

ALLEGATO 5

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Gara europea a procedura negoziata con bando per “Acquisizione, installazione ed integrazione di un tool di supporto al sequenziamento degli arrivi sugli aeroporti maggiori (Arrival Manager)” CIG 66088091B7

MODELLO ATTRIBUZIONE PUNTEGGIO TECNICO CRITERIO TABELLARE ID 1 (PARAGRAFO 13 DISCIPLINARE DI GARA).

Rispondenza ai requisiti di configurazione, funzionali di interfaccia grafica, interfaccia con sistema SATCAS, tecnici e di software come da Appendice alla Specifica tecnica paragrafo 11.1 tabella 3

ID	Descrizione	Weight	SI	NO
R-CFG-0010	AMAN shall be able to manage multi-runway configuration and multi airport environment.	0,20		
R-CFG-0020	AMAN shall be able to manage the MILANO TMA with three airports (Linate, Malpensa, Orio al Serio) and the ROMA TMA with two airports (Fiumicino, Ciampino).	0,20		
R-CFG-0030	AMAN shall perform its computations on the data received from FDPS, RDPS and on the static ENV data (e.g. operational configuration, type and performance of the aircrafts, ATS geography and volumes).	0,20		
R-CFG-0040	AMAN shall update all sequence information according to the following events: * On reception of new SFPL * On reception of SFPL updating * On reception of Radar data update * On execution of an AMAN Order.	0,20		
R-CFG-0050	AMAN shall allow off-line definition of Managed Airports List.	0,20		
R-CFG-0060	AMAN shall allow off-line definition of Inner Airports List containing a selection of all airports inside the related ATSU.	0,20		

R-CFG-0070	<p>AMAN shall allow off-line definition of the following Reference Points for each defined airport :</p> <ul style="list-style-type: none"> * Runways (with the associated airport) * Metering Fixes (e.g. COP, IAF, FAF, Sector Entry/Exit Fix). 	0,20		
R-CFG-0080	<p>AMAN shall allow off-line definition of the following Reference Routes:</p> <ul style="list-style-type: none"> * Route Network * STARs * SIDs. * Arrival Transition Routes * Holding Patterns 	0,20		
R-CFG-0090	<p>AMAN shall allow off-line definition of Runway Allocation Strategies for each defined airport.</p>	0,20		
R-CFG-0100	<p>On each Runway Allocation Strategy, AMAN shall allow the definition of the following Runway Allocation Rules:</p> <ul style="list-style-type: none"> * Single runway operation * Multiple runway operation (non-exclusive): <ul style="list-style-type: none"> Dependent Independent * Minimum Taxi * No Crossing (e.g. East-East, West-West) * Airline * Aircraft Type. * WTC * Flight Type 	0,20		
R-CFG-0110	<p>AMAN shall allow off-line definition of Arrival Rate (flights per hour) for each configured runway.</p>	0,20		
R-CFG-0120	<p>AMAN shall allow off-line definition of Arrival Spacing (NM) for each configured runway.</p>	0,20		
R-CFG-0150	<p>AMAN shall allow off-line definition of the following AMAN Horizon for each configured airport:</p> <ul style="list-style-type: none"> * Operational Horizon * Active Advisory Horizon * Frozen Horizon * Common Path Horizon. <p>Each AMAN Horizon shall be configurable asymmetrical.</p>	0,20		
R-CFG-0170	<p>AMAN shall allow off-line definition of Routes Weight Table, enabling the Delay Management Strategy distributing the flight total delay among different flight path for each configured airport.</p>	0,20		
R-CFG-0180	<p>AMAN shall allow off-line definition of Flight Path Weight Table, enabling the Delay Sharing Distribution among different flight path for each configured airport.</p>	0,20		
R-CFG-0190	<p>On Flight Path Weight Table, AMAN shall allow the definition of the following information:</p> <ul style="list-style-type: none"> * Flight Path * For Each Flight Path : <ul style="list-style-type: none"> o Delay Weight (Total Delay %) o Maximum Delay allowed o Gain Weight (Total Gain %) o Maximum Gain allowed 	0,20		
R-CFG-0200	<p>AMAN shall allow off-line definition of Maximum Delay absorbed by the ATSU.</p>	0,20		

R-CFG-0210	AMAN shall allow off-line definition of Shared Delay that can be distributed to any adjacent ATSU.	0,20		
R-CFG-0220	AMAN shall allow off-line definition of WTC Minimum Separations Table based on ICAO Document 4444 standards [2].	0,20		
R-CFG-0230	AMAN shall allow off-line definition of Runway Separation Matrix including the following values : * Minimum separation in NM (distance that successor must have when the predecessor arrives at same runway) * Minimum diagonal separation in NM ("diagonal" separation, considering the runway geometry to specify separations between flights on parallel, dependent runways). * WTC Minimum Separations Table based on ICAO Document 4444 standards [2].	0,20		
R-CFG-0240	AMAN shall allow off-line definition of Sectors Distribution List Mapping (Geographical Volume /Metering Fix), associating each geographical volumes with the relevant metering fix to manage timelines and lists visualization.	0,20		
R-CFG-0250	AMAN shall allow off-line definition of Maximum Time to Gain Limit.	0,20		
R-CFG-0260	For each defined airport, AMAN shall allow modification of Runway Allocation Strategy.	0,20		
R-CFG-0270	For each defined airport, AMAN shall allow modification of Flight Path Weight Table.	0,20		
R-CFG-0280	For each ACC, AMAN shall allow modification of Maximum Delay.	0,20		
R-CFG-0290	For each ACC, AMAN shall allow modification of Shared Delay that can be distributed to adjacent ACC.	0,20		
R-CFG-0300	For each configured runway, AMAN shall allow modification of Arrival Spacing.	0,20		
R-CFG-0310	For each configured runway, AMAN shall allow modification of Arrival spacing for an individual flight.	0,20		
R-CFG-0320	For each configured runway, AMAN shall allow modification of Arrival Rate.	0,20		
R-CFG-0350	For each configured runway, AMAN shall allow modification of Maximum Time to Gain Limit.	0,20		
R-CFG-0360	AMAN shall distribute to all positions, according to Sectors Distribution List Mapping, the following information: * Runway timelines (one for each Runway) * Airport timelines (one for each Metering Fix) * COP lists (one for each COP) to the Adjacent ACC (ROMA, MILANO, BRINDISI or PADOVA).	0,20		
R-CFG-0370	Upon Sectors band-boxing/splitting, AMAN shall re-distribute sequence information according to Sectors Distribution List Mapping.	0,20		
R-FUN-0010	AMAN shall be able to receive SFPL creation and updates, provided by SA-ADAPTER.	0,20		
R-FUN-0020	AMAN shall be able to receive Radar Tracks updates provided by SA-ADAPTER.	0,20		

R-FUN-0030	AMAN shall be able to receive ENV data updates provided by SA-ADAPTER.	0,20		
R-FUN-0040	AMAN shall extract ETA for each inbound flight in the configured airports as results of received trajectory prediction.	0,40		
R-FUN-0050	AMAN shall extract, for each inbound flight, the ETO's at Reference Points included in the related received trajectory.	0,40		
R-FUN-0060	AMAN shall consider a flight, departing outside AoR, as eligible for elaboration if all the following conditions are satisfied: * The flight enter the operational horizon configured with a look-ahead time (e.g. 60 or 120 minutes) * The flight plan is Active (e.g ABI message received for adiajent ACCs)	0,40		
R-FUN-0070	AMAN shall consider a flight, departing inside the AoR, as eligible for elaboration at Take-Off.	0,40		
R-FUN-0080	AMAN shall enable to select from different pre-defined Runway Allocation Strategies	0,40		
R-FUN-0090	AMAN shall allow to set Runway Allocation Strategy at a given time in the future or after a given flight in the sequence.	0,20		
R-FUN-0100	Upon selection of Runway Allocation Strategy, AMAN shall allocate an AMAN Runway for each inbound flight, following the pre-configured Runway Allocation Rules.	0,40		
R-FUN-0120	AMAN shall assign, for each inbound flight, the corresponding Standard Arrival Route (STAR) extracted by received SFPL.	0,20		
R-FUN-0130	AMAN shall take into account any change of planned runway provided by received SFPL updates, re-allocating the flight on the related sequence.	0,20		
R-FUN-0140	AMAN shall be able to manage independent runway operation based on arrival spacing and WTC separation, as pre-defined in the Runway Separation Matrix.	0,40		
R-FUN-0150	AMAN shall be able to manage dependent runway operation based on the minimum staggered separation between two subsequent flights on two different runways, as pre-defined in the Runway Separation Matrix. (Note : A staggered separation of 0 NM means the two runways are operated independently from each other, moreover a value greater than 0 NM means that subsequent arrivals on the two runways should maintain a diagonal minimum separation of the specified value)	0,40		
R-FUN-0160	AMAN shall optimize arrival sequences in accordance of the following criteria: * ETA comparison following the first come, first served principle * Routes Weight Table * Defined Runway Allocation Strategy	0,40		
R-FUN-0170	AMAN shall calculate and provide Target Time of Arrival (TTA) for each inbound flight based on the optimized arrival sequence on each configured landing runway.	0,40		

R-FUN-0180	<p>AMAN shall calculate TTA with the following constraint:</p> <ul style="list-style-type: none"> * Equal to ETA, if no delay absorption is Desired * Later than ETA, if delay absorption is Desired * Earlier than ETA, taking into account the Maximum Time to Gain Limit, if gain is Desired. 	0,40		
R-FUN-0200	<p>AMAN shall provide Target Time Over (TTO) on any pre-defined Reference Point and for each inbound flight.</p>	0,40		
R-FUN-0210	<p>AMAN shall distribute the total delay at the runway and provide Time To Lose/Time To Gain (TTL/TTG) advice, on any pre-defined Reference Point and for each inbound flight, according the Flight Path Weight Table.</p>	0,40		
R-FUN-0220	<p>AMAN shall provide three kind of sequence:</p> <ul style="list-style-type: none"> * Runway Arrival Sequence (containing all the flights landing at a specified runway) * Airport Arrival Sequence (containing all flights landing at a specified airport, with one or more runways, whom trajectories match a set of pre-defined Reference Points) * COP list (containing all inbound flights whom trajectories match a set of pre-defined Reference Points) to adjacent ACC (ROMA, MILANO,PADOVA or BRINDISI) * Removed Flight List (containing all flight temporary removed from the arrival sequence. e.g missed approach, late appearing flight). 	0,40		
R-FUN-0230	<p>AMAN shall be able to manage following flight priorities :</p> <ul style="list-style-type: none"> * Priority: the concerned flight is re-sequenced with the constraint that its TTA is as close as possible to its ETA (TTG remains applicable) * Emergency: the concerned flight is the only landing at the allocated runway 	0,40		
R-FUN-0240	<p>AMAN shall updates flight related data, sequence and metering advices upon reception of the following data updates :</p> <ul style="list-style-type: none"> * radar data updates * flight plan updates * manual user input. 	0,20		
R-FUN-0250	<p>AMAN shall enable to modify the sequence by the following manual inputs:</p> <ul style="list-style-type: none"> * Change flight position in the sequence * Set TTA for a flight * Remove a flight from the sequence * Re-Insert a removed flight * Insert Reservation Slot * Change flight priority * Change Arrival Spacing for a runway * Change Arrival Spacing for a flight * Change Arrival Rate for a runway * Change Runway for a flight * Change runway direction * Freeze one or more flight in the sequence * Unfreeze one or more frozen flight in the sequence * Runway Closure. 	0,40		

R-FUN-0260	AMAN shall divide the arrival sequence into three sections according to the pre-defined AMAN Horizons: * Free Section of the sequence * Frozen Section of the sequence * Common Path Section of the sequence.	0,40		
R-FUN-0270	AMAN shall insert flights that enter the operational horizon into the Free Section of the sequence based on the optimization criteria, the initial delays of the sequenced flights, and the actual delay distribution.	0,40		
R-FUN-0280	AMAN shall freeze the position of flights entering the Frozen Section of the sequence and allow only automatic TTO shifts to adjust the target times, with the exception of priority flights.	0,40		
R-FUN-0290	AMAN shall adapt the sequence according to the actual passing times of inbound flights on a pre-defined Reference Point at the beginning of the Common Path Section, (e.g. 6 NM out), for a given runway, without exception or further optimization of the flights to ensure that the actual landing order is always reflected.	0,40		
R-FUN-0310	AMAN shall sequence all flights departing from the pre-defined Inner Airports List (short route flights) at take-off.	0,40		
R-FUN-0320	AMAN shall sequence a flight departing inside the pre-defined Frozen Horizon as the last flight in the frozen section of the sequence.	0,40		
R-FUN-0330	AMAN shall manage a short-route flight as normal inbound flight.	0,40		
R-FUN-0340	AMAN shall support delay sharing between en-route and TMA sectors based on a weighted distribution of delay inside the pre-defined maximum delay that each sector can absorb.	0,40		
R-FUN-0350	AMAN shall distribute, starting from the total delay at the runway (TTA-ETA), the TTL among the crossed sectors, following the pre-defined Flight Path Weight Table that associates a weight and a maximum absorbed delay for each sector and/or flight path.	0,40		
R-FUN-0360	If the total delay exceed Maximum Delay allowed of the current ATSU, AMAN shall distribute the Shared Delay portion to the upstream ATSU, if any.	0,40		
R-HMI-0030	On each working position, AMAN HMI shall be configured according to one of the foreseen AMAN roles.	0,04		
R-HMI-0040	It shall be possible to on-line modify the role assigned to an AMAN HMI working position.	0,04		
R-HMI-0060	AMAN HMI shall display the following windows: * Timeline Window * Flight Information Window * Removed Flight List Window * Configuration Window.	0,08		
R-HMI-0070	AMAN HMI shall display the Timeline Window as the main interface element.	0,08		
R-HMI-0080	AMAN HMI shall display (when active) Removed Flight List Windows and Configuration windows in an off-line configured position of the Timeline Window.	0,08		

R-HMI-0100	<p>It shall be possible to interact with the AMAN HMI windows by means of a three-button mouse with a mouse wheel defined as follows:</p> <ul style="list-style-type: none"> * AB= Action Button * IB= Information Button * WB= Window Button. 	0,04		
R-HMI-0110	<p>Each button of the mouse shall be associated to the following functions:</p> <ul style="list-style-type: none"> * CLICK LEFT BUTTON (AB): allows to interact with objects (e.g. selection of objects, pressing buttons, selecting among multiple options, designating points in time on a timeline) * DRAG&DROP: allows to relocate objects to a different point in time or to a different timeline * DRAG: allows to move windows within the Timeline Window * MOUSE WHEEL: allows to scroll the visible part of the window or list or allows to alter the value of a selected input field * RIGHT BUTTON (WB): allows to open the context window of an object. 	0,04		
R-HMI-0120	<p>AMAN HMI shall display, in the Timeline Window, the following information:</p> <ul style="list-style-type: none"> * Configured Timelines (Airport/Runway) * COP Lists * Button Bar * Current Parameters * Status Bar * Range Scale * Default scale settings. 	0,04		
R-HMI-0140	<p>AMAN HMI shall display, in the Timeline Window, the following off-line configurable Timelines:</p> <ul style="list-style-type: none"> * Runway Timelines (one for each selected Runway), representing the Runway Arrival Sequence containing all flights landing at a specific runway * Airport Timelines (one for each selected Airport), representing the Airport Arrival Sequence containing all flights, whose trajectory matches a set of predefined reference points, landing at a specified airport * COP Lists (one for each selected COP), representing all inbound flights whose trajectory matches a set of predefined COPs. 	0,08		
R-HMI-0170	<p>AMAN HMI shall display each Timeline in the Timeline Windows as vertical scale marked at regular off-line defined time intervals.</p>	0,04		
R-HMI-0180	<p>AMAN HMI shall display on each Timeline in the Timeline Window the Current Time Marker according to off-line customization.</p>	0,04		
R-HMI-0190	<p>AMAN HMI shall display in the Timeline Window the Current Time Marker on a fixed point of the vertical scale.</p>	0,04		
R-HMI-0200	<p>AMAN HMI shall display on each Timeline in the Timeline Window the UTC Time next to the Current Time Marker.</p>	0,04		
R-HMI-0220	<p>AMAN HMI shall display in the Timelines future events above or below the Current Time Marker, according to off-line configuration.</p>	0,04		

R-HMI-0240	AMAN HMI shall allow to simultaneously scroll (up and down) all Timelines displayed in the Timeline Window, by means of the mouse wheel. The name of the corresponding Airport/Runway shall always remain visible.	0,04		
R-HMI-0250	AMAN HMI shall allow, at any time, to return to the current time position by clicking on a dedicated button.	0,04		
R-HMI-0260	AMAN HMI shall display, for each Timeline, the name of the reference Airport/runway at the top/bottom of the Timeline, according to off-line configuration.	0,04		
R-HMI-0270	AMAN HMI shall display sequenced flights, in the Timeline Window, as Flight Labels.	0,04		
R-HMI-0280	AMAN HMI shall display Flight Strips connected to the Timeline at the point corresponding to the TTO (Target Time Over) of the configured metering FIX or the TTA (Target Time of Arrival) at the runway, by means of an off-line defined Connector Line.	0,04		
R-HMI-0300	For each flight in the Timeline Window, AMAN HMI shall display the following textual flight information in the corresponding Flight Label: * CALLSIGN (up to 8 characters) * CURRENT DELAY (minutes): up to 3 characters o “0” – if there is no delay o “+XX” – if there is a TTL (in minutes) o “-XX” – if there is a TTG (in minutes) o “-“-“ (two dashes) - in case the delay calculation is not possible. * ICAO AIRCRAFT TYPE CODE (up to 6 characters) or TTO on the Metering FIX (5 characters) e.g. Holding Exit (Configurable) * WTC (up to 1 character) * METERING FIX (up to 3 characters) * SEQUENCE NUMBER (only for Runway Timelines), up to 2 characters * FURTHER INDICATION (if any): 1 character with coloured background.	0,08		
R-HMI-0340	AMAN HMI shall highlight the Flight Label when hovering over it with the mouse. If the same flight is displayed on other Timelines, their Flight Labels are also highlighted.	0,08		
R-HMI-0360	AMAN HMI shall highlight flights with Priority or Emergency Status in the Flight Label callsign field as follows: * ORANGE Callsign: Priority Flights * RED Callsign: Emergency Flights.	0,04		
R-HMI-0390	AMAN HMI shall display SLOTS on the Timelines representing a time interval in which special events occur.	0,04		
R-HMI-0400	AMAN HMI shall display SLOTS positioned on the corresponding Timeline and according to its start time and duration.	0,04		
R-HMI-0410	AMAN HMI shall display SLOTS as a coloured line as follows: * RUNWAY CLOSURE SLOT (Time Interval during which the runway will not be used by AMAN): Red Line * SPACING SLOT (Manually assigned separation (NM) after a selected flight): White Line * RESERVATION SLOT (Placeholder for a specific flight): Yellow Line.	0,04		

R-HMI-0420	AMAN HMI shall display a dedicated label for each SLOT on the Timeline indicating the type and duration of the SLOT.	0,04		
R-HMI-0430	AMAN HMI shall display Indicators indicating a change of global sequencing and spacing AMAN parameters.	0,04		
R-HMI-0440	AMAN HMI shall highlight Indicators on the Timeline with an off-line configured label indicating the type and value of the change at the point of time at which the change becomes effective.	0,04		
R-HMI-0450	AMAN HMI shall display the following INDICATORS: <ul style="list-style-type: none"> • RUNWAY STRATEGY INDICATOR representing a change of the runway strategy usage; • RUNWAY SPACING INDICATOR representing a change in the minimum separation between two subsequent flights on the runway; • RUNWAY RATE INDICATOR representing a change in the arrival rate on the runway; • SPACING SLOT INDICATOR representing a change in the minimum separation between the selected flight and its predecessor; • RUNWAY DIRECTION INDICATOR representing a change in the runway direction; • RESERVATION SLOT representing a label that identifies the type and value of a reservation time slot; • RUNWAY CLOSURE SLOT INDICATOR representing the closure of a runway. 	0,04		
R-HMI-0460	AMAN HMI shall display, at the bottom of the Timeline Window, a button bar with the following selectable buttons: <ul style="list-style-type: none"> • CONFIGURATION button: to open a window which allows to configure the displayed timelines; • REMOVED FLIGHTS button: to open the window containing the non-sequenced flights; • COP LIST button: to open the window containing the estimated times over the FIR or Sector Exit FIX; • SM button: to enable/disable the sequence manager authority for the AMAN HMI. 	0,04		
R-HMI-0510	Each flight in the Removed Flights List Window shall be represented by its Flight Label.	0,04		
R-HMI-0520	Non-sequenced flights in the Removed Flights List Window shall be ordered according to their de-sequencing time and shall contain the CALLSIGN and reason for de-sequencing.	0,04		
R-HMI-0560	AMAN HMI shall display, in a dedicated area at the bottom of the Timeline Window, the parameters currently in use for AMAN.	0,04		
R-HMI-0570	AMAN HMI shall display the following parameters: <ul style="list-style-type: none"> • RUNWAY STRATEGY; • ARRIVAL RATE; • ARRIVAL SPACING; • RUNWAY CLOSURE; • TOTAL DELAY; • AVERAGE DELAY (optional) over one or more Metering Fixes; • NUMBER OF SEQUENCED FLIGHTS. 	0,04		

R-HMI-0590	AMAN HMI shall display a Status Bar which allows to visualize the availability of network connection between AMAN and other systems (input data) at the bottom right side of the Timeline Window.	0,04		
R-HMI-0600	AMAN HMI shall display the following connection information in the Status Bar: <ul style="list-style-type: none"> • Reception of Track Data (SSR); • Reception of Flight Plan Data (FPL); 	0,04		
R-HMI-0620	AMAN HMI shall display in the lower right side of the Timeline Window the RANGE SCALE buttons which allow to increase/decrease the currently displayed scale on the Timelines.	0,04		
R-HMI-0630	AMAN HMI shall display a DEFAULT SCALE button which allows to return to the off-line defined range scale of the Timelines.	0,04		
R-HMI-0640	AMAN HMI shall foresee the following different user rights related to different roles: <ul style="list-style-type: none"> • SEQUENCE MANAGER; • SUPERVISOR; • EXECUTIVE; • TECHNICAL. 	0,08		
R-HMI-0650	AMAN HMI configured as SEQUENCE MANAGER shall have full authorization to modify the runway sequence and an off-line defined set of global sequencing parameters.	0,04		
R-HMI-0660	AMAN HMI configured as SEQUENCE MANAGER shall display runway timelines, Airport Timelines and COP Lists.	0,04		
R-HMI-0670	For each ACC one or more positions can be in SEQUENCE MANAGER role at the same time.	0,04		
R-HMI-0680	AMAN HMI configured as SUPERVISOR shall display runway timelines, Airport Timelines and COP Lists.	0,04		
R-HMI-0690	AMAN HMI configured as SUPERVISOR shall have full authorization to modify a set of off-line defined global sequencing parameters.	0,04		
R-HMI-0700	It shall be possible to switch to SEQUENCE MANAGER the AMAN HMI configured as SUPERVISOR by using a message box confirmation.	0,04		
R-HMI-0710	AMAN HMI configured as EXECUTIVE shall be read-only.	0,04		
R-HMI-0720	AMAN HMI configured as EXECUTIVE shall display Runway Timelines, Airport Timelines and COP Lists.	0,04		
R-HMI-0730	AMAN HMI configured as TECHNICAL shall be dedicated to maintenance.	0,04		
R-HMI-0740	AMAN HMI configured as TECHNICAL shall allow to perform: <ul style="list-style-type: none"> • AMAN System Monitoring; • AMAN System Control; • AMAN System Failover. 	0,04		
R-HMI-0750	AMAN HMI configured as TECHNICAL shall display the Timeline as displayed on the SEQUENCE MANAGER and SUPERVISOR positions (read-only).	0,04		
R-HMI-0760	AMAN HMI configured as TECHNICAL shall not be authorized to modify the AMAN sequence or sequencing parameters.	0,04		
R-HMI-0770	There shall be only one AMAN HMI fixed position configured as TECHNICAL	0,04		

R-HMI-0840	Manual changes to individual flights shall always have priority on automatic sequencing advices.	0,04		
R-HMI-0850	AMAN HMI shall allow authorized users to manually modify the ARRIVAL RATE (flights per hour), by selecting Start Time, Runway and Rate. The arrival rate change shall be displayed as Runway Rate Indicator in the Timeline Window and shall also be displayed at the bottom of the Timeline Window in the parameter Section.	0,04		
R-HMI-0860	AMAN HMI shall allow authorized users to manually modify the ARRIVAL SPACING by setting the minimum separation (NM) between two subsequent flights on the same runway, selecting Start Time, Runway and Distance. The arrival spacing change shall be displayed as Runway Spacing Indicator in the Timeline Window and shall also be displayed at the bottom of the Timeline Window in the parameter Section.	0,04		
R-HMI-0870	AMAN HMI shall allow authorized users to manually modify the RUNWAY DIRECTION by setting the direction of runway, selecting Start Time and Runway. The runway direction change shall be displayed as Runway Direction Indicator in the Timeline Window.	0,04		
R-HMI-0880	AMAN HMI shall allow authorized users to manually modify the RUNWAY STRATEGY by defining which runway is currently assigned to accommodate incoming flights. It shall be possible to select among different off-line defined strategies and the corresponding starting time. A runway strategy change shall be displayed in the Timeline Window as Runway Strategy Indicator and shall also be displayed at the bottom of the Timeline Window in the parameter Section. It shall also be possible to attach a runway strategy change to a flight, affecting all the subsequent flights. Runway strategies can be modified and terminated.	0,04		
R-HMI-0890	AMAN HMI shall allow authorized users to manually modify the DELAY SHARING by setting the delay sharing distribution among sectors. It shall be possible to modify the default flight path weight table.	0,04		
R-HMI-0920	AMAN HMI shall allow authorized users to manually assign/modify the RESERVATION SLOT used to occupy a slot in the sequence for a flight that did not show up yet (e.g. planned departure from a nearby airport or incoming flight). For each reservation slot it shall be possible to insert the start time, the runway and the WTC. When the flight shows up it shall be possible to replace the reservation slot with the flight. The reservation slot insertion shall be displayed as a Reservation Slot Indicator in the Timeline Window and shall also be displayed at the bottom of the Timeline Window in the parameter Section.	0,04		
R-HMI-0930	AMAN HMI shall allow authorized users to manually assign/modify the RUNWAY CLOSURE by specifying the start time and the time interval when a runway shall not be used by AMAN. The runway closure shall be displayed as Runway Closure Slot Indicator in the Timeline Window and shall also be displayed at the bottom of the Timeline Window in the parameter Section. It shall be possible to relocate runway closure slots on the same timeline by “drag & drop”, to update the runway closure slot and remove it.	0,04		
R-HMI-0940	It shall be possible to off-line define the number of simultaneously displayed Timelines.	0,04		

R-HMI-0950	It shall be possible to off-line define the reference points (runways and/or metering FIX) for which the flights are displayed.	0,04		
R-HMI-0960	It shall be possible to off-line define the time horizon to be displayed in the Timeline Window.	0,04		
R-HMI-0970	It shall be possible to off-line define the information content to be displayed in the Flight Strips among the following: <ul style="list-style-type: none"> • CALLSIGN • Delay (TTL/TTG) • ICAO aircraft type code • WTC (Wake Turbulence Category) • Metering FIX • Sequence Number • ... 	0,04		
R-HMI-1010	It shall be possible to off-line define the colours associated to the Flight Strip state (Flight strip columns and connector line).	0,04		
R-HMI-1020	It shall be possible to off-line define the label associated to an Indicator.	0,04		
R-HMI-1030	It shall be possible to off-line configure the data to be displayed in the extended Flight Information.	0,04		
R-HMI-1040	It shall be possible to off-line configure the default runway separation values for each runway.	0,04		
R-HMI-1050	It shall be possible to off-line configure the following access rights and related layout: <ul style="list-style-type: none"> • SEQUENCE MANAGER; • SUPERVISOR; • EXECUTIVE; • TECHNICAL. 	0,08		
R-HMI-1060	It shall be possible to off-line define the configuration for each sector and sector combination. The configuration shall include: <ul style="list-style-type: none"> • Timelines to be displayed • Timescale 	0,04		
R-HMI-1070	It shall be possible to off-line define the default sector associated with a specific EXECUTIVE role.	0,04		
R-HMI-1080	It shall be possible to off-line define the color coding according to the flight plan state as follows: <ul style="list-style-type: none"> • Concerned Flight = Light Green; • Pending Flight = Yellow; • Flight with STCA Alarm = Red; • Light under Transfer of Control (TOC) = Magenta; • AIS = Dark Green; • Nearby Flight = White. 	0,04		

R-IRQ-0010	<p>AMAN shall include in any Sequence Update message the following information :</p> <ul style="list-style-type: none"> • Reference Point name; • Reference Point spacing; • Reference Point type. <p>For each flight in the Arrival Sequence:</p> <ul style="list-style-type: none"> • Arrival Sequence Number; • CALLSIGN; • Planned Runway (runway extracted from the SFPL); • Type of Aircraft; • WTC; • ETA/ETO if Reference Point type is respectively Runway / Metering Fix; • Flight Priority (Emergency, Priority, No priority); • Flight Status (Active, Frozen, Common Path); • Suggested Runway, if any; • TTA/TTO if Reference Point type is respectively Runway / Metering Fix; • Total delay; • TTL (Time to lose) / TTG (Time to gain). 	0,5		
R-IRQ-0050	<p>The FDPS Interface shall be able to receive the following data:</p> <ul style="list-style-type: none"> • Flight plan data; • Operational sectors configuration data; 	0,5		
R-IRQ-0060	<p>The FDPS Interface shall exchange data via EUROCONTROL FMTP (“Flight Message Transfer Protocol”).</p>	0,5		
R-IRQ-0070	<p>The FDPS Interface shall exchange data using ADEXP format as defined in the community specification N.0107 Edition 3.1, following the specification provided by ENAV during Project Definition Phase.</p>	0,5		
R-IRQ-0080	<p>The FDPS Interface shall be able to receive at least the following flight plan data :</p> <ul style="list-style-type: none"> • Flight Plan Status (new, update, terminated); • SSR Code; • ICAO Code (aircraft type); • Wake Turbulence Category; • ADEP • ADES • 4D Trajectory (4D trajectory of FDP used to extract the route of the flight: waypoints defined by name, latitude and longitude, including speed and level constraints at the waypoints, route up to TMA Feeder Fix at least); • RFL; • CFL; • ICAO flight rule (I, V, Y, Z); • ICAO Flight type (G, M, N, S, X); • Aircraft equipment (field 10 of ICAO flight plan); • ATA (Actual Time of Arrival); • ATD (Actual Time of Departure); • Sector (Controlling the flight); • Flight Track Status (Assumed, AIS, Tentative, Hand Over, Nearby, Pending, STCA Alarm); 	0,5		
R-IRQ-0090	<p>The RDPS Interface shall be able to receive radar tracks data.</p>	0,5		
R-IRQ-0100	<p>The RDPS Interface shall exchange data via UDP.</p>	0,5		
R-IRQ-0110	<p>The RDPS Interface shall be able to receive data using ASTERIX CAT62 format.</p>	0,5		

R-IRQ-0120	<p>The RDPS Interface shall be able to receive at least the following radar tracks data items:</p> <ul style="list-style-type: none"> • I062/010 (Data Source Identifier); • I062/015 (Service Identification); • I062/040 (Track Number); • I062/060 (Track Mode 3/A Code); • I062/070 (Time Of Track Information); • I062/080 (Track Status); • I062/100 (Calculated Track Position); • I062/120 (Track Mode 2 Code); • I062/135 (Calculated Track Barometric Altitude); • I062/136 (Measured Flight Level); • I062/185 (Calculated Track Velocity); • I062/200 (Mode Of Movement); • I062/220 (Calculated Rate Of Climb/Descent); • I062/340 (Measured Information); • I062/380 (Ground Speed); • I062/390 (Flight Plan Related Data); • SP (Special Purpose field). 	0,5		
R-SPV-0010	The AMAN supervision shall be able to monitor and provide the status of AMAN, automatically detecting failures and solving it.	0,20		
R-SPV-0030	The AMAN supervision shall allow the Operational/Technical Supervisor to enable/disable AMAN services on all operational room configuration.	0,20		
R-SPV-0040	The AMAN supervision shall allow the Technical Supervisor to switch on/off the AMAN tool.	0,20		
R-SPV-0050	The AMAN supervision shall notify to the ATCO and the Technical Supervisor the AMAN status (e.g. enable/disable, on/off) on all the related HMI.	0,20		
R-SPV-0060	The failure of AMAN Supervision system shall not affect the normal operation of the monitored AMAN system.	0,20		
R-SPV-0080	The AMAN Supervision system shall provide a Supervision HMI to display all configured information of interest exchanged with managed objects.	0,10		
R-SPV-0090	<p>The AMAN Supervision HMI, shall display the following data to be managed by the Supervisor:</p> <ul style="list-style-type: none"> • Alarms; • Relevant Events; • Commands/Actions; • Technical and Functional data; • Instant indicators; • Status of managed objects. 	0,10		
R-SPV-0100	The AMAN supervision shall store commands and components status for later analysis.	0,10		
R-SPV-0110	The AMAN supervision HMI shall be provided for 3 positions on each ACC (OPS + SIM + PSA).	0,20		
R-RBP-0030	AMAN shall store diagnostic and application data.	0,10		
R-RBP-0040	AMAN shall make available recorded and stored data for a period of 30 days.	0,10		
R-DAF-0030	AMAN shall record statistical data into daily log files.	0,10		
R-TEC-0030	AMAN platform (both full and reduced) shall run on an hardware platform based on Intel x86 processor with operating system LINUX.	0,10		

R-TEC-0040	AMAN full platform shall be based on a hardware solution that ensures full fault tolerance capabilities and a very fast recovery operations (see performance requirements)	0,10		
R-TEC-0050	All envisaged hardware shall be connected via dedicated ATC Tools LAN.	0,10		
R-TEC-0060	AMAN servers shall be connected with two ETHERNET network switches set in redundant mode, utilizing an interconnection among each other and using "Rapid Spanning Tree" protocol.	0,10		
R-TEC-0070	The network switches provide redundancy by utilizing an interconnection among each other and using "Rapid Spanning Tree" protocol (RSTP). It is still to be decided whether FDPS LAN or ATC Tools LAN shall be used.	0,10		
R-TEC-0080	AMAN Clients from any ACC to any other ACC shall be connected via WAN (E-NET).	0,10		
R-TEC-0090	The WAN (E-NET) require a continuously available bandwidth of at least 2Mbit/s.	0,10		
R-TEC-0100	The suppliers must draw up a list of all host/server belonging to the new supply contract and produce a proper connectivity matrix, with details of all local and geographical communication needs within E-NET network.	0,10		
R-TEC-0110	All Site system IP addresses must be connected to the ENAV national numbering plan, available in CGE-NET and ICT Security department.	0,10		
R-TEC-0120	While using local sub-networks, Provider must avoid any overlapping with sub-networks already deployed at national level.	0,10		
R-TEC-0130	In order to properly convey traffic flows onto E-NET geographical network, Provider must respect VPN logical partition and VPN/IP numbering plan/service association.	0,10		
R-TEC-0140	All the servers and front-end systems belonging to a site and dedicated to geographical communication for a service must be shown toward geographical network on the unique assigned LAN as default gateway network. Network range and addresses will be chosen by CGE-NET and ICT Security department following ENAV national network planning rules.	0,10		
R-TEC-0150	LAN network redundancies shall be managed by duplicating network devices and fault tolerance protocols. Moreover, server and front-end systems must interconnect following active/stand-by bonding criteria, in order to guarantee the expected high reliability constraints.	0,10		
R-TEC-0160	Provider must provide the LAN infrastructure equipment (it should be a network resource upgrade or a new HW resource supply) to interconnect server and front-end systems, in total agreement with current technology	0,10		
R-TEC-0170	Systems interfacing methods with LAN access infrastructure must respect E-NET program (ENAV geographical network) defined criteria.	0,10		
R-TEC-0180	Systems Interconnection criteria (port assignment) and necessary configuration (IP addressing, interfacing rules, etc.) must be shared with E-NET & ICT Security management centre.	0,10		
R-TEC-0190	Port configuration must be set by forcing ETH specific negotiation (i.e. ETH 100 full-duplex) in order to minimize possible interfacing problems.	0,10		

R-TEC-0200	End-to-end communication between systems/services within geographical environment must be enabled exclusively on ports/protocols necessary to a correct service operation.	0,10		
R-TEC-0210	All application exchanges between different LANs must be implemented and managed at level 3 ISO/OSI. Application equipment with two or more different ports connected to different Operation LANs must not be allowed to exchange traffic.	0,10		
R-TEC-0220	Within system implementation scope, any kind of interconnection (application or network level) between Operational LAN and third parties LAN (Companies Intranet, internet, etc.) can only be realized passing through E-NET Security modules.	0,10		
R-TEC-0230	In respect of guarantee a correct correlation between events, server and front-end systems must be synchronized with NTP server.	0,10		
R-TEC-0240	All server and front-end systems must be compatible with standard LDAP authentication protocol. Moreover, a local authentication method must be provided in order to protect from unauthorized access to the systems. Configuration details and integration with authentication server must be shared with CGE-NET & ICT Security department.	0,10		
R-TEC-0250	Each provided switch must be SNMPv3 embedded in order to be remotely monitored via RTDM from ENAV. Concerning this, each switch must be provided with a Management VLAN and cabling must be prepared for interconnection towards E-NET network security modules (MS E-NET). Systems configuration and integration details must be shared with CGE-NET & ICT Security department.	0,10		
R-TEC-0260	Server and front-end Windows systems must be prepared for antivirus configuration by ENAV SOC. Systems configuration and integration details must be detailed in SDD document.	0,10		
R-TEC-0270	System Design and implementation stages must be scheduled respecting ISO 27001 Standard, for information security management system.	0,10		
R-TEC-0280	Hardware and LAN equipment shall be redundant in their power supply components.	0,10		
R-TEC-0290	Each rack hosting the active equipment shall be powered by two multiple sockets connected to different slots on electric box.	0,10		
R-REF-001	References about the operational exploitation of the Software at other ANSP's premises with Multi runway management	1		
R-REF-002	References about the operational exploitation of the Software at other ANSP's premises with Multi airports management	1		
R-SFW-0010	Suppliers shall use all necessary means to ensure the configuration control of installed software and verify non-regression of the modified CSCIs. The choice of tools to perform these activities shall be approved by ENAV during Project Definition.	0,4		
R-SFW-0020	Suppliers shall provide the Software Maintenance Policy and Evolution Roadmap.	0,4		

R-SFW-0030	All software changes provided for this project shall at least ensure the maintenance of functional and performance characteristics of the system already in operation (no functional regression).	0,4		
R-SFW-0050	The Software shall be respected what is indicated in ESARR 6 and adopted by European Regulation (EC) 482/2008 relating to the Software in ATM systems.	0,4		