

# **MOSIUR CRITERIA FEATURES: OUTCOME STUDY**

**Criterion: "University's Impact on Society"**

## ANNOTATION

This paper starts the series of publications by the Association of Rating Makers on investigation results of the Moscow International University Ranking «The Three University Missions» innovative criteria.

The papers aim to justify the use of these criteria as part of the ranking, to explain the processes observed through university performance indicators, to reveal the strengths and weaknesses of the criteria, to present the indicator calculation details and data sources, as well as the results of preliminary calculations.

The studies are based on a set of data collected while preparing Moscow International University Ranking "The Three University Missions".

This paper presents the results of the study on the University's Impact on Society criterion (University's alumni with an individual article on Wikipedia).

## CONTENTS

Abstract . . . . .	3
Prerequisites . . . . .	4
Criterion: content, practical advantages and disadvantages . . . . .	4
Calculation . . . . .	5
Results . . . . .	6
Decile distribution . . . . .	6
Global geographic distribution . . . . .	7
Distribution per country. . . . .	8
Annex: Brief Project Profile . . . . .	10

## ABSTRACT

From the study we have conducted we can draw the following conclusions:

- A successful career of the university's alumni is an important criterion that determinates the university's influence on society and its contribution to training the professional that play social roles
- The criterion calculation is based on the number of alumni successful in various areas (politics, science, art, business, charity) with an individual article on Wikipedia about them.
- Currently Wikipedia has almost no alternatives as a source of remote calculation of the number of alumni, known for outstanding success in their activities, on a large data set covering the majority of countries and available in native languages in the regions where English is not widely spoken.
- Wikipedia's disadvantage is a low level of expertise of its articles, which may result in incomplete/unverified information, and gives an opportunity for data manipulation. However, the error level, which is typical of any large data set, equally affects all of the countries and higher education institutions; some of the risks can also be minimised.
- The criterion calculations have shown that the number of shortlisted universities' alumni with an individual Wikipedia page meeting the threshold requirements provided by the ranking methodology, is over 50 000.
- A high correlation between the universities' ranks by the number of alumni with an individual Wikipedia page and the number of alumni in the management of the biggest companies demonstrate a direct connection between these indicators. Thus, our anticipation that a personal article about a university alumnus is evidence of their important role in society has been empirically confirmed.
- The decile distribution has a moderate concentration level. The first decile universities together account for slightly less than half of the total number of alumni with a Wikipedia article.
- If we split the alumni with an individual Wikipedia article between macro regions, higher education institutions of North America, Western Europe, and Asia will prevail by average number of alumni per institution; universities of Australia and Oceania have strong positions, too.
- The leaders in average alumni with a Wikipedia article number per university are Japan (603), Germany (494), and the United States (281). Russia ranks 9th in this criterion.

## PREREQUISITES

The influence of a higher education institution on society is determined by the success of its alumni and their ability to play important social roles. One of the indicators of alumni's successful careers is their famousness, which, among other things, includes availability of public information about their achievements in politics, business, science, art, and social sphere. However, up-to-date and verified sources of information like that have been almost unavailable until recently.

Traditional encyclopaedias provide information about a narrow circle of people that can be partly determined by editor's preferences, and their achievements in a majority belong to the past due to delayed preparation of this kind of publications. List of top personalities in various areas (i.e. top business managers, richest people rankings, and others), published in some mass media, are incomplete from the perspective of covering all the major areas of activity. Receiving data from universities directly is unacceptable, because it will be impossible to verify the data appropriately.

The situation has changed with the growing popularity of Wikipedia, the free multilingual comprehensive online encyclopedia. As of August 2017 it contained more than 40 million articles in 299 languages (for reference: Encyclopaedia Britannica contains 120 thousand articles). Wikipedia is one of the ten most visited websites in the world. The Wikipedia's policies ensure keeping its content up-to-date.

## CRITERION: CONTENT, PRACTICAL ADVANTAGES AND DISADVANTAGES

The criterion "University's impact on society" demonstrates a university's influence on society. It is part of the University and Society group of criteria of Moscow International University Ranking, and one of the elements of the Communication with Society subgroup.

The criterion calculation is based on the number of alumni being successful in various areas (innovations, art, business, charity) with an individual article on Wikipedia about them.

Wikipedia's main advantage as a source of information is the possibility of remote calculation of the number of alumni, known for outstanding success in their activities, on a large data set covering the majority of countries and available in native languages in the regions where English is not widely spoken. There are virtually no reasonable alternatives to Wikipedia as a source of data like that now.

Wikipedia's main disadvantage as a source of data of this kind is an insufficient level of expertise of its articles, which sometimes results in publishing incomplete or unverified information, and a possibility of data manipulation because its entries can be freely edited. This problem is partly solved by the standard article editing and source verification procedures, which apply to all the Wikipedia parts in all languages. Besides, the error level, which is typical of any large data set, in this case equally affects all of the countries and higher education institutions, and possible data manipulation is compensated by the threshold values provided by the methodology (Table 1).

Thus, Wikipedia's advantages in relation to calculating this criterion outweigh the potential risks, some of which can be minimised.

**Table 1**

*Advantages and disadvantages of the criterion "University's impact on society"  
 (the number of university's alumni with an individual Wikipedia article)*

Advantages	Disadvantages	Commentary
The criterion gives an unrivaled opportunity to obtain quantitative data on the well-known alumni with significant achievements in various areas (in numbers of pages, from the perspective of country coverage and languages).	Wikipedia articles used might contain incomplete/unverified information; The criterion indirectly measures the reputation of the alumni. It can be not only positive but also negative.	Any large data sets have a certain level of error. In case of Wikipedia the possibility of having to do with incomplete/unverified information should be treated as inevitable background, equally typical of all the counties and universities, which minimised the risks from the ranking perspective. This applies to the problem of alumni positive/negative reputation as well. The management of the project state that they timely detect and delete unreliable information.
Relevance of information: the free access policies of Wikipedia ensure that new data are timely added.	Possible data manipulation: the free access policies of Wikipedia result in running the risk of having to do with data about alumni without significant achievements (the risk is partly minimised by Wikipedia notability criteria)	To minimise the risks of data manipulation in calculating the number of pages about a university's alumni we have applied a threshold value for the number of views (currently, no less than 1000). Thus, the pages which are not often visited by the users are excluded from calculation.
The criterion shows the results of a university's activities, which contributes to the universities final rank.		
The data for calculation are remotely available, making their verification easier		

## CALCULATION

A data set with information about individual Wikipedia articles is made through custom text analysis algorithms, which collect data from pages in English and, if possible, national languages of the ranking's shortlisted institutions.

The data set we have obtained contains the following fields:

- Institution ID;
- Institution name;
- web address of the alumnus' article in English and the national language;
- alumnus' date of birth;
- views of the alumnus' page in English and the national language during the last 12 months before the date of measurement.

To exclude those alumni whose Wikipedia pages are not popular enough, we have introduced a threshold value: no less than 1000 views by Wikipedia users.

To ensure that the data on alumni achievements are up-to-date, we have introduced a threshold value for the alumni's date of birth: not earlier than 1947.

The criterion has been calculated as a total number of a university's alumni with an individual Wikipedia article meeting the threshold values.

## RESULTS

Our calculations have shown that the number of shortlisted universities' alumni with an individual Wikipedia page meeting the threshold requirements provided by the ranking methodology, is over 50 000.

A high correlation between the universities' ranks by the number of alumni with an individual Wikipedia page and the number of alumni in the management of the biggest companies (correlation coefficient = 0.76 for the Russian universities sample) demonstrate a direct connection between these indicators. Thus, our anticipation that a personal article about a university alumnus is evidence of their important role in society has been empirically confirmed.

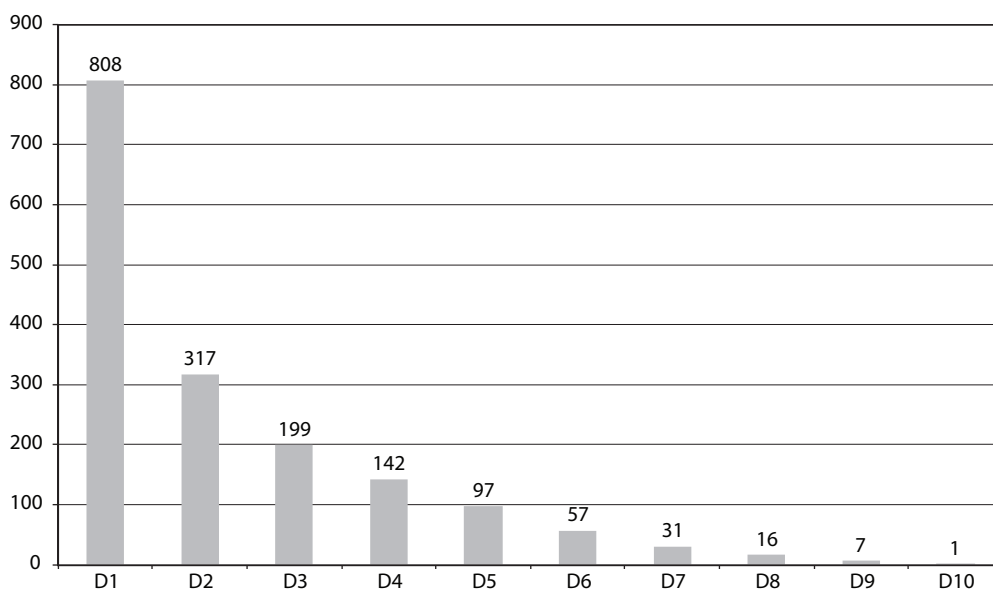
### Decile distribution

On average one participating university has 173 alumni with a Wikipedia page, and the first three deciles are significantly higher than average (Figure 1).

There is a significant margin between 1st and 2nd decile universities (Figure 1) only, after which the distribution becomes smoother. In that way, a D1 university has 808 famous alumni on average, whereas a D2 and D3 institution has 317 and 199 alumni respectively.

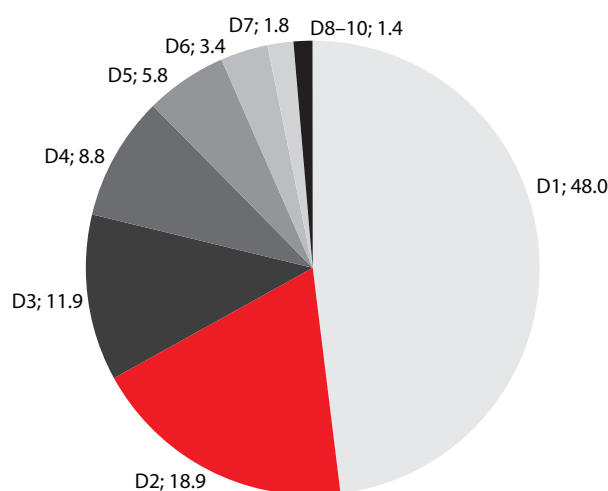
**Figure 1**

*Decile distribution of universities by average number of alumni with an individual Wikipedia page.*



The decile distribution has a moderate concentration level. The first decile universities account for almost half of the total alumni with an individual Wikipedia page (Figure 2); the D3-D5 values vary insignificantly.

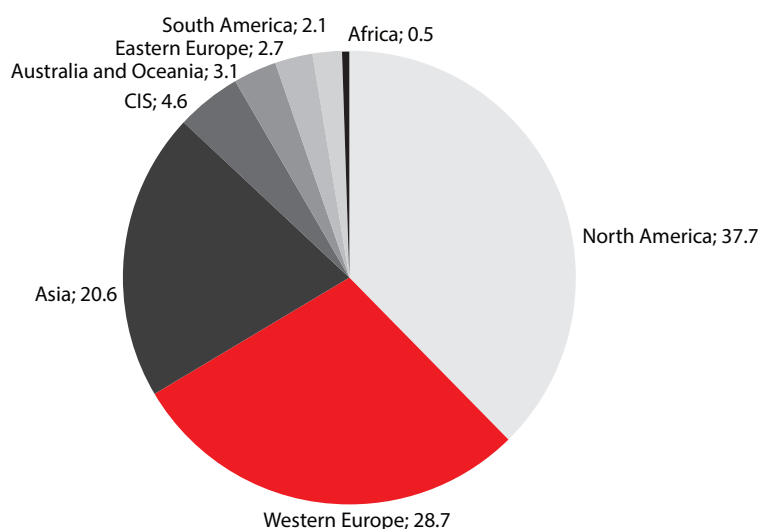
**Figure 2**  
*Decile distribution structure of universities  
 by average number of alumni with an individual Wikipedia page, %.*



### Global geographic distribution

If we consider the distribution of the alumni with an individual Wikipedia article between macro regions, higher education institutions of North America, Western Europe, and Asia will prevail. Together they account for over 85% of alumni with an individual Wikipedia article. The CIS and Eastern European universities account for 4.6% and 2.7% respectively (Figure 3)

**Figure 3**  
*Regional distribution of universities by average number  
 of alumni with an individual Wikipedia page, %.*

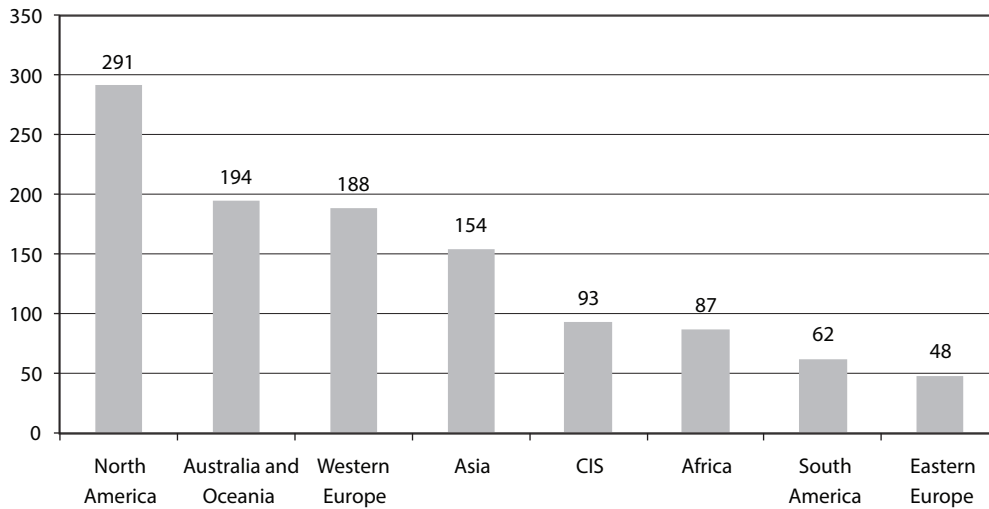


However, considering the number of alumni with an individual Wikipedia article per university demonstrates somehow different leaders, and the margin between them and the rest gets smaller. In this criterion, North America ranks first. However, the region of Australia and Oceania becomes the second, closely followed by Western Europe and Asia (Figure 4).



**Figure 4**

*Regional distribution of universities by average number of alumni with an individual Wikipedia page.*

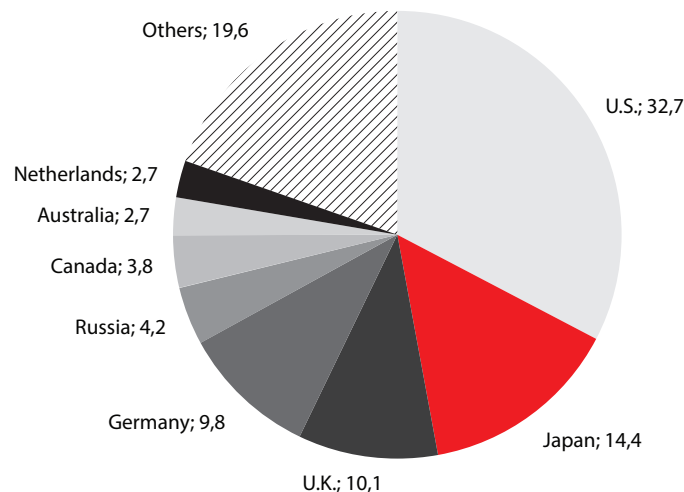


## Distribution per country

For the share of the alumni with an individual Wikipedia page, U.S. universities rank first, accounting for almost a third of the total number. Japan, the United Kingdom and Germany rank second, third, and fourth, respectively (Figure 5)

**Figure 5**

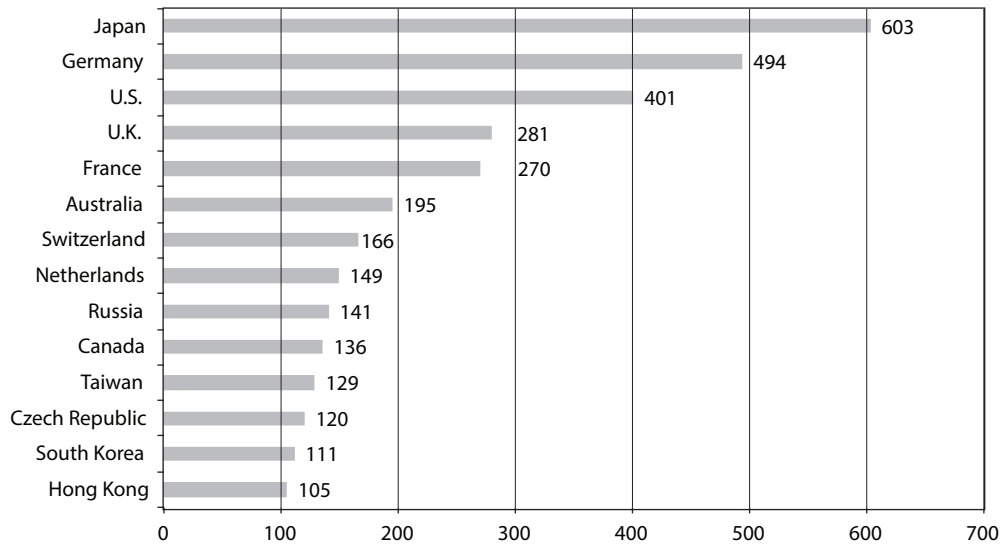
*Country distribution of universities by average number of alumni with an individual Wikipedia page, %.*



Considering the average number of alumni with an individual Wikipedia page per university, Japan ranks first (603), followed by Germany (494) and the United States (281), with a significant margin. Russia ranks 9th in this criterion with an average of 141 alumni per institution.

**Figure 6**

*Country distribution of universities by average number of alumni with an individual Wikipedia page.*



## BRIEF PROJECT PROFILE

### 1. Development background

Ranking of the new type is highly demanded not only in Russia, but also in the majority of other countries. University professors, students, researchers, employers and governments are experiencing problems due to the fact that most of the popular rankings evaluate universities rather one-sidedly. From one third to a half of their indicators account for reputation assessment, and it may account for up to 80% or even more in rankings by subject. At the same time the assessment takes into account neither the actual quality of the graduates' knowledge, nor the introduction of advanced education methods, nor the peculiarities of the national pedagogical and scientific schools.

Moscow International University Ranking "The Three University Missions" assesses higher education institutions according to the three traditional missions of universities. The first one is education. The primary function of universities has always been the same, to teach and to give knowledge to students. Surprisingly, the quality of education remains at the periphery of the global university rankings. The second is scientific research, without which high quality training of specialists is not possible today. It would seem that this area is carefully assessed by the existing rankings, but overemphasis on the data of the selected scientometric systems often leads to serious distortions. And finally, the relations between the university and the local community, which are now getting increasingly important as a condition for sustained development of regions, but are not yet considered by the compilers of existing rankings.

The principal difference of the new ranking is that it is based on the consistently measured quantitative indicators and rules out the use of the data based on reputation surveys, which significantly increases its level of objectivity.

Moscow International University Ranking is the first of the kind to have been widely discussed at international level from an early stage of the project. The initiative has particularly been discussed and supported by the leading universities of Russia, China, India, Iran, Turkey, and Japan. The open public discussion has been carried on by the MosIUR International Expert Council, which consists of more than 20 experts from 11 countries.

### 2. Ranking founder and operator

The ranking founder is the Russian Union of Rectors.

The ranking operator is the Association of Rating Makers (ARM), which includes leading rating and research centres (Expert RA, VCIOM, Reputatsiya, etc.) as its members.

### 3. Methodological concept and features of the ranking

#### Ranking question:

Which university ensures a more balanced development of students?

The ranking arranges the universities in order according to the answer to the ranking question. By balanced development we mean ensuring the development in compliance with the three main university missions: education, research, and social impact.

#### Criteria (factors) selection principles:

- Ranking criteria in the aggregate shall comprehensively reflect all the three areas (missions)
- National specific features. We understand balanced development not as a matter of elitism or being

close to the leading world centres (of economy, culture etc.), but rather in the context of global demand, and above all, in the university location region.

- We use objective criteria only (thus ensuring that the result is observable, verifiable and transparent). Consequently, any ranking user will be able not only to view a university score, but also to interpret it on their own.
- The number of criteria shall be kept reasonably small provided that the first principle is fully observed.

### **Notes:**

- The best known international university rankings do not reflect the first three principles. This fact and the ranking question comprise the unique feature of MosIUR.
- Observability includes being applicable to universities in most of the countries, being common and understandable for universities.
- Criteria number minimisation: the university questionnaire should contain at most 20-22 items. Adding information from other sources is possible provided that the sources are internationally reputable.

### **Characteristics measured (what criteria can reflect):**

- Competition (especially among students), competitiveness
- Affordability, social elevator role
- Importance for the nation and the region (national specific features)
- Availability of necessary resources

**Note:** Ideally we would like our criteria to measure all the aforementioned features. Typically it is not possible, in such cases the priority should be given according to the listing order: for instance, competitiveness is much more important than the resources available.

## 4. Ranking model

