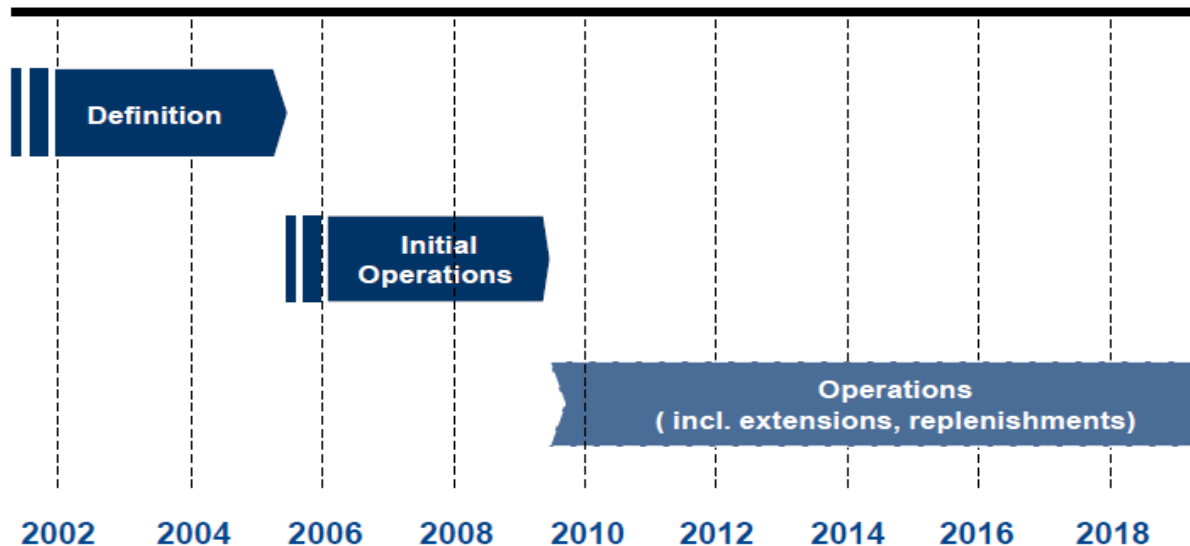


EGNOS STATUS

3rd JUNE 2019



EGNOS DEVELOPMENT/OPERATIONAL TIMELINE



Thales Alenia Space has been the EGNOS Prime Contractor since 1994

EGNOS SERVICE OVERVIEW

Services

2009



EGNOS Open Service (OS)

- Service Declaration: 1st October 2009
- http://www.essp-sas.eu/service_definition_documents
- Agriculture, maritime, road, rail...

2011



EGNOS Safety-of-Life (SoL) Service

- Service Declaration: 2nd March 2011
- http://www.essp-sas.eu/service_definition_documents
- All phases of flight in aviation
- SoL applications in any domain

2012



EGNOS Data Access Service (EDAS)

- EDAS Service provided by ESSP since 2010
- Service Declaration: 26th July 2012
- http://www.essp-sas.eu/service_definition_documents
- Service & system evolutions under development
- Commercial/professional multimodal applications

Markets

Location Based Services

Professional Applications

Road

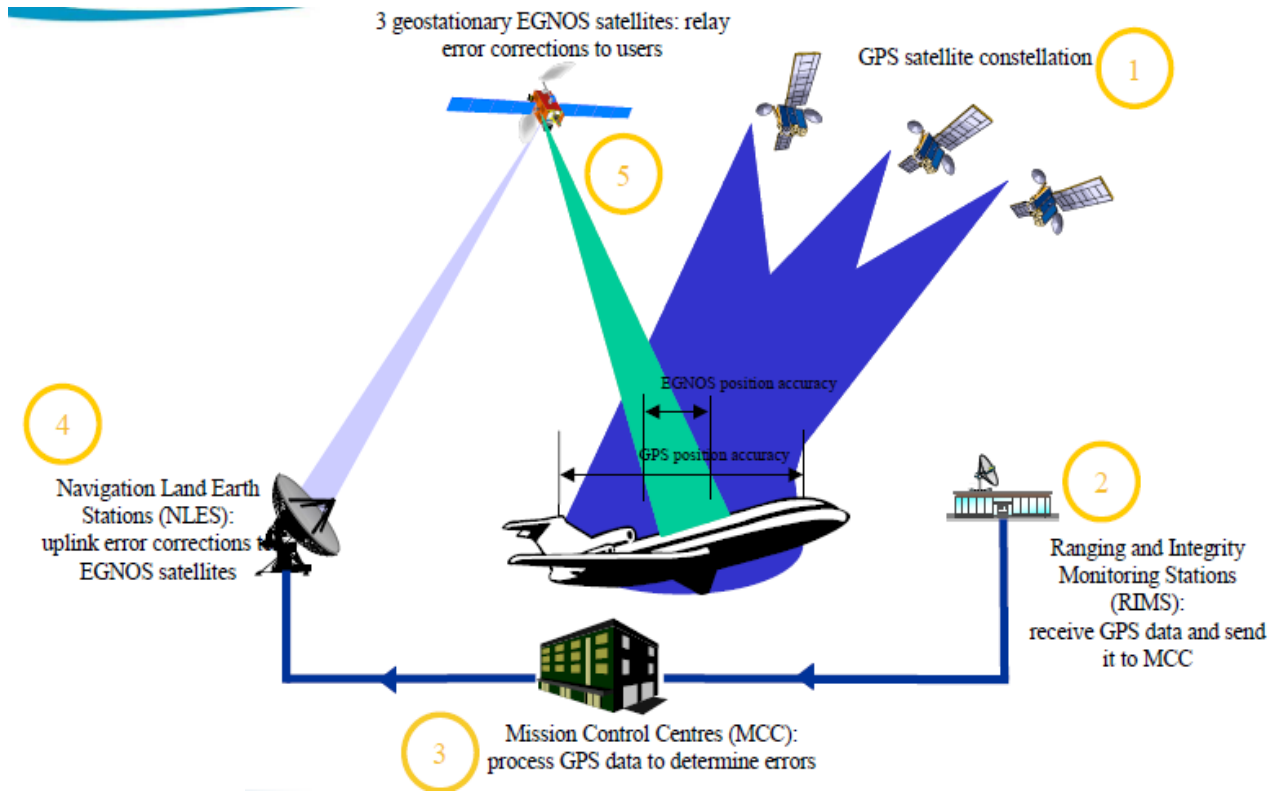
Maritime

Rail




Aviation










GEO Name	PRN Number	Orbital Slot
ASTRA-5B	PRN 123	31.5 E
ASTRA SES-5	PRN 136	5 E
INMARSAT 4F2 EMEA	PRN 126	64 E

EGNOS ARCHITECTURE OVERVIEW

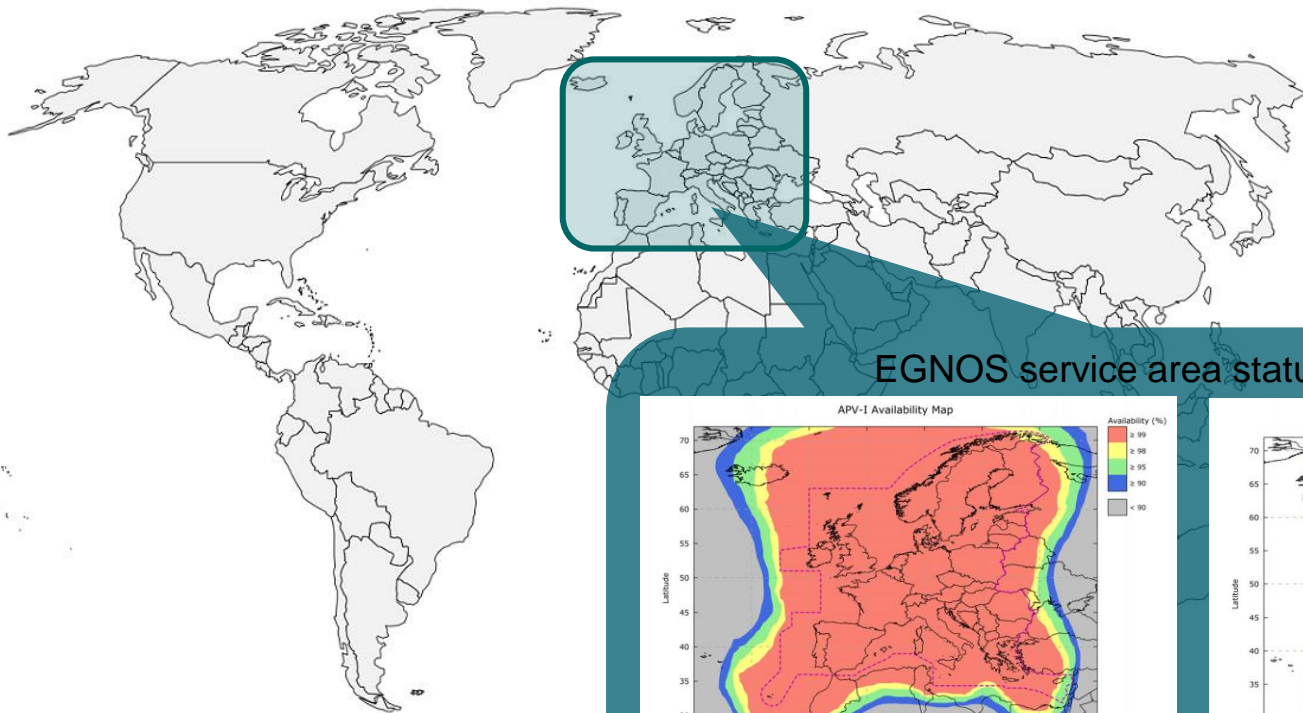


EGNOS DEPLOYMENT STATUS

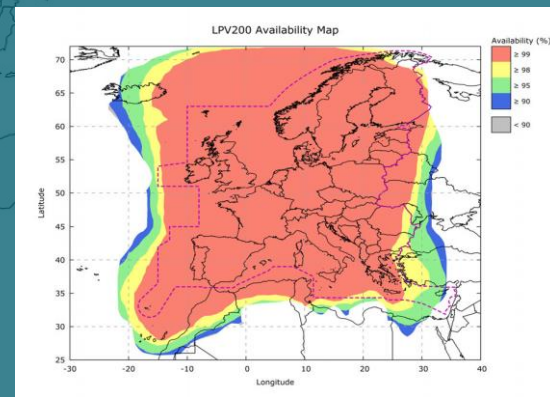
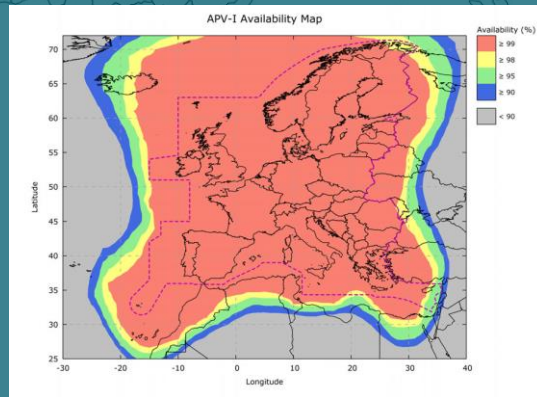
SPACE	SERVICE BROADCAST		TEST / BACK-UP	
	SES-5 PRN-136 	ASTRA-5B PRN-123 	Inmarsat 4F2 PRN-126 	E5WB in development PRN-124

GROUND	SYSTEM RELEASE 2.4.1N-YSR4-PSS1 since February 2019														
		Redu-1 OP		Betzdorf-1 OP		Redu-2 OP		Betzdorf-2 OP		Borum-1 Test		Fucino Test			
	NLES														
	MCC CIAMPINO			MCC TORREJON				SC TORREJON			OCC TOULOUSE				
	CPF + CCF						ASQF				PACF				
	Abu Simbel	Azores Isl.	Agadir	Aalborg	Alexandria	Athens	Berlin	Canaries Isl.	Cork	Catania					
	Djerba	Egilsstadir	Glasgow	Golbasi	Gavle	Hartebeeshoek	Haifa	Jan Mayen	Kirkeness	Kourou					
	Lappeenranta	La Palma	Lisbon	Svalbard	Madeira	Malaga	Moncton	Nouakchott	Paris	Palma de M.					
	Reykjavik	Roma	Santiago de C.	Sofia	Swanwick	Toulouse	Trondheim	Tromso	Warsaw	Zurich					
	RIMS: 39 RIMS in Operations, 1 RIMS in Test														

EGNOS SERVICES AND PERFORMANCE (1/3)



EGNOS service area status (availability)



Source EGNOS SDD

EGNOS SERVICES AND PERFORMANCE (2/3)

		Accuracy		Integrity		Continuity	Availability
		Horizontal Accuracy 95%	Vertical Accuracy 95%	Integrity	Time-To-Alert (TTA)		
Performance	NPA	220 m	N/A	$1 - 1 \times 10^{-7}/h$	Less than 6 seconds	<1 – 1×10^{-3} per hour in most of ECAC <1 – 2.5×10^{-3} per hour in other areas of ECAC	0.999 in all ECAC
	APV-I & LPV200 ¹⁵	3 m^{16}	4 m^{16}	$1 - 2 \times 10^{-7} / \text{approach}$		<1 – 1×10^{-4} per 15 seconds in the core of ECAC $1 - 5 \times 10^{-4}$ per 15 seconds in most of ECAC landmasses	0.99 in most of ECAC landmasses

15. For LPV200, additional requirements are established:

- Probability of having a VNSE greater than 10 meters is lower than 10^{-7} per approach in nominal conditions
- Probability of having a VNSE greater than 15 meters is lower than 10^{-9} per approach in degraded conditions

16. Values committed inside the APV-I & LPV-200 99% availability areas

Source EGNOS SDD

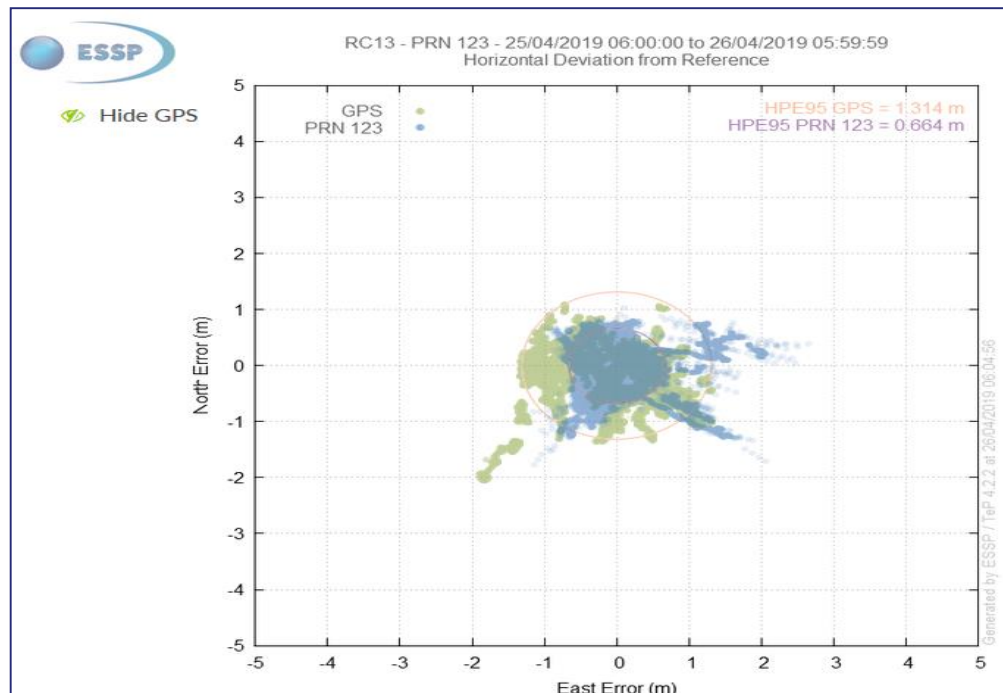
EGNOS SERVICES AND PERFORMANCE (3/3)

/// Open service delivered

! ACCURACY \approx 3 TO 4 m

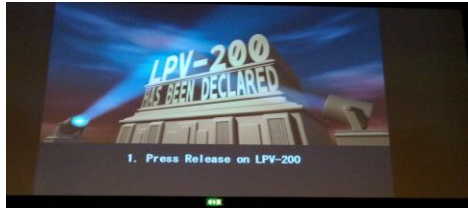
/// Timing service delivered

! SYNCHRONIZATION TO GPS TIME < 10 ns



Source EGNOS SDD

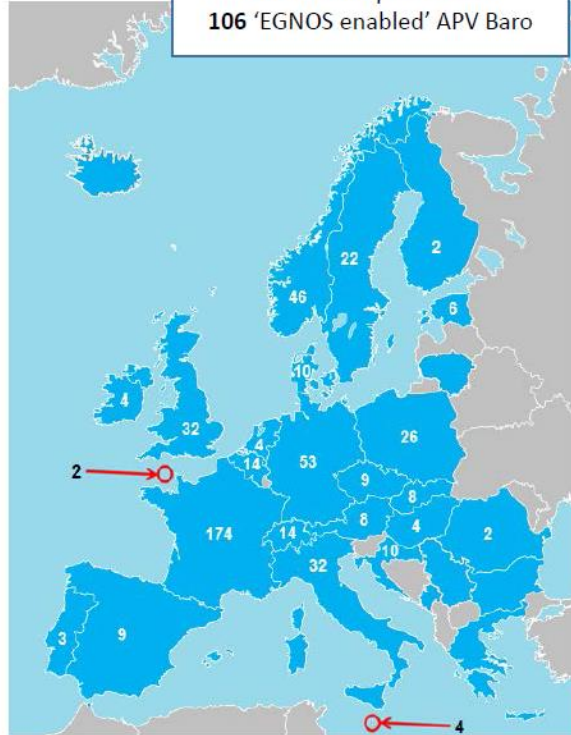
EGNOS USE BY AVIATION



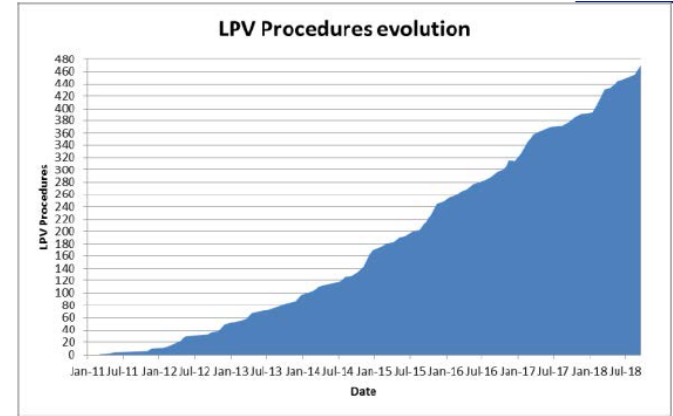
May 2016
 First EGNOS LPV-200
 approach at Paris-
 Charles de Gaulle airport

Feb 2019

331 LPV procedures
 167 LPV200 procedures
 106 'EGNOS enabled' APV Baro



Evolution



Instrument runway ends with LPV procedures:
 1 Feb 2019

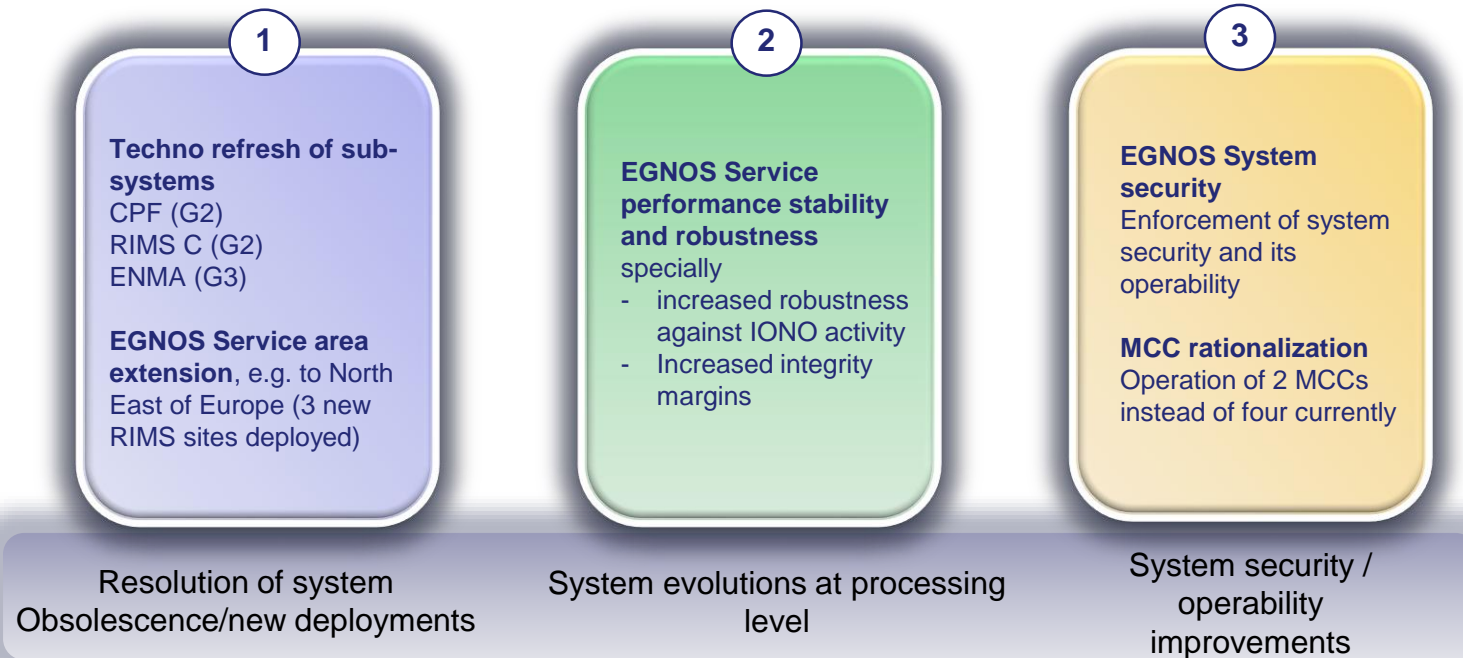
38% (488)

PBN Implementing Regulation 2018/1048 (18 July 2018)

38% (now) → 66% (2020) → 100% (2024)

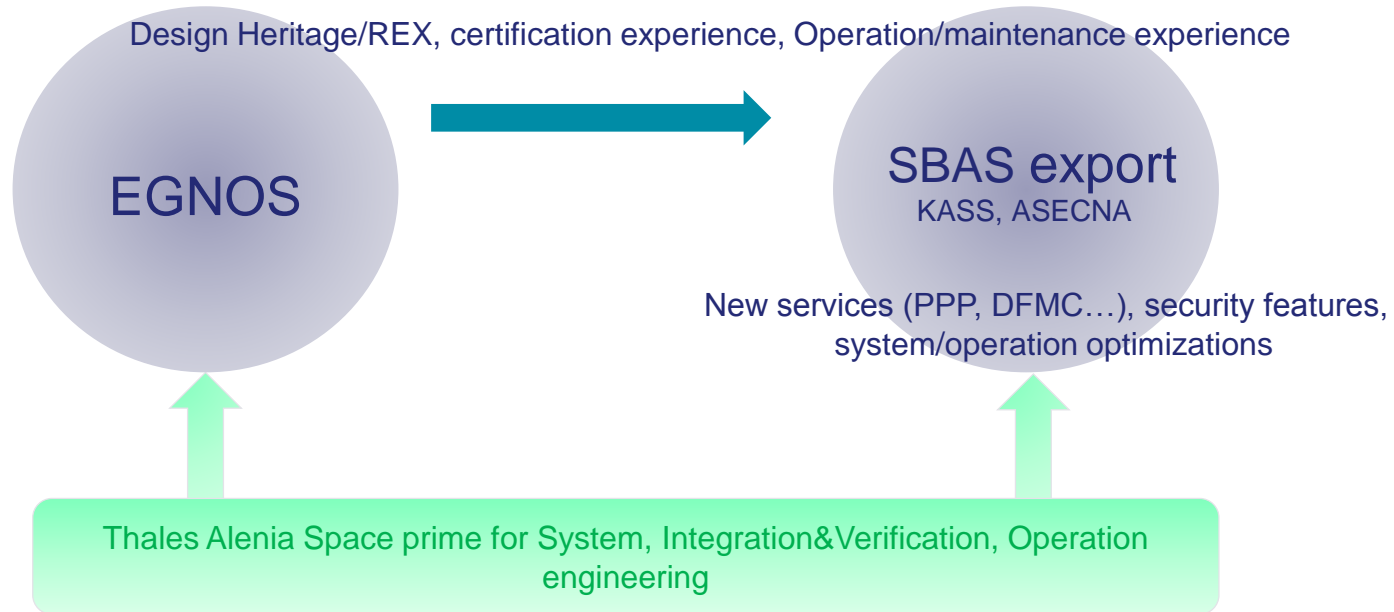


EGNOS EVOLUTION AXIS (SHORT TERM WITH V242A, V242B)



AND NEXT...

/// DEVELOPMENT OF SBAS EXPORT SYSTEM BASED ON EGNOS LEGACY LEADS TO SYNERGIES



EGNOS-SBAS ADDED-VALUE

Sovereignty

- ✓ Autonomous SBAS system
- ✓ Control Centers and Uplink Stations located and operated in Country



Public Investment

- ✓ Optimized public spending for unequipped airport within a large area
- ✓ Enables development of positioning applications through public policies



EGNOS-SBAS solution

Build Together

- ✓ Partnership to co-create your SBAS Solution
- ✓ Local content through transfer of know-how and technology



Scalable and Flexible

- ✓ Services areas to demanding neighboring country
- ✓ Open system architecture



Multi domain solution

- ✓ Compatible with other critical applications: Transport, Land management, Emergency call.



THANK YOU

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