Methodology

The first draft of the Moscow International University Ranking methodology has been developed as a result of a wide public discussion with a total of over 100 collective contributors: universities, rector councils, expert associations, and rating agencies. The list of ranking criteria was submitted for consideration to the International Expert Council of Ranking comprised of 25 renowned higher education experts representing Belgium, Brazil, China, India, Iran, Italy, Poland, Russia, South Africa, Turkey, the UK, and the USA.

Expert discussions continued after the pilot ranking had been released in December 2017. Following the feedback, some of the indicators of the ranking were adjusted, and the shortlist of universities was expanded to 500. In 2019 the shortlist featured over 1700 higher education institutions, and in 2020, over 1800 HEIs representing 110 countries and territories.

Shortlisted Universities

The Moscow International University Ranking 2020 shortlist was largely comprised of about 1700 higher education institutions shortlisted in 2019. The number of institutions representing any given country was determined to be proportional to the country's contribution to the world economy. Over 1700 universities that achieved leading positions in global university rankings and/or national academic rankings listed in IREG Inventory of National Rankings were included in the evaluation list in 2019. In some cases the selection was carried out on the basis of number of the university's academic papers from 2015 to 2018 indexed in Web of Science Core Collection citation database, as per the data from the analytics tool InCites. Furthermore, narrow-focused higher education institutions, i.e. those without educational programmes in at least two of 6 areas of knowledge according to the OECD classification, and higher education institutions with no Bachelor's, Master's, and Ph.D. programmes or their equivalents were excluded from consideration. Higher education institutions with a student body of less than 500 were excluded from the list, too.

Changes in the Indicators and Ranking Calculation Methodology

The methodological changes made in 2020 affected the list of indicators, their weights, and the range of data sources. The Field-Weighted Views Impact indicator was removed. The weights of the indicators IREG List Academic Awards and country-level Normalised Citation Impact increased from 6% to 7% and from 2% to 3% respectively. The weights of the indicators Total Pages of a University's Website Indexed by Leading Search Engines and University's Followers in Social Media were reduced, both from 4% to 3%. The University and Society group of indicators was expanded with a new indicator measuring a university's information transparency. The Transparency indicator's weight is 2%. The list of student competitions taken into account by the Wins in International Student Contests indicator was expanded with Global Investment Banking Valuation Olympiad (finance) and LafargeHolcim Awards (architecture and civil engineering).

Data Sources

The ranking uses only objective indicators approved by the international experts. Reputation surveys are entirely excluded from consideration. The ranking's data sources included open access data on the official websites of universities and state bodies, as well as data obtained from independent international sources: Clarivate Analyticsб providing data and metrics from InCites and Global Institutional Profiles Project (GIPP); massive online learning platforms Coursera and edX; Wikipedia, the free multilingual universal encyclopedia; search engines: Google, Yandex,

and Baidu; social media: Facebook, Twitter, VK, and Sina Weibo; Alexa, a world leader in web analytics; websites of international student contests; websites of academic awards featured in the IREG List of International Academic Awards.

Ranking Calculation

The overall weight of indicators per group is: 45% for Education, 25% for Research, and 30% for University and Society.

The university score reflecting its position relative to the competitors was calculated by each indicator. The calculation was conducted in two ways:

1. The score of the normalised indicators (normalised citation impact, global and national levels, share in country scholarly output, and transparency) was calculated by the formula:

$$x_i = \frac{a_i - a_{min}}{(a_{max} - a_{min})},$$

where:

x_i is the score of the ith indicator;

a_i is the value of the ith indicator;

a_{max} is the maximum value if the ith indicator;

a_{min} is the minimum value of the ith indicator.

2. In cases where linear calculation was hardly applicable, indicator normalization was used instead.

The university scores for each ranking indicator were then multiplied by the corresponding weight coefficients. The weighted university scores in each of the indicators were then summarised:

$$f = \sum_{i=1}^{n_x} x_i \, v_i,$$

where:

f is the ranking score;

x_i is the score of the ith indicator;

n_x is the number of ranking indicators;

v_i is the weight if the ith indicator. ▮

Ranking Indicators 2020

#	Indicator	What it measures	Weight, %	Meaning and justification	Data source	Details
				I. Group of indicators: Education		
1.	Wins in international student contests by the university students	Students' competitiveness	7	Unlike common scientometric indicators, which measure achievements of university staff, the innovative criterion of the Moscow Ranking makes it possible to measure competitiveness of university students. The criterion demonstrates the quality of knowledge, skills and competence university students obtain while studying, as well as their ability to use these resources to solve complex tasks. The number of winners of international student competitions and other prestigious international contests cannot be big, but nevertheless, the number of prizewinners of prestigious contests can show in a focused way the effectiveness of learning and aptitude of the university students for breakthrough scientific research.	Websites of international contests	Personal and team wins in the 17 international student contests* from 2015 to 2019 were calculated in a similar way as Olympics medal tally (absolute winners and prizewinners were considered). Each contest was given a weight depending on the number of countries covered (ACM ICPC, which brings together students from over 100 countries, has the maximum weight, 1.00; while NSUCRYPTO and Belgrade Business International Case Competition with participants from as few as 9 countries have a weight of 0.09). The weighted values were then summed.
2.	Proportion of international students in the total number of students	Attractiveness for international students	8	This indicator shows the proportion of international students in the total number of students. It is widely used by existing academic rankings.	Websites of universities and regulatory bodies	International intramural students of all full-time and part-time programmes that lead to Bachelor's, Master's, and Ph.D. degrees and their equivalents, who spent more than 3 months in the university in the particular year (the ratio is calculated to the total number of full-time students of all programmes that lead to Bachelor's, Master's, Ph.D. degrees or equivalent ISCED-2011 Levels 6–8 degrees). The number of students was converted to full-time equivalent.
3.	University budget to student ratio	Financial resources	15	This criterion evaluates a university's financial wellbeing. The higher the indicator, the wider the range of the university's opportunities to implement the three main missions: education, scientific research, and contribution to society.	Websites of universities and regulatory bodies	As the cost of products and services may vary significantly from country to country, the budget was converted into USD using purchasing power parity defined by World Bank (or in case the necessary value was not present, PPP defined by OECD). Students of all full-time and part-time programmes that lead to Bachelor's, Master's, and Ph.D. degrees and their ISCED-2011 Levels 6–8 equivalents were considered. The number of students was converted to full-time equivalent.
4.	Student to academic staff ratio	Human resources	15	The indicator measures the sufficiency of a university's human resources. More faculty and research staff per student means more attention that university staff can afford to pay to each student, and, as a result, better learning conditions.	Websites of universities and regulatory bodies	The academic staff value, which includes faculty staff and research staff, was calculated in full-time equivalent. The number of students included all the students of all full-time and part-time programmes that lead to Bachelor's, Master's, and Ph.D. degrees and their ISCED-2011 Levels 6–8 equivalents converted to full-time equivalent.

#	Indicator	What it measures	Weight, %	Meaning and justification	Data source	Details
				II. Group of indicators: Research		
5.	IREG List awards won by university academic staff and alumni	Outstanding scientific achievements	7	This metric has been the developed from the approach proposed by the Shanghai ranking. Calculating the number of laureates of prestigious prizes to evaluate the scientific potential of the university is fundamentally correct. However, considering the Nobel Prizes and the Fields Medal significantly limits university evaluation opportunities. Therefore, we used the IREG List of International Academic Awards, which includes the world's 99 most prestigious scientific awards, with a possibility of expanding the prize list in the future).	Websites of inter-national awards	Awards from the IREG List of International Academic Awards a university's staff and alumni won during the period from 2000 to 2019 were calculated. Only permanent university staff members as of the date of prize giving were considered. Alumni included those who successfully completed a programme that leads to a Bachelor's, Master's, or Ph.D. degree and their equivalents.
6.	Average normalised citation impact (global level)	Quality of scientific publications (international level)	10	The normalised citation impact quantitatively demonstrates how much better or worse than world average a particular publication is cited compared with publications of the same type, area of knowledge, and year. The indicator demonstrates global relevance of the university's research activities within the academia, reflecting its acuteness and quality. Normalised citation indicators are widely used by academic rankings.	Web of Science Core Collection	Publications dated 2015–2018 were considered. The normalised citation impact values were calculated separately for 6 broad areas of knowledge according to the OECD classification: Natural Sciences, Engineering and Technology, Medical Sciences, Agricultural Sciences, Social Sciences, and Humanities. The scores gained in each area of knowledge were then summed.
7.	Average normalised citation impact (national level)	Quality of scientific publications (national level)	3	The indicator demonstrates global relevance of the university's research activities within the academia of the university's home country. Introducing this criterion contributes to better consideration of achievements of national research communities and more accurate evaluation of research output in humanities.	Web of Science Core Collection	Publications dated 2015–2018 were considered. This indicator's calculation is different from that of global level average normalised citation impact in the fact that for each of the 6 areas of knowledge a ratio of a university's normalised citation impact to its country's respective value is calculated. The relation of the university's result to the best result among the universities located in this particular country was used as the final value.
8.	Research income per academic staff member	Involvement of staff in research and development	5	The indicator actually shows the amount of R&D finance per academic staff member. The higher the amount of finance per staff member, the more relevant is the university's research. For those universities which collect the expense data instead of income, the indicator is calculated as expenses (budget) per academic staff member.	Websites of univer-sities and regulatory bodies	The funds a university attracted for academic research and development were considered. This sum did not include other components, such as income from education activities, investment, commercialisation, etc. In case country-specific features or other peculiarities did not allow to calculate the research income, research budget as fund spent on research was used. The values were converted into USD using purchasing power parity defined by World Bank (or in case the necessary value was not present, PPP defined by OECD). The academic staff value, which includes faculty staff and research staff, was calculated in full-time equivalent.

#	Indicator	What it measures	Weight, %	Meaning and justification	Data source	Details
				III. Group of indicators: University & Society		
9.	University's online courses available on the biggest global platforms	University's contribution to affordable online education	5	This innovative indicator is used in global academic rankings compilation for the first time ever. It measures the university's activity in the area of massive open online courses. There is a clear public demand for open online courses, and the fact that this education activity is rapidly developing is beyond doubt. The more courses published on global on-line platforms, the broader the knowledge a university transfers on the internet, and the more the university contributes to education affordability worldwide.	Online learning platforms: Coursera & edX	Total number of online courses published on the global online learning platforms Coursera and edX and available for users as of the data compilation moment (May 2020).
10.	University's share in its country's total academic publications	University's contribution to its country's scientific research	4	This innovative ranking indicator measures national significance of universities for scientific development in their respective countries. The higher the university's share in the country's total university publications, the bigger is its contribution to research in the country, and consequently, the more important and valuable such a university is for society.	Web of Science Core Collection	The ratio of a university's scholarly output measured by the total number of academic papers published during the four year period indexed by the Web of Science Core Collection database to its home country's scholarly output. The relation of the university's result to the best result among the universities located in this particular country was used as the final value.
11.	Total pages of a university's website indexed by the leading search engines	Web presence	3	The indidator evaluates some of the most important aspects of a university's interaction with society: openness and transparency, information availability, commitment to information exchange.	Search engines: Google, Baidu, Yandex	The number of web pages of a university's official domain indexed by search engines was measured by standard domain search syntactical operators of the following search engines: Google, Baidu, Yandex. The minimum index value according to each engine was determined after a series of data retrievals in April and May 2020. The highest result of the three search engines was used as the final value.
12.	Views of the university's page on Wikipedia	Popularity on the web	1	Along with the official website a university's page on Wikipedia is an important source of information. A high number of views of the university's page show the university's societal impact.	Wikipedia	Total views of the university's Wikipedia pages in English and (if applicable) in the official national language (languages) in 2019.
13.	University's followers in social media	Communication in social media	3	Social media is one of the most practical communication tools for the university and those interested in its activity. A significant number of universities creates awareness of their activity through social media. The popularity of different social networks varies in different countries and from university to university. Therefore, the number of subscribers in 4 social media was collected for each university.	Facebook, Twitter, VK, Sina Weibo	The number of subscribers on Facebook, VK, Twitter, and Sina Weibo was collected. Pages in English and the national language (if applicable) were considered. The result was calculated as a sum of numbers of subscribers in the two social media a university has biggest audience.

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#	Indicator	What it measures	Weight, %	Meaning and justification	Data source	Details
14.	Number of the university's graduates with an individual article on Wikipedia	Alumni impact on society	8	High-quality education consists to a large extent of incommensurate phenomena, among other things it can be measured by a university's impact on society. One of the most effective ways to measure it is to count the number of alumni successful in various areas (politics, science, art, business, charity) with an individual article on Wikipedia about them. The indicator quantitatively evaluates the university's impact on society.	Wikipedia	Total number of university alumni with an individual page on Wikipedia meeting the threshold values: alumnus date of birth not earlier than 1947; page views at least 1000 in 2019. Thus, unpopular pages are excluded from calculation.
15.	University website reach	Societal relevance	4	This indicator reflects the relevance of the official university website for users around the world. The higher the ratio of the Internet users visiting the university website, the more popular the university is. If the university website is visited by a large number of Internet users, the university is considered relevant and valuable for society.	Alexa	This criterion evaluates the university website audience percentage among all Internet users. This indicator is based on data from Alexa (alexa.com), one of the global leaders in web analytics. The data were compiled in May 2020.
16.	Transparency	Informational openness and quality of information policies	2	The indicator is a complex evaluation of a university's policies related to informational openness to society, their consistency, and the extent to which the university encourages the creation of horizontal links.	Websites of universities	This indicator takes into account the availability of the following resources, materials, and publications on the university's official website: an up-to-date institutional report, an up-to-date financial report, an open access list of university staff or an open access staff search system, and the university's mission.

* — list of student contests:
- ACM International Collegiate Programming Contest
- Belgrade Business International Case Competition
- Green Brain of the Year Contest
- International Mathematics Competition for University Students
- John Molson Undergraduate Case Competition
- McGill Management International Case Competition
- Network of International Business Schools Worldwide Case & Business Plan Competitions
- NSUCRYPTO
- SCORE Software Engineering Contest
- The Annual Willem C. Vis International Commercial Arbitration Moot
- The Mathematical Contest in Modeling
- The Philip C. Jessup International Law Moot Court Competition
- The SIAM Award in the Mathematical Contest in Modeling
- The University Physics Competition
- The World Universities Debating Championships
- Global Investment Banking Valuation Olympiad
- LafargeHolcim Awards