Service Quality Monitoring
Working group status

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EUPOS
European Position Determination System

8th EUPOS Council and Technical Meeting

November 15-16 2022, Ljubljana, Slovenia
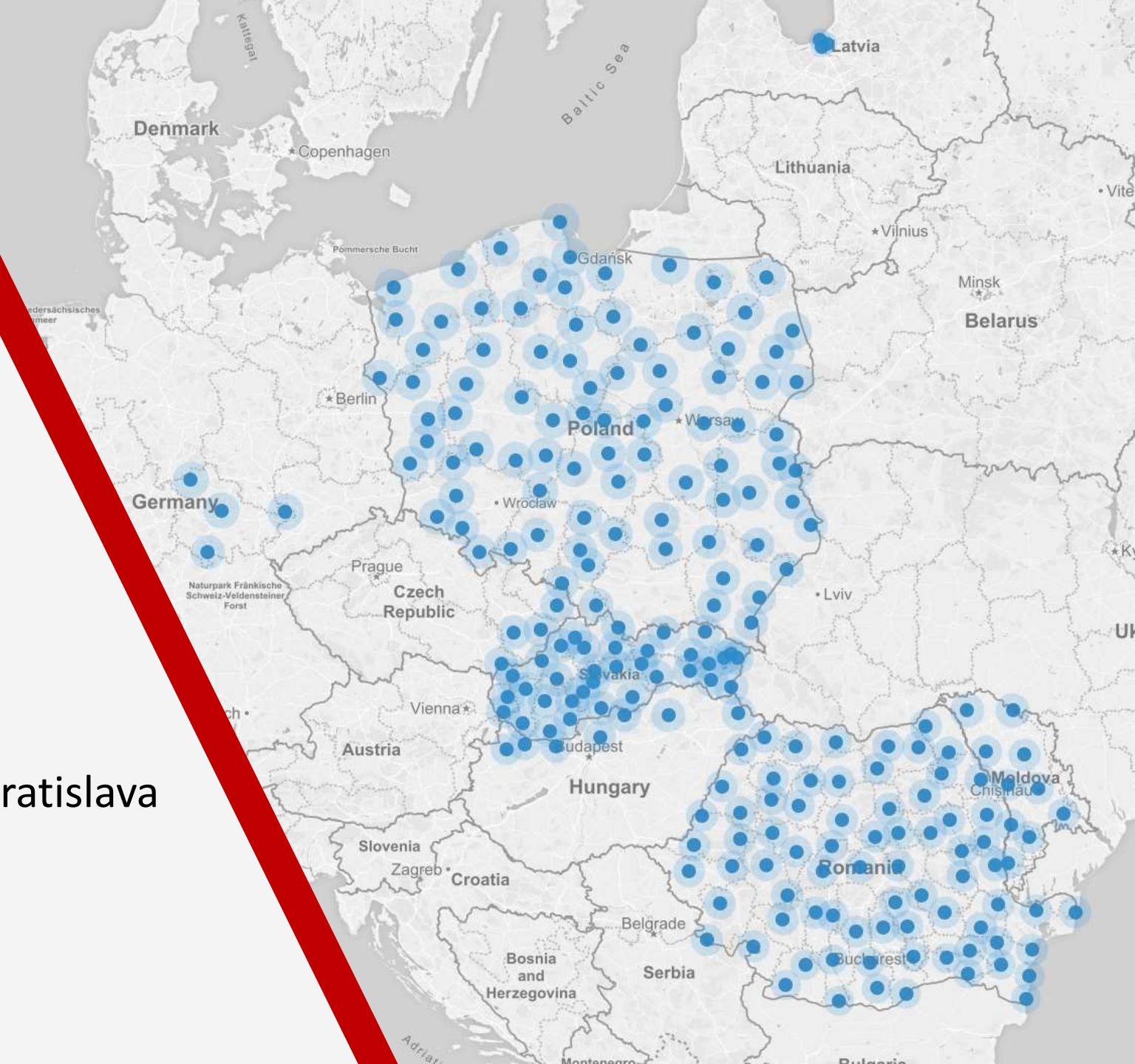
How we can monitor Network RTK quality?

CORS

Virtual reference station

EUPOS Service Quality Monitoring

Monitoring by physical monitoring stations

👍 real values of deviations

👎 higher costs

👎 the inability to monitor the entire network
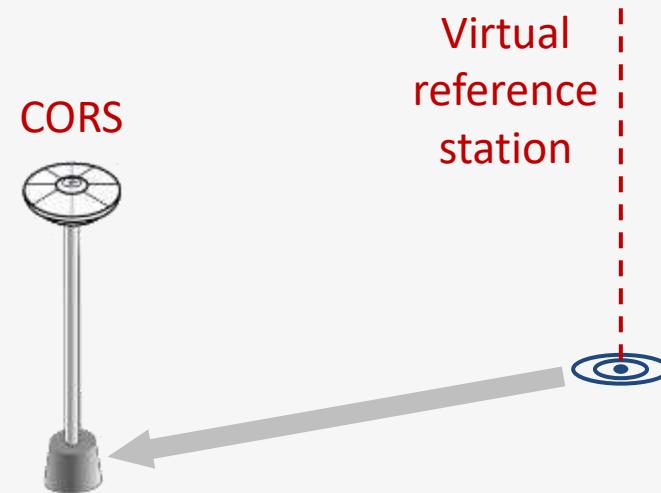
Monitoring by Virtual stations ✔

👍 no physical monitoring stations

👍 lower costs

👍 monitoring of the entire network

👎 virtual principle ≠ real deviation

Virtual solution vs physical monitoring station

- Results from 2 years

	ne (cm)	u (cm)
Virtual solution	0.9	1.5
Physical station	1.0	1.2

Physical monitoring station AGOA
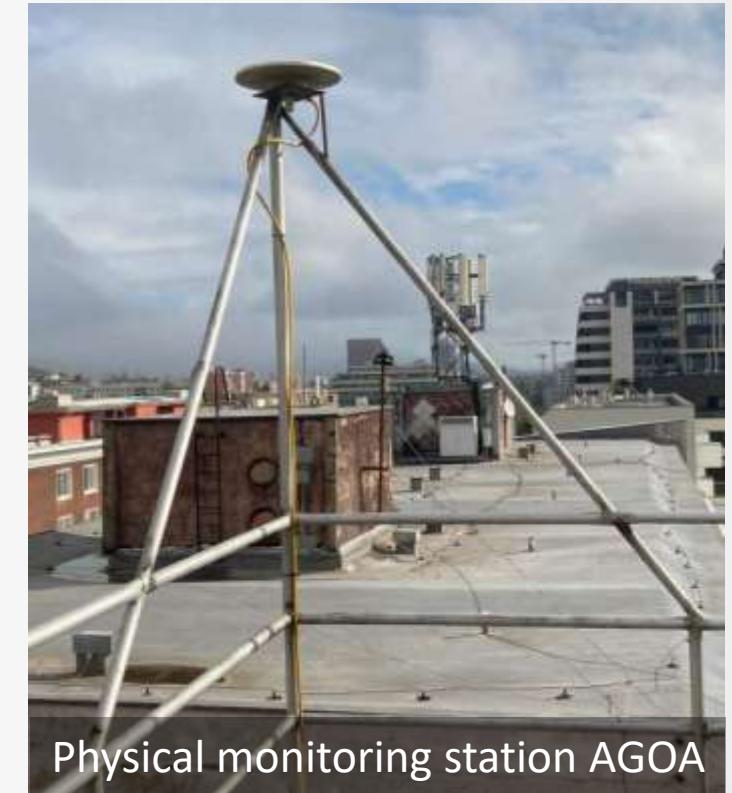
EUPOS WG on Service Quality Monitoring

- **Working group members**
  - Karol Smolík (Slovakia) - chair
  - Branislav Droščák (Slovakia)

- **WG cooperators**   No new member
  - Szymon Wajda (Poland) – ASG-EUPOS
  - István Galambos (Hungary) – gnssnet.hu
  - Vlad Sorta, Miluta Flueras, Victor Crasnopolschi (Romania) – ROMPOS
  - Christian Trautvetter (Germany) – SAPOS
  - Rolands Pinta (Latvia) – EUPOS-RIGA
  - Alexandr Mihailov (Moldova) – MOLDPOS
  - Jan Řezníček (Czech Republic) – CZEPOS

EUPOS member country
EUPOS member country incorporated into Service Quality Monitoring
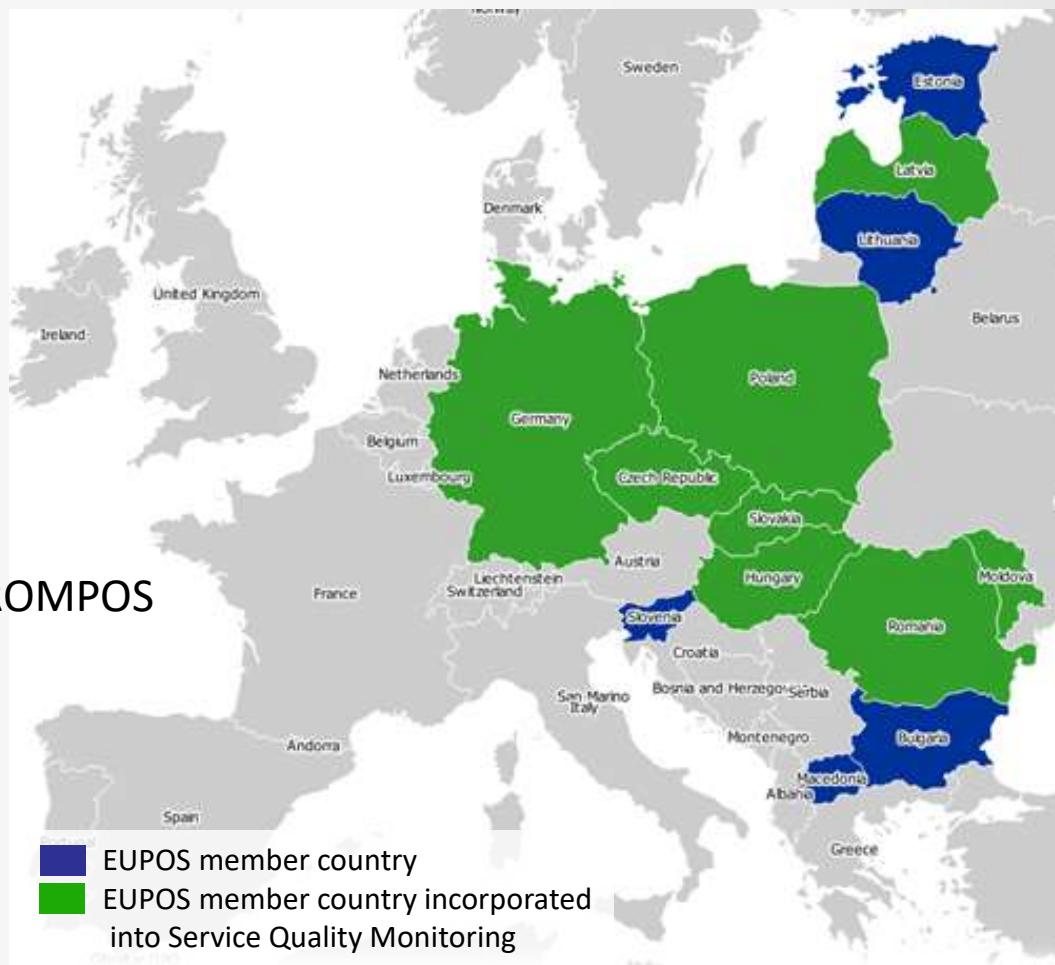
EUPOS service quality monitoring Status (November 2022)

35 stations

87 stations

7 stations

75 stations

4 stations

3 stations

10 stations

4 stations

225 stations   No improvement

GNSS receiver manufacturers

- Trimble
- Leica
- Topcon

- Javad
- Astech

Network softwares:

- Trimble Pivot Platform
- Geo++ GNSMART
- Leica Spider

EUPOS service quality monitoring
User interface

http://monitoringEUPOS.gku.sk
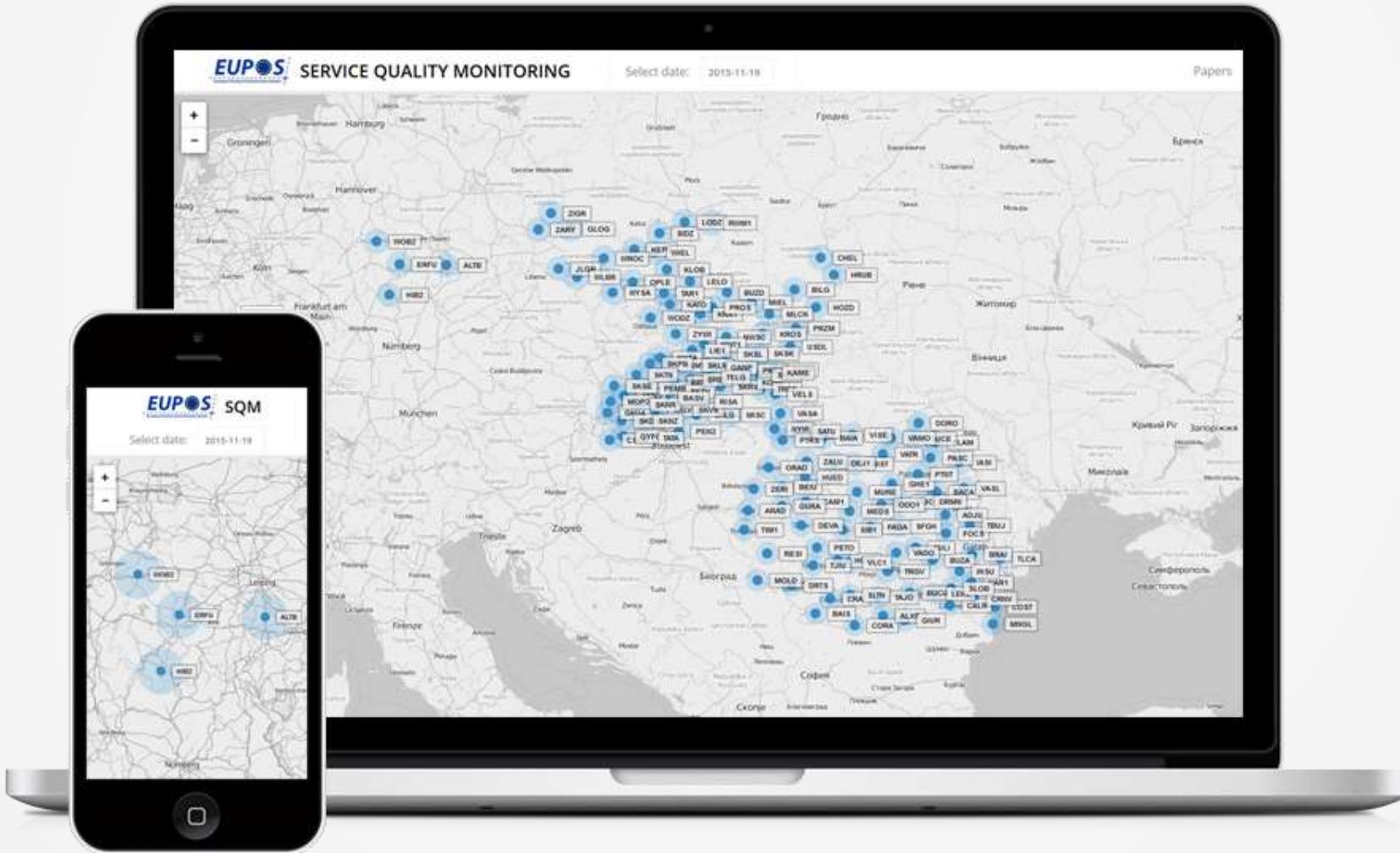
EUPOS networks deviations comparison Statistics

RTK network	SKPOS	ASG eupos	SAPOS	ROMPOS	MOLDPOS	CZEPOS	GNSSnet.hu	RIGA EUPOS	EUPOS
Control Software	Trimble Pivot Platform			Leica Spider			Geo++ GNSMART		Σ
Time period	9 years	8 years	7 years	8 years	5 years	4 year	8 years	7 years	
Number of monitored stations	35	87	4	75	10	4	7	3	**225**
Maximal ne	49.9 cm	46.8 cm	51.9 cm	49.8 cm	41.3 cm	38.4 cm	49.1 cm	49.8 cm	
u	49.8 cm	49.3 cm	48.8 cm	49.9 cm	43.5 cm	47.9 cm	69.9 cm	59.9 cm	
Average ne	1.0 cm	0.9 cm	0.9 cm	1.1 cm	1.0 cm	0.8 cm	1.0 cm	1.1 cm	**1.0 cm**
u	2.4 cm	1.2 cm	1.9 cm	2.4 cm	1.5 cm	3.0 cm	1.2 cm	2.1 cm	**2.0 cm**
No fix	13%	7%	8%	15%	28%	10%	12%	20%	**14%**

Summary

- EUPOS network RTK quality monitoring tool works right
- tool is available for public on http://monitoringEUPOS.gku.sk
- results from the monitoring confirm „cm" quality of EUPOS countries network RTK
- we plan to continue our activity and do more analysis in future

Join us - join EUPOS SQM!

- **What you will get?**
  - feedback about quality of your service
  - comparison of your service with other countries

- **E-mail contact:**
  - karol.smolik@skgeodesy.sk

- **What we need for joining:**
  - login and password which allows us to get
    - access to the network RTK solution (VRS concept)
    - access to permanent stations via NTRIP Caster
  - corrections provided in RTCM 3.x format
  - CORS coordinates

■ EUPOS member country
■ EUPOS member country incorporated
   into Service Quality Monitoring
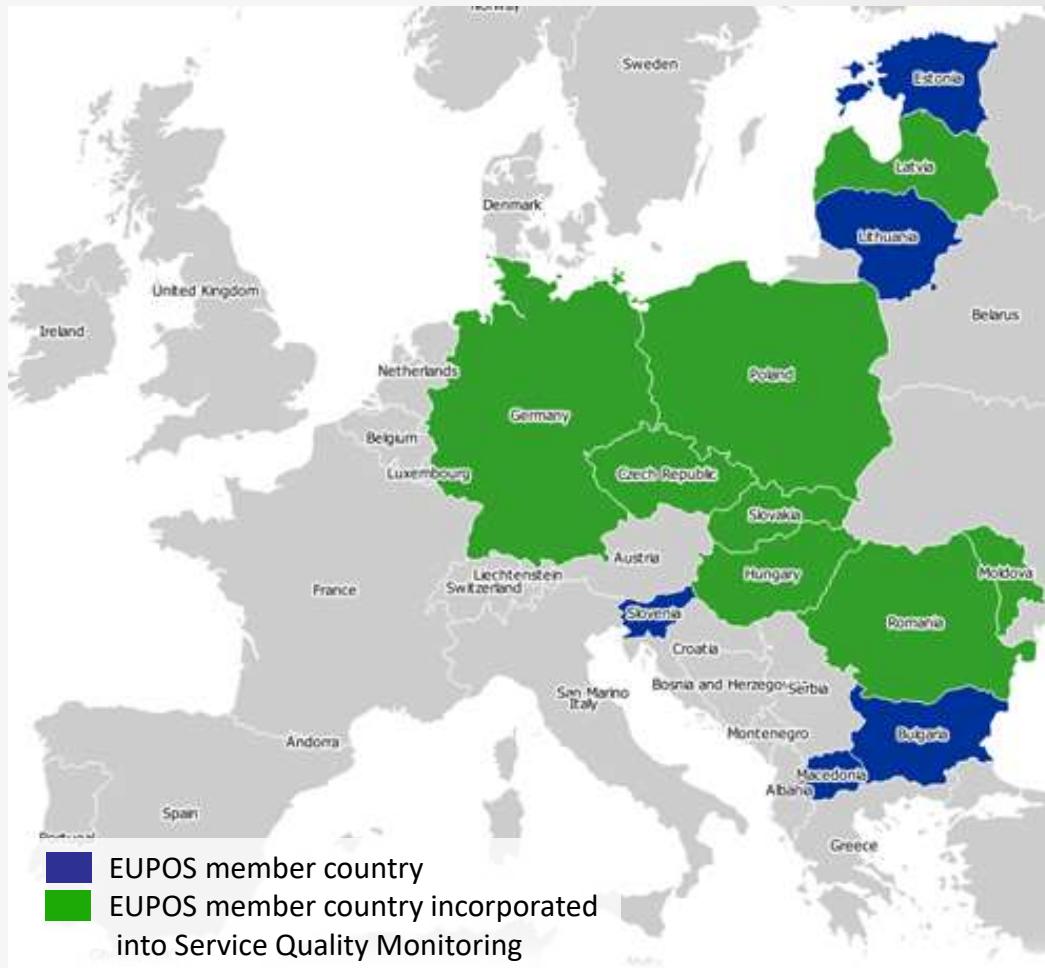
Thank you for your attention

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