
# GIS Platform

Innopolis University, October 13, 2017

INNOPOLIS UNIVERSITY

# Goals for creating platform

1. Building of the single ecosystem for working with GIS data including the following possibilities:

- Simple procedure to become participant
- Easy access to the services of other participants
- A large number of free services / assistants
- Busy clientele

2. Growth of the GIS services market :

- Increasing market availability by reducing costs of base services
- Increasing nomenclature of services by developing new methods of geo-data acquisition.

# Confirmed demand

## State support

On 1 January 2017, the Federal Law entered into force, GLONASS direction and related services are developed

Российская Федерация

**О геодезии, картографии и пространственных данных и о внесении изменений в отдельные законодательные акты Российской Федерации (с изменениями на 3 июля 2016 года)**

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ФЕДЕРАЛЬНЫЙ ЗАКОН

О геодезии, картографии и пространственных данных и о внесении изменений в отдельные законодательные акты Российской Федерации

**ПРАВИТЕЛЬСТВО РОССИЙСКОЙ ФЕДЕРАЦИИ**

**ПОСТАНОВЛЕНИЕ**

**от 9 апреля 2016 г. N 289**

**ОБ УТВЕРЖДЕНИИ ПОЛОЖЕНИЯ О ГОСУДАРСТВЕННОЙ ГЕОДЕЗИЧЕСКОЙ СЕТИ И ПОЛОЖЕНИЯ О ГОСУДАРСТВЕННОЙ НИВЕЛИРНОЙ СЕТИ**

**В соответствии с пунктом 1 статьи 5 Федерального закона "О геодезии и картографии" Правительство Российской Федерации постановляет:**

**1. Утвердить прилагаемые:**

**Положение о государственной геодезической сети;**

**Положение о государственной нивелирной сети.**

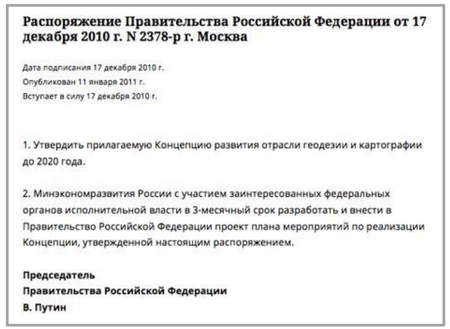
**Постановление Правительства РФ от 10.10.2013 N 903 "О федеральной целевой программе "Развитие единой государственной системы регистрации прав и кадастрового учета недвижимости (2014 - 2019 годы)"**

10 октября 2013 года, 00:00 просмотров: 549 » Другое

Тэги: постановление, правительство рф

| | |
|---|---|
| **Номер документа** | 903 |
| **Дата регистрации** | 10.10.2013 |
| **Издатель** | Правительство РФ |
| **Вид документа** | Постановление |
| **Актуальность** | Действует |

Постановление Правительства РФ от 10.10.2013 N 903 "О федеральной целевой программе



**Распоряжение Правительства Российской Федерации от 17 декабря 2010 г. N 2378-р г. Москва**

Дата подписания 17 декабря 2010 г.
Опубликован 11 января 2011 г.
Вступает в силу 17 декабря 2010 г.

1. Утвердить прилагаемую Концепцию развития отрасли геодезии и картографии до 2020 года.

2. Минэкономразвития России с участием заинтересованных федеральных органов исполнительной власти в 3-месячный срок разработать и внести в Правительство Российской Федерации проект плана мероприятий по реализации Концепции, утвержденной настоящим распоряжением.

**Председатель**
**Правительства Российской Федерации**
**В. Путин**

# Who is the Customer ?

Working Group of the National Technological Initiative


Project Aeronet – road map

Road map Aeronet presentation – S. Zhukov

# Market Volume Assessment

## Goals and tasks of the road map Aeronet-2035 (approved on 24 June 16 by the Presidium of the Council for Economic Modernization and Innovative Development of the Russia)

### Vision of the future (2035 year)

Powerful diversified branch of unmanned aerospace systems and services based on them:

- developers and manufacturers of UMA, small spacecraft
- providers of components and decisions (software, useful loads, control and protection systems)
- B2G, B2B and B2C services

$35-40 billion per year, 60% is export

50 000 employees

Labour productivity
- $ 0,7 - 0,8 million per head per year

### Vision of the future (2035 year)

Services players work in 4 major segments

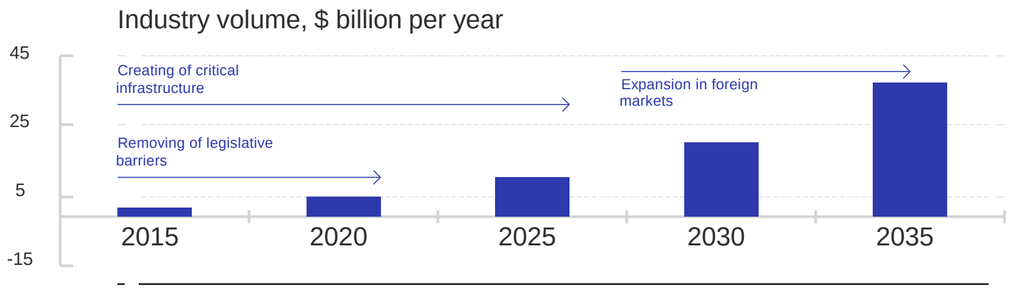
- ERS and monitoring
- Agriculture
- Carrying
- Search and rescue

The business is built on the basis of self-organized й distributed networks of UMA and small spacecraft

Russia - high volume exporter of Unmanned Aerial Vehicles, solutions and services:

| Segment | Carrying | Agriculture | ERS and monitoring | Search and rescue |
|---|---|---|---|---|
| Russia's share of the world market, % | 35 - 40% | 20 - 25% | 15 - 20% | 15 - 20% |

Program goal – to achieve a vision of the future of the Russian industry of UMA and Russia's share in the world market upon key indicators




### Program tasks

Segment development →

- ERS and monitoring; - Agriculture
- carriage of goods (people transportation over the long term)
- Search and rescue

- infrastructure; - technologies
- legislative regulation; - human resources

# Who we are?

## The first of five consortiums of Aeronet branch company, consisting :

### Participants of the Technological Consortium, their roles and contributions :

1. Autonomous non-commercial institution of higher education "University of Innopolis", coordinator of the consortium, support and development of SPV, thematic processing of Earth remote sensing data, integration with solutions of customers;
2. LLC "Titul" or ZAO "ENIKS", consortium participant, geographic data high-precision aerial survey using UAV, photogrammetric processing of Earth remote sensing data with the use of the PhotoScan system;
3. JSC "Rakurs", consortium participant, photogrammetric processing of Earth remote sensing data using PHOTOMOD system;
4. JSC "Roskartografiya", consortium participant, aerial photography using a submarine, photogrammetric processing, securing compliance with the secrecy regime;
5. SCANEX SC, consortium participant, space imagery, photogrammetric and thematic processing of space imagery data using ScanEx Web GeoMixer systems, Cosmos Agro;
6. Skolkovo Institute of Science and Technology, member of the consortium, thematic processing of Earth remote sensing data;
7. Operator-company (SPV) provides technical support for the operation of SPV and the commercialization of the project results

# Market positioning of the project

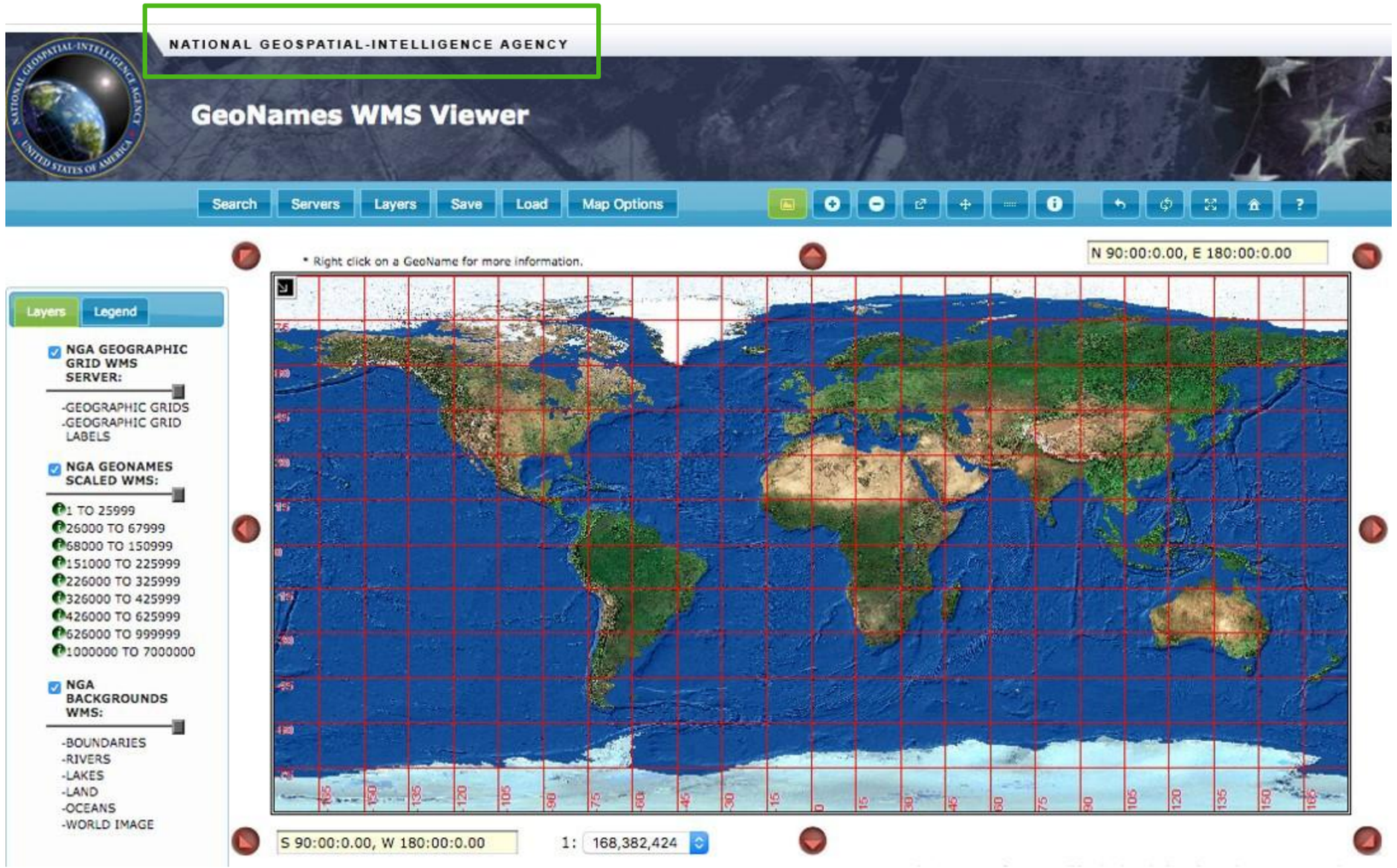
SPV project differs from typical start-ups with its focus on several related market directions:

1. The market for remote sensing data, including aerial survey data and unmanned aerial photography,
2. The market of geospatial data software and services,
3. The market of digital cartography and navigation (including unmanned vehicles),
4. The market of open data (open – does not mean free),
5. BigData market - analysis and platform for big data management.

# Condition of the market of GIS, cartography and analysis (Main technological trends)

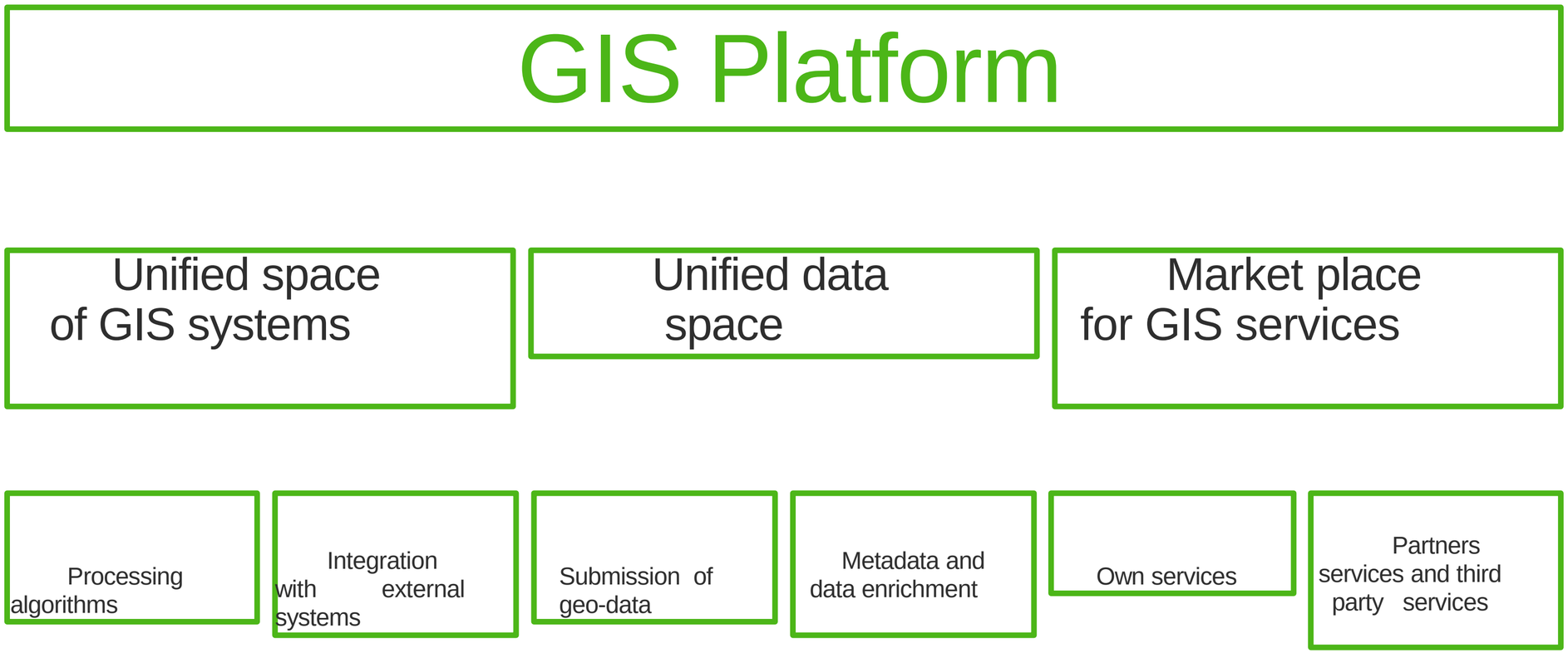
1. Coverage of digital cartography and metadata of the entire surface of the Earth, their existence as "Open Data" in several independent sources, general trends of public GEO services development - for the next 10 years;
2. Increasing the requirements (and capabilities) of the resolution of satellite / manned / unmanned surveys, requirements for the accuracy and detail of data, technical requirements of customers-GIS users and cartography;
3. Increasing the amount of "Open Data" to the size of conditional BigData - the largest market players and regulators will "protect the business" direction of GIS, thereby increasing the threshold for the entry of new players and cutting off private users from owning the full volume of data to be able to sell them;
4. Analytical functions should be developed, and data aggregation sites (applications) - overlaying several hundred information layers, a choice of a dozen cartography. Custom (user) digital cartography;
5. Launching and development of new global / or zonal systems of Beidou (China), Galileo (Europe), for territories with high population density IRNNS (India), OZSS (Japan). Projects in North America and Australia. The corresponding increase in the accuracy of the area to centimeters in civilian ranges and less than a centimeter to the pixel "RAW";
6. Equipping of "poor" territories - India - 1.3 billion, Africa - 1.2 billion population, cellular coverage and Smartphones with GPS / GLONASS chips (at the moment, all GPS chips contain both mathematicians, and two signals increase accuracy and speed of positioning);
7. According to ARPU, India, for example, has about $ 1/month, the struggle for added services will be at the level of 1 cent, which is possible only for mass application

# What do “they” have?




India
Irac
China
Brazil
…

# GIS Platform, what is it?



# Unified space of GIS systems

1. Short learning curve:

- Reasoned open architecture
- A large number of data processing mechanisms

2. Science-based algorithms: Objects

- recognition
- Determination of changes in data

# Unified data space

## 1. Access to data:

- Possibility of the access to the multiple source data (Open data, Cadastre, Hydrometeorological Centre, Housing and Utility Infrastructure etc.)
- Access to historical data

## 2. Metadata and their enrichment:

- Open available data aggregation
- Cleaning, annealing and Geo-tagging and data superimposition.

# Market place of GIS systems

1. Platform for services sale:
   - Easiness of service hosting
   - Transparent billing
   - Customer acquisition
   - Platform for order of new services
2. Access to verified data
3. Services Hosting Possibilities:
   - Possibilities of visualization of GIS calculations results
   - Possibilities of services sale via platform

# Our benefits

- Open architecture
- Data relevance in law
- Working with confidential data
- Price
- Intellectual constituent
- Data Visualization
- Platform for mutual aid for teams of geo-data customers and geo-data generator

# Platform for ERS data providers

- Removing low-margin part of business
- Platform for storage and resale of data
- Reusing of already “bound“ open data
- Capture and bridging of imagery from space-borne vehicle/manned vehicle/ unmanned aircraft system.

# Platform for data providers

Platform

Imagery Execution

$5-$500 per km²

Imagery Processing

~+/- $50 per km²

Construction of Orthophotoplans

~+/- $50 per km²

Security Assurance

Data Storage

Model Building

Integration with other systems

Creating clental services

Integration with clental systems

# Platform for GIS developers and integrators

- Access to the data of other providers
- Access to computational capacities Busy
- clientele
- Ready tools for data visualization
- Open architecture of the platform
- Algorithms for intellectual data processing

# Platform – GIS services

## Platform

Data Submission

Business Analytics

Data visualization

Market Place of Available Services

Customer Areas Hosting

Request of New Functionality

## Services Developers

Algorithms design

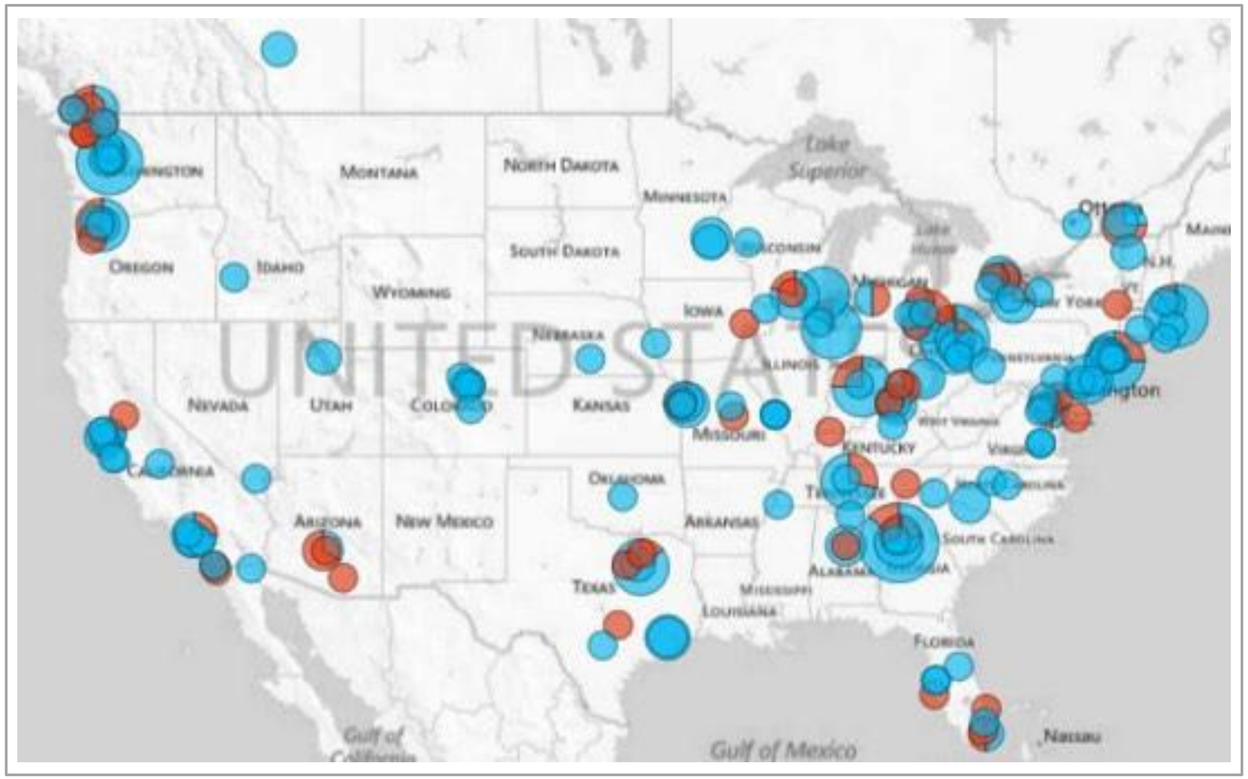
Services Implementation

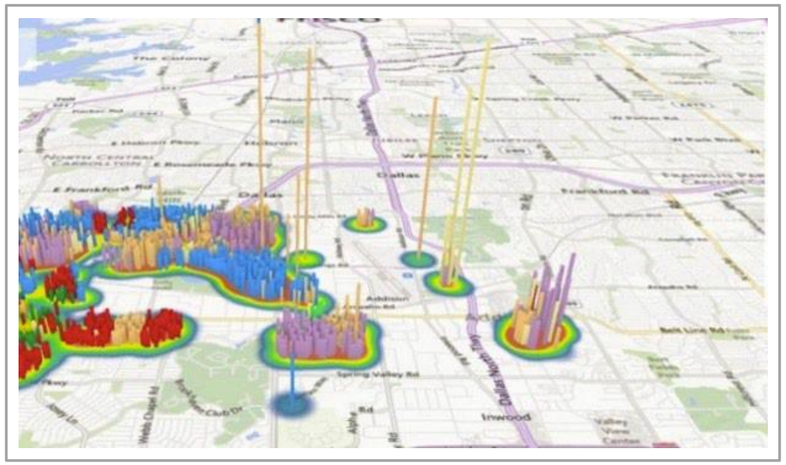
## Services Customers

Services usage

Requests for development

# Platform – modules of analysis and data visualization




# Areas

| No. | Name | Area (km²) |
|---|---|---|
| 1 | Russia (RF) | 17 125 191 |
| 2 | Canada | 9 984 670 |
| 3 | China (PRC) | 9 598 962 |
| 4 | United States of America (USA) | 9 519 431 |
| 5 | Brazil | 8 514 877 |
| 6 | Australia | 7 686 850 |
| 7 | India | 3 287 590 |
| 8 | Argentina | 2 780 400 |
| 9 | Kazakhstan | 2 724 902 |
| 10 | Algeria | 2 381 740 |
| 11 | Democratic Republic of the Congo (DROC) | 2 345 410 |
| 12 | Saudi Arabia | 2 149 690 |
| 13 | Mexico | 1 972 550 |
| 14 | Indonesia | 1 904 556 |
| 15 | Sudan | 1 886 068 |
| 16 | Libya | 1 759 540 |
| 17 | Iran | 1 648 000 |
| 18 | Mongolia | 1 566 600 |
| 19 | Peru | 1 285 220 |
| 20 | Chad | 1 284 000 |
| 21 | Niger | 1 267 000 |
| 22 | Angola | 1 246 700 |
| 23 | Mali | 1 240 000 |
| 24 | Republic of South Africa (RSA) | 1 219 912 |

| No. | Subject of the Russian Federation | Area (km²) |
|---|---|---|
| 1 | Republic of Sakha (Yakutia) | 3083523 |
| 2 | Krasnoyarsk Krai | 2366797 |
| | Tyumen Region with KhMAD and YNAD | 1464173 |
| 3 | Khabarovsk Krai | 787633 |
| 4 | Irkutsk Oblast | 774846 |
| 5 | Yamalo-Nenets Autonomous District | 769250 |
| 6 | Chukotka Autonomous District | 721481 |
| | Arkhangelsk Region including Nenets Autonomous Area | 589913 |
| 7 | Khanty-Mansi Autonomous Okrug - Yugra | 534801 |
| 8 | Kamchatka Krai | 464275 |
| 9 | Magadan Region | 462464 |
| 10 | Zabaykalsky Krai | 431892 |
| 11 | Komi Republic | 416774 |
| 12 | Arkhangelsk Region without Nenets Autonomous Area | 413103 |
| 13 | Amur Region | 361908 |
| 14 | Buryatia | 351334 |
| 15 | Tomsk Region | 314391 |
| 16 | Sverdlovsk Region | 194307 |
| 17 | Republic of Karelia | 180520 |
| 18 | Novosibirsk Region | 177756 |
| 19 | Nenets Autonomous Area | 176810 |
| 20 | Republic of Tuva | 168604 |
| 21 | Altai Territory | 167996 |
| 22 | Primorsk Territory | 164673 |
| 44 | Republic of Tatarstan | 67847 |

# Platform for Consumer

1. Convenient market place for possibility to buy ready-to-use GIS services and data
2. Great choice of basemap and informative layers
3. Business analysis of data. Possibilities to correlate data from different data sources:
   - Data visualization based on GIS
   - Detection of trends
4. Extension proper client accounts to additional services.

# Platform for B2C

Without disregarding private customer, we offer the possibility to construct your proper view of WEB-map using all open data available at the platform.

What to choose: YandexMap/GoogleMap?
None, we have seriously better service!

- Convenient market place for possibility to buy additional GIS services and data
- Unified point to order new services

# Platform for B2B

- Costs reduction by reusing ready-to-use services
- Ordering services of other participants
- Flexible setup for services
- Data Changes Subscription:
  - Intellectual detection of major changes
- Investment analysis:
  - Searching possibilities of business objects location by special criteria
- Cross-sells of services
- Advertising space, including at B2C

# Platform for B2G

- Regions development planning
- Analyzing effects of changes in the future
- Monitoring of woods, flood, ecology, fires; Forecasting of emergency situations
- Changes control
- Big Data Visualization


# Thank you!


| | |
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# Unfortunately …


≠ Russian company

# Comparison of GIS solutions

| | DigitalGlobe | Sovzond | Hexagon | Smallworld | FME |
|---|---|---|---|---|---|
| Order of imagery | not available | available | not available | not available | not available |
| Multichannel imagery | available | available | available | available | available |
| Thematic Data Processing | available | not available | available | not available | not available |
| 3D modelling | not available | available | available | not available | not available |
| 4D visualization | available | available | available | available | available |
| Cloud storage | available | available | available | available | available |
| Cloud computing | available | available | available | not available | not available |