

## **Roundtable on three data-driven multi-country/multi-university projects: ETER, U-Multirank and the Leiden Ranking**

- Ben Jongbloed (CHEPS, University of Twente, on behalf of U-Multirank),
- Benedetto Lepori (University of Lugano, on behalf of ETER),
- Paul Wouters (CWTS, Leiden University, on behalf of the Leiden Ranking).
- Mads Gravas (European Commission, DGEAC).
- Sybille Hinze (iFQ, Berlin), panel chair

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### **Introduction**

This round table is a special event, organised for the STI 2014 conference. The round table will discuss methodological, policy-related and political issues that emerge in internationally comparative work on higher education – with a particular focus on the results and experiences emerging from three large-scale international indicator-driven projects in the field of higher education and research:

- U-Multirank
- European Tertiary Education Register (ETER)
- CWTS Leiden Ranking

(see references below)

The round table consists of researchers from the three projects (U-Multirank/Jongbloed, ETER/Lepori, Leiden Ranking/Wouters), who are joined by a representative from the European Commission (mr. Mads Gravas, EU Commission, Directorate-General for Education and Culture). The panel is chaired by dr. Sybille Hinze (iFQ, Berlin).

The issues to be discussed in the round table are:

- The three projects: results, impacts and contributions to research in the STI – ENID field
- Data issues: the sources, perimeter and quality of data (self-reported data; surveys; NSA; bibliometrics)
- Characteristics of universities: dimensions, aggregation levels and indicators: methodological innovations, normalisations and issues for further research on building indicators
- Comparing universities: biases, flaws, formats and composites for the presentation of (ranking) scores
- The use (and abuse) of rankings & international datasets for policy-making and academic research
- Possible synergies between the three projects: sharing databases, experiences and identifying avenues for research

On each of these (partly overlapping) issues, the panel members will make a few statements that will be further discussed within the panel as well as with the audience.

### **The three projects**

The three initiatives/projects and their complementarities within the wider European/global STI-oriented policy analysis community are briefly described here.

#### *ETER*

ETER (European Tertiary Education Register) will build a census of European universities from 36 European countries, based on existing data collections available from National Statistical Authorities. The first wave of data resulting from ETER will be publicly available in June 2014. This European Commission funded project was the follow-up of the EUMIDA

(= EU Micro Data) feasibility study (EUMIDA, 2010). ETER is regarded by the EC as a key instrument in developing indicators and supporting evidence-based policy making (European Commission, 2012).

#### *U-Multirank*

U-Multirank (van Vught and Ziegele, 2012) is a multi-dimensional and user-driven approach to assessing the performance of higher education institutions (at both the institutional and program level). It is based on the notion of university profiles, highlighted earlier in the so-called U-MAP project (CHEPS, 2010). The dimensions covered are teaching and learning, research, knowledge transfer, international orientation and regional engagement. Based on data reported by universities themselves and on available bibliometrics/patents data, U-Multirank compares universities and allows users to develop personalised rankings by showing selected indicators through its interactive web-tool. U-Multirank will be launched in May 2014.

#### *Leiden Ranking*

The CWTS Leiden Ranking (Waltman et al, 2012) ranks universities based on bibliometric indicators of publication output, citation impact, and scientific collaboration. The ranking includes 500 major universities from more than 40 different countries. Unlike some of the other rankings, the Leiden Ranking does not rely on data obtained from reputational surveys, number of Nobel prizes or self-reported data. Similar to the U-Multirank methodology, the Leiden Ranking refrains from aggregating different dimensions of university performance into a single overall indicator. In recent years, the ranking has been extensively revised and statistics at the level of five broad fields of science have been added. The new Leiden Ranking will be released at the end of April 2014.


The three projects are dealing with large datasets ('big data') on individual universities and reflect the need to collect information on what universities do and how well they do it. Institution-level data is a fundamental prerequisite for pursuing national/ international and university-level policy objectives and increasing the transparency of higher education for the various stakeholders in the higher education and research communities/areas (European Commission, 2011). Sophisticated transparency tools, like U-Multirank, the Leiden Ranking and the data on which these are built, are urgently needed. However, disaggregated (i.e. micro) data is very much dispersed among a variety of data sources, like the national statistical authorities, ministries of education, university associations, et cetera (EUMIDA, 2010). Often, micro-data can only be collected from the universities themselves, using surveys and questionnaires.

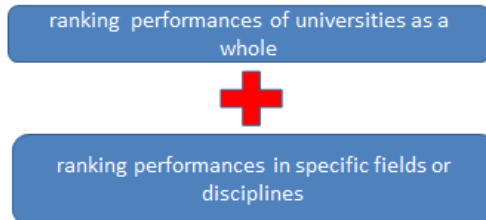
Although university league tables and rankings are highly controversial, they continue to have a great impact on policy makers and universities themselves. Yet, major concerns remain with respect to the quality of the underlying data, the methodological underpinnings of rankings and their impact on stratification in the higher education system, rather than on the diversification of institutional missions.

The on-going collection and dissemination of micro-data will encourage further academic research on the shape and functioning of increasingly diverse higher education systems. In the roundtable we will provide examples of the potential value of academic research that makes use of such micro data (e.g. Bonaccorsi et al., 2007; Seeber et al. 2012; Lepori et al., 2013; Huisman et al., no date; Van Vught and Ziegele, 2012). Exploiting the complementarity between statistical data sources on the one side and institutional data sources on the other side is likely to be a central issue for the future – for indicator designers and those that make build and/or use of indicators, rankings and other transparency tools. The use of indicators and transparency tools –by academic researchers, policy-makers or university administrators, however, will require the careful handling of issues around the definition, nature and limitations of indicators (Lepori & Bonaccorsi, 2013). In the round table, the panel members will – challenged by the chair and the audience – reflect on these issues, based on their experiences from the three projects.

## U-Multirank

U-Multirank is a new instrument to compare university performances:

A new instrument to compare university performances 



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This unique new tool for comparing university performance currently includes information on more than 850 higher education institutions, more than 1,000 faculties and 5,000 study programmes from 70 countries. This is an impression of the institutions that are included:

### U-Multirank 2014 "Big Data"

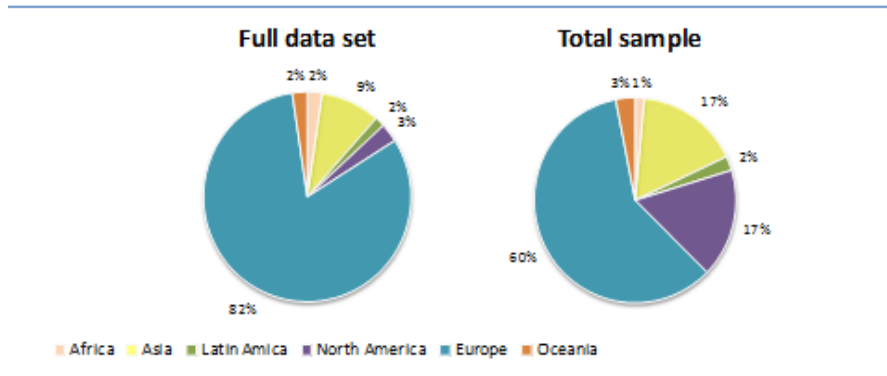


- › 850 universities are included
- › 70 countries have universities in U-Multirank
- › 500 of the 879 universities have provided comprehensive data (the others are in on basis of bibliometrics / patent data only)
- › 1,000 faculties/departments are included in the four field based rankings (physics, electrical and mechanical engineering, business studies)
- › 5,000 study programmes within these faculties are included
- › 60,000 students completed the student satisfaction survey

Data refer to the year 2012. Raw data is not public, but indicators are. 3

Below is a chart showing where the institutions come from:

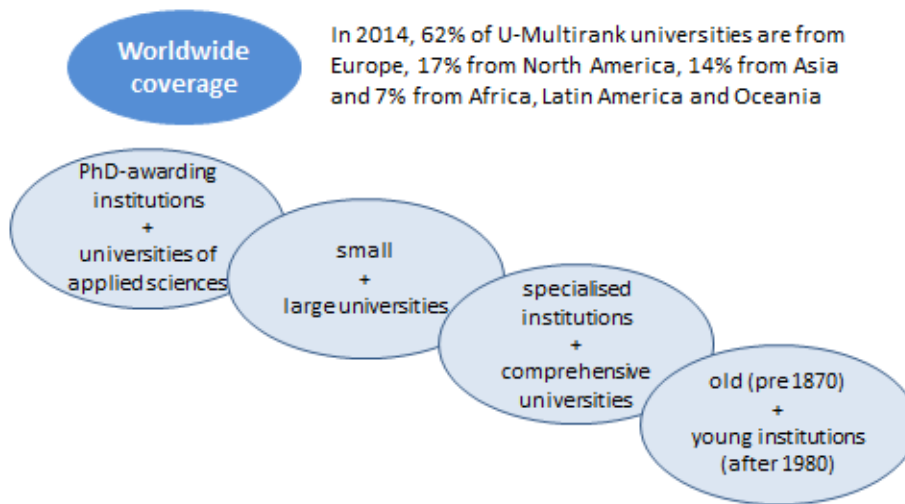
## Final sample of U-Multirank institutions by region



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U-Multirank is one of the first international comparison to include all types of higher education institutions. The institutions included are a very diverse set:

### U-Multirank offers a global view of a large variety of university profiles



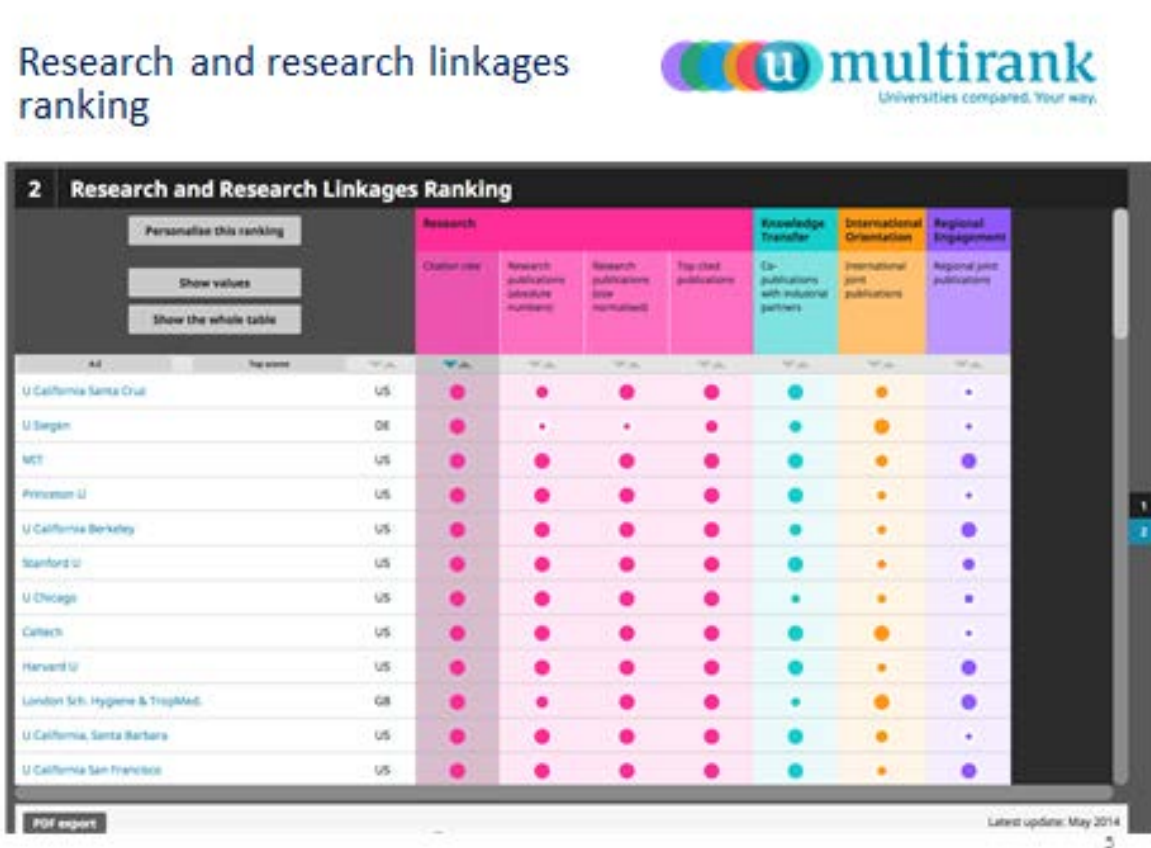
U-Multirank takes a different approach to existing global rankings of universities; it is multi-dimensional and compares university performance across a range of different activities grading them from “A” (very good) to “E” (weak). It does not produce a league table of the world’s “top” 100 universities based on composite scores. Instead, it allows users to identify a university’s strengths and weaknesses, or the aspects that most interest them.

U-Multirank enables users to compare particular sorts of universities (“like with like”) in the areas of performance of interest to them. It indicates how universities perform by showing their position in five performance groups (A=“very good” through to E=“weak”) in each of 30 different areas. While

comparisons using U-Multirank are user-driven, it does include three “readymade” rankings – on research, on the strengths of universities’ economic involvement and on Business Studies programmes. The wide range of new indicators of performance cover five broad dimensions: teaching and learning, regional engagement, knowledge transfer, international orientation and research. Students and other stakeholders have played a major role in developing U-Multirank and the ranking has been tested by student organisations.

U-Multirank’s readymade rankings look at a set of institutions that have a particular, pre-defined institutional profile and for these institutions shows the results for a pre-defined set of indicators. For instance, the Research and Research Linkages readymade ranking looks at PhD awarding institutions and shows their scores on a set of seven indicators dealing with research output (publications output, citation rate, top-cited papers, co-publications, international joint publications and co-publications with regional partners).

This is one of the Readymade Rankings.

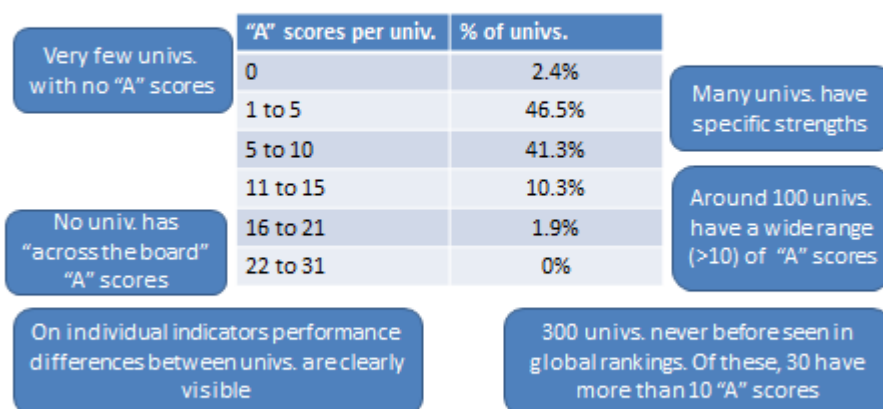


U-Multirank shows the performances of the institutions as a whole but also ranks them in selected academic fields: in 2014 the fields are business studies, electrical engineering, mechanical engineering and physics; in 2015 psychology, computer science and medicine will be added.

Before coming to a ranking, a profile is chosen by the user of U-Multirank. This is what we call ‘mapping’ and it relates to the selection of institutions that have particular characteristics, thus allowing a comparison of like-with-like (not comparing apples and oranges).

U-Multirank results show that while over 95% of institutions achieve an “A” score (very good) on at least one measure, only 12% of the institutions show a broad range of very good performances (more than 10 “A” scores). This diversity of performance has not been shown before in any international ranking. See below:

## U-Multirank shows a wide distribution of "A" scores!



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## Different universities show top performances in different indicators



80 universities from the total sample of 879 achieved **a score in the top five** on at least one of the 30 indicators.

8 of these 80 universities achieved **a score in the top five** on three or more indicators (the highest is one university with six such scores)

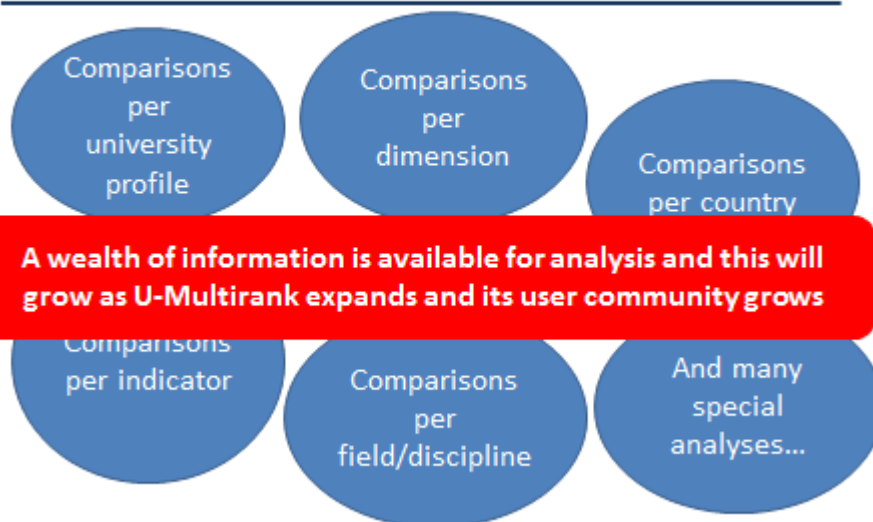
4 of these 8 universities have not been visible before in global rankings

- An Austrian University of Applied Science
- A private US Christian University
- A private German Business School
- A French Management Grande École

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U-Multirank is based on a methodology that reflects both the diversity of higher education institutions and the variety of dimensions of university excellence in an international context. The data included in U-Multirank are drawn from a number of sources, providing users with a comprehensive set of information: information supplied by institutions; data from international bibliometric and patent data bases; and surveys of more than 60,000 students at participating universities - one of the largest samples in the world and offering students a unique peer perspective. This means that U-Multirank offers a wealth of information and allows for a large number of comparisons:

U-Multirank offers a wealth of information and the potential for many more analyses



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The indicators for the institutional-level and field-level cover five dimensions. They are shown in the next five pictures:

### Indicators at institutional and field levels



	Institutional ranking	Field-based rankings
<b>TEACHING &amp; LEARNING</b>		
Student-staff-ratio		•
Graduation rate (BA ; MA)	•	
Percentage of academic staff with PhD		•
Percentage of graduates graduating on time (BA; MA)	•	•
Rate of graduate unemployment ('descriptive indicator')	(•)	(•)
Contact with work environment (BA; MA)		•
Indicators from the student survey		
Overall learning experience		•
Quality of courses & teaching		•
Organisation of program		•
Contact with teachers		•
Facilities (libraries, rooms, IT, laboratories)		•
Research orientation of teaching/programme		•
Inclusion of work experience /practical elements		•

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## Indicators at institutional and field levels



indicator * : based on bibliometrics data	Institutional ranking	Field-based rankings
<b>RESEARCH</b>		
External research income (per fte academic staff)	●	●
Doctorate productivity		●
Research publications (size normalized) *	●	
Research publications (absolute numbers) *	●	●
Art related output	●	
Field-normalised citation rate*	●	●
Highly cited research publications *	●	●
Interdisciplinary research publications*	●	●
Research orientation of teaching (student survey)		●
Number of post-doc positions	●	●

## Indicators at institutional and field levels



indicator * : based on bibliometrics or patent data	Institutional ranking	Field-based rankings
<b>KNOWLEDGE TRANSFER</b>		
Income from private sources (research contracts, service contracts, licenses etc.) per academic staff	●	●
Co-publications with industrial partners *	●	●
Patents awarded (size normalised) *	●	
Patents awarded (absolute numbers) *	●	●
Industry co-patents (per fte academic staff) *	●	
Number of spin-offs (per 1000 academic staff)	●	
Publications cited in patents *	●	●
Revenues from Continuous Professional Development	●	



## Indicators at institutional and field levels



	Institutional ranking	Field-based rankings
<b>INTERNATIONAL ORIENTATION</b>		
Educational programmes in foreign language (BA; MA)	•	
International orientation of programmes (BA; MA)		•
Opportunities to study abroad (student survey)		•
Student mobility (incoming, outgoing)	•	
Percentage of international academic staff	•	
Percentage of PhDs by foreign students	•	•
International joint research publications *	•	•
International research income	•	•

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## Indicators at institutional and field levels

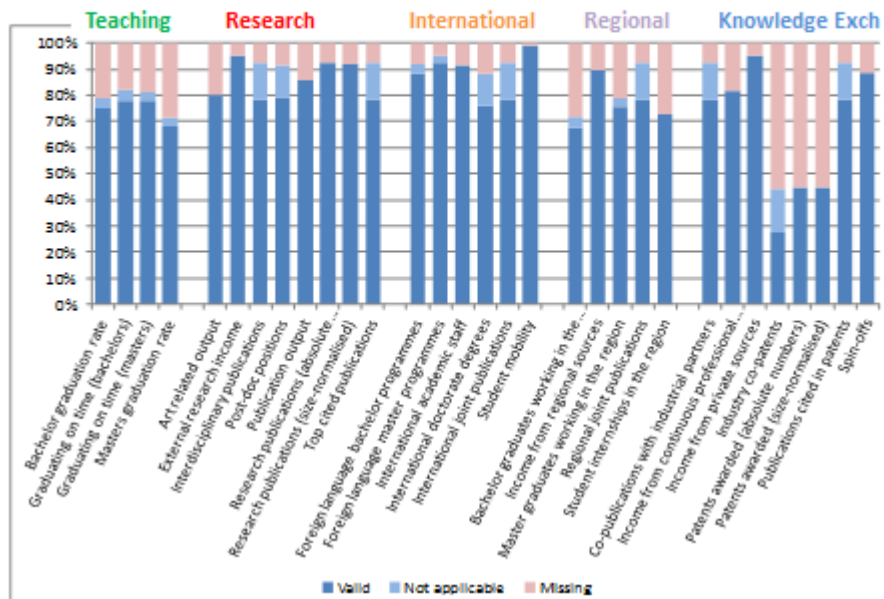


	Institutional ranking	Field-based rankings
<b>REGIONAL ENGAGEMENT</b>		
Percentage of graduates (Ba; MA) working in the region	•	
Student internships in the region	•	
Degree theses in cooperation with local industry		
Regional joint research publications *	•	•
Income from regional sources	•	•

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The degree to which we have managed to collect data for each of the institution-level indicators is shown below. Not all institutions have been able to deliver data for each indicator. However, for some institutions, particular indicators do not apply (e.g. if an institutions is not a PhD awarding institution, the indicator “international doctoral degrees awarded” is not applicable). See below for the data completeness:

## Completeness of data by indicator (institutional ranking)



U-Multirank demonstrates for the first time the diversity of university profiles in the international context. The findings indicate that it is not possible to meaningfully identify “the world’s top 100 or 200 universities overall”. U-Multirank identifies the top performers – but these are different depending on the indicator. U-Multirank is a flexible tool where students, parents, academics, policy-makers, administrators, etc., can find information to support decision-making.

The second U-Multirank rankings will be released in March 2015. Institutions that would like to participate can express their interest on the U-Multirank website ([www.umultirank.org](http://www.umultirank.org)).

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