



# «HERMITAGE» - FIRST E-NAVIGATION TEST-BED IN RUSSIA

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# First Stage of Creating Test-bed "Hermitage"

- In 2016 we started creating the first test-bed e-Navigation in Russia.
- This work performed by the Kronstadt Group in cooperation with our partners (Transas, Abris and others).
- Customer - Ministry of Transport of Russia.
- Research and development (R&D) name – «e-Sea».
- Implementation period – 2016-2020.
- Budget – 5-6 million euros.
- The name of test-bed - "Hermitage" (in honor of the famous museum in St. Petersburg).
- Test-bed includes the sea and the river segments.
- River segment includes three parts: the river, lake and sluiced (gateway).

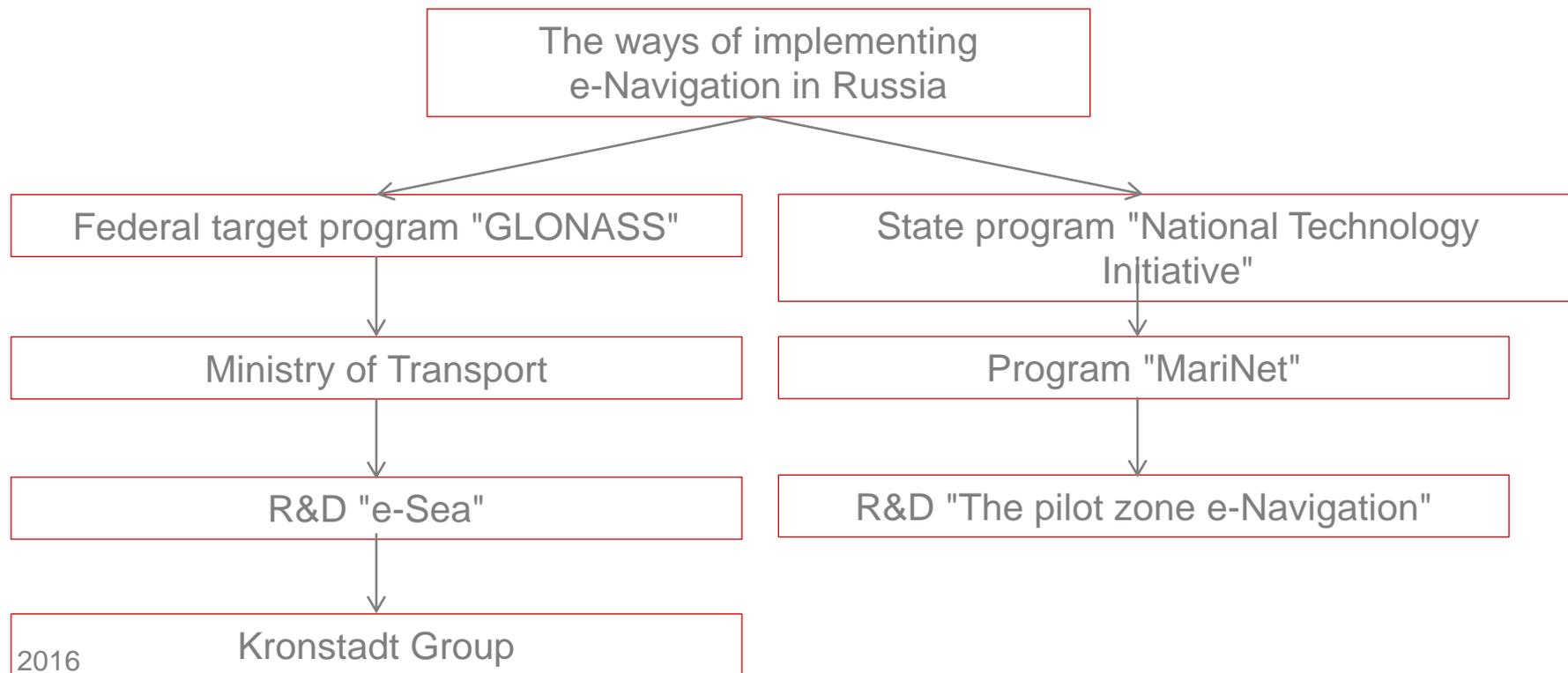


The State Hermitage Museum,  
Saint Petersburg, Russia

# Borders of Test-bed "Hermitage" in Russia



# Implementing e-Navigation in Russia



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Previous experience of our company in the technology e-Navigation :

- R&D "Approach-T" in 2009,
- R&D "Approach-Nav-T" in 2012.

# About Kronstadt Group

1990

Creating Transas company



Creating Transas Group

2015

Separation of Transas Group

Separation of Transas Group

Now

Kronstadt Group

Transas Group



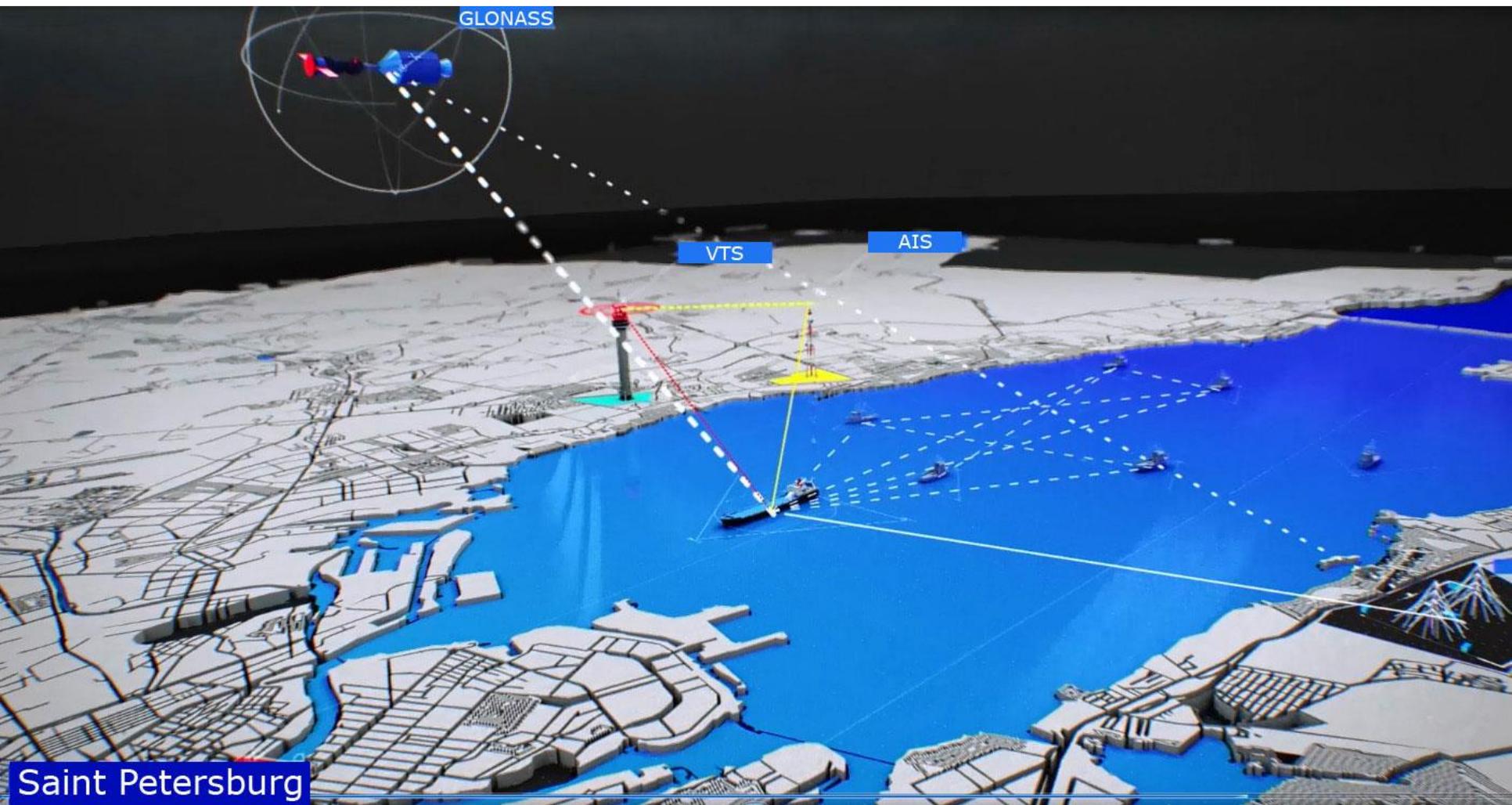
TRANSAS



JOINT-STOCK FINANCIAL CORPORATION  
SISTEMA



# Infrastructure of Maritime segment





# The transition of the vessel from the Neva river to Ladoga lake



# Onshore marine and river segments (VTS)



The equipment is installed in Coastal VTS (Petrodvorets) and in river VTS (Shlisselburg)

# The ship sea and the river Segments (ECDIS)



ECDIS with e-Navigation functions is elaborated to 7\* marine and 5\*\* river vessels

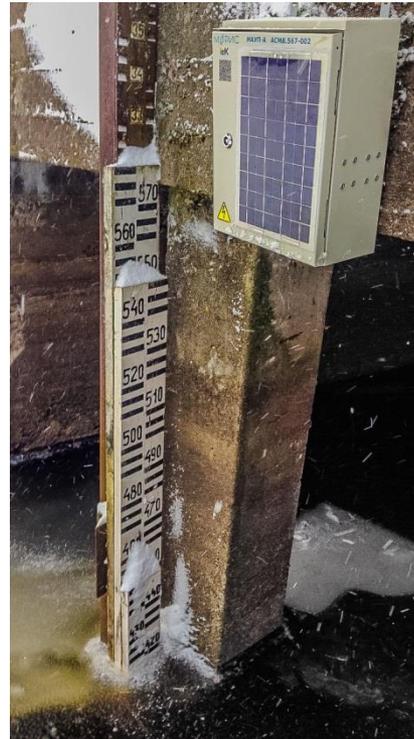
\* North-Western Basin Branch FSUE "Rosmorport"

\*\* Basin administration "Volgo-Balt"

# Additional Equipment of the Test-bed



**Personal pilot kit** -  
navigation application for  
pilot organizations



**Water level meter** -  
provides information  
about the water level  
by GSM  
communication in VTS



**Synthetic AIS AtoN** -  
sends information about  
your location by GSM  
communication or Iridium  
SBD in VTS



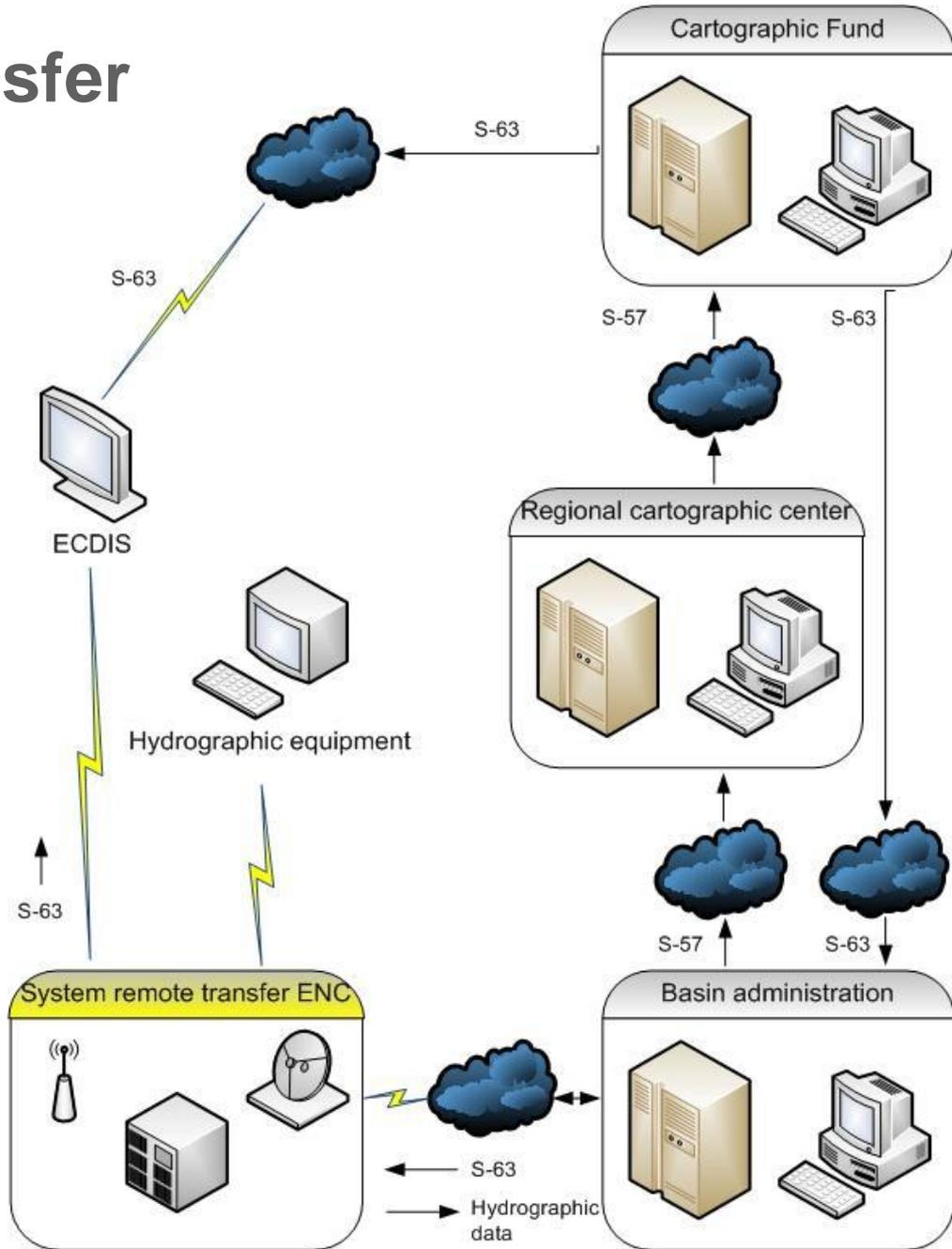
# Scientific Technical Report



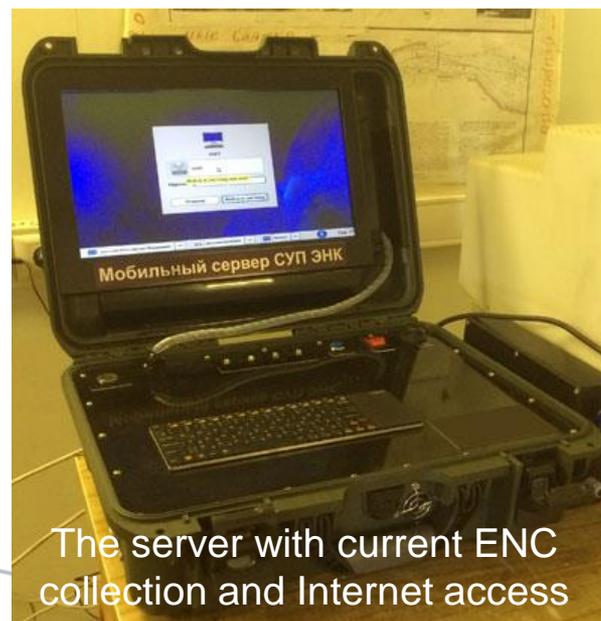
In the course of R&D "e-Sea" a lot of research work has been done. More than 2 500 pages of unique materials on e-Navigation, first collected in Russia. We plan to use them in our future work and to popularize this technology in Russia.

# System remote transfer ENC and other data

This invention is protected  
by the patent of the  
Russian Federation



# The prototype system



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**Thank you for your attention.**

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