

<b>Deployment Scenario Title</b>	<b>HMI interaction modes for ATC centres and airport towers</b>
<b>Deployment Scenario Description</b>	Human-machine interface (HMI) interaction modes for ATC centres and airport towers: this activity involves the development of new HMI interaction modes and technologies in order to minimise the load and mental strain on controllers, be they in the ATC centre or in the airport tower. The SESAR activities will make use of modern design and development approaches and methodologies such as modularity, service-oriented architecture and adaptive automation. The new HMI interaction modes include the use of in-air gestures, attention control, user profile management systems, tracking labels, virtual and augmented reality, etc.
<b>Essential Operational Change</b>	Virtualisation of Service Provision
<b>Maturity</b>	In development phase: Key R&D Activities

<b>Applicable Operating Environment</b>			
<b>Airport</b>	<b>Terminal Airspace</b>	<b>En-Route</b>	<b>Network</b>

<b>Timeline</b>																						
2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	

<b>Performance Contribution of the DS</b>				
<b>Capacity</b>	<b>Safety</b>	<b>Environment</b>	<b>Cost-efficiency</b>	<b>Operational efficiency</b>

<b>Stakeholders affected (at least one enabler to be deployed)</b>						
<b>ANSP</b>		<b>AO</b>		<b>AU</b>		<b>Network Manager</b>
<b>Civil</b>	<b>Military</b>	<b>Civil</b>	<b>Military</b>	<b>Civil</b>	<b>Military</b>	
TWR, APP, ENR						

<b>SESAR Solutions</b>			
<b>Solution Code</b>	<b>Solution Title</b>	<b>Solution Description</b>	<b>Related Elements</b>
PJ.05-W2-97	HMI Interaction modes for Airport Tower	The key R&D activity addresses the development of new human machine interface (HMI)...	<b>PJ DS EOC</b>
PJ.10-W2-96	HMI Interaction modes for ATC centre	The key R&D activity addresses the development of new human machine interface (HMI)...	<b>PJ DS EOC</b>
PJ.16-04	Workstation, Controller productivity	Workstation, Controller Productivity sees the development of new human machine interface (HMI)...	<b>SOL PJ OI DS EOC</b>

Operational Improvement Steps			
OI Step Code	OI Step Title	OI Step Description	Related Elements
POI-0003-SDM	Improving controller productivity by introducing new methods of controller interaction.	ATCOs will be supported by introducing innovative human machine interaction technologies at the...	SOL EN DS
POI-0004-SDM	Optimisation of Controller Working Position environment supported by geographically seperated enviroment.	The virtual aspects are a key driver of the use of future ATM systems. Using the CWP...	SOL EN DS

Enablers						
Required/Optional	New/Inherited	Develop/Use	Enabler Code	Enabler Title	Enabler Description	Related Elements
🔒			AERODROME-ATC-100	Controller productivity enhancements by Automatic Speech Recognition at the Aerodrome CWP/HMI	Introduction of new automated functions for Automatic Speech Recognition at the CHMI Management...	STK OI DS
🔒			AERODROME-ATC-101	Controller productivity enhancements by User Profile Management at the Aerodrome CWP/HMI	Introduction of a new automated function for User Profile Management at the CHMI Management...	STK OI DS
🔒			ER APP ATC 175	Introduction of a new virtualistion technical concept for Controller Working Positions in the Virtual Centre Air Traffic Service Unit (VC ATSU) for improving cost efficiency.	Introduction of a new virtualistion technical concept for Controller Working Positions in the...	STK OI DS
🔒			ER APP ATC 180	Controller productivity enhancements by Automatic Speech Recognition at the ER/APP CWP/HMI	Introduction of new automated functions for Automatic Speech Recognition at the CHMI Management...	STK OI DS
🔒			ER APP ATC 181	Controller productivity enhancements by Multi-Touch Input at the ER/APP CWP/HMI	Introduction of a new automated function for Multi-Touch Inputs at the ER/APP CHMI Management for...	STK OI DS
🔒			ER APP ATC 182	Controller productivity enhancements by Attention Guidance at the CWP/HMI	Introduction of new automated functions for Attention Guidance at the CHMI Management ER/APP for...	STK OI DS
🔒			ER APP ATC 183	Controller productivity enhancements by User Profile Management at the ER/APP CWP/HMI	Introduction of a new automated function for User Profile Management at the CHMI Management...	STK OI DS