



Eyes in the Sky, Feet on the Ground: Improving Surface Management

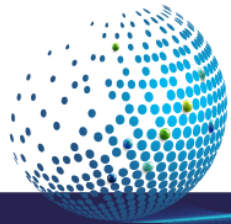
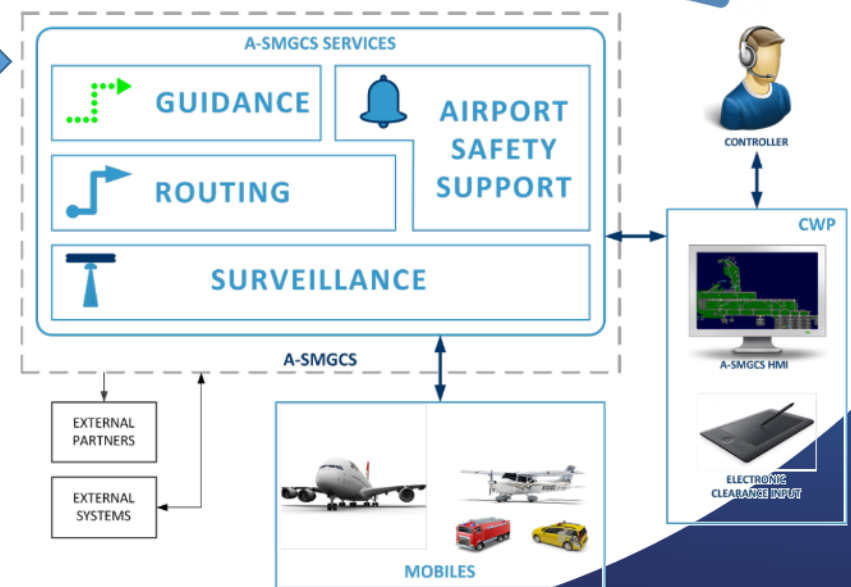
Gianluca Marrazzo, LEONARDO

SESAR 2020 SHOWCASE

Surface Management



Need for



Needs and Challenges

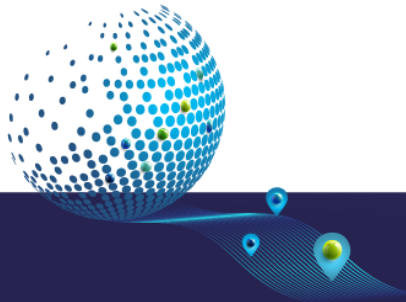
More:

- anticipation of issues
- trust in the tools
- opportunities for future standards
- RoI from future industrialisation



More:

- awareness of own tasks and situation
- human-manageable tasks
- sustainable transition factors
- modular and cost-effective tools



Baseline & SESAR Solutions



New Alerts / Notifications for the ATCO



Digital Management of Vehicles



Enhanced Route Planning Tools



Alerts & Notifications for the ATCO



New alerts on conflicting clearances (CATC) given to two flights on same runway

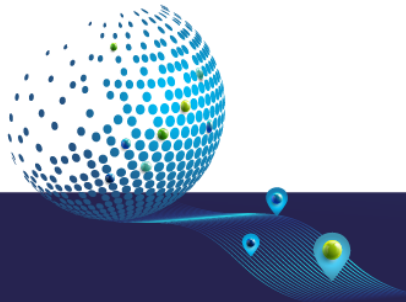
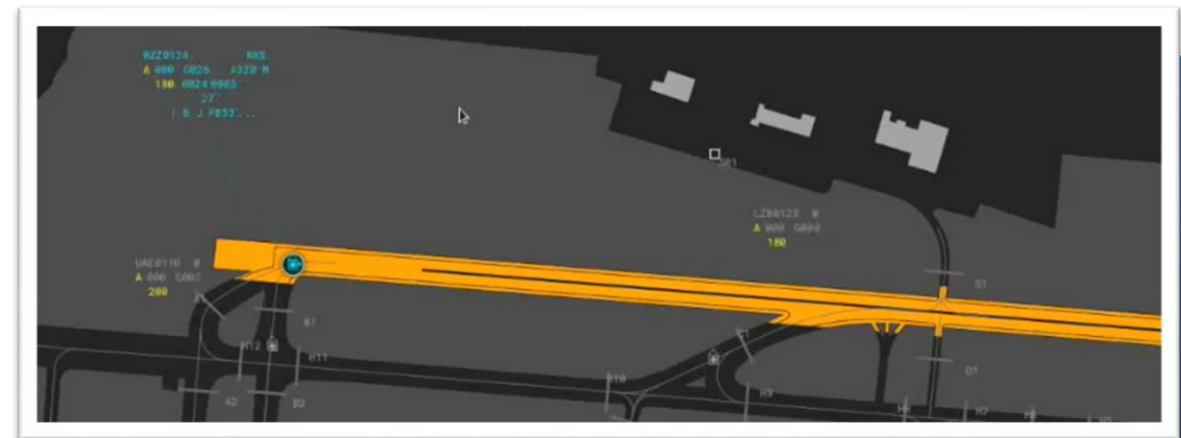
- Two landing clearances (LAND/LAND)
- Cross and landing clearances (CROSS/LAND)
- Takeoff and landing clearances (TAKEOFF/LAND)



2 SCA ALARM LIST					
Ack	Conflict Type	Target1	Target2	Area	ConflictTime
X	CATC LAND/LAND	DLH0104	UAE0105	27	10:47:43

New Runway Situational Notifications

- YELLOW if runway is occupied
- RED if runway is affected by a conflict

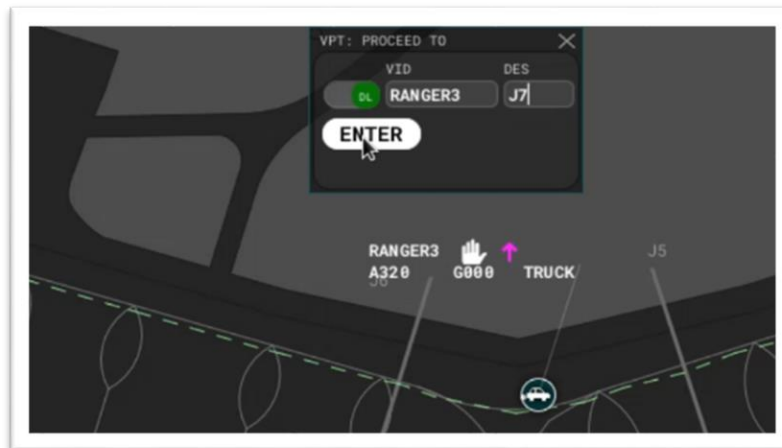


Digital Management of Vehicles



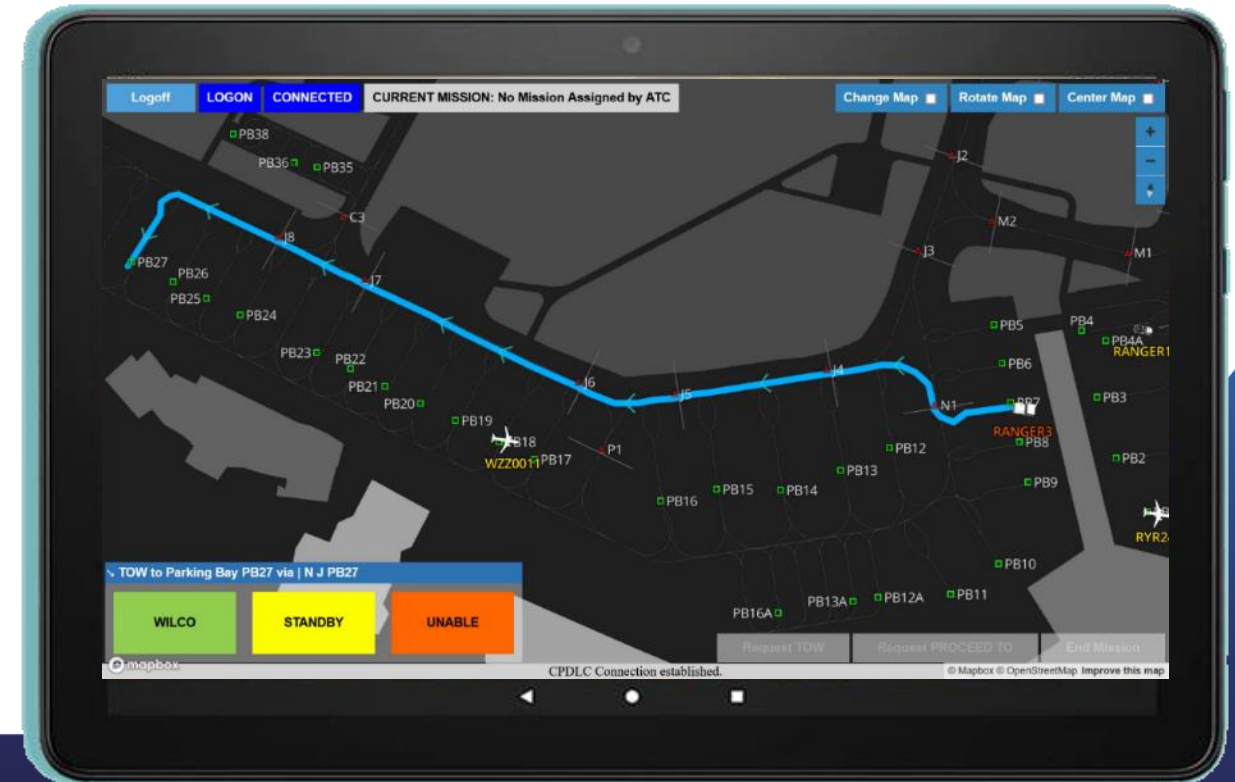
- Controller / Vehicle Driver datalink
- Route and traffic display on-board the vehicle
- Support for Tow, Proceed To, Hold operations

Controller HMI



Vehicle	Time	Message
RANGER3	16:02:37.63	REQUEST PROCEED TO PB27
RANGER3	16:01:05.84	WILCO
RANGER3	16:00:55.536	STANDBY

Vehicle Driver HMI



Enhanced Route Planning Tools



- Automatic vehicle route calculation for both voice and datalink workflows
- Controller-defined graphical route editing
- Adaptation to constraints (e.g. taxiway closures)
- Adaptation to low visibility procedures

Synthetic textual route

Aircraft and Vehicle Routing

Closed taxiways

Graphical route Editing points

NOTAX
ZBBB+23
A 000 G009 A320 M
180 0903
C
| C H B J PB23PB23

TOYOTA2
G000 TRUCK
PB32 1057
PB18 0714
| N P J PB18

Modify Route
Apply Cancel

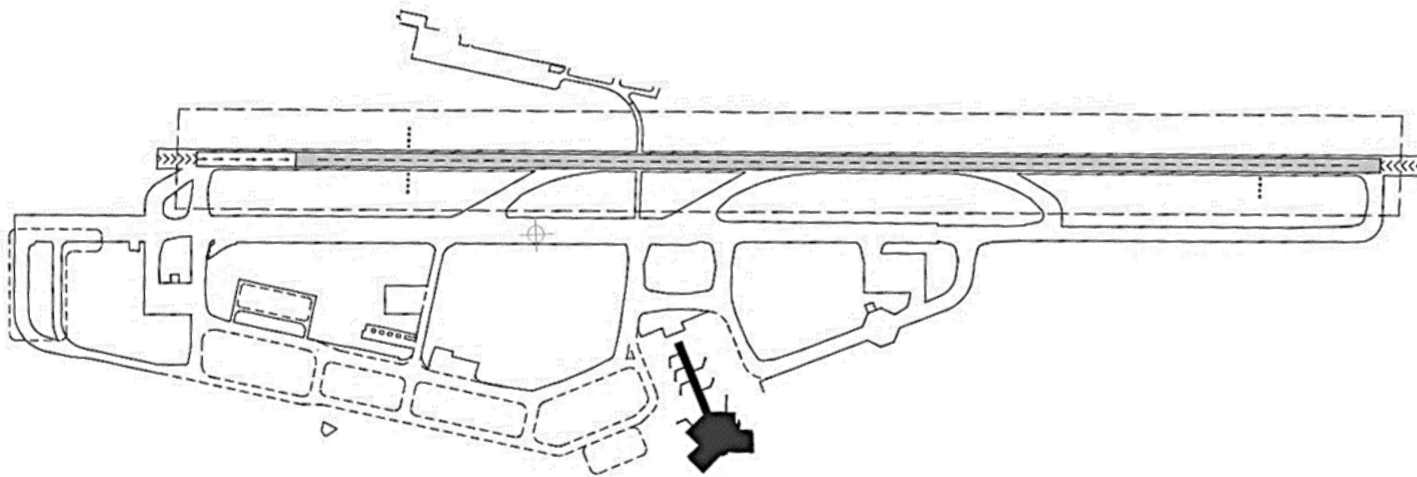
#SESARShowcase

#EuropeForAviation

Validation Exercise

In collaboration with BULATSA ANSP

- Sofia Airport operational environment
- Real Time Simulations on Leonardo Platform
- 8 ATCOs involved



BULATSA
BULGARIAN AIR TRAFFIC SERVICES AUTHORITY



Integrated Benefits



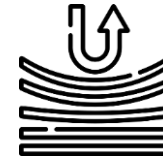
Human Performance



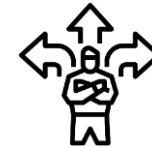
Safety



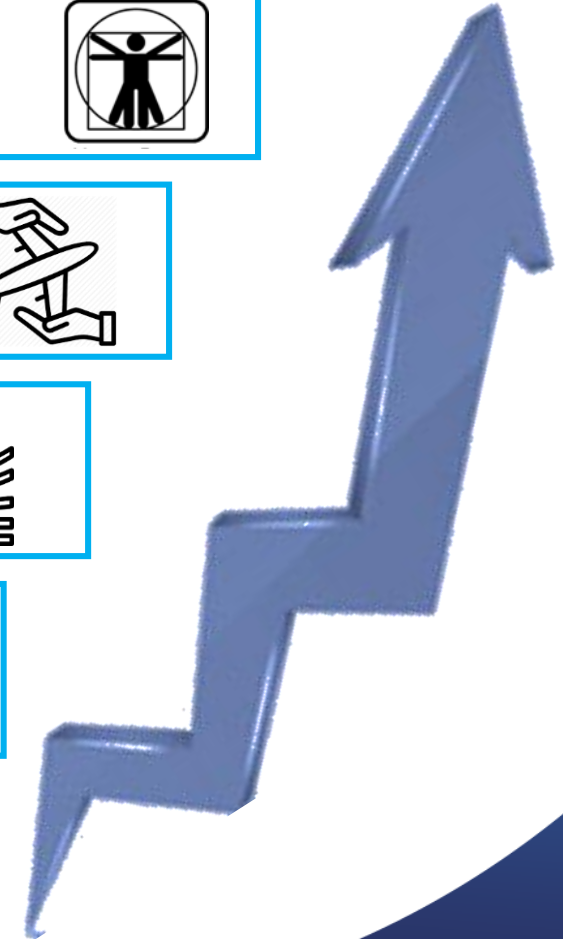
Resilience



Flexibility

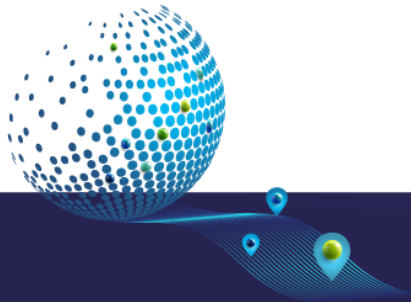


Cost-effectiveness



Next Steps

- Deliver results to Horizon 2020
- Industrialisation
- Promote for standardization (A-SMGCS Task Force)



Meet Leonardo in Booth #D17



THANK YOU
FOR YOUR ATTENTION

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