

# Mass-market GLONASS Applications

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# 2012: Multi-constellation – global standard

## Multi-constellation in space

### GPS



- Global system – market standard

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### GLONASS



- Global system since 8 Dec. 2011

+

### Galileo



- Launch of 2 satellites (October 2011) and their commissioning

+

### Compass



- Test mode as a regional system since December 2011



## Multi-constellation on earth

### before 2010

- GLONASS/GPS – only Russian producers
- Only for motor transport (2010 – 100 thousand psc)



### 2011

- All world leaders announced about working on GLONASS/GPS chipsets
- All world leaders announced about GLONASS/GPS equipment production for different purpose



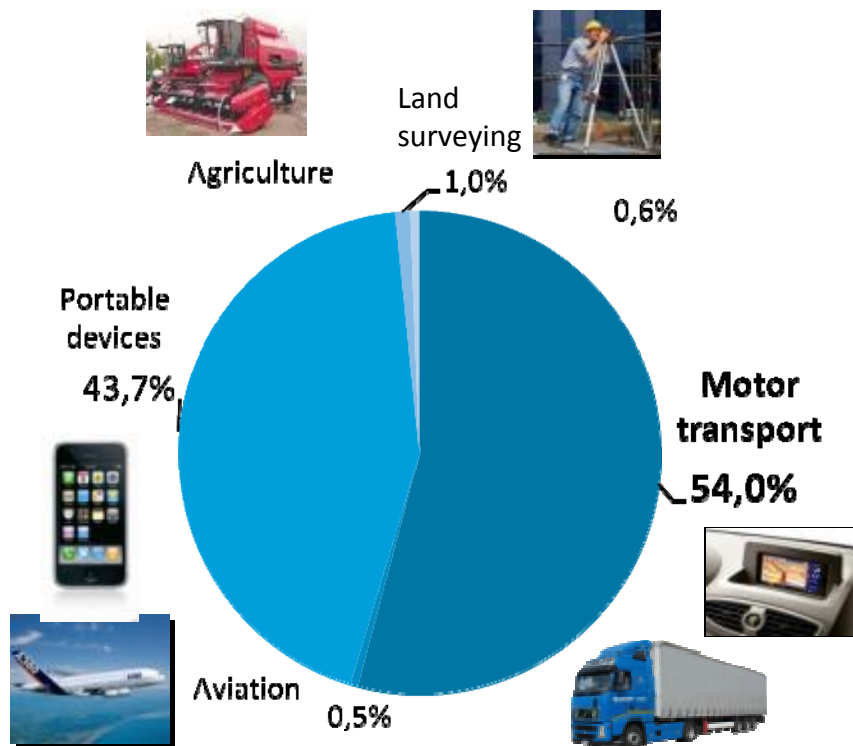
### since 2012

- GLONASS/GPS – mass-market standard in all price segments

# Navigation market: forming, fast growing, global, high-tech

World navigation market 2011 more than \$100 bln

Industry segments 2011-2020 rr.



Source: European commission, May 2012

## Growth drivers of the Russian market:

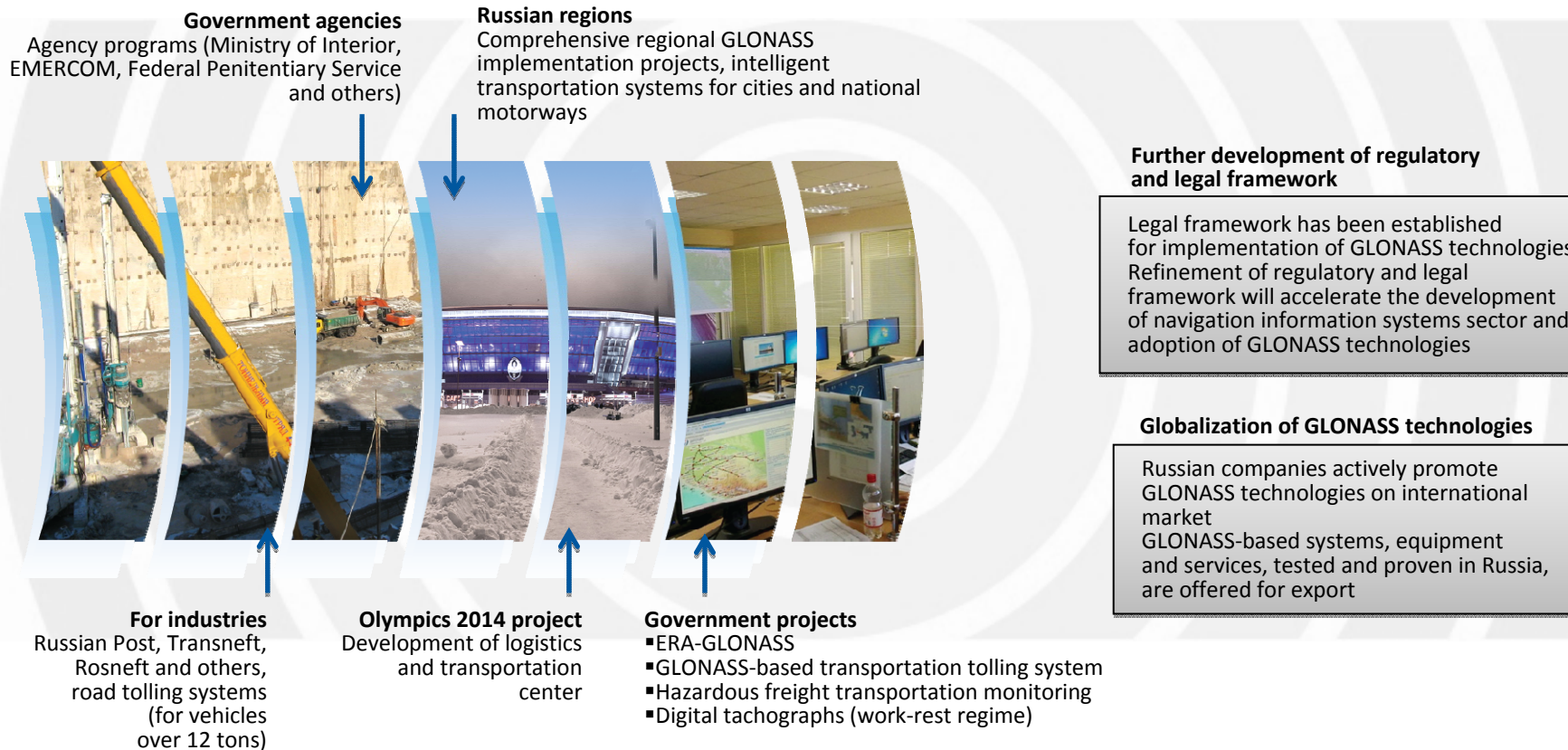
**1. Major state and industry projects:** «ERA-GLONASS», equipping of passenger transport, Ministry of the Interior of Russia, “Russian Post” transport, Transneft

**2. Regional projects:** regional special-purpose programs (PHIC, school busses, emergency ambulance, housing and utilities infrastructure), Intelligent Transport Systems (ITS Moscow), etc.

**3. Consumer navigation:** systems, equipment and services for car drivers, passengers and foot passengers

Basic conditions for implementation of navigation technologies have been provided : legislative framework, prepared and approved industry solutions for different tasks

# Development and implementation of GLONASS-based technologies



# GLONASS/GPS technologies should be used for modernization of transport system and transportation security



**Size of the problem 2011:**  
damage from road accidents - 2,5 % GDP, 27 953 people died

## Systems in interest of safety

- State system «ERA-GLONASS»  
**after 12.2013 - 40 mio vehicles**
- Monitoring system of dangerous, bulky and heavy-weight cargo transportation  
**after 2013 - 150 thousand vehicles**
- Control and dispatch systems (regional, urban)
- Drivers' schedule of work and rest control system (digital tachographs)  
**after 2013 - 900 thousand vehicles**
- Police patrol /EMERCOM monitoring and control systems  
**after 2015 - 5 mio vehicles**
  
- Heavy truck tolling system  
**since 2011 - 200 thousand vehicles**
- Intelligent transport systems and transport streams  
**after 2014 - 1,5 mio vehicles**



## Systems in interest of effectiveness

**13 megapolis, 19 cities with a population more than 500 thousand people**



Basic requirements to the systems: federal or regional scale, combination with each other and with federal safety systems and international systems



# Commercial potential: prepared service platform and the most popular navigation device

## ERA-GLONASS

Safety and security on the roads

Social effect: 4 thousand saved lives annually

Testing: since 12/2011  
Operation: after 12/2013



State service consumers:  
Drivers and passengers



## Tolling systems

Fair recovery of damages

Economic effect:  
Replenishment of Federal and regional road funds

Testing: since 12/2012  
Operation: after 07/2014



State service consumers (1<sup>st</sup> stage):  
1,5 mio trucks (> 12 tonnes)

## Insurance telematics

Social effect:  
Road discipline growth

Testing: since 9/2012  
In the market: after 6/2013



Commercial service consumers:  
cars' owners

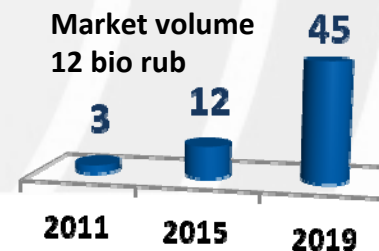


## Services for car drivers

Ease and comfort on the road

Economic effect: new big market

Testing: after 10/2012  
In the market: after 8/2013



Commercial service consumers:  
cars' owners



# Industry solutions

## Precision farming

Agriculture with GNSS:

- 10% annual income increase
- 52% fuel cost reduction
- 67% labor cost reduction



## Control systems for mining equipment

- > 12% increase of traffic volume
- 8% fuel consumption reduction
- 50% downtime reduction



## High-precision integrated sensors

- Observation and control of forest fire danger
- Forest crime monitoring
- Identification of areas of low, medium and high forest pathology threat



## Signal-searching device with self-contained power supply

- Signal-searching device sends signals on a user's mobile phone or to the dispatch center while attempting to open the property or to take away the device.



# Most mobile devices already have functions of satellite navigation



Navigation helmet for bikers

Photo and video cameras



Tourist navigator with a satellite communication channel



Navigation gadget for golf playing



Ski sunglasses



Navigation tracker for sport shoes



Baggage tracker



Tracker for animals

Coming soon  
«Google glasses»





# Satellite navigation for children and handicapped people

Navigation for wheelchair users



**I know how to get there!**



Voice and tactile navigation for visually impaired people



**Ease of movement!**

Children, sick and elderly relatives monitoring



**We ALWAYS know where our family and friends are!**

Telemedicine (patient's monitoring)

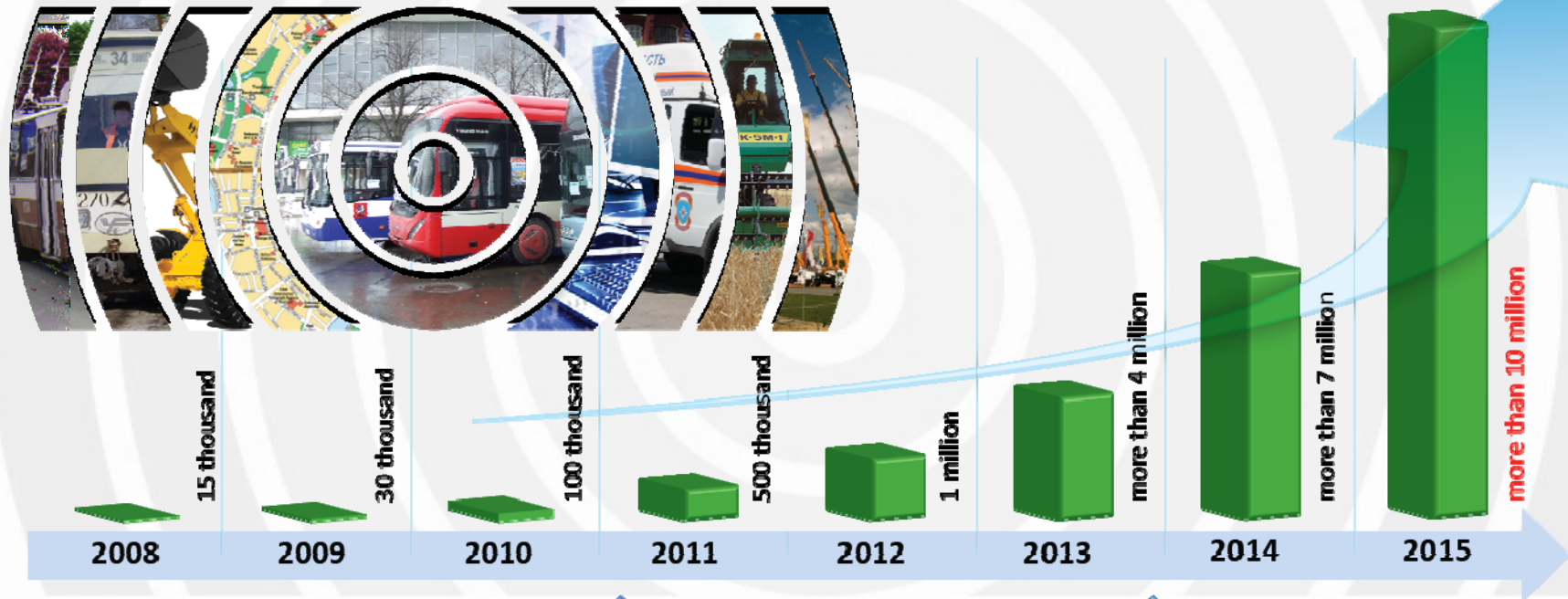


**Help will come on time!**

Navigation services provide additional safety and improvement of quality of life of the least socially protected groups

# Effects on domestic GLONASS technology market

### Demand for GLONASS-based equipment



Launch of large-scale GLONASS implementation projects

ERA GLONASS system begins operation

GLONASS-based projects and programs create a multiplicative effect on growth in Russian innovation sector, and contribute to greater efficiency in various sections of national and regional economy.



**NIS** national navigation  
services provider

**GLONASS**

**Thank you for your attention!**

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