University Rankings: Food for thought

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Abstract

University rankings have gained increased importance in recent decades, while becoming a reference point for higher education policy-making, and contributing to heighten interest in the field through international comparisons. They have influenced not only stakeholders in general, but also, at a broader scale, nations, in that they strive for the best students, faculty and researchers with the ultimate purpose of being more competitive globally. Increasing interest has also been witnessed through the growing number of rankings and international events dedicated to the issue. This paper addresses the most popular rankings, how do they compare, what they measure and seeks to discuss whether the reliance (or over-reliance) on academic rankings has resolved some of the issues they try to measure, together with their positive and perverse effects and provides insight to improve performance of Universidade de Lisboa (ULisboa) in the several rankings.

Key words: *Global university rankings; ARWU; THE; QS; U-MULTIRANK; RUR*

I. Introduction

University rankings are indicators used to evaluate university performance in a simple, synthetic and comprehensive way, making it easy to draw comparisons between universities. Over the years, these comparisons were drawn on the basis of an implied reputation of universities rather than supporting data. Nevertheless, increasing competition between universities since the 1990s and a dramatic growth of the international higher education market made it necessary to estimate their relative value and place them in ranking league tables worldwide [Cheolin, J., et all, 2011]. Today, the world's most popular rankings include top research universities only, to the detriment of a broader diagnosis of the higher education system. The proportion of universities considered by existing global rankings is far less than the total number of universities in the world, which means that it is impossible to know how the others are ranked, because the methodologies in place do not allow them to be ranked. Yet, the worldwide popularity of university rankings has induced a number of changes in higher education in recent decades. In general, top universities are 'the best-funded, most selective, highest-reputed, best-staffed, and most international, and all of these factors in turn have fuelled the others' [Bridgestock, L., 2016]. Indeed, they have stimulated the debate on the quality and performance of higher education systems, while proliferating. The perceived quality of a specific university will have an impact on the number of students, faculty and funding it tries to attract. According to experts, the success of these rankings is mostly due to the globalisation and marketisation of higher education [Aguillo, I.F, et all, 2010]. In fact, increasingly mobile academic staff and students have led to greater competition, which has driven international competition between universities

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in their demand for talents and resources, while reinforcing competition for their own outcomes [Fernandes, F., 2015]. While university rankings have spread across the globe, doubts have been raised regarding criteria, indicators and classifications because their information is drawn on dodgy data and contradictory information [Orduña-Malea, E. 2011]. Some rankings, in particular THE, criticism has been fought by claiming it has created the most comprehensive, most inclusive rankings in history. In 2015 THE became a traditional publishing organization. Other measures have been the creation of sub-rankings. The section below presents a historical evolution and a review of bibliography on the issue. Then, we will address the most popular university rankings worldwide and the methodologies behind them, as well as other attempts to measure university performance. We will also seek to show what they most value, their benefits and their flaws. Finally we will reflect, in the particular case of ULisboa, on its policy to keep up with this academic reputation race.

II. A Short History of University Rankings

University league tables date back to 1870, in the United States of America, where the United States Bureau of Education begins to publish an annual report of statistical data to classify institutions. A ranking was ultimately created as a result of the gradual increase in the number of data analysed on the university landscape. Between 1910 and 1938, psychologist James Cattel, professor at the University of Pennsylvania, elaborates and publishes the "American Men of Science", which was a rank order of institutions based on the ratio of eminent scientists tied to an institution either as students or members, as he was inspired by James Galton's work on individual eminence. This is very similar to ARWU, which considers every university with Nobel Laureates [Fernandes, F., 2015]. An alternative approach appears in 1924 by Raymond Hughes, president of the University of Miami, who publishes 'A Graduate Study of the Graduate Schools of America'. This study uses the first reputational ranking, which rated institutions on the basis of their reputations rather than outstanding faculty or the production of eminent graduates. Later, in 1934, Hughes improves his methodology and increases the number of subjects and institutions. Between 1935 and 1955, rankings are based on quantitative outcomes, to the detriment of reputational indicators, which will be absent until 1957, when journalist Chesly Manly publishes a poll of 35 leading educators and named Harvard the leading American university. ([No Writer, 1957]). In 1959, Hayward Keniston from the University of Pennsylvania publishes 'Graduate Study and Research in the Arts and Sciences', which develops a reputational ranking of 25 universities based on the opinions of the presidents of 24 departments of the 25 first ranked universities on the basis of their relevance in the American Association of Universities, number of PhD degrees awarded and their geographical distribution [Fernandes, F., 2015]. This marked the rise of reputational rankings. In 1966, in his 'Cartter Report on Quality in Graduate Education', Allan Cartter classified over one hundred institutions, which turns reputational rankings into standard and becomes highly influential [Cheolin, J., et all, 2011]. Both Cartter and Hughes were interested in assessing the opinions of academics about the merits of American Graduate schools and the disciplines they taught. In the early 1980s the 'Assessment of Research-Doctorate Programs in the Unites States is published by the National Academy of Science in cooperation with the National Research Council. This is the largest ranking project of academic quality to that date and is, at the same time, the first reputational study with non-reputational indicators, in which respondents were queried about aspects such as library size and graduate profile. One of the aspects that also revolutionized university rankings was the appearance of rankings in the mass media, such as the US News and World Report, with America's Best Colleges. First issued in 1983, it provides a ranking of

colleges based on the comparative reputation of their undergraduate programmes. Being increasingly popular and responding to demand, soon would US News publish its own ranking from 1988 onwards, refining its methodology overtime. During the 1990s national rankings were developed, firstly in Canada and in the UK, then in Continental Europe, Asia and, finally, South America. At this point, as domestic rankings spread and rankings in general were introduced in society, higher education expanded internationally through an increasing number of universities and speed of dissemination of information. As a consequence, it is no longer sufficient for universities to know their position in their own country, but they need to go further beyond and get to know how they stand in a broader framework [Buela-Casal, G., et all, 2007]. Elaborated by the Shanghai Jiao Tong University (SJTU), the first truly international ranking appears in 2003. Coined 'Academic Ranking of World Universities (ARWU), it is originally developed to monitor the global standing of Chinese universities as they invested in research capacity. However, the ARWU soon becomes a league table for the world's most research-intensive universities. Another world ranking appears in the UK, the THE (originally named "Times Higher Education Supplement – THES). Quacquarelly Symonds, a British company specialising in education and study abroad, was in charge of the methodological component of this ranking. In subsequent years other rankings have appeared. The Ranking Web of World Universities comes up in Spain by the Centro Superior de Investigaciones Cientificas (CSIC). Yet, emphasis should be on the Leiden Ranking, from the University of Leiden in the Netherlands, which is published in 2007 that measures research output only. Launched in 2009, the EU funded ranking project, known as U-Multirank (Multi-dimensional Global Ranking of Universities), aims to compare universities in various aspects of their activity. Developed by a Spanish research group in 2009, the Scimago Institutions Ranking (SCI) relies on the Scopus bibliometric database. 2010 is a landmark in ranking history. THE splits from QS, as a consequence of harsh criticism that THE-QS had received since it was first published. The THE entrusts Thomson Reuters with technical analysis and data collection and QS is tasked with its publication. Both rankings are published in a separate way from September 2010. The Global Universities Ranking is another university league, which is run by the Rating of Education Resources, an independent agency, and supported by the Russian Academic Society. It relies on indicators such as educational activity, research activity, faculty professional competence, financial maintenance, and visibility on the web. In addition, it gathers together a ranking of countries and an international ranking, including Russia, Baltic countries and countries of the Community of Independent States. Round University Ranking (RUR) is published since 2010. It is a world university ranking which assesses 750 leading world universities by 20 indicators across 4 key missions: teaching, research, international diversity and financial sustainability. The ranking is published by RUR Rankings Agency and based in Moscow, Russia. From the above paragraphs, it can be observed that ever since university rankings have appeared, not only have they become global, but also more specialized. In addition, they have evolved from simply including quantitative to reputational indicators and then a mix of both, and were no longer to be confined to studies by academics but instead became an instrument accessed by all.

III. Ranking types

There are academic rankings with the purpose of producing university league tables or ranking universities, of which the ARWU, THE and QS are an example; rankings which focus on performance and research only; Multirankings, i.e., university rankings which use a number of indicators without the purpose of producing tables or ranking universities, such as the U-Mulrirank; Web rankings; and Benchmarking, which is based on learning outcomes.

i. Academic rankings producing league tables

- Academic Ranking of World Universities, ARWU (Shanghai)
- Times Higher Education World University Ranking, THE
- Quacquarelli Symonds (QS) World Universities ranking
- US News & World Report with Quacquarelli Symonds

ii. Rankings concentrating on research only

- Leiden Ranking (Leiden University)
- Performance Ranking of Scientific Papers for World Universities (NTU Ranking)

iii. Multirankings – without producing league tables

- CHE/die Zeit University Ranking (CHE, Germany)
- U-Map classification (CHEPS)
- European Multidimensional University Ranking System (UMultirank) – EU funded project[1]

It is also important to clarify how they are managed, according to the type of institution that is in charge of elaborating the,:

- Rankings managed by any governmental agency (ministries, departments, councils, etc.);
- Rankings managed by independent organisations, professional associations, universities, among other institutions;
- Rankings managed as a result of any partnership between an independent organisation and a means of communication, which is then charged to publish it;
- Rankings elaborated and published by the media (usually magazines and journals);
- Rankings elaborated by quality agencies.

[1][Rauhvargers, A., 2012]

IV. The most popular rankings

This section describes the three main university rankings in detail: i) ARWU – Academic Ranking of World Universities (ARWU), which became the world standard; ii) Times Higher Education (THE) World University Rankings; and iii) QS World University Ranking. We will also take a look at EU-funded project U-Multirank, and Round University Ranking, a Russian university ranking based in Moscow and show how their distinguishing features from the leading ones.

University rankings classify universities according to several indicators of academic or research performance and these indicators are based on absolute values (number of publications, citations, students, staff member, per capita academic performance etc.) or relative values (publications per staff member, citations per publication, funding per student, among others). ARWU uses predominantly absolute values while the THE-QS and THE-TR relative values.

i. ARWU – Academic Ranking of World Universities (ARWU)

ARWU mainly focuses on research (100%) and analyses 6 indicators: i) Quality of education; ii) Quality of faculty; iii) Number of former students who were awarded the Nobel Prize/Fields Medal and faculty who received such prizes; iv) No. of articles published in Nature/Science and No. of articles in Citation Index; v) Number of highly cited researchers; and vi) Size of institution. Over one thousand universities are ranked, but only the best 500 are published on the web.

For each indicator, the highest scoring institution is assigned a score of 100 and other institutions are calculated as a percentage of the top score. The distribution of data for each indicator is examined for any significant distortion effect and standard statiscal techniques are used to adjust the indicator if necessary. Scores

for each indicator are weighted in the table 1[2][3] to reach a final score for each institution.

Table 2 shows that Quality of Faculty and Research Output are the two criteria that weigh most for ARWU. The other two criteria are Quality of Education and Per Capital Performance.

ii. The World University Rankings (THE)

This ranking offers a comprehensive list of the top universities across the globe. According to it, it is "the only international university performance tables to judge world class universities across all of their core missions - teaching, research, knowledge transfer and international outlook".

Given its uniqueness, it is one of the rankings that tends to draw a lot of attention from prospective students. The Times Higher Education assesses 13 performance indicators to provide fair comparisons.

The major difference between THE and ARWU is the reputational component included in THE, thus reflecting the opinions of experts across the globe. Together with its ranking-data partner Thomson Reuters, it asks academics to highlight what they believe to be the strongest universities for teaching and research in their own fields, as we will described below.

THE consists of 13 performance indicators with the purpose of drawing comprehensive and balanced comparisons. These indicators are grouped in 5 areas, which can be observed on table 3[4].

As per the above table, we must observe that the Times Higher Education ranking provides more insight on how teaching is perceived at a university, as well as research. More than one third of the overall weight has been assigned to bibliometric indicators (citations per paper and papers per staff).

Despite past criticism, reputation indicators (of research and teaching combined) are next in importance.

It can therefore be concluded that the THE is heavily research oriented. Researh output and impact indicators combine total more than 60%.

Output indicators are relative (per staff, per publications) and the scoring is not size-dependent as a consequence.

ii.1 World Reputation Ranking

The THE also includes a world reputation ranking, which encompasses the largest research opinion from scholars across the world who are invited to supply a list of the world's 100 most powerful university brands.

This sub-ranking is only based on subjective judgments, but it brings together expert opinions from top published scholars, who are in a position to deliver insight on academic excellence and "teaching within their disciplines and at institutions with which they are familiar". Scholars are questioned at the level of their specific subject discipline and asked to name no more than 15 universities that they believe are the best in each category (research and teaching), based on their own experience.

The survey is distributed among invited academics and is administered by Elsevier. The last ranking was based on a research carried between January 2016 and March 2016, which received a total of 10,323 responses from 133 countries.

The reputation table ranks institutions according to an overall measure of their esteem that combines data on their reputation for research and teaching, at a ratio of 2:1. More weight is given to research because feedback from expert advisers suggests that there is greater confidence in respondents' ability to make accurate judgements about research quality.

'The scores are based on the number of times an institution is cited by respondents

[2]Note: For institutions specialised in humanities and social sciences such as London School of Economics, N&S is not considered and the weight N&S is relocated to other indicators.

[3]Source: Shangai Ranking Website

[4][Rauhvargers, A., 2011], page 32

Table 1: *Indicators and weights for ARWU*

Criteria	Indicator	Code	Weight
Quality of Education	Alumni of an institution winning the Nobel Prize and Fields Medal	Alumni	10%
Quality of University	Staff of an institution winning Nobel Prizes and Fields Medals	Alumni	20%
	Highly cited researchers in 21 subject categories	HiCi	20%
Research Ouput	Papers published in Nature and Science	N&S	20%
	Per capital academic performance of an institution	PUB	20%
Per Capital Performance	Per capita academic performance of an institution	PCP	10%

Table 2: *Criteria and weights for ARWU*

ARWU Criteria	Percentage
Quality of Education	10%
Quality of Faculty	40%
Research Output	40%
Per Capita Performance	10%

as being the best in their field. The number one institution, Harvard University, was the one selected most often. The scores for all other institutions in the table are expressed as a percentage of Harvard's, which is set at 100.' (https://www.timeshighereducation.com/world-university-rankings/world-reputation-rankings-2016-methodology) THE World University Rankings uses a different scoring system, becauase the purpos is to deliver a clearer and more meaningful perspective on the reputation data delivered separately. THE has decided to rank only the top 50 because the differentials between institutions after that point become narrow. The institutions included in the second half of the table are listed in groups of 10, in alphabetical order, although the number in each group may vary owing to some institutions at the thresholds having the same scores. It is argued that knowing a university's reputation, as well as its research strengths and even weaknesses, is important. Such knowledge can put rankings in perspective and can also help improve performance by enabling universities to capitalize on their strengths. Building reputation is important, apart from simply focusing on raising a university's ranking.

iii. QS World University Rankings

Closely linked to the THE, the QS World University Rankings has followed its own path since 2010. These rankings are published by British Quacquarelli Symonds annually in September. Bibliometric data required in the citation score sections of the methodology is supplied by Scopus, part of Elsevier, the world's largest abstract and citation database of research literature. First compiled in 2004, it assesses 3,000 universities and gives individual positions to the top 400. The six performance indicators include:

- Academic reputation (40%) – a global survey of more than 70,000 academics
- Citations per faculty (20%) – a 'citation' means a piece of research being referred to (cited) within another piece of research.
- Student-to-faculty ratio (20%) - the number of academic staff employed relative to the number of students enrolled
- Employer reputation (10%) – a global survey of more than 37,000 graduate employers
- International faculty ratio (5%)
- International student ratio (5%)

Four of the indicators are based on 'hard' data, while the remaining two (Academic Reputation and Employer Reputation) rely on global surveys – one of academics (more than 70,000) and another of employers (more than 37,000) – each the largest of its kind. The final two indicators measure "how successful a university has been in attracting international students and academics" based on the proportion of international students and faculty members. The QS rankings can give a good indication of

Table 3: *THE ranking - Broad categories, distribution and weight of indicators*

Weight (broad category)	Broad categories	THE Indicators	Percentage
2.5%	Economic activity/Innovation	Research income from industry (per academic staff member)	2.5%
5%	International mix – staff and students	International / Domestiv staff ratio	3%
		International / Domestic student ratio	2%
30%	Teaching – the learning environment	Reputation Survey – teaching	15%
		PhDs awarded (scaled)	6%
		Undergraduates admitted per academic	4.5%
		PHd awards / bachelor awards	2.25
		Papers per acadeimc abd research staff	2.25%
30%	Research – volume, income and reputation	Reputation survey – research	19.5%
		Researh income (scaled)	5.25%
		Papers per academic and research staff	4.5%
		Public research iincome / total research income	0.75%
32.5%	Citation – research influence	Citation impact (normalised average citations per paper)	32.5%

how a university is perceived, but lacks impact when it comes to measuring the student experience. Nevertheless, the QS Employability rankings can provide an alternative perspective with more focus on student experiences and outcomes. If students have an idea of the subject they would like to study, then subject rankings might be a good starting point.

We can observe that Academic reputation is measured using a global survey, in which academics are asked to identify the institutions where they believe the best work is currently taking place within their own field of expertise. The aim is to give prospective students a sense of the consensus of opinion within the international academic community. The employer reputation indicator is also based on a global survey, which asks employers to identify the universities they perceive to be producing the best graduates. This indicator is unique among international university rankings. Its purpose is to give students a better sense of how universities are viewed in the graduate jobs market. A higher weighting is given to votes for universities that come from employers based in other countries, so this indicator is especially useful for prospective students seeking to identify institutions with a reputation that extends beyond their national borders. The 2016-17 edition draws on responses from 37,781 graduate employers. (source:)

iv. U-MULTIRANK

The U-Multirank consortium – or UMR – is led by the Dutch-based Centre for Higher Education Policy Studies and the German Centre for Higher Education. It is an independent classification, funded by the European Union in its early years. The U-Multirank is a global, multidimensional and user-centered classification of universities, which encompasses many aspects of higher education: research, education and learning, international guidance, knowledge transfer and participation at global level. The U-Multirank compares university performance and includes information about more than 1200 HEIs, 1800 faculties and 7500 study programmes of 90 countries of which 57% from Europe, 16% from North America, 18& from Asia and 9% from Oceania, Latina America and Africa.

The data included in U-Multirank are drawn from a number of sources: information supplied by the institutions themselves, data from international bibliometric and patent databases, and surveys completed by more than 105,000 students at participating universities – one of the largest international student samples in the world. By offering this breadth of data, U-Multirank provides comprehensive information to its users. Performance measures or indicators are the different areas of university performance that are used within U-Multirank to compare universities. A full list of these performance measures as well as their definitions

Table 4: *General QS Indicators*

General Indicators	Weight	Source
Academic Reputation	40%	Global Survey
Reputation in employers	10%	Global Survey
Faculty/Student Ratio	20%	Scopus
Citations per university	20%	Scopus
International students / internationalisation in university	5% / 15%	Ministries and National Agencies

can be found on the U-Multirank site[5].

iv.1 Distinguishing features

While global rankings focus mainly on 400-500 of the world's research universities (only about 2-3% of the world's higher education institutions), U-Multirank covers a far broader range including small specialised colleges, art and music academies, technical universities, agricultural universities, universities of applied sciences as well as comprehensive research universities and others.

U-Multirank allows users to compare universities in their own way by creating personalised rankings, by specifying individual universities or the type of institutions they wish to compare. Thus, they can create comparisons between similar institutions ('like-with-like'), which allow for more meaningful results. It encourages users to create their own top-scoring premier league for different elements of university activity rather than an overall league table. Users can then decide which areas of performance to include in the comparison of the selected group of universities, through any of the performance indicators, across five dimensions: teaching & learning, research, knowledge transfer, international orientation and regional engagement. Under U-Multirank's multi-dimensional approach, a number of individual performance measures allow universities to be assessed, across a range of activities and grades these 'A' for 'very good' to 'E' for 'weak', which allow for meaningful comparisons. Unlike traditional rankings, U-Multirank it does not offer composite scores.

According to criticism, this is just one way that traditional league table approaches misrepresent the true picture of quality and diversity. Another is that they tend to exaggerate differences in performance between universities, creating a false impression of exactness (for example, suggesting that number 27 in a list must be "better" than number 29, whereas in fact differences in scores may be both negligible and influenced more by methodology than performance).

What is clear, though, is that while other rankings are focused primarily on research excellence, U-Multirank includes indicators such as the reputation in research, quality of education and learning, international perspective, knowledge transfer, and contribution to regional growth, even if their stated objective is similar: provide potential students with useful information about higher education institutions. The ultimate purpose of U-Multirank is to correct over-simplified league tables, by providing transparent, statistically sound and fair comparisons, according to its own words.

v. Round University Ranking (RUR)

Published by RUR Rankings Agency, based in Russia, Round University Ranking (RUR) is a world university ranking, which measures performance of 750 leading world universities by 20 indicators across 4 key missions: teaching, research, international diversity and financial sustainability. Statistical data, bibliometric data and reputational data are three types of raw data used in the RUR rankings system. With regard to statistical data, universities provide information on 20 indicators themselves, which are further used to generate 100 scaled indicators (ratio between 2 values) 20 of which are used in the RUR rankings system. Bibliomet-

[5]Source: `http://umultirank.org/`

Table 5: *U-multirank: Analysis of indicators*

Indicators	U-Multirank makes use of three different types of indicators: Ranking indicators (institutional-level and field-based), Mapping indicators and Descriptives.
	Institutional and Subject Ranking Indicators: U-Multirank provides a multi-dimensional ranking both on the institutional and the field level. The dimensions are teaching and learning, research, knowledge transfer, international orientation and [. . .]
Rank Group Calculation	U-Multirank indicates how universities perform by showing their position in five performance groups ("very good" through to "weak") for each of some 30 different indicators. For this, it uses five rank groups. The rank groups refer to the distance of the indicator score of an individual institution to the average – or rather the median [. . .]
Data sources and verification	The U-Multirank indicators are based on a variety of data sources and data collection tools. Self-reported data Universities that decided to participate in U-Multirank have provided data for the institution as a whole, as well as for the departments offering degree programmes (if any) related to the selected subject areas covered in the 2014, 2015, [. . .]
Our approach to ranking	U-Multirank is multi-dimensional. U-Multirank takes a different approach to the existing global rankings of universities. Firstly, it is multi-dimensional and compares university performances in the different activities that they are engaged in. It is not confined to research but takes into account different aspects and dimensions of the performance of universities: teaching and learning, research, [. . .]

ric data include the raw data extracted from the Web of Science Core Collection. In terms of reputation data, a reputation survey is conducted annually. Each reputation survey includes around 60,000 responses from 10,000 respondents which present all dimensions of global academic community.

v.1 Methodology

The ranking relies on Institutional Profiles, an annually updated database within the online platform InCites made available by Thomson Reuters. The database provides more than a hundred specific indicators, so it allows for choosing appropriate indicators for any area of university activity.

The distribution of weights among indicators was performed in two stages. In the first place, weights were selected for both indicator groups and indicators. Secondly, indicators were mapped within the same areas/groups.

v.2 Indicator weights

The weights are distributed as in table6[6].

It is known that the Shanghai rankings place their emphasis entirely on research and ignore the arts and humanities. The Russian Round University Rankings (RUR), however, get their data from the same source as THE did, until two years ago, and include data from the arts and humanities. Thus, the RUR could be regarded as an improved version of the THE world rankings, which tries to give more weight to teaching. It relies almost on the same array of metrics as THE plus some more but with rational and sensible weightings, 8% for field normalised citations, for example, rather than 30%.

[6] source: `http://roundranking.com/library/methodology.html`

Table 6: *Round University Ranking Methodology*

Teaching		40%
1	Academic staff per students	8%
2	Academic staff per bachelor degrees awarded	8%
3	Doctoral degrees awarded per academic staff	8%
4	Doctoral degrees awarded per bachelor degrees awarded	8%
5	World teaching reputation	8%
Research		40%
6	Citations per academic and research staff	8%
7	Doctoral degrees awarded per admitted PhD	8%
8	Normalized citation impact	8%
9	Papers per academic and research staff	8%
10	World research reputation	8%
International Diversity		10%
11	Share of international academic staff	2%
12	Share of international students	2%
13	Share of international co-authored papers	2%
14	International teaching reputation	2%
15	Share of international bachelor degrees awarded	2%
Financial Sustainability		10%
16	Institutional income per academic staff	2%
17	Institutional income per students	2%
18	Papers per research income	2%
19	Research income per academic and research staff	2%
20	Research income per institutional income	2%

V. How are University Rankings Viewed

The key mission of a university is teaching and learning. Nevertheless, some rankings focus heavily on research and are based on other indicators that overlook the social and public role of higher education. Stakeholders either welcome them or reject them and come out with a whole bunch of criticism. Overtime, they have become very influential as they provide a way of defining how a university performs, influence both universities' local activity and national research policy. In addition, they are used by students, by the institutions themselves for marketing, decision-making and benchmarking purposes and also by decision-makers and politicians. Critics doubt that they are valid and can measure quality in a fair way because some of them rely on dodgy data, as reputational rankings do. In addition, they are said to cover only a small percentage of the world's universities and provide a simplified picture of a university's mission, as mentioned above. In many cases the methodology is not clearly defined and does not always meet scientific standards. The rankings also disfavor certain areas because bibliometric data is taken from databases that contain mainly English publications and have less coverage of the humanities and social sciences. According to Ton van Raan, Professor Emeritus of Quantitative Studies of Science at Leiden University "The rankings

are based almost entirely on performance in medicine and science." He further stresses that "Researchers in the social sciences and humanities publish more in their native languages. They produce high-quality work, but it is not cited as often as work in the medicine and science fields and so is scarcely visible in the rankings" [**?**]. This means that global rankings implicitly refer to the Anglo-Saxon model of research organisation. Historically, university rankings have favoured universities in which English is the working language, to the detriment of other institutions, because publications in languages other than English are less published and cited [Marginson, S. and Van Der Wende, M., 2007], as English is the research language. In addition, in the US, American scientists tend to cite Americans [Altbach, P., 2006], ignoring research work carried out in other countries. This fact may artificially boost the ranking of American academic institutions. What is more, the Web of Science database mainly contains journals published in English, and their selection favours research practice in the academic systems of the US and the UK. Indicator scores, as a result of a country-by-country breakdown, reveal that countries with a strong English language culture perform well for the Highly Cited indicator, which is a measure based on data from the Web of Science database that has a heavy English language focus. Regionally, in the ARWU rankings, the institutions based in North America (the US and Canada) outperform institutions in other regions on average, according to the Highly Cited and Nature/Science publication indicators, both of which are measures of high impact research. In contrast, we see that institutions in the Asia-Pacific region perform poorly for the two indicators that measure major awards to alumni and staff. The same universities are largely featured by the various leading global rankings. Critics also say that while the lists give some idea of differences in quality, the question is whether they are measuring things that are comparable. For example, the task of comparing Harvard, which has a budget comparable to that of a small state, with a nationally-based university in a small country in Europe may not yield fair outcomes. While one may argue with the methodological soundness of composite indicators, there is no doubt that rankings influence behaviour and have caused quality to be taken seriously in universities around the world. Many of the major universities seek to define strategies and adjust deadlines to reach their objectives in order to become competitive worldwide. Rankings are widely seen as having utilitarian value. They promote resource attraction because, generally speaking, governments allocate more resources to best ranked institutions and these attract more funds, and likely to establish more agreements with partners that, in turn, enhance reputation of this institutions [Hazelkorn, E., 2007]. The academic community also recognizes that a top position in prestigious international rankings may be a key factor in obtaining additional resources, while recruiting the best students and attracting strong international partnerships. In turn, universities that are not represented in international rankings may be tempted to calculate their scores in order to evaluate their chances to come in the rankings [Rauhvargers, A., 2011]. It is easier for graduates from high-ranking universities to get a work permit in some European countries, for example Denmark. Foreign educational institutions that want to operate in India must have a certain ranking, and other countries also require potential collaborating partners to have specific positions in the listings. In their strategies for getting into the world's top lists, universities have reformulated their programmes, there have been mergers between institutions, among other changes, and the fact that they been allowed to influence research policy. In an interview to Curie ([**?**]) Ellen Hazelkorn, Professor Emeritus at the Higher Education Policy Research Unit at the Dublin Institute of Technology said that, "Even the rankings that are more inclusive measure only quite a small part of what universities do – mainly international publication and

reputation. That can mean that universities give less priority to activity that does not help them to rise up in the rankings, for example partnerships with the community, or teaching and learning." She also argues that the biggest problem with the university rankings is their influence on higher education, in that they affect institutional strategy and national research policy. She claims that the rankings are misleading, because they aim at providing statistically-correct data about the quality of education but use indicators that favour elite universities, apart from having a distorting effect as they mainly use research-related measurements and largely disregard education and learning. Nevertheless, "In societies with weak quality assurance systems, the rankings have also become a tool with which to demand accountability", she said.

VI. Conclusion

As we have seen, today's global higher educational milieu is characterised by its concern with rankings. Higher education has become a top national agenda item and the creation of world-class universities is the materialization of that agenda[7]. The growth of higher education gave rise to countless institutions, which made it necessary to come together on a unified platform of benchmarking. Several of these have appeared. Students and sometimes employers put a lot of trust in these lists, making decisions based on supposedly impartial measures of the institutions' relevance. The problem lies in the fact this interpretations are incomplete, misleading sometimes, because they rely on dodgy data like reputational information. This does not mean that rankings are necessarily wrong but they may be misleading because they do not consider important aspects. Higher education institutions, both publicly-owned and private, have become, so to say, educational businesses, which does not disfavour their main mission that is their educational offer and their social mission. Nevertheless, critics claim that universities overrely in rankings more than desirable. In the other word, competition and status mean a lot to universities, because, in any market, there is a value associated with a product, which becomes a commodity. The higher position a university is ranked the more students enrolled and funds it may get, not to speak of a larger number of researchers, faculty, projects and partnerships. Rankings do not necessarily measure what the general public believes they measure. And there are indicators that employers, students and the general public consider prestige more important than objective qualities, i.e. in many cases, perception and reputation are valued to the detriment of the real value of education. That's why different lists result in extremely disparate positions. For example, the London School of Economics is ranked 23 in the Times Higher Education and 327 in US News & World Report. In addition, criteria change from time to time and it is not possible to effectively compare results throughout time. These limitations have been recognized by the rankings themselves. That's why sub-rankings have been created per field of knowledge and subject in order to cover a larger number of institutions and to dissipate criticism about the fact they favoured some institutions to the detriment of others. It seems that the indicators used by the international rankings described above do not favour Portuguese universities, because they underestimate faculty activity and favour research. The strength of our universities in ARWU lies in publications. For example, Universidade de Lisboa only has scores in three of the 6 ARWU indicators. The University of Lisbon also obtains scores in articles published in Nature and Science (N&S) in the academic performance per capita (PCP). It should also be noted that UL obtains scores in Nobel Prizes and Fields scores: Egas Moniz who was at the time affiliated to UL and to the Instituto Neurológico de Lisboa. In other rankings and sub-rankings the representation of is negligible. Against this background it is suggested that, strategically, UL could strengthen its brand name as reputational rankings have

[7] IREG Observatory on Academic Ranking and Excellence

become more influential. It is important that UL develops an easily recognizable identity at international level. Other initiatives: i) foster research collaboration internationally; ii) policies to attract international talent (indicators such as the number of highly cited researchers and professors are extremely important to the rankings; iii) deliver reliable date to the rankings (creation of liaison structures between the universities and the rankings, actively cooperating with the ranking structures); iv) foster scientific output by publishing in international journals, which have an impact on their field of expertise.

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