



## High potential EGNSS markets in Ukraine

*UKRAINE - UKRAINE Replication, Awareness and INnovation based on EGNSS*

Matchmaking Workshop  
June 3, 2016  
Hague, the Netherlands



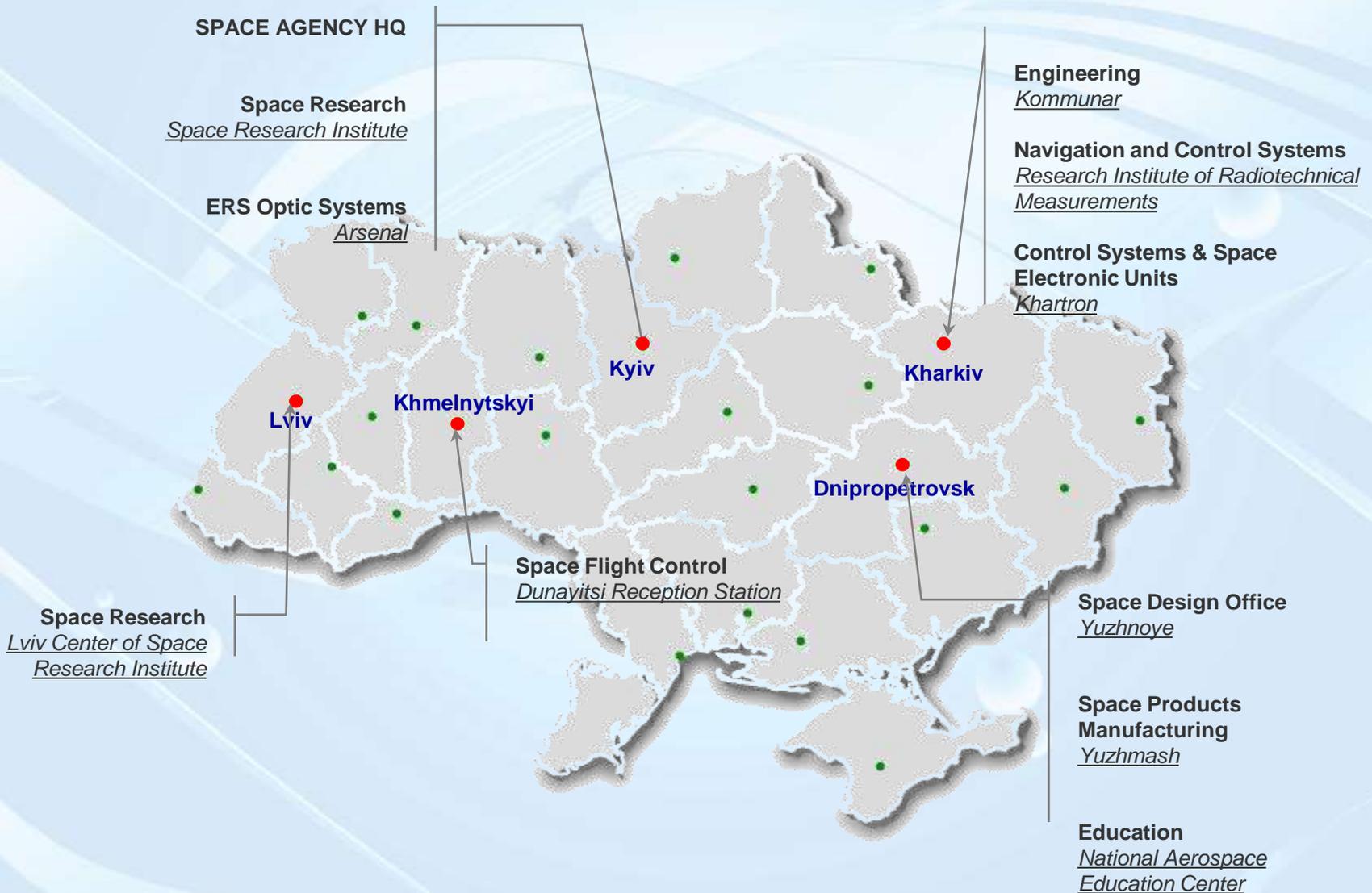
# State Space Agency of Ukraine (SSAU)

## Facts & Figures

- Governmental organization responsible for space policy in the state
  - develops and implements national space policy
  - organizes international cooperation
  - coordinates space-related companies, educational institutions and organizations
- over 30 state-owned enterprises with ~ 26 000 employees
- 4 scientific institutions



# Ukrainian Space Centers



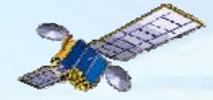


# SSAU Competences & Expertise

Access to the European space community via joint projects



GALILEO  
EGNOS



SATELLITE  
NAVIGATION &  
TELECOMMUNICATIONS

EARTH  
OBSERVATION

**ESA** **EC**

GROUND  
SEGMENT



LAUNCH  
VEHICLES

**GSA**

SPACE  
RESEARCH



**H2020**

EDUCATION  
& TRAINING



- EDUCATION
- TRAINING
- CAREER



## Legal Base for EGNOS Extension to Ukraine (1)

- COOPERATION AGREEMENT on a Civil Global Navigation Satellite System (GNSS) between the European Community and its Member States and Ukraine (2005)
- Joint statement of Ukraine's Vice-Prime-Minister Oleksandr Vilkul and European Commission Vice-President Antonio Tajani on plans to expand cooperation in the EGNOS/Galileo project of the European Global Navigation Satellite System (GNSS) (2013)



## Legal Base for EGNOS Extension to Ukraine (2)

- Association Agreement between the European Union and the European Atomic Energy Community and their Member States, of the one part, and Ukraine, of the other part (Title V, Chapter 8 “Space”).
- Action Plan on implementation of the Association agreement between Ukraine and the European Union and its member states for the years 2014–2017 (p. 320)



# EU-Ukraine Activities on EGNOS Implementation to Ukraine

- **Meeting #1, October 20, 2015**  
GSA – SSAU (Prague)
- **Meeting #2, November 11, 2015**  
GSA – SSAU (videoconference)
- **Meeting #3, December 14, 2015**  
GSA – SSAU (videoconference)
- **Meeting #4, January 21, 2016**  
Working group on Ukraine-EU cooperation in the space sphere (Kyiv)
- **Meeting #5, March 16-17, 2016**  
GSA experts reviewed potential places for RIMS location in Kyiv and Kyiv region
- **Meeting #6, May 31, 2016**  
GSA – SSAU (videoconference). EU experts provided their conclusions related to report on the potential places for RIMS location in Kyiv and Kyiv region



## EU support to EGNOS Extension to Ukraine



- TWINNING project "Boosting Ukrainian-European cooperation in the space sector" (2008-2010)
- TWINNING project "Strengthening of the State Space Agency's of Ukraine (SSAU) Institutional Capacity to implement European Space Programmes in Satellite Navigation (EGNOS/Galileo) and Remote Sensing (GMES)" (2013-2015)
- **H2020 UKRAINE project – "UKraine Replication, Awareness and INnovation based on EGNSS" (2015-2016)**





# SSAU involvement to UKRAINE project

## WP 2 Legal Framework Update (VVA Europe Ltd + SSAU)

- Study on applications
- Legal study
- Strategy
- Cost-benefit analysis
- Political feasibility
- Roadmap and recommendations



## Areas of Investigation for EGNSS Application

- **Aviation** (PBN, Precision Approach Operations, ELTs, Recreational applications, ADS-B)
- **Maritime and IWW** (Merchant navigation, AIS, RIS)
- **Road transport** (Fleet management, Dangerous goods tracking, eCall, GNSS enhanced digital tachographs)
- *Railways* (High Density Command & Control Systems, Tracking and tracing of dangerous goods)
- **Agriculture** (Farm machinery guidance and automated steering, **Field definition**)
- *Mapping and others* (Land surveying, Mapping, Railway infrastructure mapping, Marine surveying)



## Aviation

- **Performance Based Navigation (PBN)** is a new concept based on the use of Area Navigation (RNAV) systems.

Key stakeholders: State Aviation Administration of Ukraine; UkSATSE; NAU

*PBN is used* in the route airspace of Ukraine and terminal airspace of main airports. At this stage for route airspace is used ICAO RNAV 5 specification, for terminal - ICAO RNAV 1 specification.

Legal base: PBN Ukraine strategy and roadmap 2013 – 2025.

Recommendations:

- update the implementation of PBN Ukraine strategy and roadmap 2013 – 2025;
- upgrade the legal status of PBN Plan and Strategy;
- develop proposals on providing actions related to EGNOS implementation in aviation (particularly, Plan for Approach Procedure Implementation).



## Maritime and IWW

- **Merchant navigation** concept: GNSS positioning is integrated with navigational charts, with most maritime navigation devices embedding them in the systems, to support navigation of merchant vessels.

**Key authorities:** Ministry of Infrastructure of Ukraine; SE “Classification Society “The Shipping Register of Ukraine“; River Information Service of Ukraine; Ukrainian sea ports authority

By providing additional integrity assurance and accuracy, EGNOS is thus expected to augment safety of navigation and contribute to decrease in the number of ship accidents.

**Legal base:** SOLAS, IMO regulations.

**Recommendations:**

- development of standards and regulations on merchant navigation;
- activities aiming to raise awareness and to attract more users of GNSS-technologies



## Road transport

- **eCall**. This service triggers an emergency call to the most appropriate Public Safety Answering Point (PSAP, i.e. 112) in case of severe accident. When eCall is triggered a Minimum Set of Data (MSD) including the vehicle's position is automatically sent to the PSAP.

The main purpose of the service is to cut response time by emergency services, thus reducing the severity of after-accident consequences.

Key authorities: Ministry of Infrastructure of Ukraine; State Emergency Service of Ukraine; SE "Center of public safety 112"; State Enterprise "The State Road Transport Research and Design Institute".

Recommendations:

- Short term: assessment of standards as prepared during Heero project; actions aiming to increase awareness amongst car manufacturers and citizens; decision on the deployment of the eCall service, interoperable with the EU-wide eCall service;
- Medium term: development of relevant legal acts in Ukraine; Decree of the Cabinet of Ministers of Ukraine on the introduction of eCall devices on a mandatory basis on the new M1 and N1 vehicles should be developed; Decree of the Cabinet of Ministers of Ukraine on the mandatory deployment of eCall Public Safety Answering Point (PSAP) infrastructure required for the proper receipt and handling of all eCall.



# Agriculture

- **Field definition** system is the discipline of measuring the field area, perimeter, length, and others with maximum accuracy.

Field definition is the activity of measuring precisely the boundaries and the size of agricultural fields.

**Key authorities:** State Service of Ukraine on Geodesy, Cartography and Cadastre; Ministry of Agrarian Policy and Food of Ukraine

**Recommendations:**

- to align the legislative framework in Ukraine to the one in the EU, once a timeline and terms (part of CAP) of the Ukrainian accession to the EU are known;
- to include a training program “Fundamentals of navigation systems in agriculture” in the programme of higher education institution of agrarian profile;
- to include a possibility to use GNSS technologies in the Ukrainian legal base;
- to organize demonstrational conferences and master classes on practical application of GNSS technologies in agriculture.



## Horizontal Legislation

- Draft Law of Ukraine “On the State Regulation in the field of Satellite Navigation” (developed under the support of EU experts in the frame of Twinning project)

The purpose of the Law is to determine the legal, economic, institutional and financial framework for the activities in the field of satellite navigation in Ukraine and establish the principles of state regulation in this area.



## Horizontal Legislation

The enactment of the Law of Ukraine “On the State Regulation in the field of satellite navigation” will permit to:

- support the activities in the field of defense and security;
- ensure the development of domestic manufacturing and market of navigation information services in Ukraine, which will promote the existing and creation of new jobs and further development in high technology areas, including transport, building and construction and agro-industrial sector;
- attract investments for new projects, strengthen production activities in satellite navigation, including using mechanisms of public-private partnership;
- improve security and reliability of transport and logistics sector, to develop its infrastructure;
- improve the quality of navigation services for citizens and increase revenues to local budgets.



Thank you for your attention!

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