.

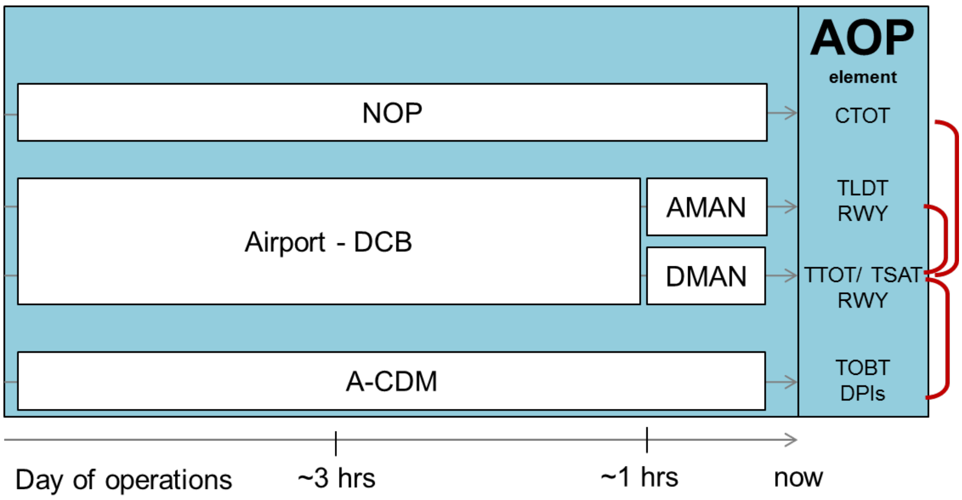


Figure 14. Responsibility of Airport-DCB relevant AOP-data elements

Figure 15 shows high-level information of input and output data for Airport-DCB during the AOP execution phase:

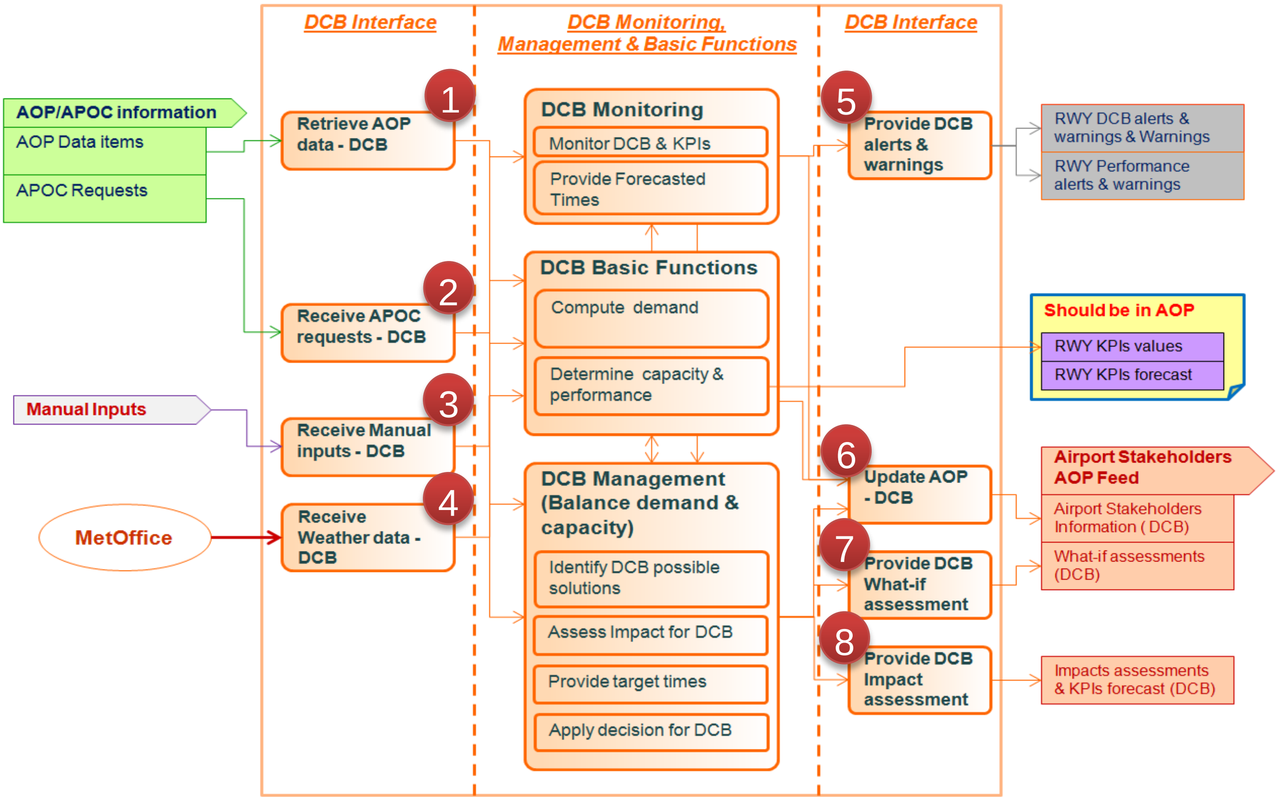


Figure 15. Airport-DCB High-level decomposition & main information flow

Table 8 to **Table 13** describes the in **Figure 15** identified information flows in and out the Airport-DCB Functional block.

1. Retrieve AOP data	
Item	**Specification**
Purpose	To perform Airport-DCB function, reliable, accurate and up-to date from the AOP is required. The AOP data is major input for the Airport-DCB Basic Functions to assess demand and capacity. The AOP content is separated in 3 blocks called Core AOP, Supporting AOP and Additional information.
Source	AOP Content (database)

1. Retrieve AOP data	
Item	**Specification**
Airport-DCB Input	Core AOP – information to be shared with the Network (NOP) • SBT/ABT Information • Airport resources capabilities and capacities • Airport configuration modes • Performance baseline information • Airport resources availability plan Supporting AOP – information to be shared among pre-defined airport users / stakeholders • Airport resources capabilities and capacities • Airport configuration modes • Performance baseline information • Airport resources availability plan • Airport usage and restrictions rules Additional Information • All weather capabilities • Weather information

Table 8. Retrieve AOP Data

2. Receive APOC request	
Item	**Specification**
Purpose	The APOC works collaboratively with all relevant stakeholders. It has a number of facilities / tools (diagnosis tools, what-if analysis, decision support) to identify possible operational scenario(s) and to determine the impact of the scenario(s). One of these facilities / tools is provided by Airport-DCB.
Source	APOC
Airport-DCB Input	Request from APOC for assessment of certain measure(s) / solution(s) / scenario(s)

Table 9. Receive APOC Request

3. Receive Manual Input data	
Item	**Specification**
Purpose	Tower Supervisor or APOC staff has the possibility to override Airport-DCB parameter.

3. Receive Manual Input data	
Item	**Specification**
Source	Possible manual inputs
Airport DCB Input	The following values can be override manually: • Capacity adjustment • RWY capacity constraint adjustment • Override of RWY configuration • Mode of operation • Separation criteria • Adjustment of VMC, IMC and ILS category • TWY capacity constraint adjustment • Taxi Time adjustment

Table 10. Manual Input Data

4. Receive Weather data	
Item	**Specification**
Purpose	To perform Airport-DCB it is necessary to have actual and forecasted weather data. At airports where only a core AOP is established an additional interface is needed to receive actual and forecasted weather.
Source	MET Service
Airport-DCB Input	All relevant Weather (MET) data elements that are required for runway configuration, operating mode determination. • Wind • Visibility • Etc

Table 11. Receive Weather Data

5. Provide DCB alerts and warnings	
Item	**Specification**
Purpose	The Airport-DCB Monitoring function continuously checks the progress / evolution of the plan and forwards its results to the Airport Performance Monitoring Service. It detects and identifies deviations from the plan, assesses the impact on KPIs and processes and triggers alerts & warnings if necessary.
Recipient	Airport Performance Monitoring Service

5. Provide DCB alerts and warnings	
Item	**Specification**
Airport-DCB Output	Alerts and Warnings from Airport-DCB Monitoring

Table 12. Provide Alerts and Warnings

6. Update AOP	
Item	**Specification**
Purpose	Airport-DCB provides an advice and will update only this information which is accepted by the process owner (except forecasted times). Airport-DCB will forward the accepted updated RBT information (Forecasted Landing and ForecastedTake-off Time) for individual flights outside the scope of AMAN/DMAN planning horizon, operational runway capacity (consists of ultimate and practical capacity) and RWY configuration plan (based on the applied decision from the actor(s) in charge) to the Airport Performance Management Service.
Recipient	Airport Performance Management Service Individual stakeholders / process owners responsible to update the AOP
Airport-DCB Output	• Updated RBT Trajectory Information (FLDT, FTOT and RWY) • Updated operational runway capacity (practical and ultimate) • Updated RWY configuration (Airport-DCB provide a proposal, decision making remains with the actor(s) in charge) • Updated operational taxiway capacity • Updated forecasted KPIs •

Table 13. Update AOP

7. Provide What-if assessment	
Item	**Specification**
Purpose	Triggered by an APOC request (APOC Active) or a single stakeholder request (APOC Aware) the Airport-DCB function provides “What-if” analysis on given scenarios for the Impact Assessment Service to identify and value possible Airport-DCB solutions (for example adjustment of capacity and/or limit demand) and to determine the impact of the scenario(s).
Recipient	APOC and relevant stakeholder(s)
Airport-DCB Output	What-if assessment (forecasted KPIs [capacity, delay and punctuality] for possible Airport-DCB solutions – measures)

Table 14. Provide What-if Assessment

8. Provide Impact assessment	
Item	**Specification**
Purpose	Airport-DCB assesses the impact on runway/taxiway capacity and/or demand of any deviation detected by the Airport-DCB.
Recipient	APOC and stakeholder(s)
Airport-DCB Output	Impact assessment (forecasted KPIs [capacity, delay and punctuality] for the active runway / taxiway configuration)

Table 15. Provide Impact Assessment

7. Post Operations Analysis

Post Operations Analysis takes an important role in Airport-DCB process. This importance is twofold:

1. Analyse the outcome of the Airport-DCB Monitor function.

   Post Operation Analysis Service evaluate the provided outcome of the Airport-DCB function to see if the outcome is correct (useable) and timely provided. The functionalities and algorithms of the Airport-DCB tool will be scrutinised and corrected if needed.

2. Analyse how the outcome of Airport-DCB is used and actual operations has been influenced.

   Post Operation Analysis Service will evaluate the use of Airport-DCB monitor output in the impact assessment and decision support services. Was the outcome of Airport-DCB useful. Has the best proposed solution be used or, when not, for what reason. This requires for all stages of the Airport-DCB and the airport performance management process the storage of timestamps in combination with relevant information, decisions as also solutions not selected. Only in this way it will be possible to include in the process experiences from the past.

For Post Operations Analysis functions it is important that all relevant data is stored in such a way that it is easily accessible, detailed and available for a long period spanning at least several seasons in order to make usefully comparisons between different applied solutions for equal or comparable operating conditions. For feeding future simulation capabilities additional detail of information might be required.

Airport-DCB has a bi-directional interaction with the Post Operations Analysis Service.

7.1 Output from Airport-DCB to Post Operations Analysis

The Airport-DCB output associated with the selected and implemented solution needs to be stored in order to determine the effectiveness of this solution. For this the following Airport-DCB information is of interest to be stored.

- The time a performance threshold has been exceeded and an alarm (alert or warning) raised,
- The alarm message,
- Forecasted operating conditions at the time of the alarm,
- Assessment of the degraded situation; forecasted KPI values for the do-nothing situation,
- (automatically) generated solution to solve or reduce the bottleneck,
  - Proposed operating mode and/or runway configuration change,
  - Forecasted KPI values associated to proposed operating mode and/or runway configuration change.

- The time this (automatically generated) solution has been presented to the relevant stakeholders / decision makers,
- Any (manually made) adjustment to the presented solution and the impact on the forecasted KPIs due to that adjustment,
- Any what-if analysis made, including proposed changes and associated forecasted KPI values,
- The final selected and implemented solution including time of selection / implementation as also the associated forecasted KPI values,
- Any free format text message related to the situation of performance imbalance and selected solution.

Other information like actual runway combination in use, actual operating conditions, demand is essential for the Post Operations Analysis of the Airport-DCB functionality, however this information is part of the core content of the AOP and therefore does not need to be stored by the Airport-DCB function.

7.2 Input to Airport-DCB from Post Operations Analysis

Experiences from the past are valuable input to Airport-DCB in assessing degraded situations and generating and prioritizing possible solutions. Post Operations should provide a catalogue of solutions mapped to possible operating conditions (runway configurations, operating modes, weather conditions etc). This catalogue, including relevant text messages provided when solving comparable situations in the past, will be used in the Airport-DCB Management process for the (first) generation of a possible solution. It shall also be available for authorized Airport-DCB-users in assistance to their "what-if" analysis needs.

Based on Post Operation evaluations of the selected and implemented Airport-DCB solution, the Post Operations Analysis Service will update, and where necessary expand, this catalogue of Airport-DCB solutions (learning cycle).

8. Timestamps used in Airport-DCB

The following chapter gives an overview on the different times stamps and definitions used in the Airport-DCB concept.

TIME NAME		DESCRIPTION
Forecasted Times	FLDT / FTOT	Forecasted Times are calculated by Airport-DCB based on the selected runway configuration and (re-) balanced plan. Forecasted times represent the times to be expected if no further action is taken. Forecasted times of the chosen solution have to be transferred to target times in order to be published to the network.
Target Times	TLDT / TTOT	Target times reflect a balanced plan. They consider the airspace users intention as well as the actual constraints and conditions (like capacity bottlenecks or priority rules on an airport). Target times are automatically generated by systems like AMAN/DMAN and might be manually adjusted. Target times should be implemented by ANSPs as they reflect a co-ordinated (balanced) plan.
Intentional Times	ILDT / ITOT	Intentional times reflect the airspace users' flight intention at any time in the near future. Intentional times consider all constraints the airspace users face for a single flight. As such intentional times consider all the irreversible updates which occur during trajectory planning! Intentional times are updated by the airspace users whenever a change is detected.
Reference	RLDT /	Reference Times represent the original plan which is used as the reference

Times	RTOT	for evaluating the actual operations. The Reference Times might be given by the published schedule (resulting from seasonal planning) or by the updated plan for the day of operations (compare within APOC). Reference Times are not updated during the day of operations.

Table 16. Times used in Airport-DCB Monitoring and Management

In **Table 17** mentioned times might be provided by different systems. Ideally all of them should be found in the AOP. It is important to define a clear order for prioritising these sources.

<table>
<tr><th>TIME NAME</th><th colspan="2">CALCULATION</th></tr>
<tr><td>Schedule Times on Runway SLDT/STOT)</td><td colspan="2">SLDT/STOT represent the schedule flight times that were transferred to the runway threshold from SIBT and SOBT by considering during the medium term planning phase the average taxi times, and during the short term planning phase and the execution phase the taxi time based on the optimum taxi route between planned/actual runway and planned/actual parking position/stand.</td></tr>
<tr><td>Forecasted Times
(FLDT / FTOT)</td><td colspan="2">Based on general prioritization rules (considering CTOT windows as constraints) and calculated based on available Capacity (per time interval, e.g. 10 minutes) per Runway.</td></tr>
<tr><td>Target Times
(TLDT / TTOT)</td><td colspan="2">Based on AMAN/DMAN when aircraft flight is in the planning horizon of AMAN/DMAN.
Based on TTA in case a TTA is issued for the specific flight:
When DCB Management was accepted: TLDT = FLDT and TTOT = FTOT</td></tr>
<tr><td rowspan="6">Intentional Times (ILDT / ITOT)</td><td colspan="2">The Times given below will be used as intentional times. The priority is given by the sequence in which the times are listed. The last entry represents the highest priority.</td></tr>
<tr><td>Arrivals</td><td>Departures</td></tr>
<tr><td>ILDT = SLDT</td><td>ITOT = STOT</td></tr>
<tr><td>ILDT = FUM[16]</td><td>ITOT = EOBT + EXOT</td></tr>
<tr><td>ILDT = TLDT[17]</td><td>ITOT = TTPT (=TOBT + EXOT)</td></tr>
<tr><td>ILDT = function of TTA
ILDT = TTA if TTA is referenced to runway threshold.</td><td>ITOT = CTOT</td></tr>
<tr><td rowspan="3">Reference Times
(RLDT / RTOT)</td><td colspan="2">The Times given below will be used as reference times. If runway related times are not available, block related times will be transferred by adding/subtracting variable taxi times (EXOT/EXIT).</td></tr>
<tr><td>Arrivals</td><td>Departures</td></tr>
<tr><td>RLDT = SLDT[18]</td><td>RTOT = STOT</td></tr>
</table>

[16] FUMs exist for aircraft that are still on ground at outstation, at takeoff from outstation and during flight. If a FUM can update the ILDT depends on whether the update of the FUM is due to the reaction of a target time or self-inflicted. FUMs also include CTOTs at outstation.
[17] TLDTs are only integrated in Intentional Times if provided by AMAN/DMAN when flight is inside TMA
[18] SLDTs and STOTs are the agreed SBT data on the evening before the execution phase.
(Exception: flights airborne at that time use RBT data)

Table 17. Constraints and hierarchies for calculation of times used in Airport-DCB

9. KPIs used in Airport-DCB

Airport-DCB Monitoring and Management both make use of KPIs defined within the Airport Performance Framework. Three specific KPIs are distinguished for the Airport-DCB process; capacity shortage, delay and punctuality. Values for these KPIs can be calculated at the overall airport level but also at specific runway level.

Table 18 gives an overview of the different KPI-values that the Airport-DCB tool can calculate and present in its HMI:

	KPA ->	Capacity	Efficiency	Predictability
	KPI ->	Capacity Shortage	Delay	Punctuality
Airport and/or runway level	Airport – Total	X movement	Y min	Z percent
	Airport – Arrival	X movement	Y min	Z percent
	Airport – Departure	X movement	Y min	Z percent

Table 18. Possible KPI Values for use by Airport-DCB

Validation has to show which of the different KPI-values will be used by the operators and thus have to be calculated by Airport-DCB and shown on the respective HMI. Different airport locations might identify different needs regarding KPI-values to be calculated.

To Determine these KPI values for a selected time period (e.g. 10 minutes interval) the following variables are defined and used in the definition of the KPIs:

- #ARR = number of arrivals per time period
- #ARR-p = number of punctual departures per time period
- #DEP = number of arrivals per time period
- #DEP-p = number of punctual departures per time period
- #AD = number of arrivals and departures per time period
- CpHARR = Arrival capacity in movements per time period
- CpHDEP = Departure capacity in movements per time period
- CpHAC = Total capacity (ARR + DEP) in movements per time period
- TH = Threshold (i.e. either 3 or 15 min). The threshold might differ per time period

The variables might refer to either the overall airport operation or a specific runway operation.

9.1 KPA Capacity: KPI Runway Capacity Shortage

According to 06.05.01 Task 005/006, 06.05.03 is required to execute capacity shortage monitoring of operations during execution phase, using indicators calculated based on data of both SBT and RBT with the aim to initiate appropriate steering and control measures.

With respect to runway capacity 06.05.01 requires the calculation of runway capacity shortage for landings, take-offs, and total movements

Absolute Total Capacity shortage =	**CpHAC - #AD [movement]**
Absolute Arrival Capacity shortage =	**CpHARR - #ARR [movement]**
Absolute Departure Capacity shortage =	**CpHDEP - #DEP [movement]**

If the absolute capacity shortage has a value lower than 0 the capacity shortage = 0

Relative Total Capacity shortage =	**(1 - CpHAC / #AD)*100 [percent]**

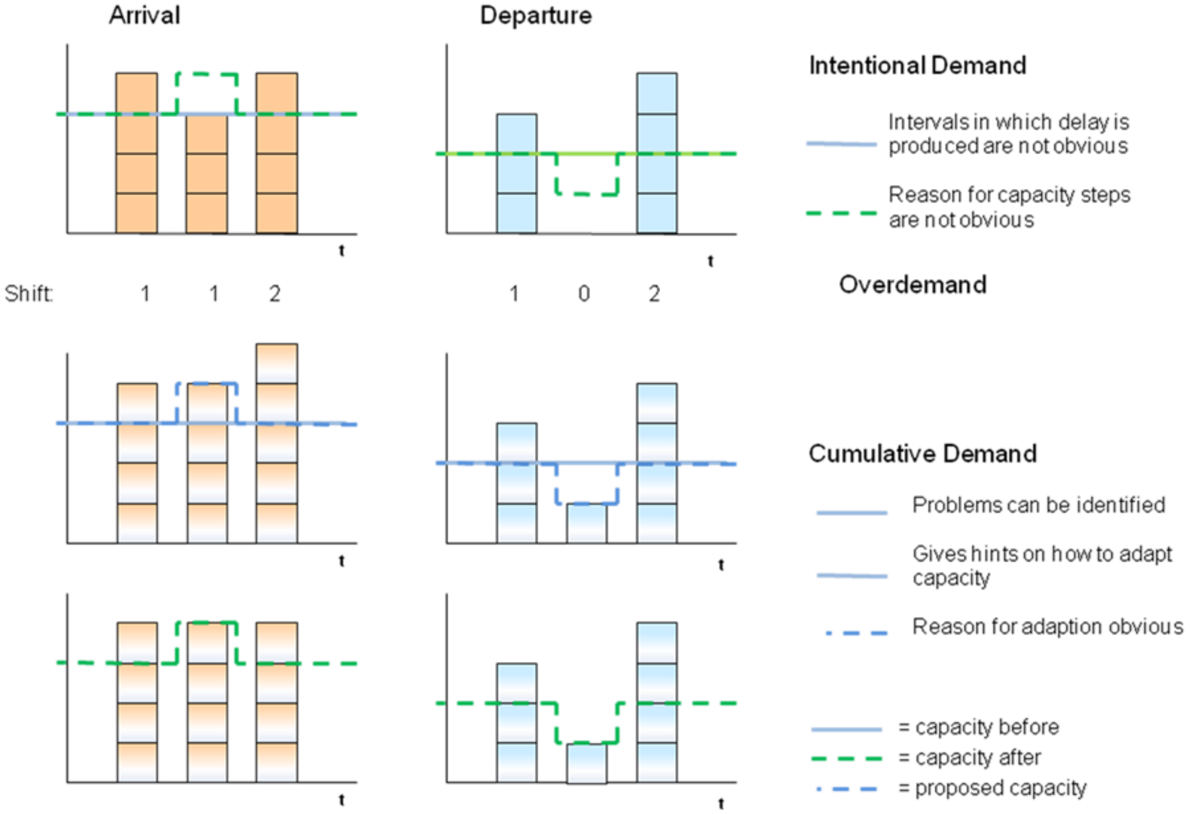
Relative Arrival Capacity shortage =	**(1 - CpHARR / #ARR)*100 [percent]**
Relative Departure Capacity shortage =	**(1 - CpHDEP / #DEP)*100 [percent]**

If the relative capacity shortage has a value lower than 0 the relative capacity shortage = 0

Runway capacity shortage as indicator itself is used by the Airport-DCB Monitoring to get an initial indication that measures (re-balancing demand and capacity) might be required. More detailed information of performance and the type of measure can be gained with the KPI's delay and punctuality.

<u>Representation in HMI</u>

Capacity should be presented along with the intentional demand and cumulative demand. cumulative demand can give hints on how to redistribute capacity. Additionally, in this view it is more transparent why a certain new capacity distribution was chosen after Airport-DCB Management was triggered.



9.2 KPA Efficiency: KPI Delay

Delay is calculated as the difference between two time stamps for the same event, actual or planned.

For external communication airport operations delay is often referred/calculated with respect to the scheduled arrival (on-blocks) and scheduled departure (off-block times) as an performance indicator to the customers.

This does not correctly describe the performance of the airport as it also includes the delay caused by the airspace users itself (e.g. technical caused to the aircraft) or delay caused at outstations/origin/en-route. For internal airport performance calculations delay needs to refer to the local airport processes, most logically the most restraining element; the runway.

KPI delay for runway is given by the difference between forecasted and intentional times.

KPI runway delay considers only positive deviations, i.e. early flights (=negative deviation) do not produce a contribution to delay.

KPI runway delay will be calculated with using runway landing threshold (arrival) or runway entry point (departure) as reference.

Delay is calculated for every single movement, be it an arrival or a departure. The KPI runway delay (total, arrival, departure) is calculated for all aircraft movements within the time intervals under consideration (i.e. Airport-DCB planning horizon). When considering a time interval the total delay (sum of all delays) and/or an average delay (per aircraft movement) might be used.

KPI Runway Delay for Departures is calculated by:

Delay Departure Single Aircraft = FTOT – ITOT [min]
Delay Sum Departure = $\Sigma^{1,n}$ (FTOT – ITOT) [min]
Average Delay Departure = ($\Sigma^{1,n}$ (FTOT – ITOT)) / #DEP [min/movement]

If (FTOT – ITOT) has a value lower than 0 the delay = 0; n = #DEP

KPI Runway Delay for Arrivals is calculated by:

Delay Arrival Single Aircraft = FLDT – ILDT [min]
Delay Sum Arrival = $\Sigma^{1,n}$ (FLDT – ILDT) [min]
Average Delay Arrival = ($\Sigma^{1,n}$ (FLDT – ILDT)) / #ARR [min/movement]

If (FLDT – ILDT) has a value lower than 0 the delay = 0; n = #ARR

KPI Runway Delay for Arrivals and Departures is calculated by:

Delay Sum AD = Delay Sum Arrival + Delay Sum Departure [min]
Average Delay AD = (Delay Sum Arrival + Delay Sum Departure)/(#ARR + #DEP) [min/ movement]

Relation to Airport Performance Framework (P6.5.1)

According to 06.05.01 AOP-Definition efficiency, this KPA addresses the actually flown 4D trajectories of aircrafts in relationship to their initial shared business trajectory or reference business trajectory.

For the purpose of 06.05.03, it is necessary to not only calculate and represent the actual delay but also to forecast expected delay to support proactive decision making processes. Therefore, the KPA description used within this document can be seen as an add-on to the AOP-definition documents.

KPI-forecast delay is used in Airport-DCB Monitoring to assess the expected situation for the time period ahead (till end of day of operation) as also to assess proposed and/or instated solution of runway configurations and capacity distribution for the given intentional demand.

KPI trade-offs (e.g. between arrivals and departure) will have to be considered to choose the best overall solution for demand capacity balancing and capacity distribution.

9.3 KPA Predictability - KPI Punctuality

KPI-punctuality is given by the percentage of flights whose forecasted time is later than the reference time plus an defined threshold value (normally 15 min but could be any value agreed by the stakeholders e.g. 3 min). KPI-punctuality considers only flights that are later than the defined threshold.

KPI-punctuality will be calculated with using block times as reference. Current airline and airport operations already use these block times (scheduled times) as reference and existing and commonly used punctuality reports are all based in difference between actual and scheduled in/off-block times.

KPI-Punctuality for Arrivals is calculated by:

#ARR-p = Count(([FIBT – RIBT] < TH) [#]
KPI-Punctuality Arrivals = (#ARR-p / #ARR) * 100 [percent]

KPI-Punctuality for Departures is calculated by:

#DEP-p = Count(([FOBT – ROBT] < TH) [#]
KPI-Punctuality Departures = (#DEP-p / #DEP) * 100 [percent]

KPI-Punctuality for Arrivals and Departures is calculated by:

KPI-Punctuality AD = ((#DEP-p + #ARR-p) / #AD) * 100 [percent]

As this includes also all performance deviations outside the airport environment, for internal airport performance calculations the Block Times at the runway are used as Reference Times (SLDT = RLDT, STOT = RTOT).

KPI Runway Punctuality for Arrivals is calculated by:

#ARR-p = Count(([FLDT – RLDT] < TH) [#]
Punctuality Arrivals = (#ARR-p / #ARR) * 100 [percent]

KPI Runway Punctuality for Departures is calculated by:

#DEP-p = Count(([FTOT – RTOT] < TH) [#]
Punctuality Departures = (#DEP-p / #DEP) * 100 [percent]

KPI Runway Punctuality for Arrivals and Departures is calculated by:

Punctuality AD = ((#DEP-p + #ARR-p) / #AD) * 100 [percent]

Relation to Airport Performance Framework (P6.5.1)

The KPIs presented here within the KPA punctuality refer partly to the KPIs given in 6.5.1 for the KPA flexibility. In 6.5.1 the percentage of SBT accepted within a time window of 3' of the requested time as well as the average difference between SBT allocated and SBT requested are addressed within the KPA flexibility. Additional KPIs referring to a 15 minute threshold to reflect IATA- punctuality are given here as well.

Appendix H De-Icing Management

H.1 Overview of the concept

Extract from OFA05.01.01 SPR V2 00.01.01:

"De-icing – when needed – will be made a transparent, planned activity in the short term planning and execution phases by the support of a De-Icing Management Tool (DIMT). Starting from A-CDM time stamps the DIMT will produce estimated de-icing time durations for expected de-icings as well as start and end times for de-icing operations. Through the sharing of data with the AOP, de-icing will become a visible element in the Turn Around or Surface Out processes for concerned actors and, as such, will increase common situational awareness and predictability in the Airport Transit View."

In Scandinavia de-icing operations are part of nominal conditions during the winter season, contrary to deployment baseline, the A-CDM manual, where the use of de-icing operations is seen as a part of adverse weather conditions. De-icing resources are available and ready to operate from October to April. Benefitting from this fact the P6.6.2 de-icing concept aims to make de-icing operations a ground handling activity like any other ground handling activity that is possible to steer, plan and monitor.

The de-icing concept is supported by a De-Icing Management Tool (DIMT) which is designed to be a planning tool for de-icing agents while at the same time supplying the Airport Operations Plan (AOP) with necessary data for airport performance monitoring (service "Monitor Airport Performance"). The tool is thought as a "plug in device", fully compatible with the AOP, that an airport can chose to use or not to use.

The DIMT will, based on an assessment of the weather, at an early stage supply the AOP with an automatically calculated Estimated De-icing Time, EDIT. The early availability of the EDIT will encourage airport actors to take de-icing conditions into account when planning the ATV and producing the A-CDM timestamps.

On the other hand it is a planning tool for the de-icing agents, which will allow them to assess the upcoming situation and at an early stage signal to other actors when the situation will worsen.

The main functionalities of the De-Icing Management Tool are:

- Assessment of the weather
- Calculation of Estimated De-Icing Time (EDIT) for departing flights during de-icing conditions.
- Planning of de-icing sequence.
- Allocation of de-icing units to flights expected to be de-iced.
- Receipt of actual de-icing requests for flights.
- Follow up of de-icing operations.

H.1.1 Subscription of Weather Forecasts

The P11.02.02 contribution of Enhance Winter Weather Information to P06.06.02 DIMT prototype is an important piece of information to support the EDIT calculation. The weather conditions are classified in four categories; 0 = no de-icing, 1 = low, 2 = medium and 3 = severe. The impact of the weather on de-icing operations, as well as the thresholds between the weather categories, are based on consultation with de-icing agents representatives. The classification for P06.06.02 were made by de-icing agents at the three major airports in Scandinavia – Oslo, Stockholm Arlanda and Helsinki Airports – which have similar thresholds. These thresholds might be different at other airports.

The significant weather conditions for categorising de-icing weather are snow, sleet, rain, freezing rain and frost formation. Freezing fog has been omitted. The classification of de-icing weather and DIW is shown in the table below.

Effect on aircraft	DIW=3, Severe	DIW=2, Medium	DIW=1, Low	DIW=0, No need for de-icing
Ice on aircraft	Freezing rain/drizzle			
Snow on aircraft	Heavy snow or sleet, visibility cased from precipitation below 2 km, deduced from weather radar information	Light/moderate snow or sleet, visibility cased from precipitation above 2 km, deduced from weather radar information		
Frost on aircraft			Risk for frost formation on the plane surface. Temperature between -3….+1 and humidity over 75%	
No remarkable contamination				All other cases

Table 19. Classification of De-icing Weather, DIW

Further information on De-icing Weather Categories and forecasting is found in the P11.02.02 deliverables.

The forecasts are received for 15 minutes periods, up to 120 minutes in advance, and updated every 15 minutes. The weather during the whole ATV lifecycle should be taken into consideration for EDIT calculation.

The V3 DIMT prototype displays the three weather categories as a coloured bar. A larger scope of meteorological information should be easily accessible for the de-icing coordinator, e.g. dew point temperature, OAT and precipitation as a tool tip function. A further possibility is to present the probabilistic values of the forecast. A probabilistic forecast, indicating the confidence or risk of the forecast, describes the expected weather development possibilities more realistically than a deterministic forecast.

H.1.2 De-icing flag

The de-icing flag is used to signal to airport actors that de-icing might be needed. The de-icing flag can have different values, these being <E>, <R>, <C> and <no value>, where <no value> means that there is no de-icing conditions. However when the assessment of the weather parameters has resulted in a weather category that implies de-icing, the flights are “flagged for” de-icing, i.e. the de-icing flag is put to <E> (expected). NB: A flight will not be de-iced just on the basis of the de-icing flag being <E>, but it implies that a de-icing decision has to be made by the airspace user. This decision will result in a new value, either <R> (request) or <C> (cancellation). If a decision is not made before final confirmation of TOBT (TOBT-t) the de-icing flag will be put to <C>.

The fact that the de-icing flag is attached to the flight will indicate to the ramp agent/turn-round coordinator that the flight is proposed or expected to be de-iced. By showing this, the intention is to encourage an earlier decision from the pilot in command about de-icing or not for the flight. An early decision will increase the planning horizon, increase predictability and adherence to the target times. The chance to discover bottlenecks in the planning phase will increase and it will be possible to address them in an earlier stage.

H.1.3 Tables with Configuration Data

The operational concept requires a large amount of configuration data in the DIMT. The configuration data used for the EDIT determination includes aircraft type combined with the default number of de-icing rigs and weather category. Data used for de-icing rig allocation algorithms includes, but is not limited to, drive up times between stands, tracks on de-icing pads, variable taxi times and pushback times.

The quality of this data ultimately affects the quality of the de-icing plan and should be closely monitored.

H.1.4 Calculation of estimated de-icing time

Once a flight has an ATV lifecycle within a time interval where the weather category is low, medium or severe, an estimated de-icing time is retrieved from tables in the DIMT and allotted to the flight.

The duration of de-icing depends on the weather during the ATV lifecycle (low, medium and severe). Each de-icing time also depends on aircraft type and the number of de-icing rigs used to de-ice the aircraft. In the first stage, prior to the actual request for de-icing, the DIMT will use default values for the number of de-icing rigs used, depending on the aircraft type. When the request is received, the EDIT will be revised taking the actual number of de-icing rigs to be scheduled for that particular de-icing into account.

After examining the accuracy of the proposed calculation of an estimated de-icing time (EDIT), the conclusion made in P06.06.02 validation exercises is that it is possible to calculate accurate de-icing times (ADIT-EDIT less than 3 minutes).

H.1.5 Allocation of De-icing Rigs

The DIMT will contain one or more algorithms for de-icing unit allocation to flights expected to be de-iced. If more than one algorithm is available it will be possible for the de-icing coordinator to choose the one most suitable.

H.1.6 Planning of sequence

The flights with the de-icing flag value being <E> or <R>, also have an estimated de-icing time and are now to be planned into a de-icing sequence. Taking the de-icing position into consideration, a proposed estimated commence of de-icing (ECZT) is calculated.

The ECZT is calculated as:

- ECZT = TOBT – EDIT for de-icing on stand
- ECZT = TTOT - VTT – EDIT for remote de-icing
- ECZT = TOBT + [z] for de-icing after push

When the specified number of de-icing units has been allocated to each flight, either using the default values or a manual entered number, the planning of the de-icing sequence will be done by the DIMT using the chosen algorithm for de-icing unit allocation.

The result will be shown - apart from in a list view - in a so called grid view, similar to a Gantt chart. In this graphic visualization, it will be easy both to spot bottlenecks and mismatch of times as well as doing adjustments to the sequence. The grid view will allow doing adjustments in the de-icing plan by drag-and-drop technique.

The grid view displaying the de-icing sequence may be considered as the heart of the DIMT. This is where the de-icing coordinator can get an overview of the coming hours and also decide on appropriate actions in order to as far as possible adhere to the A-CDM target times. If the situation will be not manageable for the de-icing agent, it will be possible to convey a comprehensive view of the de-icing situation to other concerned airport actors.

H.1.7 Follow up of the de-icing operations

All data will be stored and kept for post operations analysis.

H.2 De-icing process

H.2.1 On stand de-icing

On stand de-icing is performed as part of the turnround phase. The aircraft remains at the stand with doors closed and bridge removed and is de-iced before off block. In the case of on-stand de-icing the de-icing rigs move between the stands to de-ice the aircraft.

H.2.2 De-icing after push

After push de-icing is part of the surface out phase and may occur when e.g. de-icing is not permitted at certain stands. The aircraft has to be towed or pushed a short distance to be de-iced in the vicinity of the stand. In the case of after push de-icing the de-icing rigs move between the aircraft to be de-iced.

H.2.3 Remote de-icing

Remote de-icing is handled as a holding procedure in the surface out phase. ATC hands over the aircraft to the de-icing agent at the remote de-icing location according to local procedures and gives instruction to the flight crew to contact the de-icing agent. After de-icing, the de-icing agent hands over the aircraft to ATC and gives instruction to the flight crew to contact ATC. In the case of remote de-icing the aircraft taxi to a de-icing pad where the de-icing rigs are based.

Appendix I Trace Table for Requirements

The following table is indicating the changes of all requirements inclusive the mapping to the DOD Requirements. The new inserted requirements are listed in the green colour. The deleted requirements are indicated in the yellow colour. All uncoloured requirements are marked either not changed or updated.

OSED requirement	Status	Linked DOD requirement	
		OLD	NEW
REQ-06.05.04-OSED-APSO.0010	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-APSO.0020	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-APSO.0030	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-APSO.0040	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-APSO.0050	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-APSO.0060	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-APSO.0070	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0015	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0016	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0017	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086

REQ-06.06.01-OSED-POPS.0020	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0021	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0022	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-STPF.0001	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0002	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0010	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0020	No change	REQ-06.02-DOD-6200.0021	
REQ-06.05.03-OSED-STPF.0030	No change	REQ-06.02-DOD-6200.0021	
REQ-06.05.03-OSED-STPF.0040	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0050	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0060	No change	REQ-06.02-DOD-6200.0021	
REQ-06.05.03-OSED-STPF.0070	No change	REQ-06.02-DOD-6200.0021	
REQ-06.05.03-OSED-STPF.0080	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0090	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0091	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0101	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0102	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0110	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0140	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0150	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0151	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0160	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0161	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0170	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0180	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0181	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0190	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0200	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0210	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-STPF.0220	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0011	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084

REQ-06.05.05-OSED-MET1.0012	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0013	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0030	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0031	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0015	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0016	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0017	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0018	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0019	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0021	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0022	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0023	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0010	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0020	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0030	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0040	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0050	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0060	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0070	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0080	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0090	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0100	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0110	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-

			6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0120	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0130	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0140	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0150	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0160	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0170	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0180	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0190	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0200	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0210	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0230	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0240	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0250	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0260	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0270	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0280	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083

			REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0290	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0300	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0310	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0320	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0330	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0340	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.06.02-OSED-APMO.0350	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-PERF.0010	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0040	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0050	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0060	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0070	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0071	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0080	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0090	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0100	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-

			6200.0085
REQ-06.05.03-OSED-PERF.0110	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0111	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0150	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0160	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0161	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0170	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0200	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0201	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0210	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0220	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0221	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0222	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0223	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0230	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0240	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0250	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085

REQ-06.05.03-OSED-PERF.0260	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.03-OSED-PERF.0270	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0085
REQ-06.05.05-OSED-MET1.0024	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0032	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084
REQ-06.05.04-OSED-AOIP.1000	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1010	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1020	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.6000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.6010	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1030	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1040	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1050	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1060	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1070	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.1080	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.2000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-

			6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.2010	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.2020	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.3000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.3010	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.4000	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.3020	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.4010	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5010	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5020	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5030	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5040	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5045	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5046	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5050	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5060	No change		REQ-06.02-DOD-6200.0084

			REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.5070	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.7000	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-AOIP.7010	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.0110	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.0100	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.1000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.1020	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.1021	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.1022	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.2500	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.2600	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.2610	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.3000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.3010	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.3011	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-

			6200.0086
REQ-06.05.04-OSED-MDEC.3012	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.3013	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.3016	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.3014	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.3015	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.5000	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.5030	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.5050	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.5060	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.6000	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.6010	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.6011	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.6013	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.6014	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.6015	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086

REQ-06.05.04-OSED-MDEC.6016	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-MDEC.7000	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0001	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0002	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0010	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0011	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0012	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0013	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0014	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.04-OSED-ADCO.0015	No change	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0001	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0002	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0010	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0020	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0030	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0040	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-

			6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0050	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0051	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0060	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.03-OSED-MNGE.0070	Updated	REQ-06.02-DOD-6200.0053	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0001	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0002	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0003	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0004	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0005	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0006	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0007	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0008	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0011	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0012	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0013	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0014	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084

			REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0018	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0019	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0009	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0023	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0024	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0025	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0026	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0027	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0028	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0029	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0030	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0031	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0032	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0033	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0034	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-

			6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0035	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0036	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0037	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0038	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0039	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.06.01-OSED-POPS.0040	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.0025	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.0026	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.0027	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.0028	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.0029	No change	REQ-06.02-DOD-6206.0005	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0001	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0002	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084

			REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0010	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0011	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0012	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0013	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0014	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0015	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-AOPG.0016	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLID.1000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0001	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0005	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0006	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0007	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.1007	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0008	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0009	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0101	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0102	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0103	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0104	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0105	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0106	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0107	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0108	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0109	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081

REQ-06.05.02-OSED-FLID.0110	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0111	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0112	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0201	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0202	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0203	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0204	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0205	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0206	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0207	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0208	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0209	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0210	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0211	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0212	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLID.0213	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-FLTP.1000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0001	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0002	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0003	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0004	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0005	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0006	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0007	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083

REQ-06.05.02-OSED-FLTP.0008	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0009	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0010	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0011	Updated	REQ-06.02-DOD-6200.0026	MET!.0009
REQ-06.05.02-OSED-FLTP.0012	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0013	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0014	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0015	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0016	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0017	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0018	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0019	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0021	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0022	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0023	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0024	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0025	No change		REQ-06.02-DOD-6200.0081

			REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0026	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0103	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0104	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0105	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0106	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0107	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0108	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0109	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.03.01-OSED-FLTP.0110	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.03.01-OSED-FLTP.0111	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.03.01-OSED-FLTP.0112	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.03.01-OSED-FLTP.0113	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.03.01-OSED-FLTP.0114	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.03.01-OSED-FLTP.0115	No change		REQ-06.02-DOD-

			6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-FLTP.0201	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0202	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0203	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0204	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0205	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0206	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0207	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0208	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0209	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0210	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0211	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0212	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0213	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0214	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083

REQ-06.05.02-OSED-FLTP.0215	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0216	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0217	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0218	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0219	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0220	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0221	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0222	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0223	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0224	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0225	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0226	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0227	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0228	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0229	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0230	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0231	No change		REQ-06.02-DOD-

			6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0232	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0233	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0301	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0302	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0303	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0304	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0305	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0306	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0307	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0308	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0309	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0310	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0311	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0312	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0313	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0401	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081

			REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0402	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0403	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0404	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0501	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0502	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0503	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0504	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0505	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0506	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0507	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0508	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0509	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0510	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0511	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0512	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0513	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-

			6200.0083
REQ-06.05.02-OSED-FLTP.0514	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0515	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0516	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0517	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0518	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0519	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0520	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0521	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0522	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0523	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083
REQ-06.05.02-OSED-FLTP.0524	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0525	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0526	Updated		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0527	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086

REQ-06.05.02-OSED-FLTP.0528	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0529	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0530	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0531	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0532	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0533	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0534	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0535	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0536	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0537	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0538	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-

			6200.0086
REQ-06.05.02-OSED-FLTP.0539	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0625	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-FLTP.0626	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0086
REQ-06.05.02-OSED-LOAD.1000	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0101	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0102	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0103	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0104	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0105	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0106	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0107	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0108	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0109	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0110	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-LOAD.0111	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.1000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-CAPC.0101	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0102	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0103	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0104	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0105	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0106	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0107	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0108	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0109	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-

			6200.0081
REQ-06.05.02-OSED-CAPC.0110	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0111	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0114	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0115	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0116	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0117	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0118	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0119	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0120	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0121	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0122	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0123	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0124	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0125	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0201	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0202	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0203	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0204	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0205	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0206	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0207	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0208	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0209	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081
REQ-06.05.02-OSED-CAPC.0299	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0300	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0301	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-

			6200.0085
REQ-06.05.02-OSED-CAPC.0302	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0303	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0304	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0305	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0306	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0307	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0400	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0401	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0402	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0403	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0404	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084

			REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0405	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0406	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0407	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0408	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0409	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0500	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0501	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0600	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0610	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0611	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0612	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-

			6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0613	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0614	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-CAPC.0615	New		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0085
REQ-06.05.02-OSED-ALRT.4000	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5100	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5550	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5551	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5501	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5503	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5505	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082

			REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5504	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.5506	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6000	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6100	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6110	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6130	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6550	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6551	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6552	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6505	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.7505	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-

			6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6506	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.7506	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6104	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.7104	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.02-OSED-ALRT.6507	No change	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0082 REQ-06.02-DOD-6200.0083 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0010	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0011	Updated		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0111	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0119	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0120	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0161	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0162	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0163	No change		REQ-06.02-DOD-6200.0081

			REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0170	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0172	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0180	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0181	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0190	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0200	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0210	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0211	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0212	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0213	Updated		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0214	Updated		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0215	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0230	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0240	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0250	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0260	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-

			6200.0084
REQ-06.05.03-OSED-DCBS.0270	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0280	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0290	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0291	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0300	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0310	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0320	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0330	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0340	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0350	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0351	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0360	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0370	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0371	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0390	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0391	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084

REQ-06.05.03-OSED-DCBS.0392	New		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0393	New		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0400	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0410	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0411	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0420	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0430	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0450	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0460	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0470	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0471	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0500	Deleted	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0501	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0520	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0530	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0540	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0550	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-

			6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0560	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0570	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0580	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0590	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0600	Deleted	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0610	Deleted	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0611	Deleted		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBS.0630	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0010	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0020	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0030	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0031	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0032	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0033	New	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0040	Deleted	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBO.0050	Updated		REQ-06.02-DOD-6200.0081

			REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0030	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0040	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0041	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0050	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0060	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0061	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0070	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0080	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0090	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0091	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0092	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0100	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0110	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0130	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0131	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0132	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-

			6200.0084
REQ-06.05.03-OSED-DCBH.0133	No change		REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0140	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0150	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.03-OSED-DCBH.0170	Updated	REQ-06.02-DOD-6200.0026	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0001	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET1.0003	No change	REQ-06.02-DOD-6200.0021	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET1.0004	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET1.0005	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET1.0006	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET1.0007	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET1.0008	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0001	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0002	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0003	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0004	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0005	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0006	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0007	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0008	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0009	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0010	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0011	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0012	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0013	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0014	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0015	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0016	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-

			6200.0081
REQ-06.05.05-OSED-MET2.0017	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0018	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0019	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0020	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0021	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0022	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0023	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0024	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0025	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0026	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0027	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0028	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0029	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0031	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0033	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0034	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0035	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
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REQ-06.05.05-OSED-MET2.0037	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0038	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0039	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0040	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0041	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0042	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0044	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
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REQ-06.05.05-OSED-MET2.0048	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0049	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0050	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0052	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0053	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-

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REQ-06.05.05-OSED-MET2.0055	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0056	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0057	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0058	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0059	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0060	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0062	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0063	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0064	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0065	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
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REQ-06.05.05-OSED-MET2.0067	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0068	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
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REQ-06.05.05-OSED-MET2.0076	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0077	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0078	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0079	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
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REQ-06.05.05-OSED-MET2.0081	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0082	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0083	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.0084	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
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REQ-06.05.05-OSED-MET2.0086	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-

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REQ-06.05.05-OSED-MET2.0087	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
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REQ-06.05.05-OSED-MET3.0001	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0002	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0003	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0004	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0005	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0006	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0007	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0008	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0009	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0010	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.0011	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081
REQ-06.06.02-OSED-0001.0010	No change	REQ-06.02-DOD-6200.0026 REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0086
REQ-06.06.02-OSED-0001.0020	No change	REQ-06.02-DOD-6200.0026 REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0086
REQ-06.06.02-OSED-0001.0030	No change	REQ-06.02-DOD-6200.0026 REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0086
REQ-06.06.02-OSED-0001.0040	No change	REQ-06.02-DOD-6200.0026 REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0081 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET4.0001	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET4.0002	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET4.0003	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET4.0004	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET4.0005	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET4.0006	Updated	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-

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REQ-06.05.05-OSED-MET4.0007	No change	REQ-06.02-DOD-6200.0027	REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.3033	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.3034	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET1.3035	No change		REQ-06.02-DOD-6200.0084
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REQ-06.05.05-OSED-MET2.3611	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET2.3612	No change		REQ-06.02-DOD-6200.0081
REQ-06.05.05-OSED-MET3.3013	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET3.3014	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET3.3015	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET3.3016	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET4.3008	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET4.3009	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET4.3010	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET4.3011	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET4.3012	No change		REQ-06.02-DOD-6200.0084 REQ-06.02-DOD-6200.0086
REQ-06.05.05-OSED-MET4.3013	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET4.3014	No change		REQ-06.02-DOD-6200.0084
REQ-06.05.05-OSED-MET4.3015	No change		REQ-06.02-DOD-6200.0084

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