***EngiRank* 2025: Methodology**

Engineering education plays a key role in ensuring Europe's sustainable development. It is essential for developing cutting-edge technologies and educating innovative engineers who can apply science to address contemporary issues while considering the societal implications of their actions. To meet these challenges in the era of rapid development of the industry, labor market and education, we need a tool to promote and compare the quality of engineering and technology programs offered by the European universities.

University and programs rankings have become an accepted form of comparison and assessment that is understood by a wide range of stakeholders.

The European Ranking of Engineering Programs *EngiRank* fills a gap in current and trustworthy information on engineering education, as well as research and innovation, in European universities and other higher education institutions (HEIs)[1] with a strong engineering profile.

Our main concern in developing *EngiRank* was to ensure the highest reliability of the ranking. The geographical scope of *EngiRank* covers 36 countries[2] of the European Higher Education Area (EHEA), including the whole European Union. One of the reasons for this coverage of the ranking is related to the right of EU citizens to study in other Member States under the same conditions as nationals, and the promotion of student mobility and graduate employability are the key objectives of the EHEA, which extends beyond the EU. Increased student mobility creates a demand for information on the quality of European higher education institutions. In addition, consortia of institutions from different Member States and Horizon Europe associated countries can apply for research and innovation funding under the Horizon Europe programmes. The European Universities Initiative, launched in 2017, develops long-term cooperation between European higher education institutions. These measures level the playing field for higher education institutions across the European Union and, more broadly, within the EHEA, making comparisons between them more meaningful.

Another factor considered essential for the credibility of the *EngiRank* is the quality and reliability of the data – the ranking is based only on trustworthy external databases containing information on European HEIs collected in a uniform way, such as the Scopus bibliographic database, the EPO Worldwide Patent Statistical Database (PATSTAT), information on participation in European Commission initiatives (Community Research and Development Information Service - CORDIS, European Education Area website), databases of programs accredited by quality assurance agencies.

EngiRank's design principles enable the ranking to be compiled entirely on the basis of data from external sources. Nevertheless, the data used to determine the ranking indicators was made available to universities in advance, who then had the opportunity to submit any objections. This approach

[1] The term *higher education institutions other than universities* refers to institutions such as *grandes écoles* in France or Sant'Anna School of Advanced Studies in Pisa, Italy.

[2] Universities from Ukraine are grouped into a separate category, as the conventional ranking approach cannot be used to analyze the performance of universities operating in wartime conditions.

reduces possible errors (which may result, for example, from delays in entering data into databases) and increases the transparency of the rankings.

To improve the accuracy of the ranking and avoid comparing institutions that are too different from each other, it was decided that the diversity of universities included in the ranking would be limited. *EngiRank* accomplishes this by including only institutions with a strong engineering profile that exceed a certain size threshold.

The following groups were given primary consideration when devising the *EngiRank*:

- Prospective students and their parents - it will help them choose a field of study and an institution in Europe that will provide the best opportunity for finding a satisfactory job after graduation. It will also help students interested in exchange programs such as Erasmus+ to choose the right institution,
- Employers, including Europe's hi-tech industry - it will help them find talented graduates from technology institutions,
- University management – the ranking will help them monitor the effects of university governance and improve operational quality.

Entry requirements

The **ENTRY CRITERIA** include the following quantitative requirements:

- The HEIs with a significant share of research output in engineering and technology (E&T)[3] at least 30% of publications in the last 5 years (2020-2024) indexed in the Scopus database - were considered. However, institutions with a majority of publications in medical and health sciences or social sciences between 2020 and 2024 were not considered as HEIs with a strong engineering profile and are not listed in the *EngiRank*;
- The thresholds for the number of publications in the main engineering disciplines over the last 5 full years (2020-2024) indexed in the Scopus database are as follows:
    - chemical engineering – 200,
    - civil engineering – 100,
    - electrical, electronic and information engineering – 200,
    - environmental engineering – 100,
    - materials engineering – 250,
    - mechanical engineering – 200,
    - medical engineering – 100.

The **ranking by subject** in each of the above disciplines includes HEIs that meet the both quantitative conditions: a share of publications in E&T of at least 30% and a number of publications in a given discipline of at least a threshold value[4]. The **institutional ranking** within *EngiRank* includes HEIs that are classified in at least three subject rankings.

[3] The classification of disciplines adopted in *EngiRank* corresponds to the OECD Fields of Research and Development (FORD), both at the level of 1-digit major fields (i.e. 2. Engineering and technology, 3. Medical and health sciences, 5. Social sciences) and at the level of 2-digit categories (2.1 Civil engineering; 2.2 Electrical, electronic and information engineering etc.).

[4] Only in exceptional cases, in order to include leading HEIs with an engineering profile from all EU27 countries in the *EngiRank* institutional ranking, has the threshold for the share of E&T publications been lowered (and when the scores of the leading institutions were very close, we decided to include all of them in the ranking). This is the case for Croatia, Malta and Flanders.

To maintain the stability in the ranking, minor decreases in the number of publications below a given subject's threshold during the subsequent reference period are permitted and do not result in the removal of a university from the ranking. A similar rule applies to the share of research output in E&T.

The entry criteria for *EngiRank* 2025 were communicated a year in advance. Work on this year's expanded edition of the ranking, which included additional countries like the United Kingdom, revealed that some universities commonly regarded as engineering schools have a publication share in the E&T field below the 30% threshold. This leads to a lowering of the threshold in the next edition of the ranking to 25%.

Innovative approach

When designing the *EngiRank*, particular attention was paid to the degree of commitment of institutions to their economic and social missions. To reflect the transfer and application of academic knowledge by universities, the ranking include indicators that measure the collaboration between academia and industry researchers, the use of research outputs in successful patent applications, the universities' own patent activity, and, where appropriate, the contribution to sustainable development goals.

EngiRank is a composite of different categories of indicators. We believe that the scale of an institution's activities matters: research and innovation exhibits increasing returns to scale, and the larger the scale of an HEI's activities, so the more opportunities there are for students and academic staff. Therefore, size indicators that measure the volume of research output, the amount of research and innovation funding, the number of patents or the number of publications related to the selected sustainable development goals play an important role in the ranking. The inclusion of the ranking by subject scores into the institutional ranking reflects returns to scope and the benefits of interdisciplinarity. Then there are the conventional efficiency indicators expressed in relative terms, such as citations per publication, share of publications in the top 10% journals, number of patent citations received on average by a publication, percentage of publications that are co-authored by industry researchers or foreign researchers. The introduction of a dynamic indicator — the change in citation impact — is something of a novelty in the universe of university rankings. Finally, we have included qualitative indicators representing engineering degree programs accreditations and membership in a European university alliance. Finally, we have included qualitative indicators representing accreditation of engineering programs and membership of a European university alliance. These indicators are closely related to the European Higher Education Area (EHEA) and highlight the benefits of a regional approach to academic rankings.

INSTITUTIONAL RANKING

The institutional ranking is based on five criteria. The two most important criteria in terms of weighting are **Research** (28%) and **Innovation** (25%), which together account for 53% of the ranking. The third criterion, **SDG 9: Industry, Innovation and Infrastructure**, recognises the institution's efforts to make progress towards this Sustainable Development Goal, and this single indicator criterion accounts for 10% of the ranking. The fourth criterion, **Internationalisation**, accounts for 16%, while the final criterion, **Engineering and Technology Capability**, links the institutional ranking with the ranking by subject and accounts for 21%.

RESEARCH (28%)

This criterion is made up of four indicators taken from the Scopus bibliographic database. **Publications** represent the institution's research output in absolute terms. Then **Citations** and **Publications in Top 10% Journals** are indicators expressed in relative terms. The final indicator, **Change of Impact**, reflects changes in citation impact. More detailed information on each indicator can be found below.

- **Publications:** the number of publications from 2020 to 2024 in the *Engineering and technology* (FORD classification) field in the Scopus database that are affiliated with the institution. *Source: Scopus/SciVal (10%)*
- **Publications in Top 10% Journals:** the percentage of the institution's publications that were published in the top 10% journals by CiteScore in the *Engineering and technology* field between 2020 and 2024. *Source: Scopus/SciVal (6%)*
- **Citations:** the ratio of the number of citations received by the institution's publications in the *Engineering and technology* field from the years 2020-2024, indexed in the Scopus database, to the number of these publications. *Source: Scopus/SciVal (6%)*
- **Change of Impact:** the dynamic indicator calculated as the ratio of the field-weighted citation impact (FWCI) of the institution's publications in the *Engineering and technology* field in 2020-2024 to the FWCI of its publications in 2015-2019 in the same field. *Source: Scopus/SciVal (6%)*

INNOVATION (25%)

The criterion consists of four indicators. Firstly, **Research and Innovation Funding** and **Patents** are expressed in absolute terms and refer to the European frameworks for research and innovation funding and patenting respectively. The Scopus bibliographic database provided the data for the calculation of the other two indicators: **Patent-Citation Count per Scholarly Output** and **Academic-Corporate Collaboration**. Both are expressed in relative terms. More detailed information on the indicators is given below.

- **Research and Innovation Funding:** the value of grants awarded to the institution under the EU framework programs for research and innovation between 2020 and 2024, adjusted for purchasing-power parity (PPP). *Source: CORDIS and World Bank (10%)*

CORDIS

Community Research and Development Information Service (CORDIS) is the European Commission's principal and official service for providing information on projects funded by the European Union's framework programs for research and innovation, from the First Framework Programme (1984–1987, budget €3.8bn) to Horizon Europe (2021-2027, budget €95.5bn). CORDIS offers a unified search service that allows users to perform simple searches (by term), apply filters to selected content collections, and edit queries to use advanced search syntax with Boolean operators. The repository contains information on 134,893 projects, with a combined cost of nearly €375bn.

- **Patents:** the number of patents granted to the institution by the European Patent Office between 2020 and 2024[5]. *Source: EPO-PATSTAT (5%)*

PATSTAT

The European Patent Office's Worldwide Patent Statistical Database – PATSTAT is the most prominent patent database that has become a standard in the field of patent intelligence and statistics. The PATSTAT product line consists of two individual databases:

- PATSTAT Global, containing bibliographical data relating to over 100 million patent documents from leading industrialised and developing countries.
- PATSTAT EP Register, containing bibliographic and legal event data on published European and Euro-PCT patent applications.

These databases are available as a bulk datasets or via the web-based PATSTAT Online interface. PATSTAT Online enables users to run queries in the databases, conduct statistical analyses and visualise and download the data for offline use.

- **Patent-Citation Count:** the average number of patent citations received per scholarly output published by the institution in the *Engineering and technology* field between 2020 and 2024. *Source: Scopus/SciVal (5%)*
- **Academic-Corporate Collaboration:** the percentage of publications in the *Engineering and technology* field that are co-authored by researchers affiliated with an institution outside of academia and published between 2020 and 2024. *Source: Scopus/SciVal (5%)*

SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE (10%)

The single indicator criterion. The indicator measures the institution's contribution to Sustainable Development Goal 9: *Industry, innovation and infrastructure*, based on the number of publications assigned to both SDG 9 and the *Engineering and technology* field.

- **SDG 9:** the number of publications from 2020 to 2024 that are assigned to both the United Nations Sustainable Development Goal 9: *Industry, innovation and infrastructure* and to the *Engineering and technology* field (FORD classification). *Source: Scopus/SciVal (10%)*

[5] According to Swedish law, intellectual property rights belong to the inventors (i.e. the researchers) rather than the universities. Therefore, the zero value of the 'Patents' indicator for Swedish universities is misleading and does not imply a lack of inventive activity. To avoid penalising Swedish universities for this reason, the weighted sum of the remaining indicators has been multiplied by 100/95. Furthermore, it should be noted that, prior to the final versions of the ranking being compiled, universities were given the opportunity to supplement the data used to calculate the ranking indicators, including data on university patents.

INTERNATIONALISATION (16%)

The criterion comprises three indicators. The **International Collaboration** and **International Collaboration Impact** indicators are derived from the Scopus bibliographic database. The third indicator relates to the institution's participation in a European university alliance. More detailed information on each indicator is provided below.

- **International Collaboration:** the percentage of the institution's publications in the *Engineering and technology* field from 2020 to 2024 that have co-authors from multiple countries. *Source: Scopus/SciVal (10%)*
- **International Collaboration Impact:** the citation impact of the institution's publications in the *Engineering and technology* field from 2020 to 2024 that have international co-authorship. *Source: Scopus/SciVal (2%)*
- **European university:** a binary flag indicating whether the institution is a full member of any European university alliance as of 18.08.2025. *Source: European Education Area website (4%)*

EUROPEAN UNIVERSITIES

The European Universities alliances are a flagship initiative of the European strategy for universities. European Universities develop and implement an integrated long-term joint strategy for education, linking it to research and innovation where possible, for the benefit of their students, staff and wider society. Beyond cooperation between higher education institutions, European Universities alliances foster collaboration with other partners, including civil society, and local and regional authorities with the aim of bringing education and innovation closer together through joint activities. There are currently 65 European Universities alliances, involving more than 570 higher education institutions.

Multidisciplinarity (21%)

The criterion linking the institutional ranking with the ranking by subject. This criterion rewards institutions that are classified in a large number of ranking by subject and achieve high scores in them

- **Engineering and Technology Capability:** scores obtained by HEIs in the ranking by subject. *Source: EngiRank ranking by subject (3% for each subject)*

RANKING BY SUBJECT

The *EngiRank* ranking in the following subjects:

- chemical engineering,
- electrical, electronic and information engineering,
- materials engineering,
- mechanical engineering,

is based on three criteria: **Research** (64%), **Innovation** (26%) and **Teaching Quality** (10%).

For the remaining subjects the potential and expected contribution of university activities to the following Sustainable Development Goals (SDGs) was assessed:

- civil engineering – SDG 11: Sustainable cities and communities,
- environmental engineering – SDG 6: Clean water and sanitation,
- medical engineering – SDG 3: Good health and well-being.

Thus, for each of the above subjects, an additional criterion: **Contribution to SDGs** (5%) was added, while at the same time the weights of the other criteria were reduced: Research was reduced to 60% and Innovation to 25%.

SDGs

The Sustainable Development Goals (SDGs) are seventeen interconnected objectives that were adopted by the 193 member states of the United Nations General Assembly (UNGA) in 2015 as part of the 2030 Development Agenda titled "Transforming our world: the 2030 Agenda for Sustainable Development." Emphasising the interconnected environmental, social, and economic aspects of sustainable development, the SDGs put sustainability at their centre. They serve as a "shared blueprint for peace and prosperity for people and the planet, now and into the future."

The *EngiRank* recognises the potential and expected contribution of HEIs with a strong technical profile to achieving SDG 9: Industry, innovation and infrastructure. Similarly, the activities of HEIs in certain engineering and technology disciplines can support the implementation of particular SDGs:

- Civil Engineering – SDG 11: Sustainable cities and communities,
- Environmental Engineering – SDG 6: Clean water and sanitation,
- Medical Engineering – SDG 3: Good health and well-being.

Each indicator in the ranking by subject relates strictly to a specific discipline. Some indicators in the institutional ranking and in the ranking by subject are based on the same metrics, differing only in the scope of publications or grants considered. Although such indicators from the ranking by subject are indirectly included in the institutional ranking (via the Engineering and Technology Capability criterion), this should not be considered as a duplication of indicators. It should be noted that some HEIs are not classified in all subjects (in particular, only around half of the HEIs listed in the institutional ranking are classified in the medical engineering ranking). Furthermore, even HEIs classified in all subjects have publications and grants that are not covered by the ranking by subject indicators. These include general engineering; nuclear energy and engineering; control and systems engineering; safety, risk, reliability and quality; media technology; bioengineering as well as other miscellaneous engineering, which are only included in the institutional ranking.

RESEARCH (60%/64%)

The criterion is made up of four indicators, which are calculated based on the Scopus bibliographic database

- **Publications:** the number of publications in the relevant discipline affiliated to the institution in the Scopus database between 2020 and 2024. *Source: Scopus/SciVal (15%/16%)*
- **Publications in Top 10% Journals:** the percentage of the institution's publications that were published in the top 10% journals according to CiteScore in the relevant discipline between 2020 and 2024. *Source: Scopus/SciVal (15%/16%)*
- **Citations:** the ratio of the number of citations received by the institution's publications in the relevant discipline, indexed in the Scopus database, from 2020 to 2024, to the number of these publications. *Source: Scopus/SciVal (15%/16%)*
- **Change of Impact:** a dynamic indicator calculated as the ratio of the field-weighted citation impact (FWCI) of the institution's publications in the years 2020-2024 to the FWCI of the publications in the years 2015-2019 in the relevant discipline. *Source: Scopus/SciVal (15%/16%)*

INNOVATION (25%/26%)

The criterion consisted of two indicators. The **Academic-Corporate Collaboration** indicator was calculated using the Scopus bibliographic database. The **Research and Innovation Funding** values were based on information from the CORDIS database.

- **Academic-Corporate Collaboration:** the percentage of publications in the relevant discipline published between 2020 and 2024 that are co-authored by researchers affiliated with an institution outside academia. *Source: Scopus/SciVal (15%/16%)*
- **Research and Innovation Funding:** the value of grants awarded to the university under the EU framework programs for research and innovation to finance research projects in the relevant discipline between 2020 and 2024. *Source: CORDIS database (10%)*

TEACHING QUALITY (10%)

The single indicator criterion. The indicator is measured by the number of the degree programmes accredited by ABET or by ENAEE-authorised agencies (more information on ENAEE and ABET can be found in the box below).

- **Accreditations:** the number of engineering degree programmes related to the relevant discipline that are accredited by the Accreditation Board for Engineering and Technology (ABET) or by an agency authorised by the European Network for Accreditation of Engineering Education (ENAEE), and are valid in 2025[6]. *Source: ABET-accredited programmes and EUR-ACE-labelled programmes (ENAEE-authorised) databases (10%)*

[6] Institutions with eight or more accreditations in a single subject were given a maximum score of 100 for that subject's Accreditations indicator.

The European Network for Accreditation of Engineering Education (ENAEE) is a non-profit organisation which brings together accreditation and quality assurance agencies from various countries, primarily EU Member States, and provides a pan-European framework for the accreditation of engineering education programs. Although ENAEE itself does not accredit engineering programs, it has established the EUR-ACE (European Accredited Engineer) label. Following a positive evaluation of the policies and procedures followed by the member accreditation and quality assurance agencies, ENAEE authorises them to award the EUR-ACE label to the engineering programs they have accredited. Currently, 11 agencies are authorised by ENAEE to grant accreditations. These agencies have signed a mutual recognition agreement, known as the EUR-ACE Accord, whereby they recognise each other's decisions regarding the accreditation of bachelor's and master's degree programs. Since ENAEE's foundation in 2006, the EUR-ACE label has been awarded to over 3500 engineering programs offered by more than 500 higher education institutions in 62 countries across Europe and worldwide.

The Accreditation Board for Engineering and Technology (ABET) is a non-governmental organisation that was founded in the United States in 1932 (originally as the Engineers' Council for Professional Development). ABET currently accredits 4,773 post-secondary education programs in applied and natural sciences, computing, engineering and engineering technology accredited by ABET in 930 institutions across 42 countries (including Austria, Poland, Portugal, Spain and Turkiye).

Other accreditation schemes that were considered include those of the Royal Institute of British Architects (RIBA) and the Nautical Institute Accreditation. However, these were ultimately not included in the indicator due to the very small number of universities listed in the *EngiRank* that hold these accreditations.

CONTRIBUTION TO SDGs (0%/5%)

The single indicator criterion. The indicator measures the institution's contribution to selected SDGs in specific subject areas based on the number of publications.

- **SDG 3: Good health and well-being** (*medical engineering only*): the number of publications from 2020 to 2024 that are assigned to both the United Nations Sustainable Development Goal 3: *Good health and well-being* and to *medical engineering* (FORD category 2.6). *Source: Scopus/Scival*
- **SDG 6: Clean water and sanitation** (*environmental engineering only*): the number of publications from 2020 to 2024 that are assigned to both the United Nations Sustainable Development Goal 6: *Clean water and sanitation* and to *environmental engineering* (FORD category 2.7). *Source: Scopus/Scival*
- **SDG 11: Sustainable cities and communities** (*civil engineering only*): the number of publications from 2020 to 2024 that are assigned to both the United Nations Sustainable Development Goal 11: *Sustainable cities and communities* and to *civil engineering* (FORD category 2.1). *Source: Scopus/Scival*

The table below provides an overview of how the indicators are weighted in the specific ranking by subject.

RANKING BY SUBJECT	Publications	Publications in Top 10% Journals	Citations	Change of Impact	Academic-Corporate Collaboration	Research and Innovation Funding	Accreditations	SDG 3: Good health and well-being	SDG 6: Clean water and sanitation	SDG 11: Sustainable cities and communities
Chemical engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Civil engineering	15%	15%	15%	15%	15%	10%	10%	-	-	5%
Electrical, electronic and information engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Environmental engineering	15%	15%	15%	15%	15%	10%	10%	-	5%	-
Materials engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Mechanical engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Medical engineering	15%	15%	15%	15%	15%	10%	10%	5%	-	-

INDICATOR	DATA SOURCE
Research and innovation funding	CORDIS: https://cordis.europa.eu
Patents	EPO PATSTAT: https://www.epo.org/patstat
European universities alliances	List of alliances: https://education.ec.europa.eu/education-levels/higher-education/european-universities-initiative/map
EUR-ACE labelled programs	ENAEE database: https://eurace.enaee.eu
ABET-accredited programs	ABET-Accredited Program Search tool: https://amspub.abet.org/aps/
Bibliometric indicators	Scival: https://www.scival.com

The *EngiRank* includes 300 HEIs from 36 countries of the European Higher Education Area (EHEA), including the whole European Union:

Austria – 5
Belgium – 4
Bosnia and Herzegovina – 1
Bulgaria – 4
Luxembourg – 1
Malta – 1
Montenegro – 1
Netherlands – 3

Croatia – 3
Cyprus – 4
Czechia – 10
Denmark – 2
Estonia – 1
Finland – 2
France – 58
Germany – 32
Greece – 9
Hungary - 5
Ireland – 2
Italy – 17
Latvia – 3
Lithuania – 2
North Macedonia – 1
Norway – 2
Poland – 22
Portugal – 10
Romania – 10
Serbia – 4
Slovakia – 3
Slovenia – 1
Spain – 11
Sweden – 8
Switzerland – 2
Turkiye – 30
Ukraine – 9
United Kingdom – 17

In 2025, Ukraine was invited to join *EngiRank*. This invitation aligns with plans to expand the ranking to include technical universities from additional European countries. It also recognizes the achievements of Ukraine's higher education, including its technical universities, whose scientists are known worldwide for truly "changing the world!"

These scientists include Igor Sikorsky, the designer of modern helicopters and large, multi-engine airplanes, and Sergei Korolev, the chief designer of the first manned flight into space. Both were graduates of the Kyiv Polytechnic Institute (KPI), which today bears Sikorsky's name.

KPI graduate Wojciech Świętosławski was an outstanding physicist and chemist who was nominated multiple times for the Nobel Prize and served as Poland's Minister of Education.

Nobel Prize winners associated with Ukrainian scientific institutions include physicist Lev Landau, physiologist Ilya Mechnikov, and economist Simon Kuznets.

These are just a few of the many outstanding scientists.

The year 2025 saw the acquainting of Ukrainian universities with the ranking's requirements and methodology. What makes Ukrainian universities special is that they represent a country fighting a war with Russia to protect its independence. Ukraine is defending the values Europe believes in against Russia, thereby protecting Europe as well. Clearly, conventional interpretive approaches cannot be used to analyze the performance of Ukrainian universities operating under wartime conditions. Those included in *EngiRank* are grouped in a separate category, where their results are presented according to the ranking methodology's requirements.

The ranking by subject includes the following number of HEIs:

- chemical engineering - 218,
- civil engineering - 181,

- electrical, electronic and information engineering - 226,
- environmental engineering - 228,
- materials engineering - 240,
- mechanical engineering - 217,
- medical engineering - 135.

The institutional ranking includes 230 HEIs.

The *EngiRank* ranking is modelled on the basis of the Multi-Attribute Value Theory. According to this theory, it was first assumed that the value or the total score of each HEI (as well as the disciplines under consideration) could be estimated by considering the impact of the individual criteria as measured by the corresponding indicators. Secondly, it was assumed that if the criteria were not equally important, they could be made comparable by weighting the corresponding indicators with appropriate coefficients. Thirdly, the additivity of the weighted criteria was assumed, meaning that the final score is a linear combination of the partial scores. Finally, the indicators with an asymmetric distributions are generally transformed (using the square or cube root) to reduce the skewness.

The sub-scores for each indicator are calculated relative to the score of the leading institution. A score of 100 is assigned to the HEI with the highest indicator value, and the scores for the other institutions are calculated as a proportional distance from the leader. Partnership in a European university alliance is a specific binary indicator - a score of 100 is assigned to each of 138 universities listed in the institutional ranking that is a member of any European university alliance.

The sub-scores obtained by the HEI for all the indicators, in both by subject and institutional rankings, are summed using appropriate weights. The HEIs are then ranked in descending order according to this sum. The leading institution is awarded a final score of 100, while subsequent institutions are awarded scores proportional to their weighted sum of sub-scores in relation to the leading institution's score. The position of HEIs in a ranking is determined by a discrimination threshold of 1 %pt. of the final score. This means that institutions with final scores differing by less than 1 %pt. occupy the same position in the ranking.