WEBOMETRICS RANKING: THE DYNAMICS OF NETWORK ACTIVITY OF WORLD UNIVERSITIES

The openness of information on achievements in educational and research activities of world universities in modern conditions is of paramount importance not only for the modernization of education, but also in the context of financial constraints related to the economic crisis. The main ideas which have been initially put in Webometrics Ranking is the information exchange. All these important indices have led to notable results which we recorded in the analysis of the dynamics of network activity of universities, particularly universities of Russia. We also consider a new aspect of leadership of higher education systems of countries - not only for individual universities- leaders, but for the full range of universities in the system. Taking into account the magnitude of the higher education system, Russia for the first time comes to leading positions.

A NEW ASPECT OF LEADERSHIP
For the first time there appeared the opportunity to compare the systems of higher education of the countries not only by individual institutions-leaders, but by all the body of universities making the system.

NUMBER OF NATIONAL UNIVERSITIES AMONG SEVERAL THOUSAND WORLD BEST UNIVERSITIES IS THE INDICATOR OF SCALE OF HIGHER EDUCATION.

ADVANCED OPPORTUNITIES OF DEVELOPMENT OF UNIVERSITIES
Practically each university of the world has an opportunity on the basis of the analysis of the rating results to reveal their strengths and weaknesses and adjust the educational and research
### Webometrics Ranking Indicators

**2004-2011**

- **Visibility (weight 50%)**
  - The total number of unique external links received by a site from Yahoo Search.

- **Size**
  - Weight 25% in 2004-08, 20% in 2009.
  - The number of pages recovered from four engines: Google, Yahoo, Live Search and Exalead.

- **Rich Files**
  - Weight 12.5% in 2004-08, 15% in 2009.
  - The availability of different file formats such as Adobe Acrobat (.pdf), Adobe PostScript (.ps), Microsoft Word (.doc) and Microsoft Powerpoint (.ppt).

- **Scholar**
  - Weight 12.5% in 2004-08, 15% in 2009.
  - The number of papers and citations for each academic domain provided by Google Scholar. These results from the Scholar database represent papers, reports and other academic items.

**2012-2013**

- **Visibility (50%)**
  - The quality of the contents is evaluated through a "Virtual Referendum", counting all the external inlinks that the university webdomain receives from third parties. The link visibility data is collected from the two most important providers of this information: Majestic SEO and Ahrefs.

- **Impact (50%)**

- **Activity (50%)**
  - Presence - 1/3 (weight 16.67%)
    - The total number of webpages hosted in the main webdomain (including all the subdomains and directories) of the university as indexed by the largest commercial search engine (Google). It counts every webpage, including all the formats recognized individually by Google, both static and dynamic pages and other rich files.

- **Openness - 1/3 (weight 16.67%)**
  - The global effort to set up institutional research repositories is explicitly recognized in this indicator that takes into account the number of rich files (PDF, DOC, DOCX, PPT) published in dedicated websites according to the academic search engine Google Scholar. The objective is to consider recent publications that now are those published between 2008 and 2012 (new period).

- **Excellence - 1/3 (weight 16.67%)**
  - The academic papers published in high impact international journals. The indicator is restricted to only those excellent publications, i.e. the university scientific output being part of the 10% most cited papers in their respective scientific fields. Although this is a measure of high quality output of research institutions, the data provider Scimago Group supplied non-zero values for more than 5200 universities (period 2003-2010).

STARTING WITH JANUARY 2012, WEBOMETRICS RANKS 20,000 UNIVERSITIES OF THE WORLD. SUCH SCALE OF STUDIES IS PRESENTED FOR THE FIRST TIME.

The sharp increase in the number of universities being ranked in 2012 revealed the scale of the system of higher education in such countries as India (3rd place in the total number of universities ranked), Mexico, Poland, Indonesia, Pakistan, Ukraine, Columbia, Philippines.

RUSSIA HAS SIGNIFICANTLY IMPROVED ITS PERFORMANCE IN 2013, MOVING FROM THE SEVENTH TO FOURTH PLACE BY THE NUMBER OF RANKED UNIVERSITIES.

ONLY FIVE COUNTRIES OUT OF TWENTY INCREASED THE NUMBER OF RANKING UNIVERSITIES DURING THE YEAR (JANUARY 2012- JANUARY 2013). THE GREATEST GROWTH OF NETWORK ACTIVITY IS IN RUSSIA (85%).

THE SCALE OF NATIONAL HIGHER EDUCATION SYSTEMS

JANUARY 2012

USA 3254
BRAZIL 1656
INDIA 1632
CHINA 1192
MEXICO 931
JAPAN 713
RUSSIA 657
FRANCE 619
GERMANY 450
KOREA 409
UKRAINE 392
POLAND 325
INDONESIA 298
PAKISTAN 283
MEXICO 271
SPAIN 241
ITALY 237
SWITZERLAND 211

JANUARY 2013

USA 2980
BRAZIL 1477
INDIA 1266
CHINA 1166
MEXICO 925
JAPAN 702
RUSSIA 632
FRANCE 606
GERMANY 439
KOREA 401
UKRAINE 384
POLAND 318
INDONESIA 287
PAKISTAN 276
MEXICO 247
SPAIN 230
ITALY 218
SWITZERLAND 198

THE GREATEST GROWTH OF NETWORK ACTIVITY IS IN RUSSIA (85%).
JANUARY 2013, TOP 1000

More than ten national universities among 1000 the best universities of the world - this indicator is observed only in a small number of countries: 19 countries in the January rating 2013 (in 2009, 2010 only in 15 countries). Russia for the first time entered the number of these countries in January 2013, dividing 16-18 place with Sweden and the Netherlands (12 universities in each of these three countries).

INDEX OF RUSSIA - 5 compared to 12 in 2013!

Russian universities among 1000 the best universities of the world in 12 ratings 2007-2013

The sharp improvement in 2012 with a record result in January 2013
BY THE NUMBER OF NATIONAL UNIVERSITIES AMONG 5000 BEST UNIVERSITIES OF THE WORLD, RUSSIA IN THE LATEST RANKING MOVED CLOSER TO JAPAN, OCCUPYING THE THIRD PLACE.

RUSSIAN REGIONS IN THE WORLD EDUCATIONAL SPACE

AS IN PREVIOUS RATING (2007-2013), UNIVERSITIES OF DIFFERENT REGIONS OF RUSSIA

RECORD RESULTS OF RUSSIAN UNIVERSITIES

2012-2013


IN 2011-2013, STARTING FROM THE TOP 3000, RUSSIA IS AMONG THE TOP TEN COUNTRIES BY NUMBER OF NATIONAL UNIVERSITIES AMONG THE BEST UNIVERSITIES OF THE WORLD. IN 2012 FOR THE FIRST TIME RUSSIA REACHED 8-TH PLACE IN THIS SAMPLE.

IN THE TOP 4000 AND TOP 5000 RUSSIA FOR THE FIRST TIME RANKED 4TH IN COMPARISON WITH 7-9 PLACES IN PREVIOUS YEARS.
STARTING FROM THE TOP 3000 AMONG THE BEST UNIVERSITIES OF THE WORLD ALL FEDERAL DISTRICTS OF RUSSIA ARE PRESENTED—fig. 1.

AMONG 12 BEST RUSSIAN UNIVERSITIES (TOP 1000) ONLY 4 MOSCOW UNIVERSITIES, DESPITE THE FACT THAT MOSCOW ACCOUNTS FOR ABOUT 40% OF THE UNIVERSITIES IN THE COUNTRY—fig. 2.

IN THE TOP 2000 AMONG 39 RUSSIAN UNIVERSITIES DOMINATE UNIVERSITIES OF SIBERIA (10 OF 39), FOLLOWED BY MOSCOW (9 UNIVERSITIES) AND VOLGA FEDERAL DISTRICT (8 UNIVERSITIES). THIS SAMPLE REPRESENTS ALL FEDERAL DISTRICTS EXCEPT FOR THE FAR EASTERN DISTRICT—fig. 3.

IN THE TOP 3000 (88 RUSSIAN UNIVERSITIES FROM ALL EIGHT FEDERAL DISTRICTS) REMAINS THE SUPERIORITY OF SIBERIA (22 OF 87), FOLLOWED BY MOSCOW (19 UNIVERSITIES) AND THEN VOLGA FEDERAL DISTRICT (15 UNIVERSITIES) – fig. 1.

RUSSIAN REGIONS IN THE WORLD EDUCATIONAL SPACE
Starting from the top 4000 Moscow universities are ahead. With the increasing sample the share of Moscow universities grows (Fig. 4 A) – impact of a factor scale.

Siberian and Volga districts, starting from the top 5000, have similar figures. Further follows the North-Western Federal district (4th place, starting with the top 2000) and 5th place – Central Federal district (excluding Moscow universities).

Universities of the Ural, Southern, Far Eastern and North-Caucasian districts are characterized relatively low network activity. (especially Far Eastern and North-Caucasian districts – Fig. 4 B.)
### THE NUMBER OF UNIVERSITIES WITH A HIGH LEVEL OF CERTAIN INDICATORS

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>from 1 to 100</th>
<th>from 1 to 200</th>
<th>from 1 to 500</th>
<th>from 1 to 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPENNESS RANK</strong></td>
<td>4</td>
<td>6</td>
<td>24</td>
<td>66</td>
</tr>
<tr>
<td>The global effort to set up institutional research repositories is explicitly recognized in this indicator that takes into account the number of rich files (pdf, doc, docx, ppt) published in dedicated websites according to the academic search engine Google Scholar the objective is to consider recent publications that now are those published between 2008 and 2012 (new period).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PRESENCE RANK</strong></td>
<td>2</td>
<td>5</td>
<td>18</td>
<td>43</td>
</tr>
<tr>
<td>The total number of webpages hosted in the main webdomain (including all the subdomains and directories) of the university as indexed by the largest commercial search engine (Google). It counts every webpage, including all the formats recognized individually by Google, both static and dynamic pages and other rich files.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IMPACT RANK</strong></td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>The quality of the contents is evaluated through a &quot;virtual referendum&quot;, counting all the external inlinks that the university webdomain receives from third parties. The link visibility data is collected from the two most important providers of this information: majestic seo and ahrefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EXCELLENCE RANK</strong></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>The academic papers published in high impact international journals. The indicator is restricted to only those excellent publications, i.e. the university scientific output being part of the 10% most cited papers in their respective scientific fields. Although this is a measure of high quality output of research institutions, the data provider scimago group supplied non-zero values for more than 5200 universities (period 2003-2010).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WORLD RANK</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>

More than 80% of universities with such openness rank are located in the Volga and Siberian federal districts. Thus, an increasing number of Russian universities, particularly regional ones, are imbued with the ideas of webometrics, of which the most attractive for Russia is the exchange of scientific information through online publications.

High presence rank also promotes the exchange of experience between the regions of the country.

During the economic crisis, complicating the full-time exchange of experience between regions, the growth of the network activity of universities and especially excellence rank and presence rank, plays a crucial role for the intellectual development of the regions.
The main conclusions of the review of the results of the dynamics of Russian universities in the period 2007-2013 (including July 2013) are as follows:

1) By number of national higher education institutions among 5000 best universities of the world Russia enters in the top ten since 2007. In 2011-2013 Russia is among the top ten, starting with a sample of 3000. In 2012 for the first time reached the 8th place in this sample.

2) Development of the network activity of Russian universities promotes intellectual development of the regions. Since 2007, among Russian universities, included in the 3000 best universities of the world, universities from all Federal districts of Russia are represented. Moreover, among the best universities of Russia there is predominance of regional universities.

3) The important feature of network activity of regional universities - high ranking indicator, characterizing the openness of information (OPENNESS). The weak point - EXCELLENCE RANK.

In August of this year there were published the results of the July 2013 ranking, which will be discussed in detail in our next study. According to preliminary analysis, Russian universities after a period of sustained improvement in the ranking positions, unfortunately, suddenly worsened their results. Whether it's a casual decline - can be judged after the analysis of the next two or three ratings. However, the reasons need to think about now. One of the reasons may be associated with the activation of the process of modernization of Russian higher education and with some uncertainty of a number of universities in this period. The instability of the financial situation during the period of the modernization of education, certainly is compounded by the