



skyguide 

Global Aviation Cooperation Symposium

ICAO HQ, Montréal, 30 Sept–3 Oct 2014 [Visit the event site](#) ▶▶▶

*Global Air Navigation Plan
Innovation and Best Practices*
The Virtual Centre Model

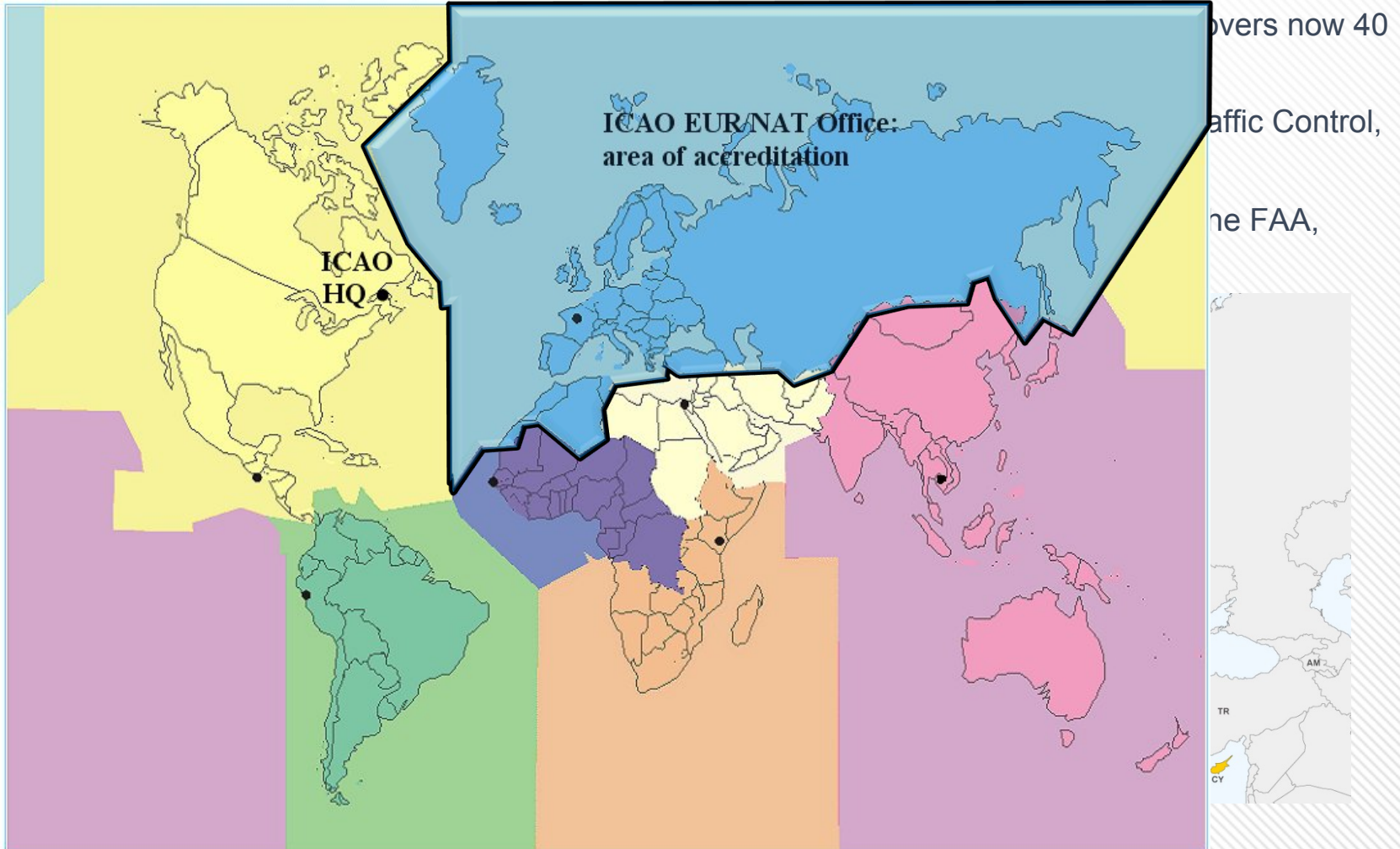
Setting the Scene

› What is Europe ?

›

›

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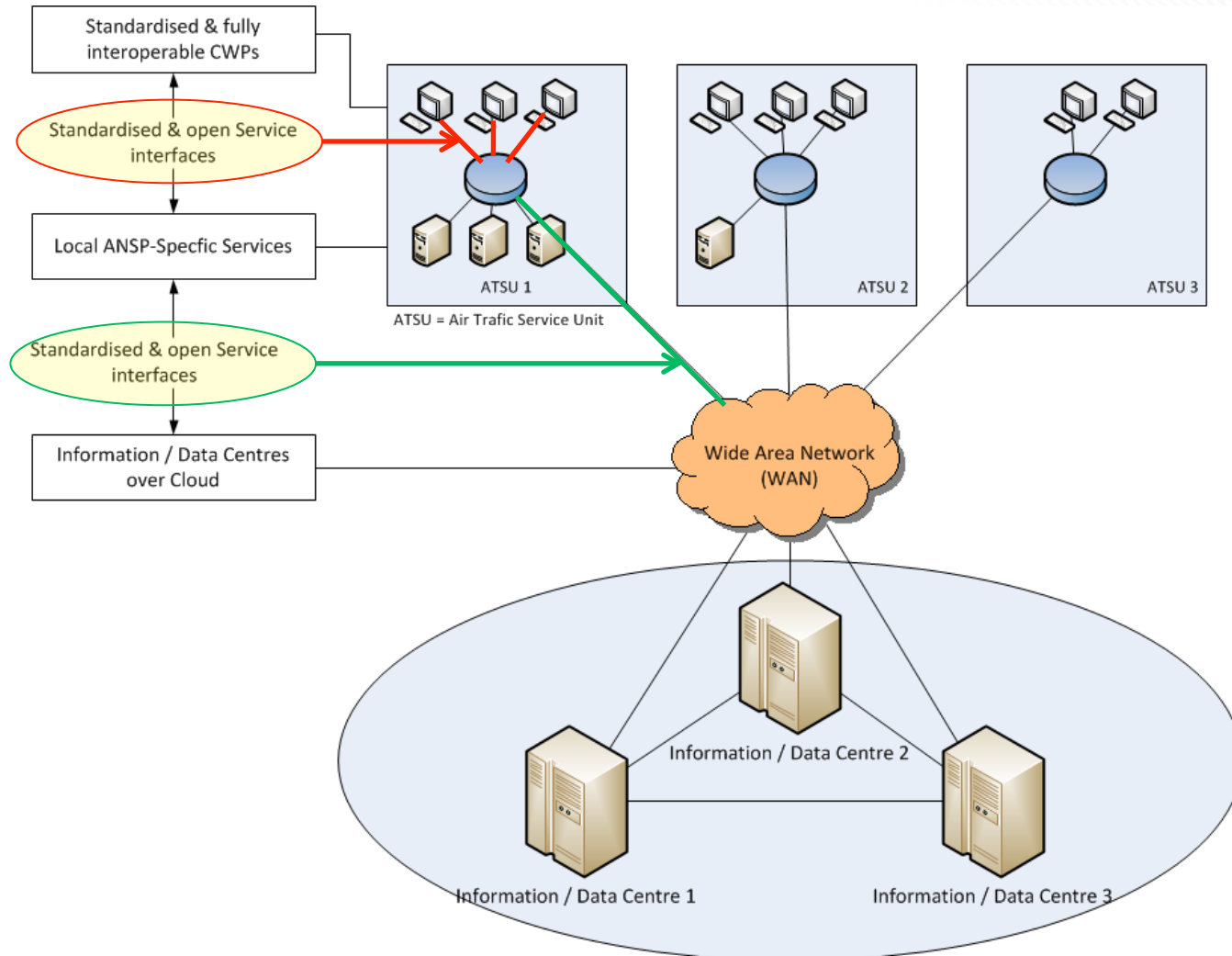


The ATM Business model today (numbers of ACCs source ACE report)

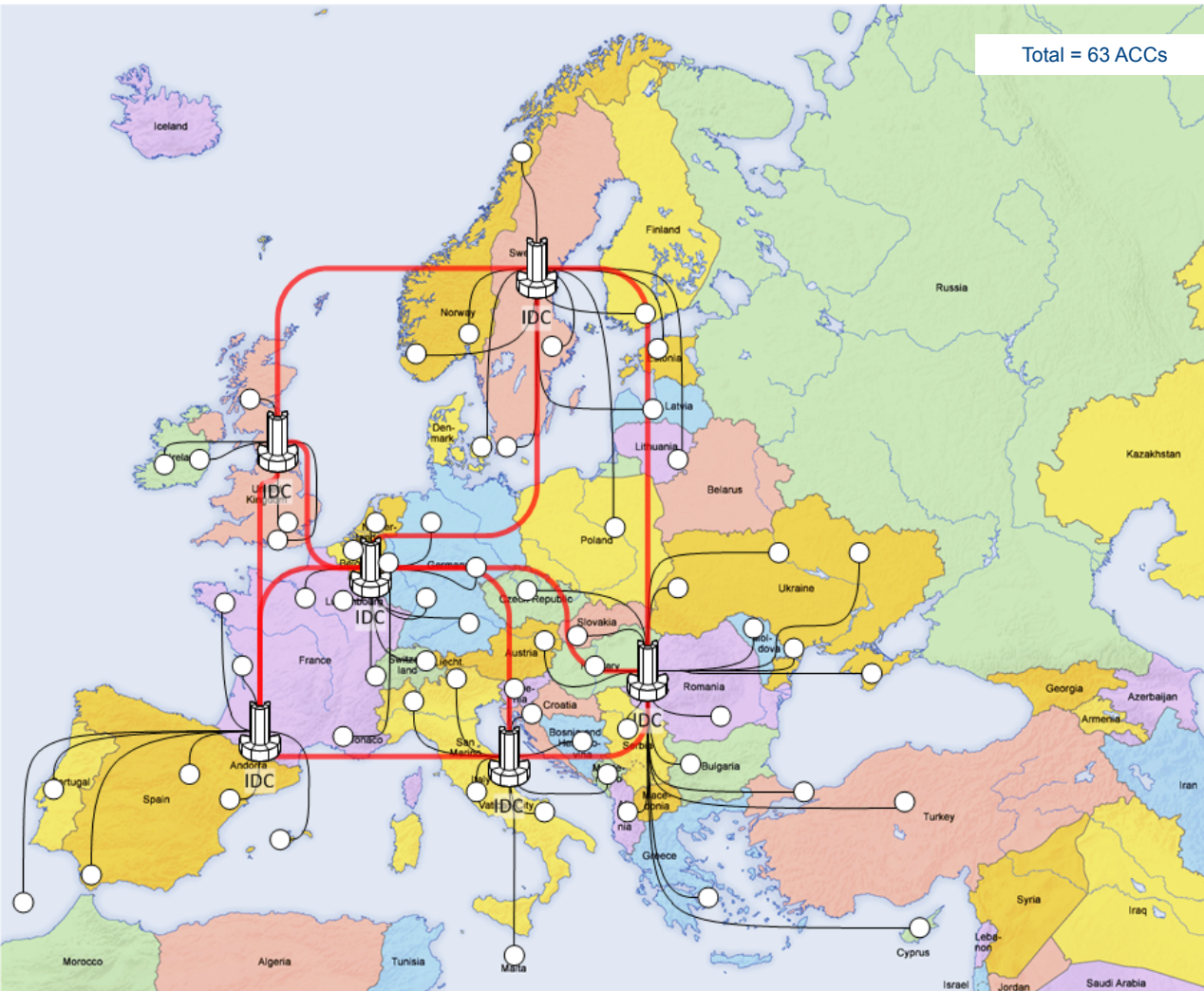


- › 63 Area Control centres
 - 63 Data centres
 - 63 Centres for deployment
 - 63...
- › No data interaction
- › Little previsual operational data available

The virtual centre model (VCM) at a glance



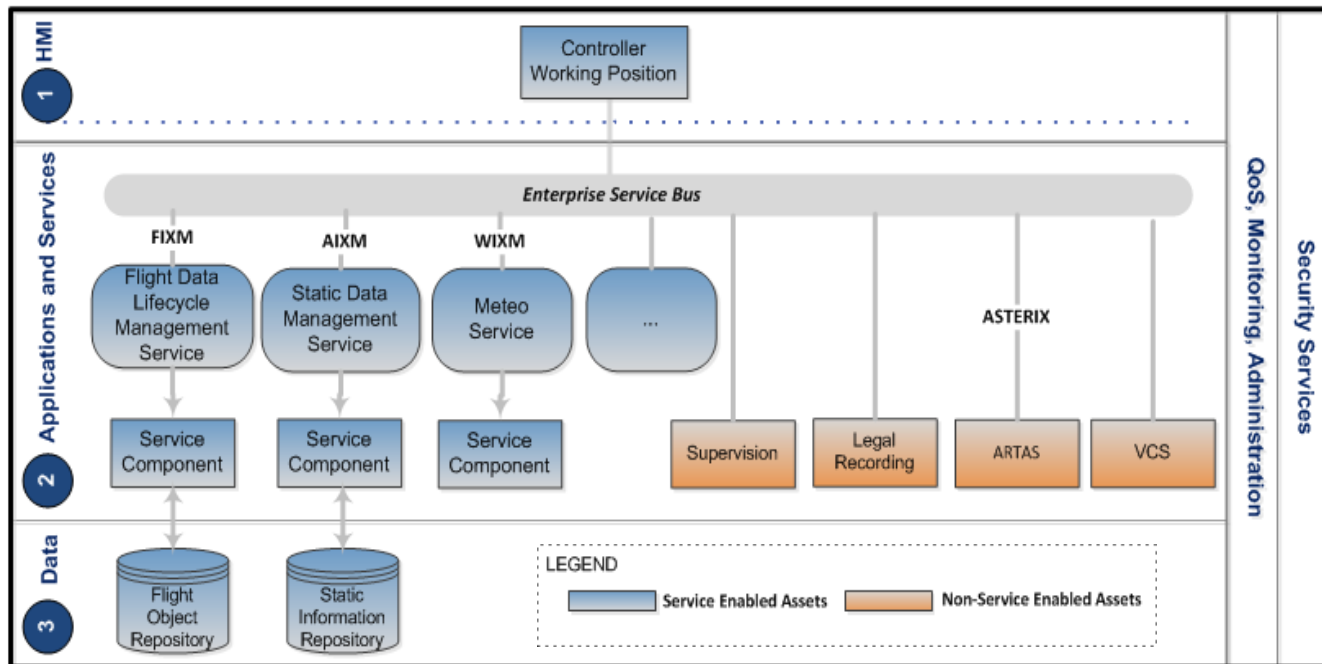
The Virtual Centre Model (example)



- › Potential for 63 **Virtual** Area Control centres
- › Reduced deployment costs
- › Open data interaction (flight objects)
- › Redundancy provided through a SWIM like infrastructure
- › New Business models and increased redundancy

The Virtual Centre Architecture Information System Architecture

- 1 No Tight Coupling:** HMI related capabilities are separated from the back-end business logic. Increase the deployment flexibility that is needed for virtualization.
- 2 No Point-to-Point Integration:** Applications and services are built based on modular components and standard interfaces that are made available via the Enterprise Service Bus.
- 3 No Data Duplication:** Data is maintained in central repositories and exchanged via standard data exchange patterns such as publish-subscribe or request-reply.



System Theory

System Components in the **large sense** are normally the following:

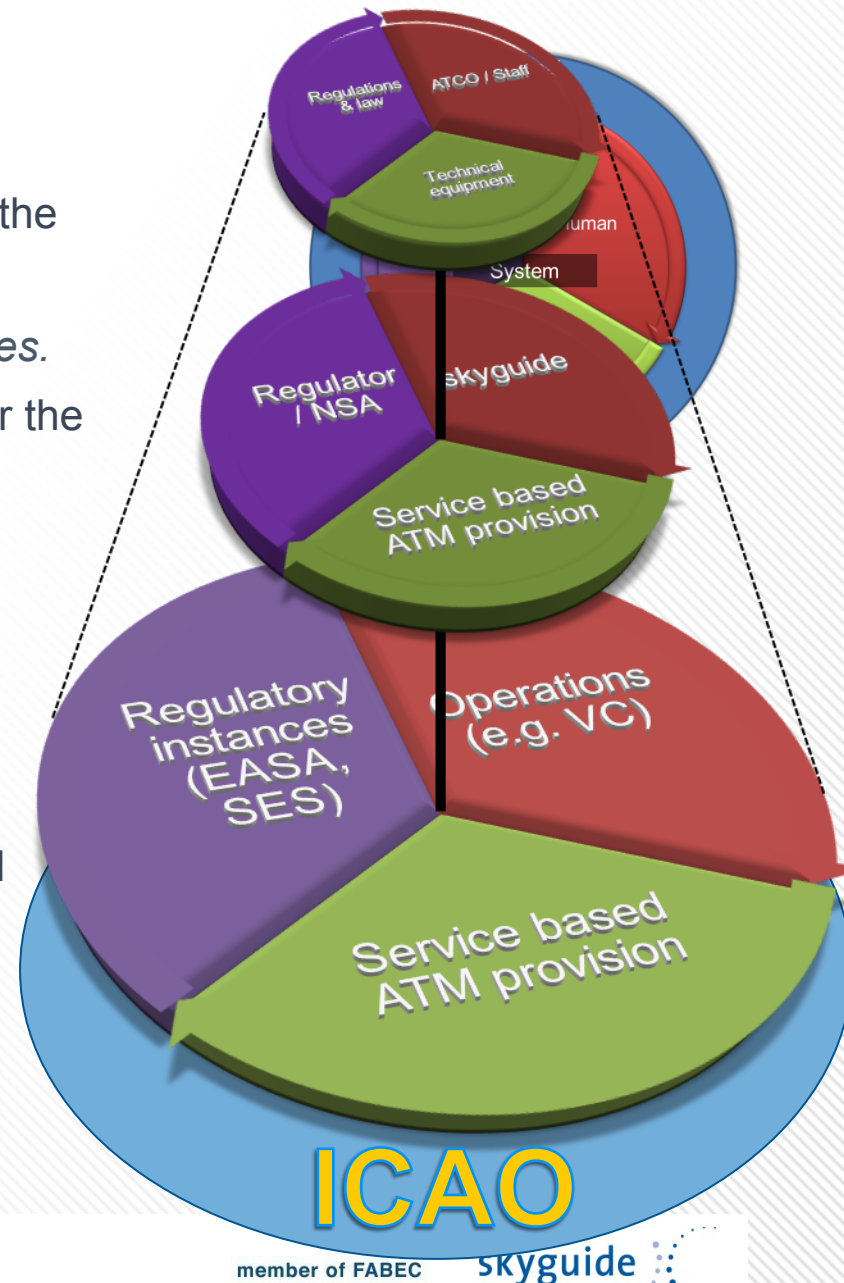
Human – Equipment – Procedures/Processes.

These are considered for the assessment of effects for the implementation of changes.

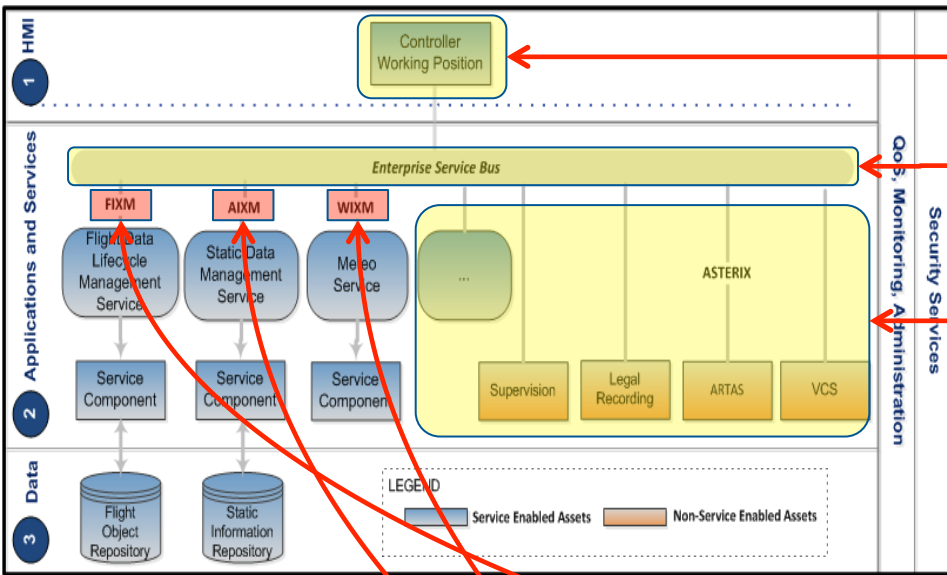
It is possible to extrapolate the system to a corporate, national, European and also Global level.

The ability of attaining one sub-system is **always** dependent on the larger surrounding in which it is placed.

Example: all regulations and laws need to be enforced by the Regulator and the NSA, basing on the input at European level (EASA and/or SES), who in turn should base on ICAO SARPs.



VCM in the GANP



Blocks are missing to define a common interface



INFORMATION MANAGEMENT	BLOCK 0	BLOCK 1	BLOCK 2	BLOCK 3
<i>FLIGHT & FLOW</i>		B1-DATM, B1-FICE	B2-FICE	B3-FICE, B3-TBO
CAPABILITIES		Exchange of Flight Intent before Departure	Right and Flow Coordination	(Initial FF-ICE) 4D Trajectories, Full FF-ICE
ENABLERS			FIXM	
<i>AIS/AIM</i>	B0-DATM	B1-DATM		
CAPABILITIES	AIS-AIM Enhanced quality Paper → Digital data availability	Digital Data exchange & services, shorter update cycles	Electronic Charts, Digital Briefing, In Flight updates	
ENABLERS	eAIP, AIXM			
<i>METEOROLOGY</i>	Traditional alphanumerical codes replaced by digital data, enhanced quality	B1-DATM, B1-AMET		B3-AMET
CAPABILITIES		Digital MET Data exchange & MET information services, In Flight updates		
ENABLERS			WXXM	

Conclusions

- › By creating a "Service Based" ATM environment, we see
 - A potential for economies of scale
 - New emerging business models
 - "*The next step*" in the ATM (*r*)evolution
- › We want to have a systemic approach to the discussion:
 - All partners...
 - Service providers (*Operations*)
 - Equipment providers (*Means / Tools*)
 - Regulation providers (*ICAO, EU, National level*)
 - ...**collaborate** together, *ab initio*, to make this change happen
- › We want to ensure that ICAO, like the EU Institutions take this concept on board and find space in the GANP and planning in the ASBUs