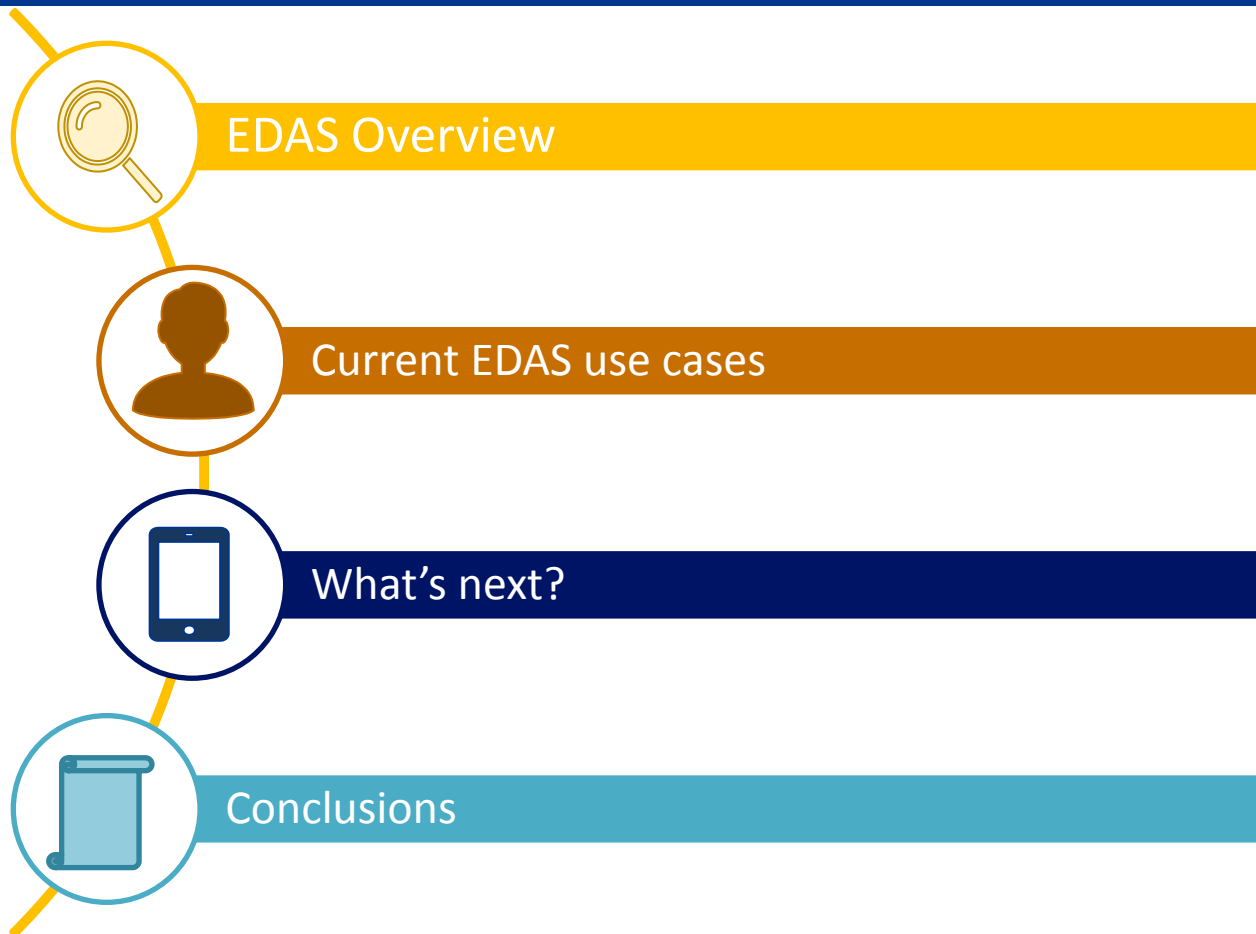


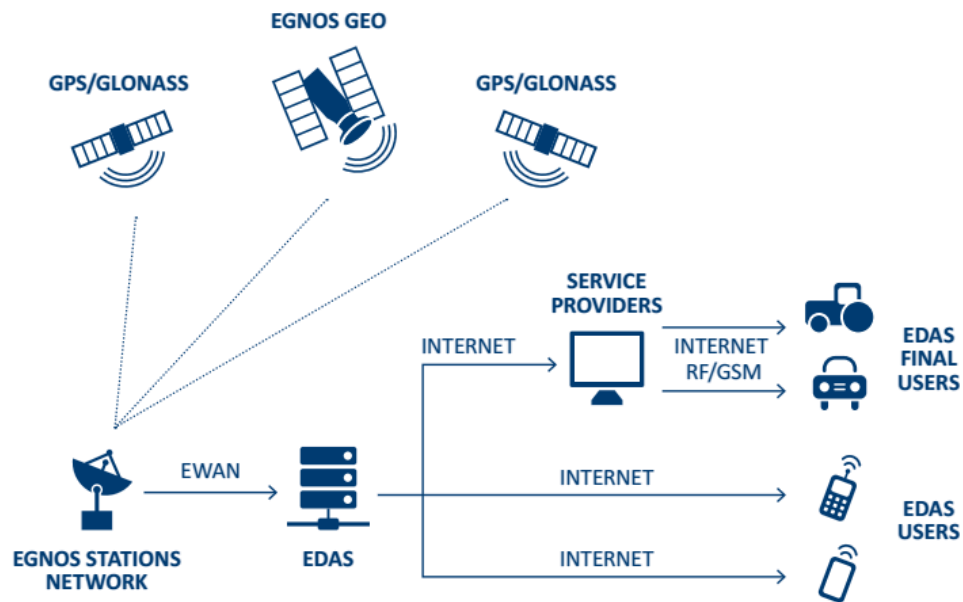
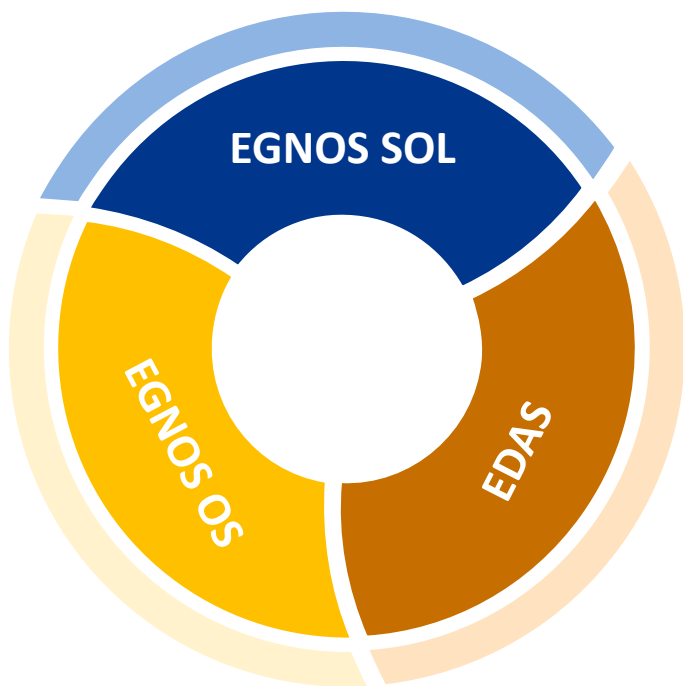


# EDAS for added value applications

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# EDAS Overview



**EDAS** provides **free-of-charge** access to the **GNSS data** generated and gathered by **EGNOS infrastructure** over the internet.

# EDAS Services

	EDAS Service	Type of Data				Service Description	
		OBS & NAV	EGNOS MSG	RTK MSG	DGNSS COR	FORMAT	PROTOCOL
Real Time	Service Level 0						
	Data Filtering SL0	×	×			ASN.1	EDAS
	Service Level 2						
	Data Filtering SL2	×	×			RTCM3.1	EDAS
	SISNET		×			RTCA	SISNet
	Ntrip	×		×	×	RTCM 2.x RTCM 3.1	Ntrip (v1, v2)
Archive	FTP	×	×			RINEX, EMS, IONEX...	FTP

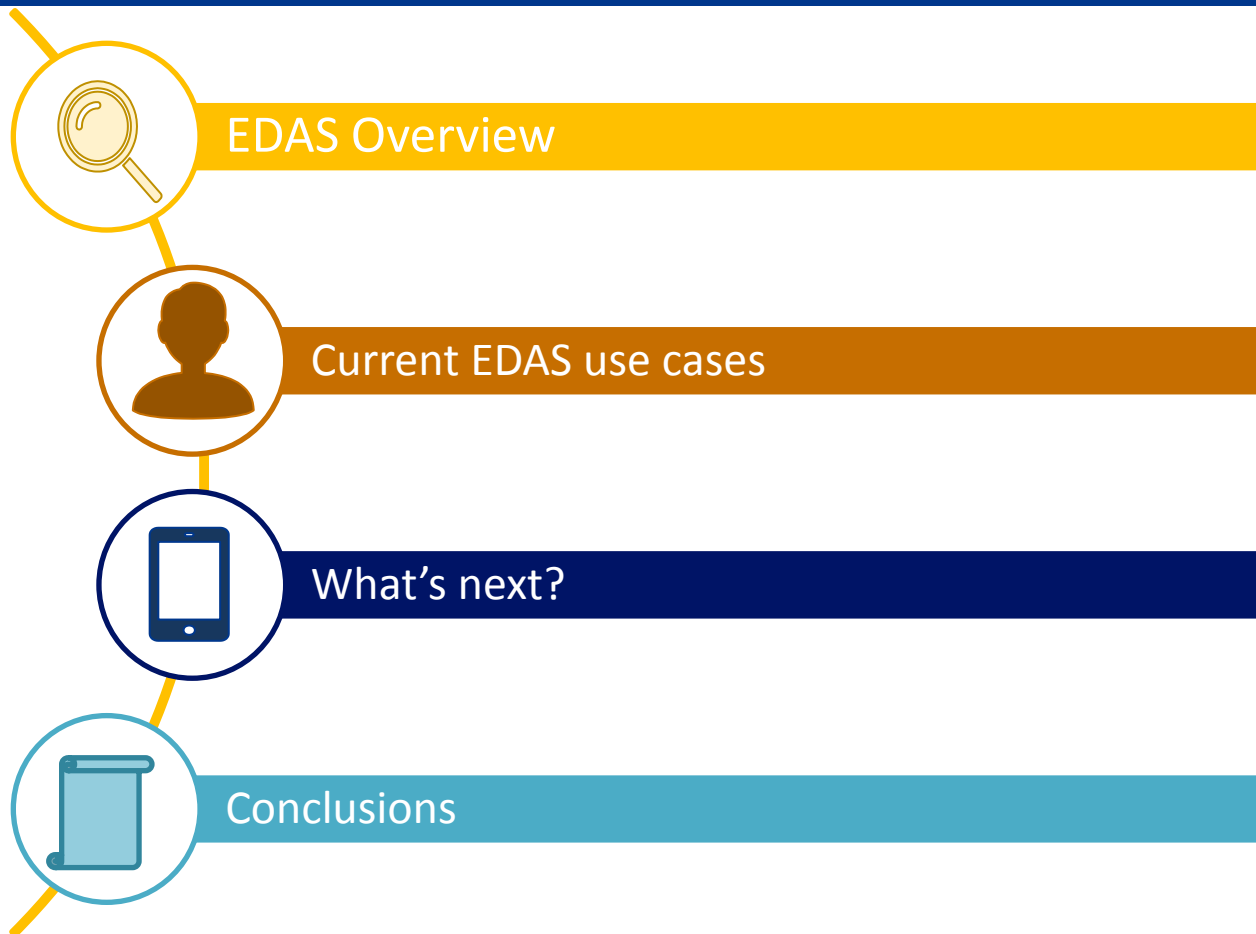
EGNOS Message consolidated from all RIMS → Robustness

Other position techniques enabled by EDAS → DGNSS, RTK

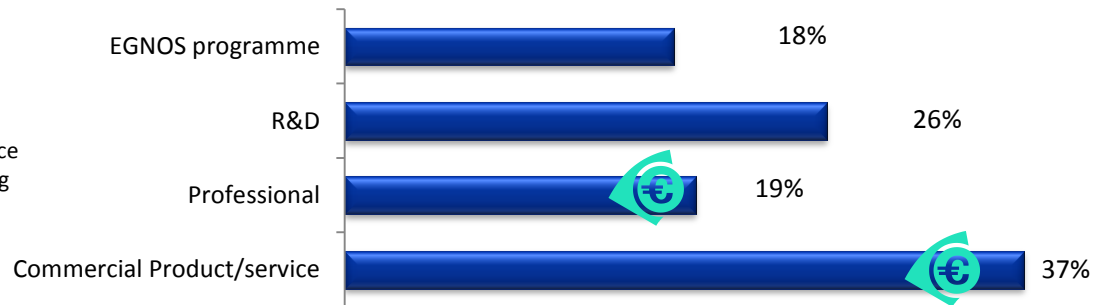
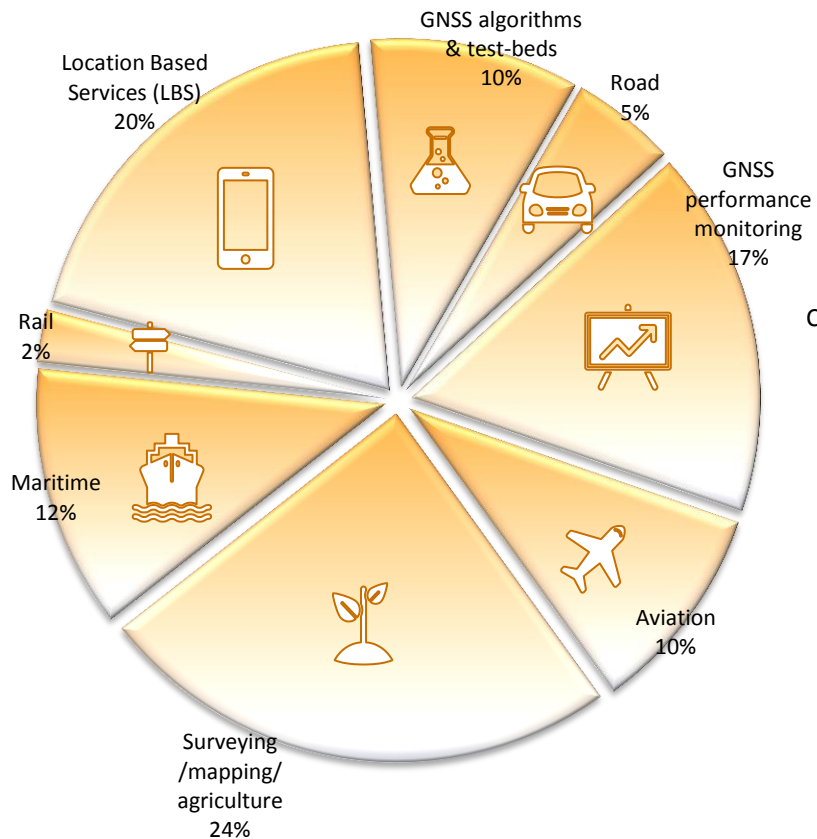
EDAS Proprietary protocol based on SSL → Enhanced Security

Ephemeris and EGNOS Messages request → TTFF (A-GNSS)

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# EDAS Users/Service Providers



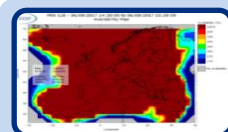
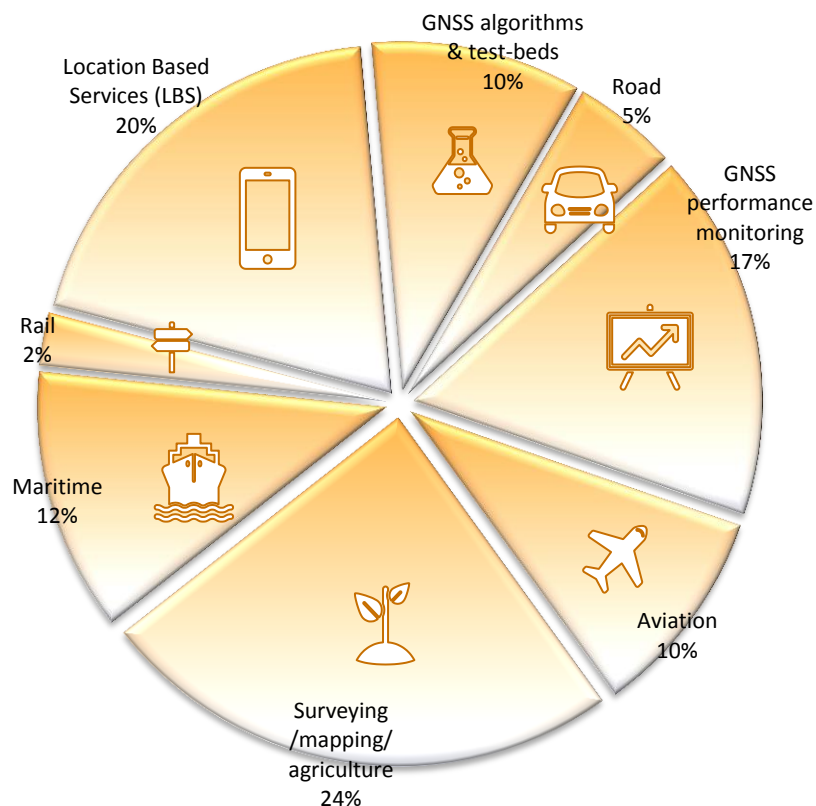
> 50% of active users are **Commercial/Professional**



EDAS end users > 25,000

*\*Statistics refer to direct EDAS users or service/application providers (end users not included)*

# Commercial & Professional EDAS use cases



GNSS Performance Monitoring & Testbeds



Tracking of assets/fleet management



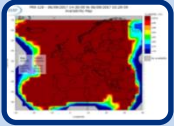
Maritime navigation services



Improved accuracy for professional applications

*\*Numbers refer to direct EDAS users or service/application providers (end users not included)*

# Commercial & Professional EDAS use cases



## GNSS Performance Monitoring & Testbeds

- Real-time and historical GNSS data.
- Multiple formats/protocols supported.
- Access to additional GNSS real-time inputs.



Use of EDAS for professional performance monitoring through available COTS SW



## Tracking of assets/fleet management

- Continuous access to EGNOS message.
- Reduction of Time-To-First-Fix (TTFF).
- Increased confidence.
- Homogeneous augmented solution.

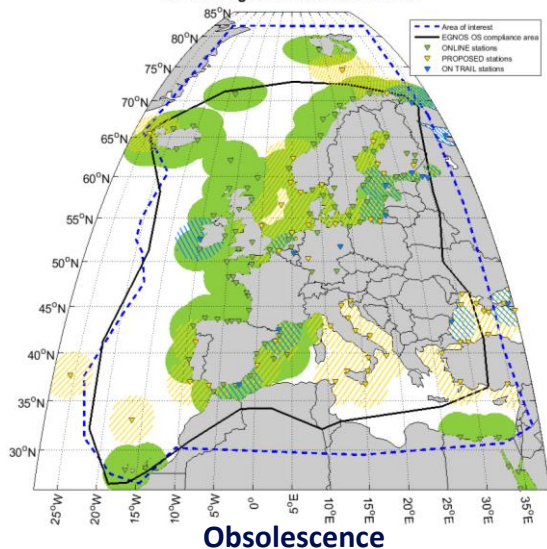


Fleet management solutions supported by EDAS



# Maritime navigation services (I)

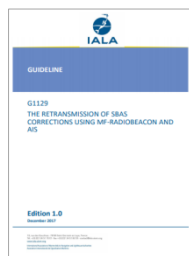
RF Coverage of IALA Radio Beacons



Few Manufacturers

High Costs (OPEX & CAPEX)

*\*Situation is country specific*



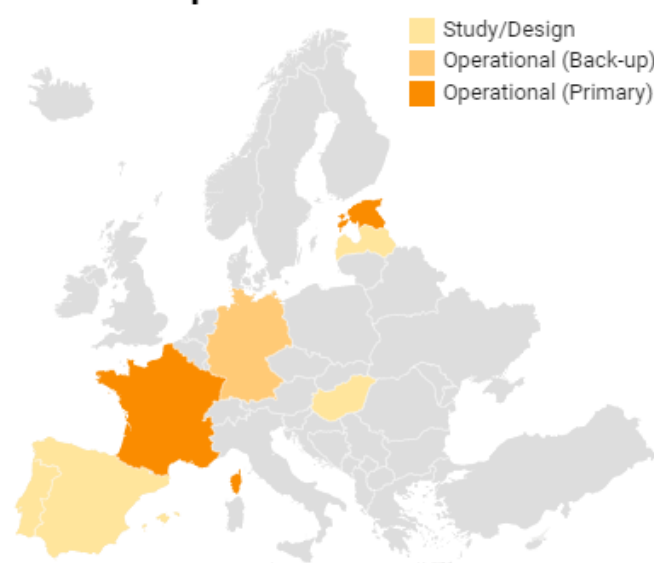
**Option 1: EGNOS-based  
Virtual Reference Stations**



**Option 2: EDAS DGPS  
Corrections**

- ✓ Spoofing and jamming resilience
- ✓ Flexibility and scalability
- ✓ Transparent for users.
- ✓ Reduced infrastructure (→CAPEX/OPEX)

Implementation status



User Need\*

Design & Feasibility

Implementation

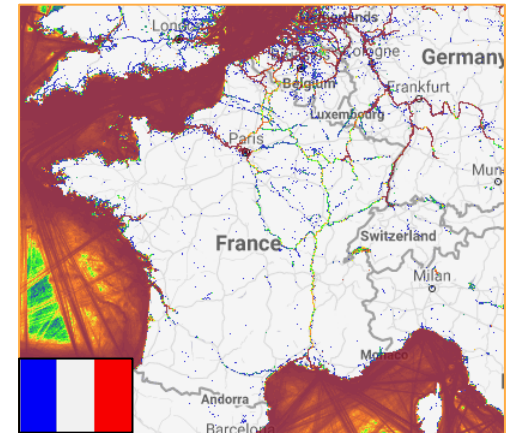
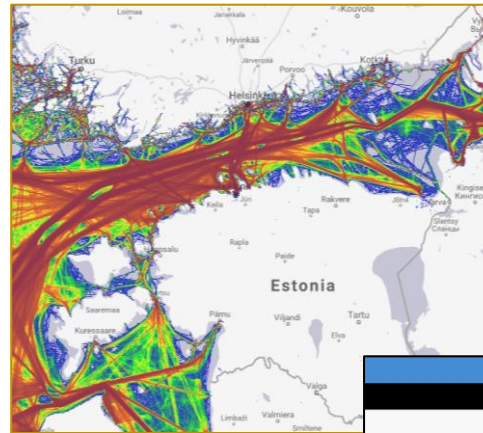
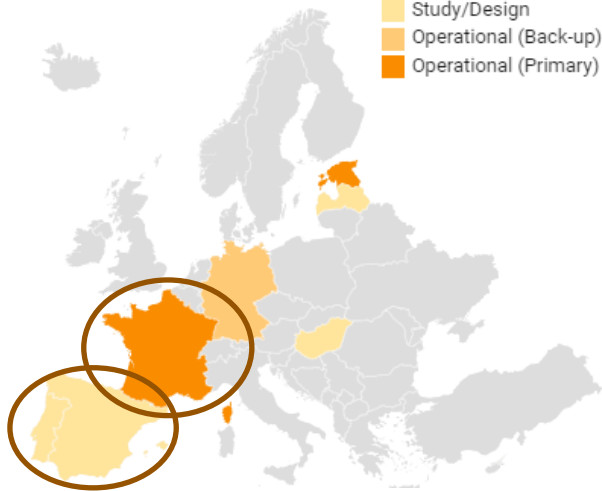


# Maritime navigation services (II)

## Maritime navigation in high traffic density areas powered by EDAS

### Implementation status

- Study/Design
- Operational (Back-up)
- Operational (Primary)



Source: <https://www.marinetraffic.com/>.

*Presentations coming next...*

Implementation

# Improved accuracy for professional applications (I)

## SBAS solution

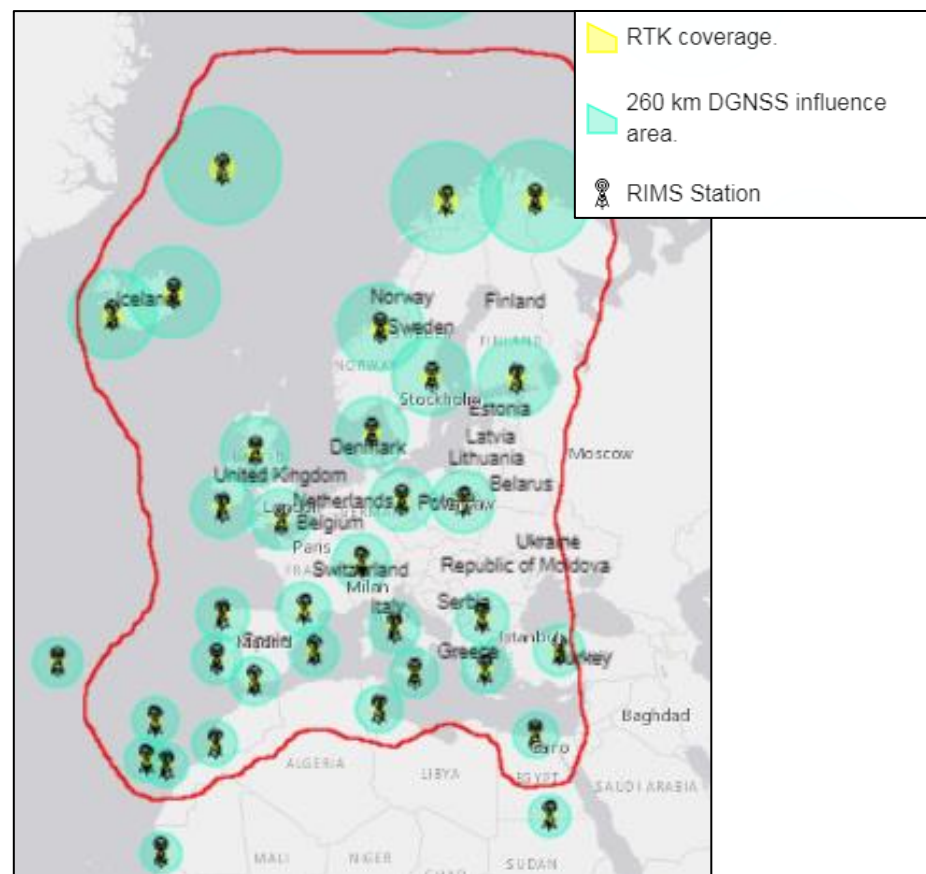
- Consolidated EGNOS corrections in real-time
- Expected accuracy level: 1m (horizontal, 95%)
- Coverage: ~ Europe (**EGNOS OS**)

## DGNSS solution

- DGNSS corrections provided for all EGNOS stations in real-time
- Expected accuracy level: 0.5m-1m (horizontal, 95%)
- Coverage: ~ up to 260 km from EGNOS station

## RTK solution

- L1/L2 GPS Code&Phase measurements provided for all EGNOS stations in real-time
- Expected accuracy level: < 0.1m (horizontal, 95%)
- Coverage: ~ up to 50 km from EGNOS station



# Improved accuracy for professional applications (II) - Agriculture

## PASS-TO-PASS

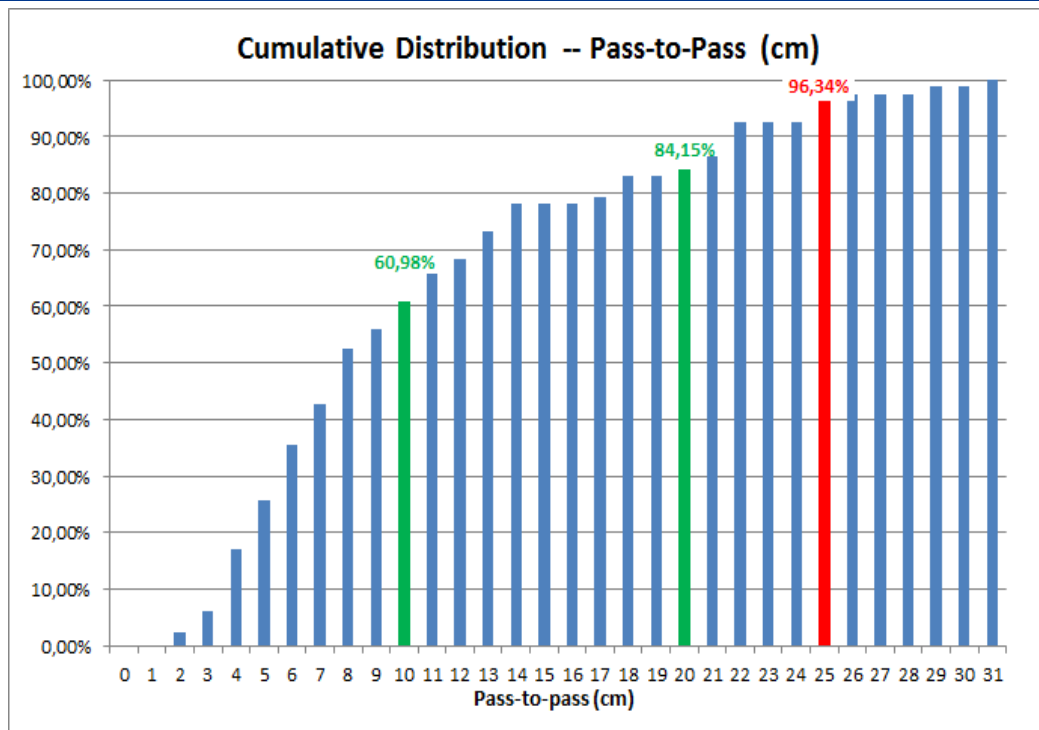


## EDAS DGPS corrections (EDAS Ntrip service)





# Improved accuracy for professional applications (III) - Agriculture

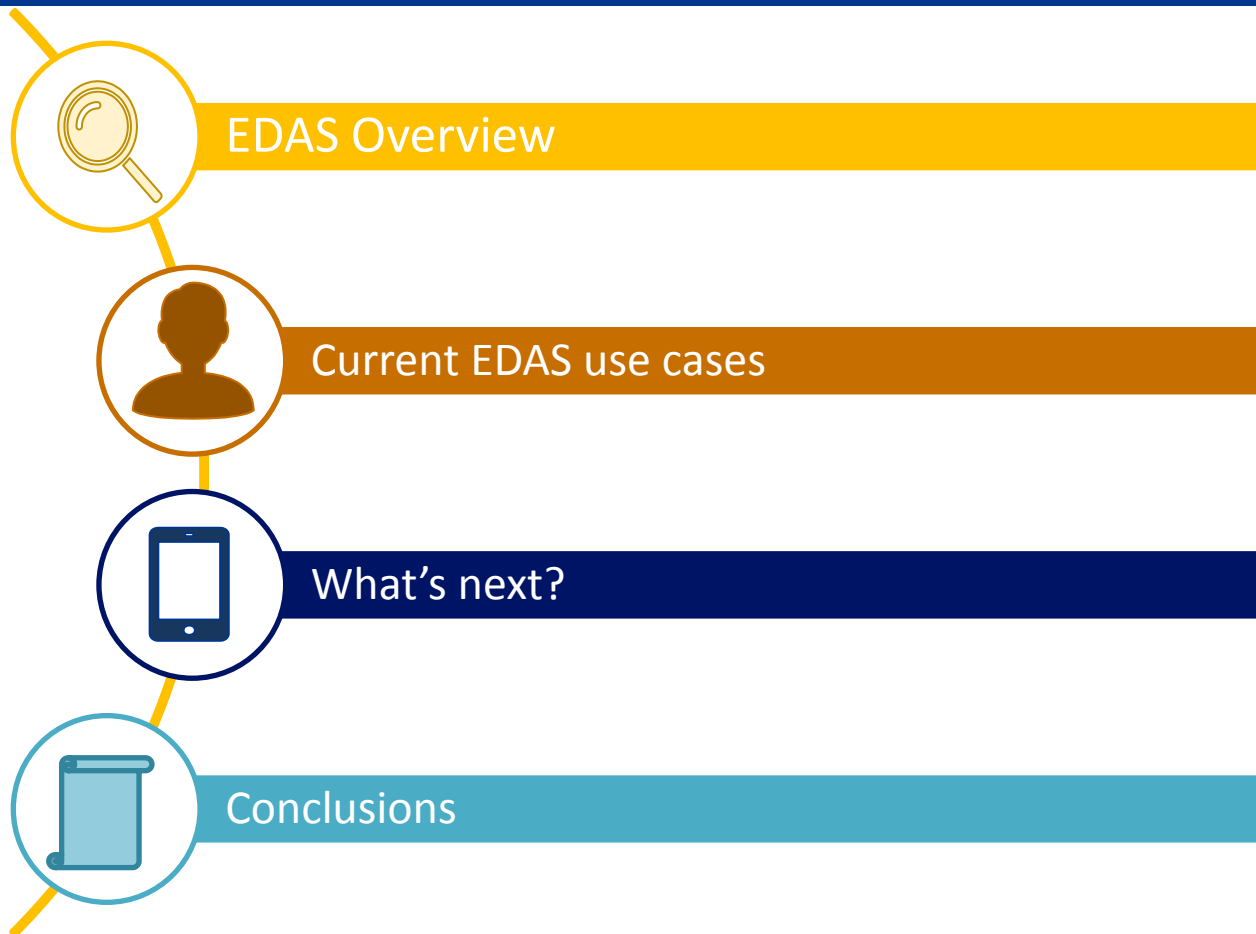


*More information:*

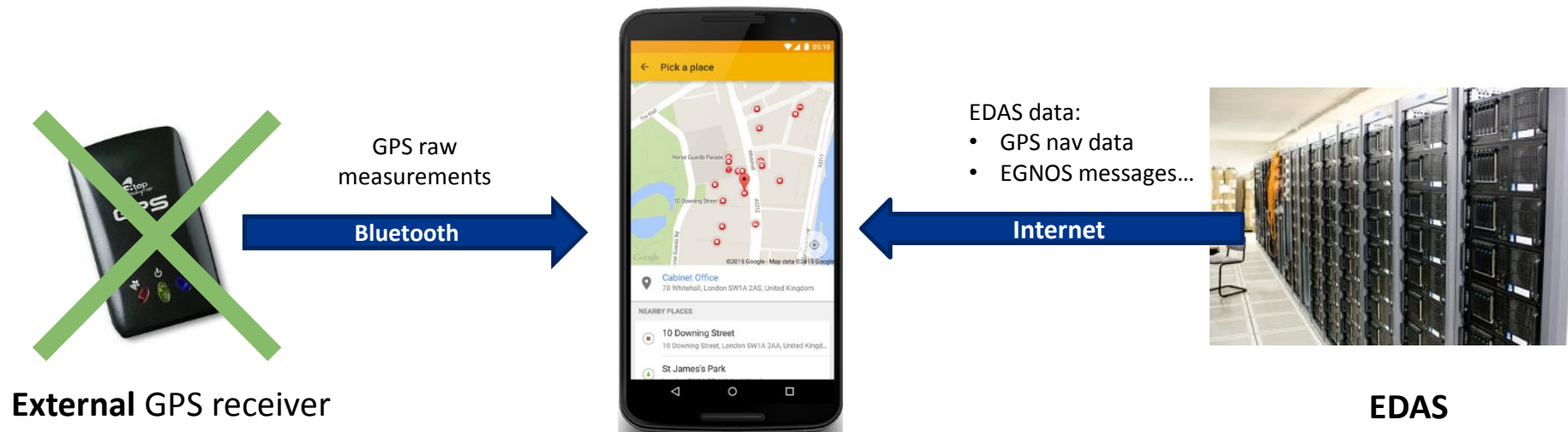
**ION GNSS+ 2018**  
The World's Largest Technical Meeting and Showcase of GNSS Technology, Products and Services

**GPS WORLD**  
GNSS POSITION NAVIGATION TIMING

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# EDAS in tablets and smartphones (I)

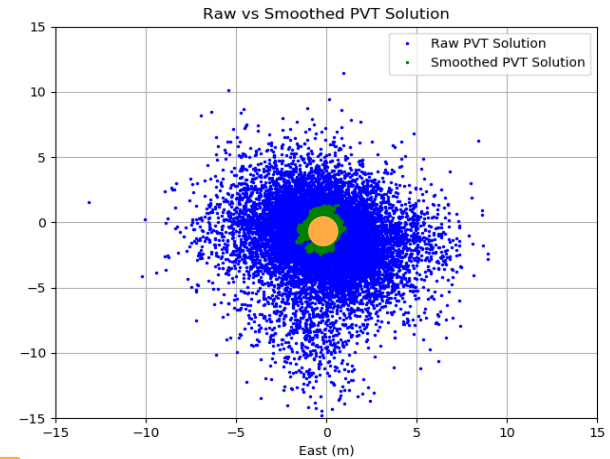
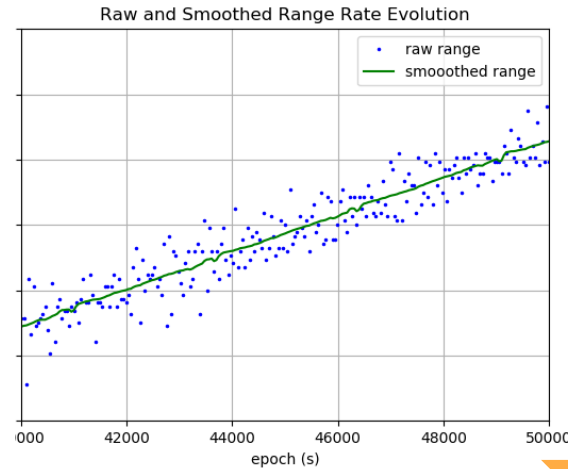
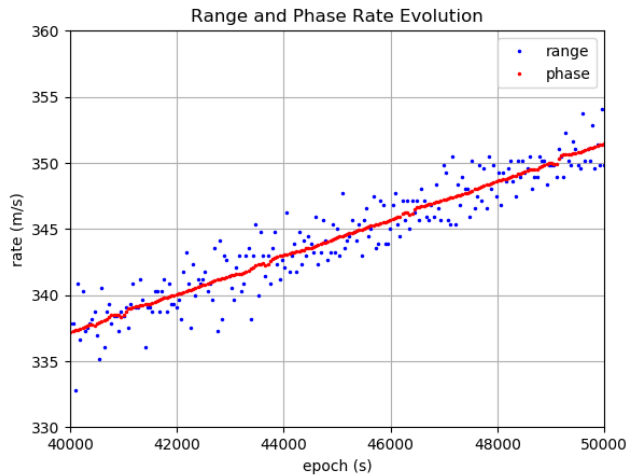


Since Android 7 (Nougat), access to the satellite pseudo-ranges received by the embedded smartphone receiver is available at application level.

## Potential EDAS Benefits:

- Accuracy improvement vs standalone solution.
  - Reduction of Time-To-First-Fix (TTFF).
- Increased reliability of the positioning solution.

# EDAS in tablets and smartphones (II)



Raw measurements  
computation

Measurements smoothing

PVT solution



Can we further improve performance with  
EDAS corrections (EGNOS or DGPS)?

*\*Static test done in Madrid (Spain) in clear sky conditions, using a Xiaomi Mi 8 (Android 9.0)*




# EDAS contribution to High accuracy services

## Benefits


- Increased network density in Europe.
- Network coverage extension.
- Additional GNSS data for better error modelling/estimation.
- Consolidated navigation data stream.





### TruePoint.io

empower your location services

a location services   
enabling platform by networks

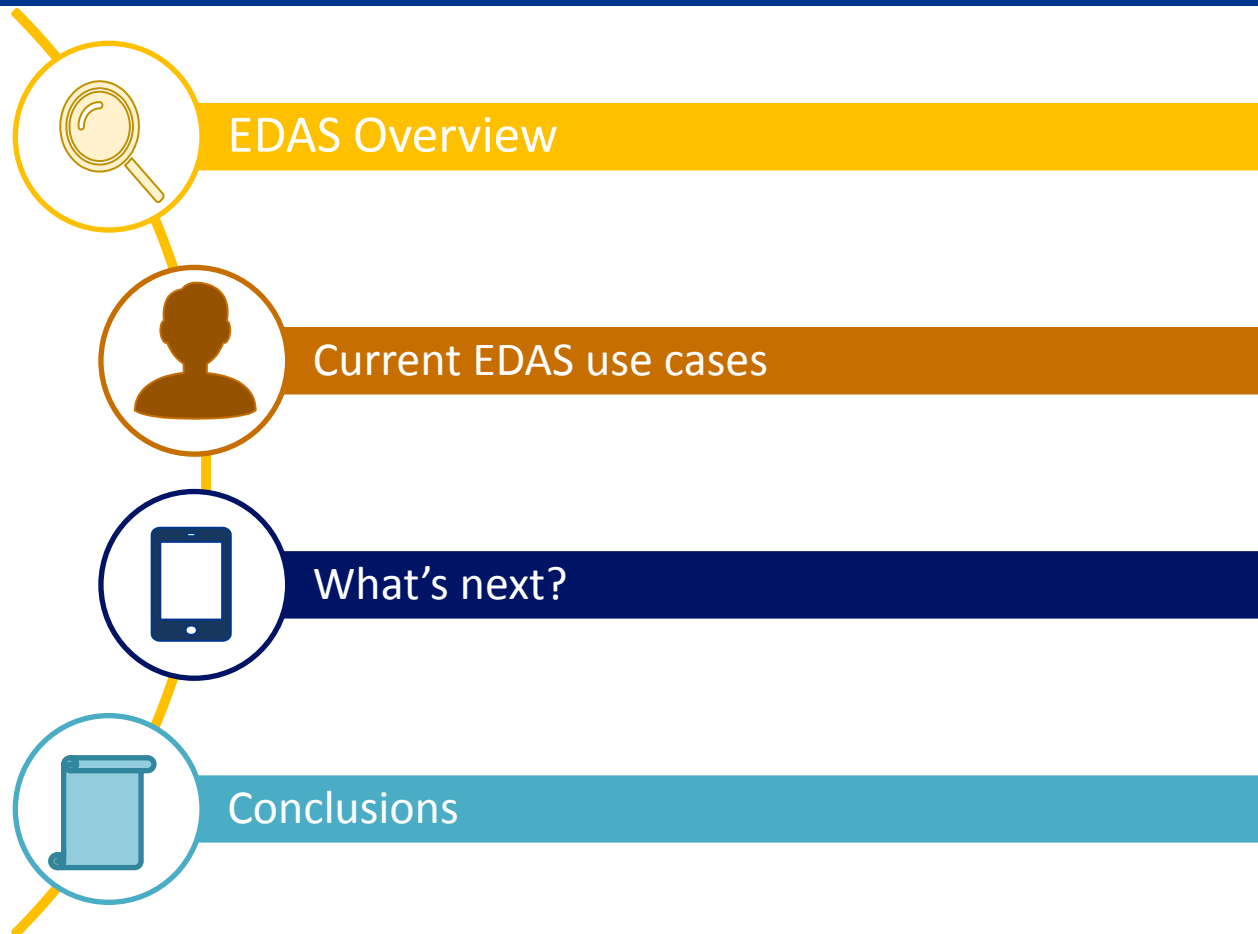
#### High Accuracy Assistance Service

### Overview

**TruePoint.io** is a high accuracy assistance service consisting of **precise orbits, clocks, ionospheric and tropospheric corrections** for decimeter accuracy for **mass-market applications in open standard formats** via Rx Networks' infrastructure **supporting over a billion devices**.

COMMERCIAL LAUNCH  
2019

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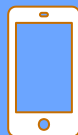
# Conclusions

EDAS supports users or Service Providers in a wide range of applications.



More than 50% of current operational use cases correspond to the commercial and professional domains.

Promising initiatives under development to open new markets.



In case EDAS still does not fulfil your needs, please contact us...



# Thank you!



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