

# **Statistics of Development the Internet of Technologies in the Field of a Geodesy and Cadastre**

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**Key words:** Geodesy, Cadastre, Internet-technologies.

## **ABSTRACT**

" Statistics of development the Internet of technologies in the field of a geodesy and cadastre"  
The purpose of the report is researching of development the Internet in Russia, the forecast of its use in the future for a cadastre and a geodesy and recommendations. By the author is assembled and development the material about processed of the Internet.in the various countries. By the author are considered development of sites in the field of a geodesy and cadastre. The analysis of the general condition the Internet in Russia was provided. In the field of a geodesy and cadastre the author is marked common features of use the Internet. Cadastre and geodesy fields, as well as other branches will be inextricably related with Internets - technologies in the future. The forecast of development the Internet-technologies for nearest some years is carried out.

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# **Statistics of Development the Internet of Technologies in the Field of a Geodesy and Cadastre**

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## **“Statistics of development the Internet of technologies in the field of a geodesy and cadastre”**

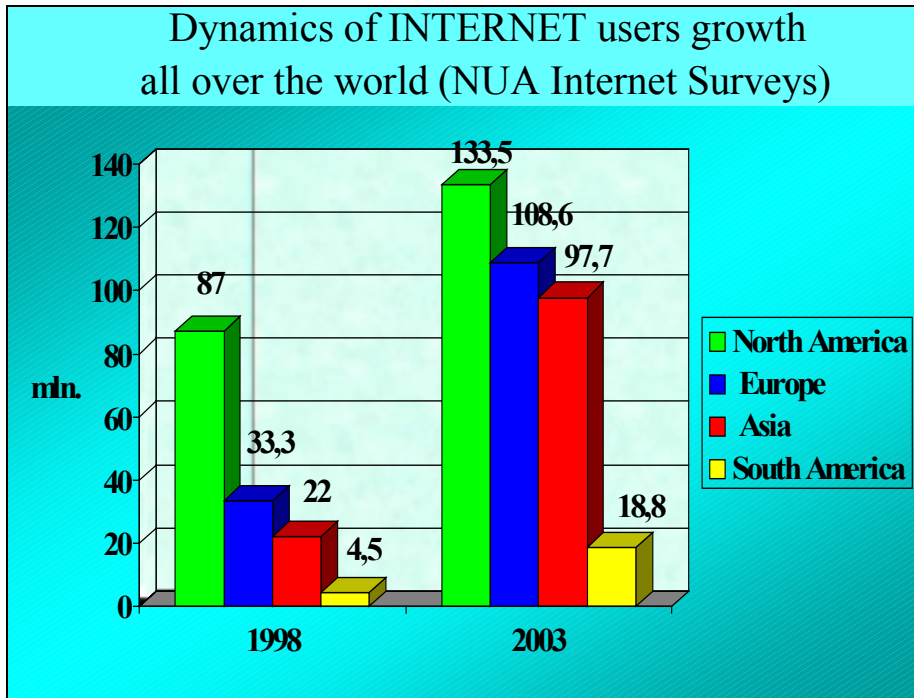
If we compare development of various branches of a science and engineering, that, most probably first place will be occupied with computer technologies. One of the advanced directions of these technologies is development of global Internet network.

The purpose of the given report is research of development the Internet in Russia, the forecast of its use in the future for a cadastre and a geodesy, and recommendations following from here. But such recommendations are impossible without research of the general condition the Internet in Russia. Only after revealing the common laws of development the Internet as a whole on the country, it is possible to make the forecast of Internet's development in separate branch. Therefore we shall start the given report, from the general development the Internet not only in our country, but also in other countries of the world.

Internet has appeared more recently in Russia. Rough growth of users Internet in Russia began from 1996. Today in our country Internet has turned from wonder to the daily tool. It can be seen on development of Russian part Internet. If some years back almost the information in a network were given in English today domestic users guide suppliers of the information and it is possible to find the diversified information in Russian in Internet. In present century substantial growth of role Internet in all information technologies is expected.

Tendency is that the Internet becomes the basic communication facility, the main way of reception and transfer of the information. Not only computers, but also phones, TV sets, video cameras and other devices are connected directly to the Internet.

Let's result the diagrams showing fast growth of users Internet in the world with 1998, and forecast for 2003.



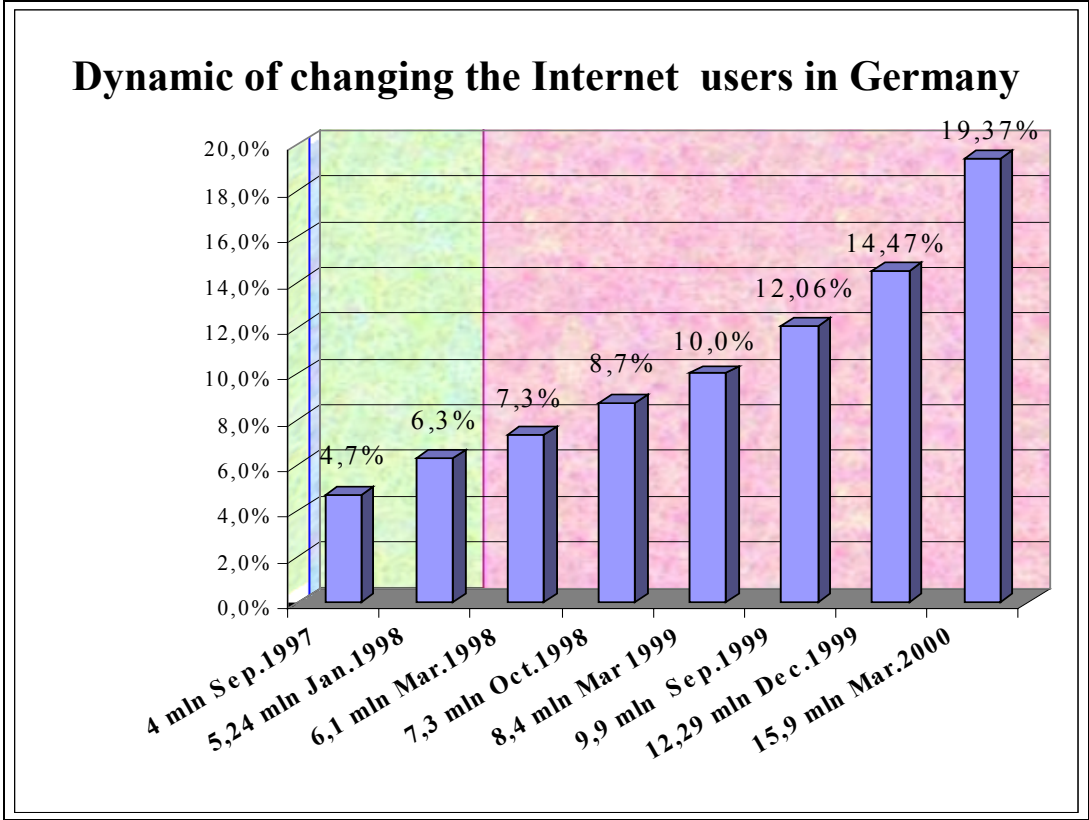
Slide1

The number of Internet users, under forecast NUA Internet Surveys, will increase all over the world up to 361,9 million by 2003. From the diagram it is visible, that in 1998 the share of active users from USA was 59,2 %. By 2003 the share of USA among all active users will decrease almost up to third (36,9 %).

In 2003 on a share of the East Europe will have 30 % of all users, Asian - Pacific region about approximately 27 % of users whereas on a share of Latin America it is necessary 5,2 %. By 2005 the lion's share of expansion of the Internet will fall to Asian - Pacific region and the East Europe. Nevertheless, owing to the lowest launching site, Latin America will show the greatest rates of a gain.

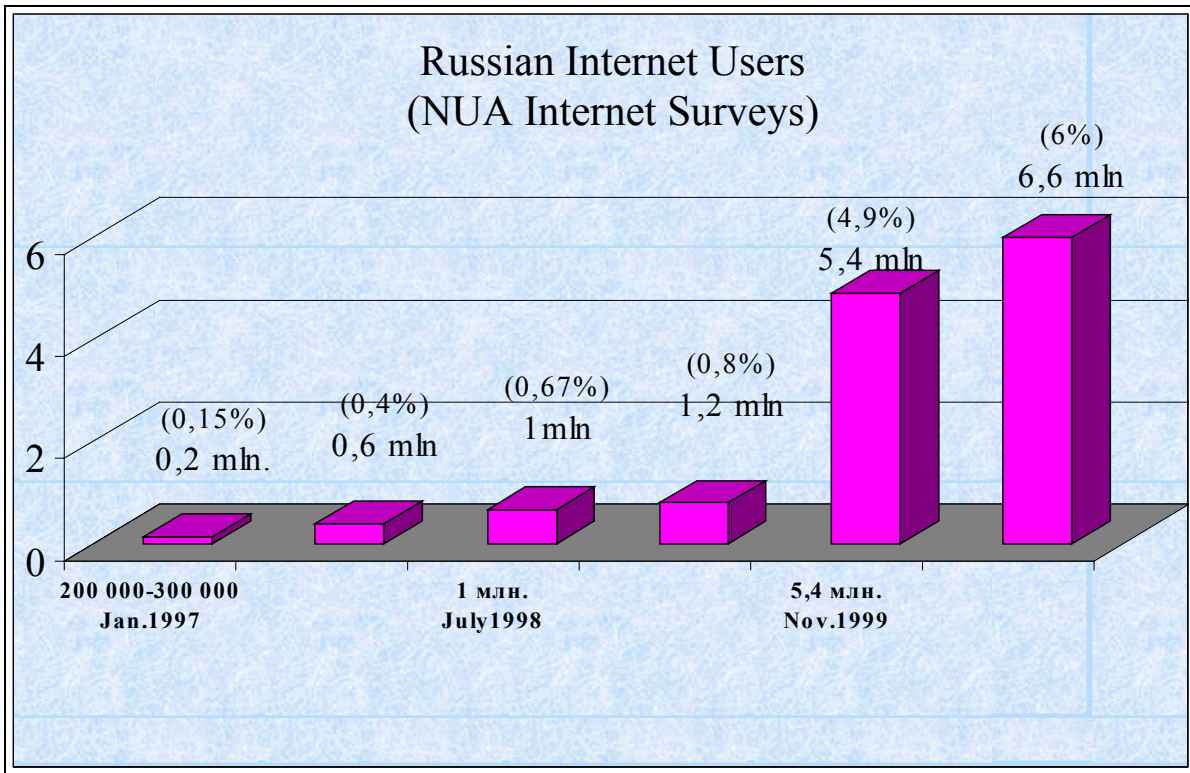
Among the European countries most of all use Internet in Germany, France, the Great Britain.

On data NVA INTERNET SURVEYS dynamics of change the number of Internet users for Germany the following:



Slide2

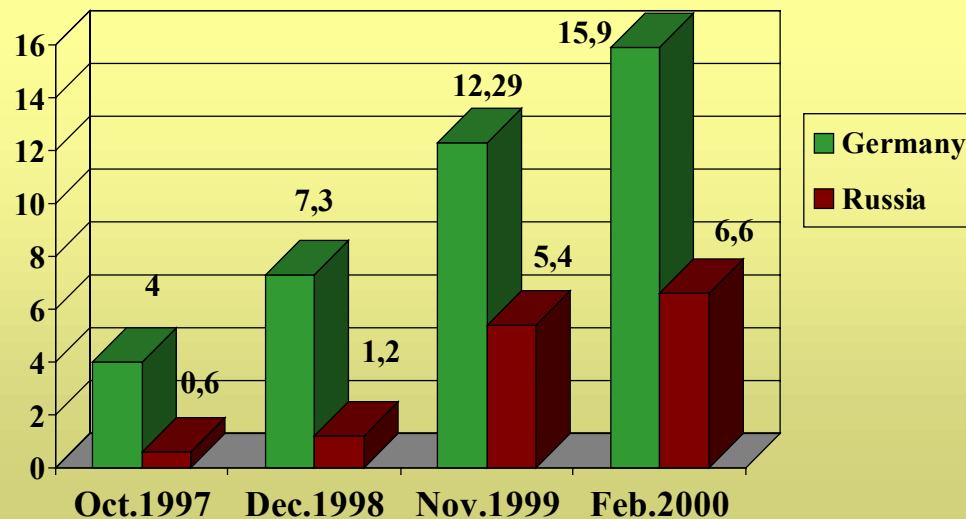
For us was very interesting to compare a situation in Germany with dynamics of increase of number of the Internet users in Russia. We have obtained data on various years from different sources and, having united them, have received the following diagram.



Slide 3

Having combined these two diagrams, we have received the united diagram (a slide 4) from which it is visible, that dynamics of change in both countries goes very big rates, under the law of a geometrical progression.

## Internet statistics in Germany and Russia



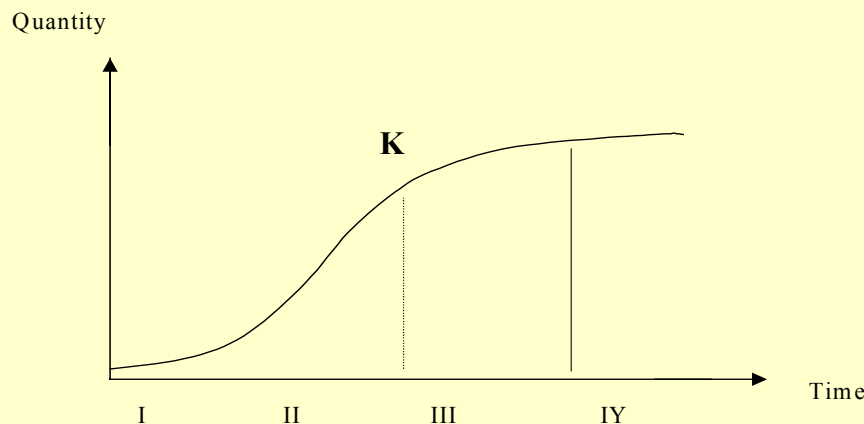
Slide 4

What it is necessary to pay attention on here? The number of users in Russia lags behind Germany on approximately for 2 years. It is possible to expect, that these parameters will be leveled. Indeed, with increase of number of users, speed of such increase begins to be reduced from some moment. Due to that it is possible to expect alignment of number of users the Internet, as in absolute, and relative sizes.

The given forecast is proved to be true on an example of USA too, the country which is the leader in the given area. Speed of increase of population Internet began to be reduced already in USA.

Thereby the general view of a curve of growth of number of INTERNET users can be presented in the following kind:

## The curve of the Internet users growth



Slide 5

As we can see, on curve it is possible to allocate 4 areas. The first part corresponds to the initial stage of development the Internet. The second area corresponds to sharp growth of number of users when growth goes in a geometrical progression. Speed of increase of number of users is positive. The border of the second and third areas is designated in figure by the letter "K" after which the number of users is increased, but speed of increase begins to be reduced. It becomes negative. And, at last, on the fourth segment there comes process of stabilization when the number of users is stabilized.

It is possible to tell, that USA is now in the third zone, the majority of the European countries is in the second. In the fourth zone while there is no country. I.e. the amount of users continues to be increased.

The Given analysis shows, that the market of Internet-services continues to grow and develop and, therefore, is rather perspective.

One of parameters of development of the market of services in Internet is the quantity of providers. More than 300 providers operate in Russia now. In the following figure growth of number of domains and WWW-servers in Russia is shown.



Slide 6

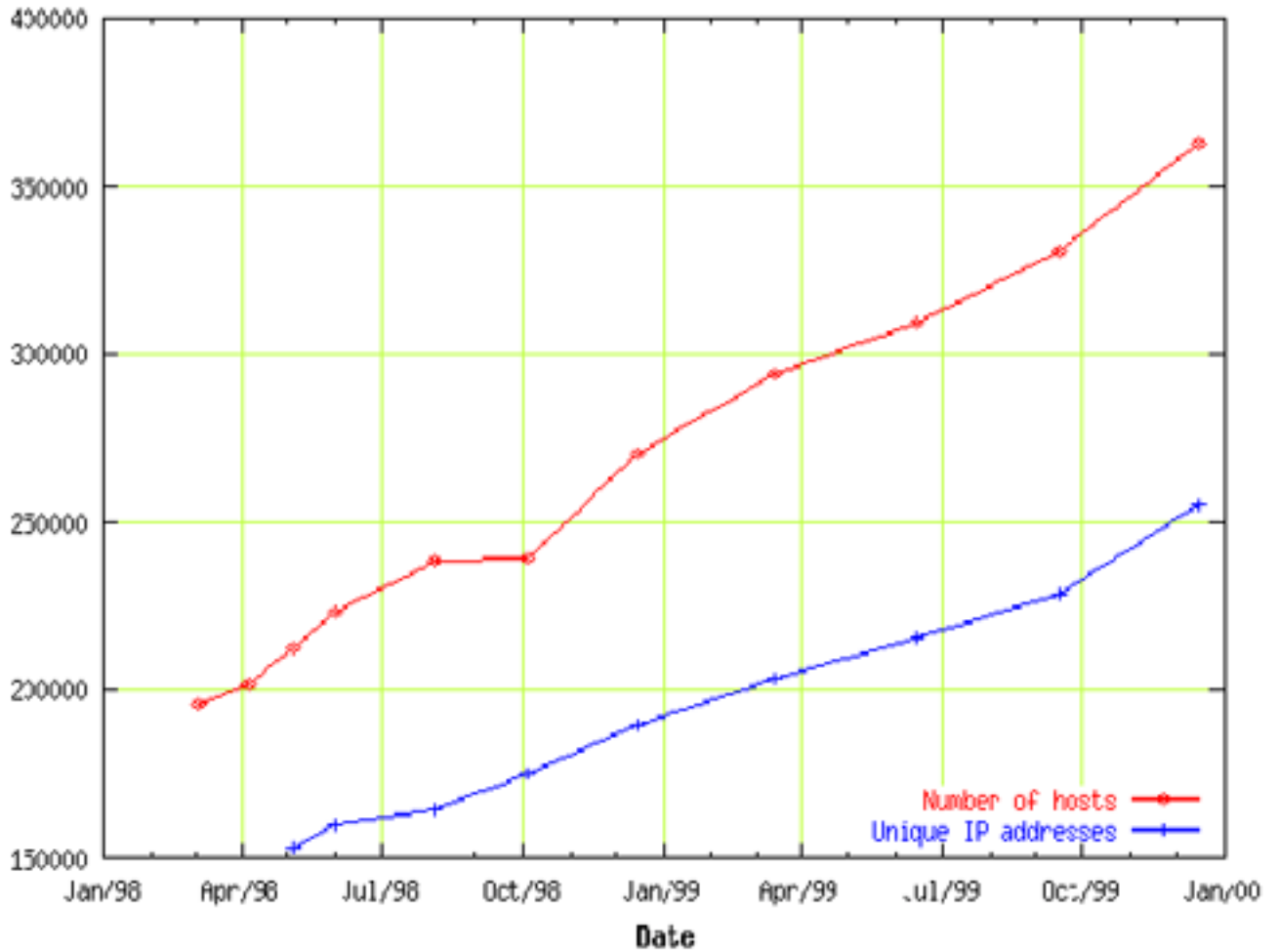
Such growth of number of users results in delay of speed work of a network.

Further, it will be a problem to move such plenty of the information using existing technologies. Therefore leading firms and scientific try to improve existing technologies of transfer of the information. Development of laser technologies using for increase of throughput up to two orders now are conducted. Efforts of conducting American, Japanese firms, such as “Sharp”, “Hewlett Packard”, etc are joined.

Another parameter of development the Internet is quantity of IP-addresses or Hosting. In Russia, to middle of 1998, it was totaled all 180 thousand IP hosting, to the beginning of 2000 about 360 thousand, to present time there is more than one million.

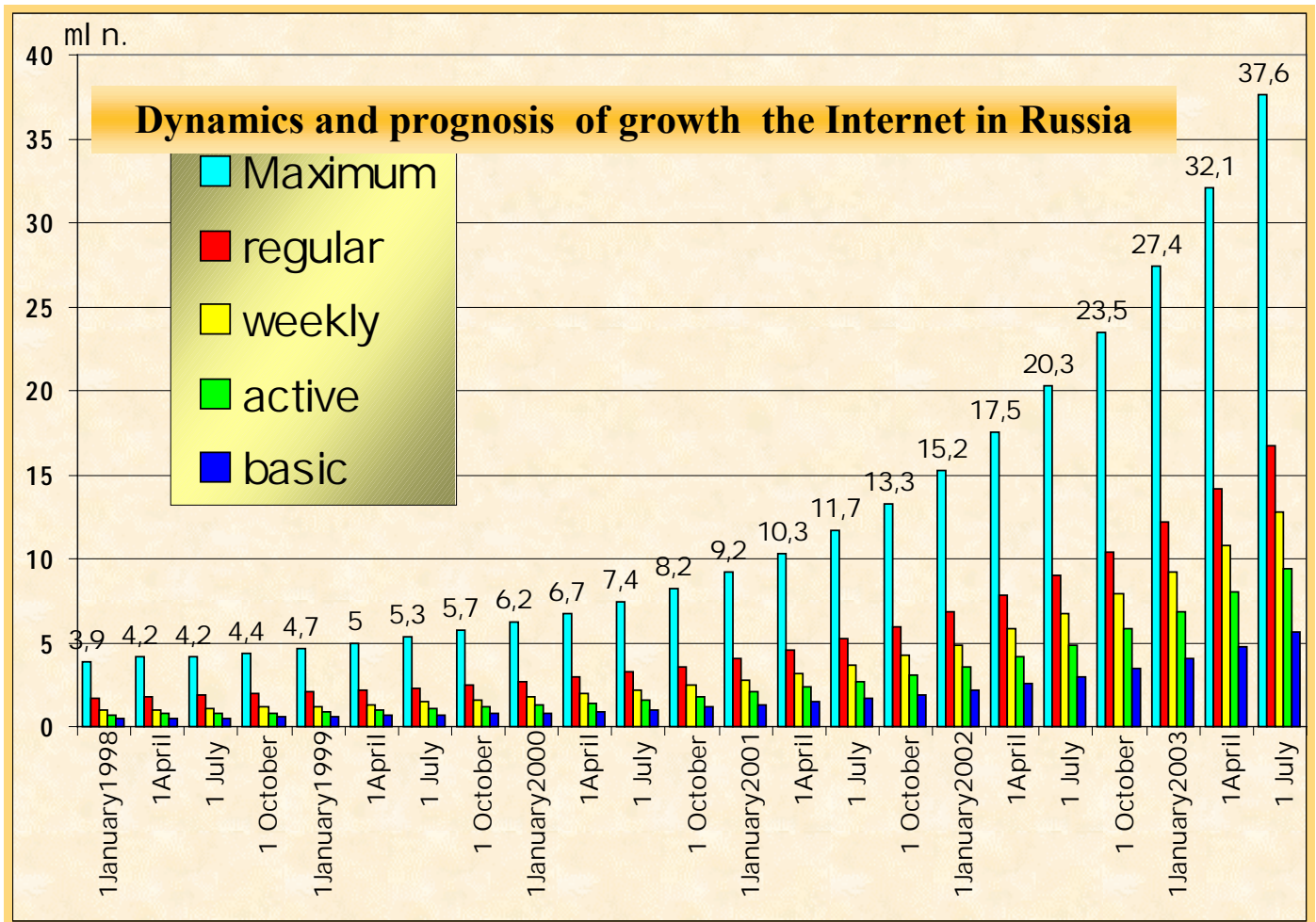


## Russian Internet Growth: hosts and unique IP numbers



Slide 7

Summing up research of development the Internet as a whole on Russia, we shall result the forecast of quantity of users till July 2003.



Slide 8

Now the estimation of the volume of services given by providers is approximately 150 million \$ per one year in Russia. There are about 50 thousand independent information resources of the Network (web-sites, thematic pages, servers) in the country.

There is 0,7-1,0 terabytes of the information in Russian language in the Russian part of Internet. The estimation of a turnover of commercial services in the various data is from 6 up to 10 million \$ per one year. The estimation of a turnover from advertising reaches 1 million \$ from 10 million\$. These data shows the growth of use of marketing through the Internet.

Completely clearly, that any branch, including, the geodesy and a cadastre might not remain away from modern the Internet - technologies. Since 1996 using of the Internet in the given sphere began to grow promptly.

As till 1996, in Russia was a few providers, which could supply a full set services at that time, in the field of a geodesy and a cadastre the E-Mail service was used only. But then, approximately, with the same speed, as well as a whole on Russia, there were to occur the

specialized sites pursuing the various purposes. It can be looked after on marketing GIS-technologies through Internet. In 1995 the domestic-owned firms engaged in GIS-technologies had no sites, and only about 2 % had an E-Mail. In 1998 there was 47 Russian sites on GIS subjects, by 2000 a number of them was doubled. The greatest number of sites was represented by the commercial and state enterprises. Basically their contents were limited by representation of the enterprise, its production and services. The second type of sites became sites of federal authorities. So in 1997 sites of the Ministry of Property Relations and the Russian Land Committee have appeared. With very big delay, the site of Federal Service of Geodesy and Cartography in the summer 2001 has appeared. The given sites represented and represent the big interest for the enterprises and the experts working in the given branch. There is a plenty of the legal information, news, the information on retraining and other information here.

The third types of sites are sites of educational institutions and the scientific organizations. The information on specialties, curricula, programs of preparation and retraining of experts here is submitted.

There are not yet INTERNET shops in the field of a geodesy and a cadastre now in Russia. But there are sites in which business concerns offer the software, geodetic tools, the services in various spheres of a geodesy and a cadastre.

There are also informative sites, for example, GIS-ASSOCIATIONS. This is a public organization uniting physical and legal persons, working in the field of GIS-technologies. GIS-association carries out annual forums, publishes the magazine.

Thus, there are five types of sites now (the approximately number is near 130), connected with a geodesy or cadastral works in Russia. But the author has collected the statistics on some adjacent areas. There are about 518 sites on questions of an real estate valuation on the present moment, 387 sites was created concerning the questions used in real estate management, 332 sites is devoted to land development.

Taking into account experience of the European countries, and the statistical information, which was mentioned above, it is possible to make some forecast of development of the Internet in Russia, in particular, in a geodesy and a cadastre. Obviously, that in a quantitative sense, all parameters will grow according to a curve given on a slide 5.

But the Internet in considered area will vary and in a qualitative sense. With the big share of probability, it is possible to assume occurrence the Internet of shops on sale of the geodetic equipment, software already in the near future. Internet is used for commercial objectives, as it was spoken above in USA, European countries. And, the turnover of offered services grows proportionally to number of users Internet itself. It is obvious, that it is necessary to expect about the same pictures and in RUSSIA. Already now it is necessary for organizations to think over the marketing program.

What it is necessary to pay attention on here:

First of all, on the software (including GIS) which now could be sold through network Internet. In Russia there are only a few sites where it is possible to download either demonstration versions or conditionally free-of-charge.

There are about 20 Russian-speaking sites of firms of suppliers of the software.

There are only some sites where firms - suppliers of modern geodetic devices, there are 5 electronic versions of magazines or survey sites on which it is possible to familiarize with news in the field of a geodesy, cadastre. However it is not enough.

Obviously, the sites giving the land information will continue to develop. Now there is an opportunity to overlook small-scale cartographical production.

In connection with growth of Internet space, it is possible to expect, that in the near future existing search machines will not meet to necessary requirements. To our opinion, search machines on the certain directions will appear. Including on a geodesy, a cadastre. Obviously, the specialized conferences in this area will develop. Though certainly they will not replace real conferences where the direct dialogue of the scientific from many countries is passed. It is possible to predict increase of information sites in the field of a geodesy and a cadastre which purpose will be advertising of the organizations and the firms working in this area. The author creates a similar site. The purpose of development of such site - the creation of the uniform accessible information base which uniting all open resources in the field of a geodesy and a cadastre. Thus two names of this site were registered. <http://www.geodesy.ru> and <http://www.cadastre.ru> .

Both these names appeared free before.

The author put the following tasks:

- Creation of legal base for organizations and the physical persons working in the given area;
- Creation of information base of the enterprises;
- Creation of information base of news in a science and manufacture, improvement of professional skill and retraining of staff;
- Information interchange with the foreign organizations;
- Provide of consultations;
- Realization of virtual conferences;
- Conducting of information base about scientific conferences, symposiums, including international, the publication of their materials;
- Association of the information of adjacent state departments;
- The Information about new publications: monographers, articles, textbooks, and directories.

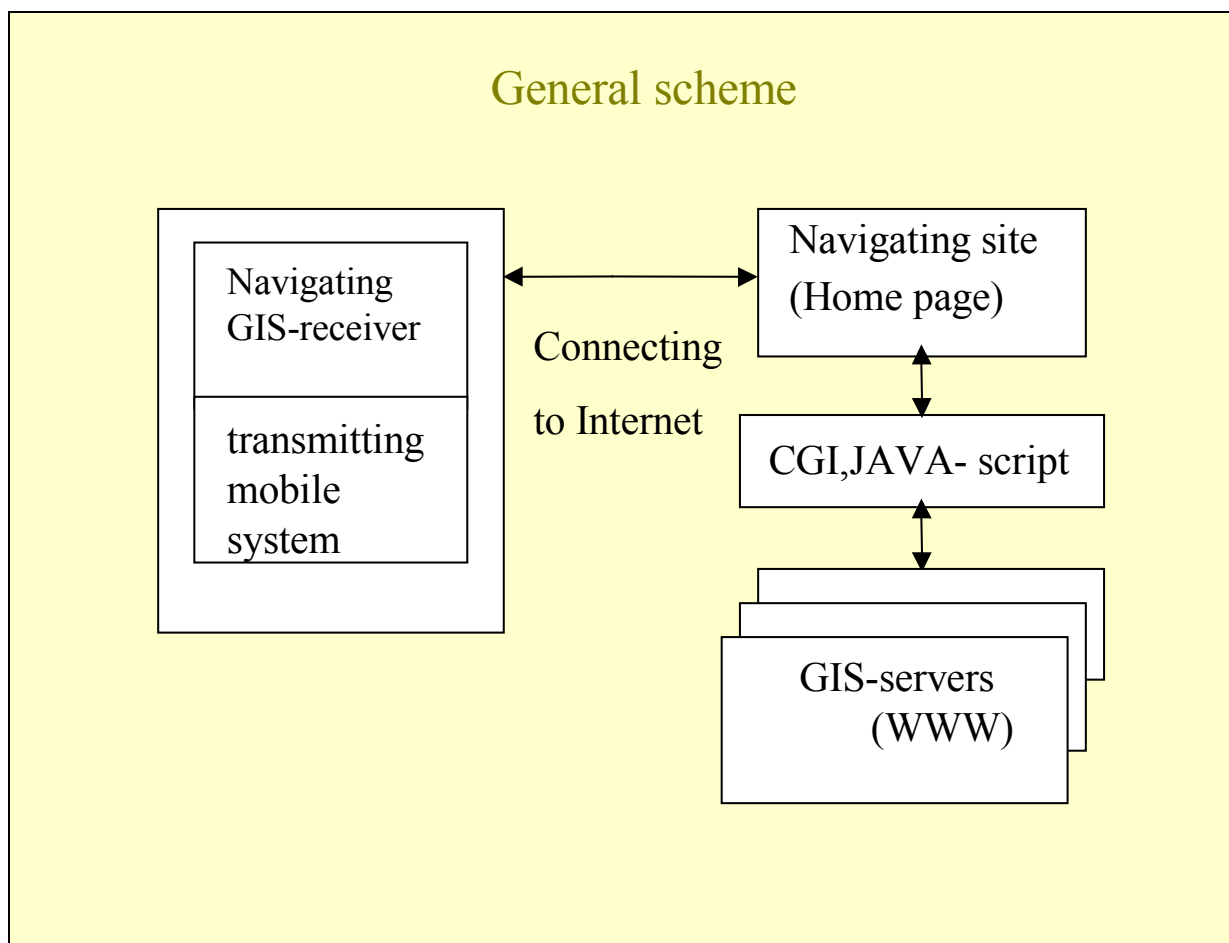
Probably, there are not the similar sites having similar structure and the name in many countries. For example, the site <http://www.geodesy.com> had no any relation to a geodesy at all earlier. But also now this domain belongs to the organization, which sells satellite devices.

The site <http://www.geodesy.net> either now has no the relation to a geodesy. To our opinion, such domains should have informative character.

We think, that information sites will appear in each country. And, certainly, the cooperation and information interchange should be adjusted between them. To our opinion, it is easier to organize such cooperation with help of FIG.

Another forecast concerns systems of navigation. To our opinion, the navigating site should appear. Really, there are set of sites in the world now which represent the cartographical information, aerial photographs and space pictures and it will be possible to have access to them in the fast future through the space connection.

It is not difficult to imagine association of technologies. The send-receive devices working with 3G as technologies of mobile communication (technologies of 3 generations) is built in navigating GPS receivers and provides connection with Internet. On the Slide 9 the general scheme of work of such system is submitted.



Slide 9

Here GPS-receiver defines coordinates of a site. And there is a connection with domestic page Internet - a navigating site with the help of the device of connection where could be

found a GIS-server with suitable topographical information (with help CGI or Java scripts) on the given coordinates. Then, the information is sent back to the user. The user identifies one more point where he should get on the received map. The navigating site with help CGI-scripts defines the navigating data: the distance, дирекционный angle, the best way of movement, selects the appropriate topographic maps and transfers it to user.

It is an example of possible integrating of Internet-technologies, GIS and the geodetic engineering, connected with appearing of the new opportunities. And it may become a reality in the nearest future.

It is obvious, that firms, the organizations should pay attention on using of Internet. It is connected with GIS -technologies which are already united on GIS-SERVERS, both with geodetic devices and with advertising services in sphere of a geodesy and a cadastre and other opportunities about which was spoken above.

Cadastre and geodesy fields, as well as other branches will be inextricably related with Internet-technologies in the future.

Therefore the geodetic organizations engaged in cadastral works, should invest money in the Internet projects. It also concerns the development of new technologies and marketing researches in the INTERNET.

## REFERENCES

Internet sources;  
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## BIOGRAPHICAL NOTES

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