Demonstrating your research success relies on accurate data.

Over the past 10 years, international university rankings have grown in visibility and prominence, stretching beyond influencing the university selection process made by students and faculty. In different parts of the world, rankings can play a pivotal role in:

- How governments measure research excellence for your institution
- Whether or not a company selects you to partner with
- A funding body’s decision to invest in research at your university

Although rankings are not the sole indicator of your institution’s reputation, they do provide a quantitative way to benchmark universities nationally, regionally and globally.

If you are seeking to establish, improve or maintain your institution’s reputation and standing, understanding how your research output, citation data and institutional data are used in calculating international university rankings is essential. Further, gaining insight into what that data includes and where it can be improved, puts you in a better position to drive your university’s rankings and reputation.

Here we take a practical look into the influence of research output data in rankings methodology and the role leaders at universities can take to ensure such data is an accurate reflection of their institution’s research.
The influence of research and institutional data in two ranking methodologies

Ranking organizations develop their own unique methodology but are reliant on data inputs from a range of external resources. This often includes a university’s own institutional data and researcher data from bibliometric (citation indexing) databases, such as Scopus.

Looking into the methodologies of two leading ranking organizations offers a perspective into how data about your university contributes to rankings.

According to Times Higher Education¹, the methodology behind the global performance tables of their World University Rankings (WUR) is based on 13 performance indicators, grouped into five areas: teaching, research, citations, international and industry income (see figure 1).

A critical component of the rankings equation is research output. In the case of the WUR, data stemming from research output influences the calculation in the areas of:

- Citations (30% of the calculation)
- Research productivity (6% of the calculation)
- International collaboration (2.5% of the calculation)

¹Based on information accessed on the THE website November 2018.
For the QS (Quacquarelli Symonds) World University Rankings, universities are evaluated based on six metrics:

- Academic Reputation (40%)
- Employer Reputation (10%)
- Faculty/Student Ratio (20%)
- Citations per faculty (20%)
- International Faculty Ratio (5%)
- International Student Ratio (5%)

Again, research output is an influential part in their methodology applied, with citations per faculty accounting for 20%.

Although both organizations follow different methodologies, each taking a slightly different look into reputation, both rely on institutional data to determine their global tables. This can include relevant data on human resources, student administration, finances, researcher profiles, research output, funding and awards. Ranking organizations may also vary in how they source their data.

Regardless, when your internal and external data are housed and managed in multiple places, it can be difficult to get a clear and accurate view into what those data sources say collectively about your institution, whether you are looking through a rankings lens or seeking internal analyses to answer questions and steer strategic objectives. The better your model for collecting, cleaning and validating your own data is, the better insight you gain into understanding your rankings and beyond.

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¹Based on information accessed on the QS website November 2018.
A centralized system for better clarity

With researcher and research output data underpinning a significant part of rankings equations, universities need to be confident that their data is as complete and accurate as possible. One way to help achieve this is to implement a single system capable of ingesting research metadata and researcher profiles. Such a system can decrease the need to enter the same data into multiple systems and increase the ability to oversee data quality. Elsevier’s Pure offers this capability—it combines your institution’s internal systems, along with a variety of external data sources, plus any legacy data, into a single platform.

“Having all data about research accessible in one single interface. This means that as the research office we are able to provide combined data on our research staff, income, outputs, press coverage, etc., without having to contact other departments.”

—Research Manager, Educational Institution

Given the influential role of data in rankings and evaluation, you want to ensure the work your university is doing is as accurately reflected as possible—centralizing data in a transparent way is an essential ingredient to enable that to happen.

1Source: TechValidate survey of Elsevier Pure customers. TVID: 4AB-468-616
Case example

To more accurately reflect their research performance and outcomes, City University of Hong Kong (CityU) undertook initiatives to improve data quality for a more accurate reflection of their research performance and outcomes. An ambitious university in the greater China region, CityU is focused on rising up in international rankings with a growing portfolio of innovative research. Having one single source of data would address several pain points in addition to improving data quality. It would reduce the amount of disparate formats and places in which faculty had to report information, bring information together from multiple systems and provide more transparency into performance.

The university decided to migrate its research management solutions onto Elsevier’s Pure, creating a single, trusted source of research metadata and researcher profiles. In addition to including data from the abstract and citation database Scopus, Pure ingests data from internal campus systems and external sources, consolidating research metadata silos. Data can then be interrelated for simplified reporting. For CityU, implementing a robust research management system was a step forward in pro-actively managing the university’s research reputation, both in data collection and in-depth analyses to support their global research growth plans.

ELSEVIER’S PROFILE REFINEMENT SERVICE (PRS)

The Profile Refinement Service (PRS) significantly reduces the burden of gathering publication information for researcher profiles. Using a mix of algorithms and manual curation, PRS disambiguates author profiles based on more than 73 million records indexed in Scopus. When combined with Pure, Elsevier’s research information management system, the Profile Refinement Service facilitates the process of attaining accurate and up-to-date profiles with minimal manual intervention. In the case of City University of Hong Kong, PRS was especially helpful in ensuring researchers received proper accreditation for their full body of work regardless of whether they publish under a Chinese or English name.
“We learned that when we started to clean up our data, and that was through the process of first creating data identifiers and then unifying our Scopus IDs, that many of our faculty had been underreported. So, in this process the average faculty gained about 20 publications, gained 500 plus citations, and gained in h-index of over three. So, these were really institutionally major gains: time saved, faculty more happy, better reporting, higher quality reporting and a rise in our recognition, which then feeds into rankings.”

— Professor Christian Wagner, Chief Information Officer, Associate Provost (Quality Assurance), City University of Hong Kong

Better data. Better decisions.

Whether looking to establish, improve or maintain your institution’s reputation and standing, the research output and citation data attributed to your university is a determining factor. Data hygiene practices can lead to a more accurate reflection of your university in ranking outcomes through the validation of research output and citation data attributed to your institution. Further, deep analyses of the same data can yield actionable insights that propel your institutional strategy forward and help you manage your reputation.

To accelerate research performance and ease researchers’ administrative burden, City University Hong Kong (CityU) decided to standardize data formats and simplify reporting by consolidating research data on a central platform. Read the case study.
Empowering knowledge.

Elsevier’s Research Intelligence solutions answer the most pressing challenges researchers and research managers face, with innovative solutions that improve your ability to establish, execute and evaluate research strategy and performance.

**Pure** is a modern Research Information Management System, which helps universities & research institutions to improve performance with up-to-date data & analytics. As a versatile interoperable software, Pure can be configured as per the growing requirements of the institution. It’s industry-proven data model provides multi-faceted insights about the overall research lifecycle. Pure facilitates an evidence-based execution of strategy to unlock your full research potential.

**Scopus** gives you high quality data and tools to decide where and how to drive your institution’s research agenda, impact and competitiveness. Scopus data powers the decisions of global rankings organizations, funding sources, and assessment bodies around the world – and it can help you too.

**SciVal** offers quick, easy access to the research performance of over 10,000 research institutions and 230 nations worldwide – so you can visualize research performance, benchmark relative to peers, develop collaborative partnerships and analyze research trends.

**Analytical Services** provides research institutions and funders accurate, unbiased & consultative analysis on research performance by combining high quality data sources with technical and research metrics expertise. Our offerings range from simple, targeted reports to comprehensive multidimensional studies, as well as data delivery and web integration services to meet your research management needs.

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