CASE STUDY

STINT works with Elsevier to create an internationalization metric

EXECUTIVE SUMMARY

The Swedish Foundation for International Cooperation in Research and Higher Education (STINT) worked with Elsevier to create a new metric – the Field-Weighted Internationalization Score (FWIS). The metric allowed STINT to improve its understanding of international collaboration carried out by Swedish universities and was made globally available in SciVal.
EXECUTIVE SUMMARY

The Swedish Foundation for International Cooperation in Research and Higher Education (STINT) had to gain a comprehensive picture of international research collaboration of Swedish universities.

In order to do so, the foundation required a metric to calculate internationalization scores accurately, taking into account the varying levels of collaboration across different disciplines. STINT partnered with Elsevier over a six-month period to create a new publication-based methodology.

Working with research data accessed through SciVal® and provided by Elsevier Research Intelligence, STINT and Elsevier produced the Field-Weighted Internationalization Score (FWIS). The FWIS made it possible for:

• STINT to improve its understanding of the level of international collaboration carried out by Swedish universities.
• Other institutions to assess their international collaboration using the new metric in SciVal.

“The impact of any piece of research is determined by the depth of collaboration and the frequency of citations. Without accurate, in-depth insights with regards to this data, it will be extremely challenging for our foundation to chart out effective plans for Swedish research. That is why we partnered with a reputable leader in research intelligence to help us create a methodology to measure the degree of internationalization effectively.”

- DR. HANS POHL, Program Director at STINT

BACKGROUND

The Swedish Foundation for International Cooperation in Research and Higher Education (STINT) was established by the Swedish Government in 1994. Its mission is to internationalize Swedish higher education and research.

Through internationalization, STINT hopes to promote knowledge and competence development. The organization also invests in international projects drawn up by researchers, educators and leaderships at Swedish universities.

STINT achieves its mission by constantly striving to push the boundaries of research and higher education in Swedish universities. The organization also aims to boost the competitiveness of universities, which in turn, will increase their attractiveness.

The foundation is keen on exploring new collaboration forms and partners to encourage renewal within internationalization. One of its ambitions is to be a pioneer in fostering strategic cooperation with emerging countries in research and higher education.
In order for STINT to meet its objectives, the foundation needed visibility of international research collaboration among Swedish universities. However, Dr. Hans Pohl, Program Director at STINT, encountered an obstacle when it came to assessing the levels of internationalization for different research disciplines.

The existing metric was unable to provide a fair comparison between different scientific fields. Fields that are less collaborative by nature, such as the humanities, were given lower scores. “The algorithm worked very well for scientific subjects such as particle physics, in which more researchers across different universities came together to work towards a breakthrough.

However, the numbers failed to make sense when applied to topics such as history and literature, in which researchers tend to work more in isolation. The metric was unable to understand the diverse natures of different disciplines, and treat them in their own right,” Hans explained.

Hans enlisted the help of specialists at Elsevier and used Scopus, the underlying data of SciVal, to create a new metric. Dr. Pohl contacted Jeroen Baas, Head of Data Science, Research Management, and Guillaume Warnan, Customer Consultant for Research Management.

They accessed and extracted data on the research performance of Swedish institutions available from SciVal and Scopus and worked together on a new methodology to accurately calculate internationalization scores.

Hans tested the resulting metric, FWIS\(^1\), by comparing 28 Swedish universities on the basis of their levels of internationalization.

Jeroen and Guillaume then worked with the product team to add FWIS to SciVal so that all customers can benefit from it.

“We are glad to have this tremendous opportunity to be able to work together with our end users to develop metrics that are useful to institutions worldwide. Through this unique experience, we’ve been able to enhance the offerings of SciVal and Elsevier Research Intelligence, as well as boost our Data Science capabilities.”

- JEROEN BAAS, Head of Data Science, Elsevier

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\(^1\) Creating the Field-Weighted Internationalization Score (FWIS)

Hans used a publication-oriented model, in which the expected value of collaboration per publication is determined by weighting the publications by the number of countries that appear on the publication, and validated it by ensuring it generated a global average of 1.0. Full details of how the metric was created can be found in Research Trends. (www.researchtrends.com/issue-39-december-2014/field-weighted-internationalization-score)
Through this partnership with Elsevier, Hans is now able to get a clearer picture of international collaboration.

“With better visibility over research performance and cooperation, we have a more solid set of rationales from which to plan objectives and design policies. The strategies we set out to execute will be more coordinated and proactive, allowing STINT to capture international opportunities wherever and whenever they arise,” Hans explained.

Hans plans to expand STINT’s internationalization index capabilities by incorporating more metrics. They include additional research dimensions, share of international postgraduates, student mobility and proportion of faculty recruited internationally.

Moving forward, STINT has plans to create country briefs that Swedish institutions can use. These briefs will summarize all the critical metrics and information about the research of various universities from other nations. They will support Swedish universities and research organizations when they need to make decisions on which global institutions to partner with.

“International cooperation enhances the quality of research. The more collaborative a researcher is, the more attractive he or she becomes on the global academic market. This principle creates a healthy, ‘virtuous’ circle in which people are constantly challenging the limits.”

- DR. HANS POHL, Program Director at STINT
The degree of internationalization is illustrated using the traditional metric (share of international co-publications) on the y axis and the new metric (Field-Weighted Internationalization Score) on the x axis. In this example, although Blekinge Institute of Technology has a lower share of international co-publications, it has a higher field-weighted score. Therefore, Blekinge Institute of Technology is relatively more internationalized than Stockholm University.

“By creating the FWIS and making it available to institutions worldwide, STINT and Elsevier support a fact-based assessment of the collaboration opportunities available.”

DR. HANS POHL, Program Director at STINT