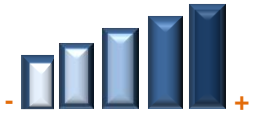
APPLICATIONS VOLUME

Volume of research grant applications submitted to external funding bodies

Applications Volume calculates the number and price, or amount applied for, of research grant applications.

Applications Volume addresses new applications only. It avoids double-counting of the same applications by excluding prior submissions in a multi-stage application process such as outlines and expressions of interest.



AWARDS VOLUME

Volume of research awards granted and available to be spent

Awards volume calculates the number and value of research awards from external funding bodies.

Awards Volume considers aggregated values of awards over the award lifetime. In other words, it considers the total value awarded at the time of award and not the value (to be) spent in any particular time period.

This metric includes subsequent financial amendments to awards, including supplements and reductions, and funding from industry. It does not include non-financial amendments such as no-cost extensions (i.e. zero-cost extensions).

SUCCESS RATE

Proportion of research grant applications that have been successful

The Success Rate calculated by this method will change over time:

- Success Rate by count is calculated according to whether submitted applications have been awarded or rejected, or whether a decision is pending.
- Success Rate by value is calculated according to the proportion of the total requested price associated with awarded or rejected applications or whether a decision is pending.

Price used should be the most up-to-date available. Awards that are not tied to an application do not count towards Success Rate.

The year of success is the date of submission to the funder.

ACADEMIC-INDUSTRY LEVERAGE

Private investment leverage from public sponsorship

Academic-Industry Leverage calculates the total income for publicly sponsored research projects that are performed in collaboration with at least one other non-academic organization, and the percentage of funds from non-academic collaborators that this is used to leverage.

A publicly sponsored research project is one which is funded by grant-in-aid from a Government or other public body. The collaboration should include material contribution, whether cash or "in kind", from at least one external non-academic collaborator.

BUSINESS CONSULTANCY ACTIVITIES

Volume of business engagements

Business Consultancy Activities calculates the number and value of business engagements.

All consultancy activities where there is income to the institution should be considered, regardless of the contract-type of the staff involved. The staff may be academic staff, or not on academic contracts, such as senior university managers or administrative/support staff.

RESEARCH STUDENT FUNDING

Sources of funding of tuition fees for research students

Research Student Funding calculates the number and proportion of research students whose tuition fees are funded by each category of funder types.

This metric is influenced by the composition of the student body, for example the mix of international and national students, and the range of disciplines.

This metric is not concerned with the amount of funding received from each category of funder types.

Head count, not FTE, is used as the basis for counting research students during any reporting period.

INCOME VOLUME

Volume of research expenditure

Income Volume calculates the value of awarded budget derived from research awards from external funding bodies that has been spent.

Any research that could not be classified as "Research" under HESA's accounting conventions for the finance record (Financial Reporting Standard 102[1]) will not be considered in Income Volume.

[1] https://www.hesa.ac.uk/collection/c15031/coverage#conventions

MARKET SHARE

Percentage of sector total research income per institution

Market Share calculates the percentage of total research income across the sector related to a given institution.

Any research that could not be classified as "Research" under HESA's accounting conventions for the finance record (Financial Reporting Standard 102) will not be considered in Market Share.

[1] https://www.hesa.ac.uk/collection/c15031/coverage#conventions

CONTRACT RESEARCH VOLUME

Total value of contract research

Contract research income is that received from an industrial or private external body, which is neither a university nor an academic organization, from commissioning a particular piece of research with specific terms.

Contract research volume excludes:
• Research income from external funding bodies, which is covered in Awards Volume.

• Income associated with research projects that are publicly sponsored, and that are performed in collaboration with at least one other non-academic organization, which is covered in Academic-Industry Leverage.

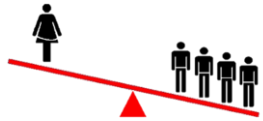
RESEARCH STUDENT TO ACADEMIC STAFF RATIO

Ratio of research students to academic staff involved in research

Research Student to Academic Staff Ratio calculates the average number of research students per researcher.

• This metric is concerned with researchers who are eligible to supervise research students. This metric is not concerned with undergraduate students.

• The situation of the particular institution will determine whether a high or low value of this ratio is desired, and should be known when using this metric for benchmarking to enable a proper interpretation.



SCHOLARLY OUTPUT

Productivity based on any type of scholarly output

Scholarly Output counts the number of institutional outputs of any type.

Example outputs of the following types are included in Scholarly Output:
•Journal publications
•Book series
•Stand-alone books
• Artefacts
• Compositions
• Designs
• Devices and Products
• Digital or visual media
• Exhibitions
• Internet publications
• Performances
• Reports
• Software

Outputs of the following types are excluded:
• Patents (counted in Intellectual Property Volume)
• Theses

CITATION COUNT

Total citations received by institution's scholarly output

Citation Count sums the citations received to date by institutional outputs.

It is likely that citation data will not be available for all elements that constitute an institution's Scholarly Output.

A partial reflection of an institution's activity is still valuable in providing an evidence-based support for decision making through benchmarking, since this limitation is likely to affect all comparators equally.

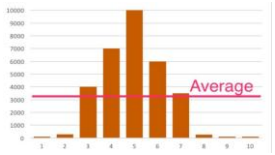
CITATION PER OUTPUT

Average citations received by an item of scholarly output

Citations per Output calculates the average citations received to date by each output that is part of a particular set.

It is likely that citation data will not be available for all elements that constitute an institution's Scholarly Output.

A partial reflection of an institution's activity is still valuable in providing an evidence-based support for decision making through benchmarking, since this limitation is likely to affect all comparators equally.



h-index

h-index per discipline

The *h*-index is calculated, as defined by Professor Jorge Hirsch[1], for institutional disciplines. To quote from this paper that defines the *h*-index in terms of researchers: "A scientist has index *h* if *h* of his or her *Np* papers have at least *h* citations each and the other (*Np* – *h*) papers have ≤*h* citations each".

A group of papers has an h-index of 17 if 17 of these papers have each received at least 17 citations, and 18 of these papers have not each received at least 18 citations.

The *h*-index is not calculated at institutional level.

[1] **Hirsch, J. E.** (2005). "An index to quantify an individual's scientific research output" *Proc. Natl Acad. Sci.* 201 (46): 16569–16572.

FIELD WEIGHTED CITATION IMPACT

Actual citation count relative to the expected world citation count

Field-Weighted Citation Impact is the ratio of the citations actually received by the denominator's output, and the average number of citations received by all other similar publications.

A Field-Weighted Citation Impact of:

- Exactly 1.00 means that the output performs just as expected for the global average.
- More than 1.00 means that the output is more cited than expected according to the global average.
- Less than 1 means that the output is cited less than expected according to the global average.

OUTPUTS IN TOP PERCENTILES

Outputs that have reached a particular citation threshold in the data universe

The citation thresholds that represent the top 1%, 5%, 10% and 25% of outputs in the data universe being used are established. The absolute counts, or percentage of total counts, of outputs that lie within each threshold is calculated.

This metrics depends on being able to divide outputs in the data universe into 100 percentiles. Early in the current calendar year, it is unlikely that enough citations will have been received by outputs to enable this, especially at more granular denominators such as disciplines.

This metric will only be calculable some months into the current year, and we suggest from 1 July.

PUBLICATIONS IN TOP JOURNAL PERCENTILES

Outputs that have been published in serials with a particular average citation threshold in the data universe

The average citation thresholds that represent the top 1%, 5%, 10% and 25% of serials in the data universe being used are established. The absolute counts, or percentage of total counts, of outputs that lie within each threshold is calculated.

This metric depends on being able to divide the serials indexed by the data universe into 100 percentiles. Any journal metric that enables this can be employed in this metric, and this metric could have multiple versions depending on which journal metric is used to create percentiles from the data universe.

Percentile boundaries are calculated independently for each publication year, not overall for the entire data universe, and an output is compared to the percentile boundaries for its publication year.

COLLABORATION

Volume and proportion of nationally and internationally co-authored scholarly outputs

Collaboration calculates the number and percentage of outputs that have national or international co-authorship:

- An output has national co-authorship if it has an affiliation that does not belong to the parent institution but is within the parent institution's country.
- An output has international co-authorship if it has an affiliation that does not belong to the parent institution and is outside the parent institution's country.
- An output that has both national and international co-authorships will be classified as international, to avoid double counting.
- Countries are defined as in the ISO classification[1].

[1] http://www.iso.org/iso/ics6-en.pdf

COLLABORATION PUBLICATION SHARE

Proportion of institutional output associated with a particular collaboration partner

Any collaboration partner of interest to the institution can be considered, for example:

- A country.
- A set of countries related by social, political or economic considerations such as the BRIC countries: Brazil, Russia, India and China.
- Another institution.
- A group of institutions, such as the Ivy League in the US or a set of peers that an institution has chosen.

Single author papers are excluded.

COLLABORATION IMPACT

Citation impact of nationally and internationally co-authored scholarly outputs

Collaboration impact calculates the average citations received by the sets of output that have national or international co-authorship:

- An output has national co-authorship if it has an affiliation that does not belong to the parent institution but is within the parent institution's country.
- An output has international co-authorship if it has an affiliation that does not belong to the parent institution and is outside the parent institution's country.
- An output that has both national and international co-authorships will be classified as international, to avoid double counting.
- Countries are defined as in the ISO classification[1].

[1] http://www.iso.org/iso/ics6-en.pdf

COLLABORATION FIELD-WEIGHTED CITATION IMPACT

Field-weighted citation impact of institutional output associated with a particular collaboration partner

Any collaboration partner of interest to the institution can be considered, for example:

- A country.
- A set of countries related by social, political or economic considerations such as the BRIC countries: Brazil, Russia, India and China.
- Another institution.
- A group of institutions, such as the Ivy League in the US or a set of peers that an institution has chosen.

A Field-Weighted Citation Impact of exactly 1.00 means that the output performs as expected, above 1 means it is more cited than expected and below 1 means it is cited less than expected, according to the global average.

ACADEMIC-CORPORATE COLLABORATION

Volume and proportion of scholarly outputs co-authored by researchers from both academic and corporate affiliations

Academic-Corporate Collaboration calculates the number and percentage of outputs that have been co-authored by researchers from both academic and corporate, or industrial, affiliations.

It is likely that affiliation and affiliation-type data will not be available for all elements that constitute an institution's Scholarly Output.

A partial reflection of an institution's activity is still valuable in providing an evidence-based support for decision making through benchmarking, since this limitation is likely to affect all comparators equally.

ACADEMIC-CORPORATE COLLABORATION IMPACT

Citation impact of scholarly outputs co-authored by researchers from both academic and corporate affiliations

Academic-Corporate Collaboration Impact calculates the average citations received by the outputs that have been co-authored by researchers from both academic and corporate, or industrial, affiliations.

The assignment or not of an academic-corporate collaborative output applies only to the institutional outputs.

The count of citations is independent of the collaboration status of the citing output.

ALTMETRICS – SCHOLARLY ACTIVITY

Number of times an institution's output has been posted in online tools typically used by academic scholars

This metric answers the question of how often an institution's output has been downloaded, bookmarked or captured in online tools with the intention to come back to use the output at a later date.

Example online tools include:

- Mendeley
- Figshare
- SSRN
- Academia.edu
- ResearchGate

ALTMETRICS – SCHOLARLY COMMENTARY

Number of times an institution's output has been commented on in online tools typically used by academic scholars

This metric answers the question of how often an institution's output has been mentioned in online tools typically used by scholars to discuss, engage or review research outputs.

Example online tools include science blogs, video posts such as those on YouTube, Stack Exchange and Wikipedia.

ALTMETRICS – SOCIAL ACTVITY

Number of times an institution's output has stimulated social media posts

This metric answers the questions of how often an institution's output has stimulated attention or buzz in social networking services or how well an institutions researchers are promoting their work through social activity.

Example services include:

- Facebook
- Twitter
- LinkedIn
- delicio.us

ALTMETRICS – MASS MEDIA

Number of times an institutions output has been referred to in mass media outlets

This metric answers the questions of how often an institution's output has been mentioned in press clippings or news websites, such as The Guardian newspaper.

PUBLIC ENGAGEMENT

Attendees at public events

Public Engagement calculates the number of attendees at public events. It answers the question of what an institution's wider social and cultural impact on their region and nation is.

They include knowledge, facility, and cultural awareness events, regardless of whether the events were chargeable or free.

Open days, student union activity and commercial conferences are excluded.

ACADEMIC RECOGNITION

Elected fellowships of national academy of sciences

Academic Recognition calculates the number of elected fellowships to the national academy of sciences.

Elected fellowships are counted at the university at which the academic is based, and move with the academic. No historic assignment to previous career universities is made.

The number of elected fellowships is counted, not the number of researchers. Only awards that are open internationally should be counted in this recipe.

The following are not counted:
- Prizes.
- Paid memberships.

INTELLECTUAL PROPERTY VOLUME

Volume of patents and licenses

Intellectual Property includes copyrights, trademarks, design rights, trade secrets and patents for the protection of inventions, and licenses granted to private companies allowing them to exploit an institutional invention that is protected by a patent.

The number of patents granted includes all individual patents, and any individual national patents.

The number of licenses granted includes those granted from licence agreements, assignments, exercised option agreements, licences to spin-outs and income-generating Material Transfer Agreements.

INTELLECTUAL PROPERTY INCOME

Revenue from patents and licenses

It answers the question of how much commercial return an institution is deriving from its interactions with a range of external partners.

Intellectual Property Income is that received by the institution from upfront fees, milestone fees, royalties, and reimbursement of patent costs.

Income from design interactions and licensing is also included.

SUSTAINABLE SPIN-OFFS

Number of sustainable spin-offs

A spin-off is a company that has been set up to exploit intellectual property that originated from within the institution.

The types of spin-off counted in this recipe are those for which the definition is specific and not open to interpretation, and where the institutional data quality upon which the metric is based are relatively high.

Spin-offs where the definitions are less specific and the data quality is consequently relatively low are excluded.

Sustainable spin-offs are active companies that have survived for at least 3 years

SPIN-OFF RELATED FINANCES

Financial benefits derived from active spin-offs

A spin-off is a company that has been set up to exploit intellectual property that originated from within the institution.

The types of spin-off counted in this recipe are those for which the definition is specific and not open to interpretation, and where the institutional data quality upon which the metric is based are relatively high.

Spin-offs where the definitions are less specific and the data quality is consequently relatively low are excluded.

Active spin-offs are those which are currently active, regardless of the number of years that they have existed.

External investment includes all investment from external partners, with the exception of third-stream funds.

TIME TO AWARD OF DOCTORAL DEGREE

Time taken to be awarded a doctoral qualification as a proportion of expected course length

• A Time to Award of Doctoral Degree ratio of 1 means that the expected time was taken to have the degree awarded; above 1 means longer than expected; and below 1 means shorter than expected.

• Where there are both part-time and full-time students following a programme of study, the expected length of study should be the normal length applicable for the mode of study (part-time or full-time) of the student in question.

DESTINATION OF RESEARCH STUDENT LEAVERS

Research students continuing in an academia following successful completion of course

Destination of Research Student Leavers calculates the proportion of research students who continued to work in the university sector, compared to moving into other career paths.

This metric is concerned only with successful research students.