University-Industry Research Cooperation Scoreboard 2009-2010 Technical notes

New features of the UIRC 2009-2010 methodology

Contrary to the 2008 scoreboard, its 2009-2010 successor exhibits its UIC measures in terms rank ranges rather than individual university-specific scores. The top 10 performing universities in each measure are ranked within the range 1-10; the next 15 in the range 16-25, etc. The rank ranges within the broad fields refer to all universities that surpass the minimum threshold of publication output in that field. This threshold was set at 100 publications for 2003-2007. The ranks of those universities failing to meet this threshold are not available. As a result, the lowest rank range from 401-500 is not fully filled, and therefore indicated as 400+.

The UIC statistics and rankings of universities may differ significantly from those in the 2008 scoreboard owing to changes in:

(a) content of CWTS WoS database changed slightly (annual turnover of journals; expanding number of journals);

(b) organizational composition within universities (splits, expansions, mergers, etc.);

(c) CWTS search algorithm for identifying corporate sector partners within author addresses (was upgraded and extended to enhance recall rates).

The net effect of these changes is that the quantity of UICs within university publication output has increased significantly in many cases. Depending on the concurrent changes in a university's total publication output, the fraction of UICs (UIC intensity) may have increased, decreased or remained unchanged.

Owing to these modifications and improvements, the UIC rankings of universities within this scoreboard are only partially comparable to those in the previous scoreboard. Trend data on UIRC performance will probably be included in the 2010-2011 edition of the scoreboard.

Data source

Thomson Reuters/CWTS *Web of Science* (WoS) database, 2009 edition (includes the *Science Citation Index – Expanded*, *Social Sciences Citation Index*, *Arts & Humanities Citation Index*).

Definitions

Selected document types within the WoS: research articles, review articles, notes and letters.

Publication years: 2003-2007 (referring to research conducted one or two years prior to publication, i.e. 2001/2002-2005/2006)

Definition of universities: organizations within the CWTS/WoS database labeled by CWTS as a 'university'. The bibliometric delineation of a university includes closely linked or integrated university medical centers and clinics.

Counting scheme of total publication output: integer counting, where each publication is assigned in full to each participating university (deduplication of multiple occurrences of the same main organisation within a record).

Identification of private sector organisations within author affiliate address information: according to CWTS Corporate Research Papers database (excludes private sector hospitals, medical centers and clinics).

Definition of a University-Industry Co-publication (UIC): a research publication indexed by CWTS WoS database with at least one private sector participant and one university participant represented within the author affiliate addresses.

Selection of universities: the world's top 500 universities according to their publication output in the Thomson Reuters/CWTS WoS database over the years 2003-2007 (based on whole counts of publications). The current selection excludes three Austrian universities, with sufficiently large publication output, that are established in the time period 2003-2007 (Medical Universities of Wien, Graz and Innsbruck) and which are not yet fully processed in the CWTS information system.

Definition of five broad fields (each comprising of several CWTS/NOWT-defined fields of science):

1. Natural sciences and Mathematics: Astronomy and Astrophysics; Chemistry and Chemical Engineering; Earth Sciences and Technology; Environmental Sciences and Technology; Mathematics; Physics and Materials Science;
2. Medical and health sciences: Basic Medical Sciences; Biomedical Sciences; Clinical Medicine, Health Sciences;
3. Life and agricultural sciences: Agriculture and Food Science; Basic Life Sciences, Biological Sciences;
4. Engineering sciences and ICT: Civil Engineering and Construction; Computer Sciences; Electrical Engineering and Telecommunication; Energy Science and Technology; General and Industrial Engineering; Instruments and Instrumentation, Mechanical Engineering and Aerospace;
5. Social sciences and humanities: Creative Arts, Culture and Music; Economics and Business; Educational Sciences; History Philosophy and Religion; Information and Communication Sciences; Language and Linguistics; Law and Criminology; Literature; Management and Planning, Political Science and Public Administration, Psychology; Social and Behavioral Sciences – interdisciplinary; Sociology and Anthropology; Statistical Sciences.

Note that the WoS coverage of all research publications varies significantly across broad fields: it is 'good' to 'excellent' in the Natural sciences and Mathematics, Medical and Health sciences, and in Life sciences and Agriculture; 'fair' in the case of the Engineering Sciences and ICT; and 'fair' to 'poor' in the Social sciences and Humanities.

Computations

Counting scheme of UICs – each UIC is counted only once per university (deduplication of multiple occurrences of the same main organisation within a record).

Counting scheme of UICs per broad field: fractional counting of publications that appeared in which journals that are assigned to multiple fields. These publications are distributed proportionally across the corresponding broad fields.

How to read the Scoreboard

The first row in the UIRC table refers to "HARVARD UNIV" (Harvard University), located in the region "North America" and the Country "USA" (United States of American).

Harvard's UIC output in 2003-2007, across all fields of science, exceeds 2000 publications (">2000"). Harvard's total UIC output as a fraction of the total research publication output during that time-period assigns Harvard to the rank range between the 26th and 50th positions inclusive ("26-50").

Harvard's UIC intensity in the broad field of *Natural sciences and mathematics* ranks between 201 and 300 ("201-300"), *et cetera*.

Note that the ranking across all fields ("26-50") is higher than for any of the individual broad fields owning to the differences between fields in numbers of UICs and total publication output, which is dominated by the relatively large publication outputs in *Medical and health sciences* in Harvard's case.

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