SciVal

Case study: University of Macau

Tracking *progress* towards institutional goals

Photo credit UM

ELSEVIER

Advancing human progress together

Photo credit: UM.

Scopus and SciVal are helping University of Macau achieve key research goals while reducing the administrative burden on the library team.

Background

At University of Macau (UM), the focus is on producing research that not only impacts the local community, but reflects the region's characteristics. Importantly, it must also align with international trends.

To help UM academic units track their progress towards these goals, the university's Wu Yee Sun Library relies on data and insights from the Elsevier solutions Scopus and SciVal.

Scopus is a source-neutral, multidisciplinary abstract and citation database curated by independent subject matter experts.

Institutions can use it to track, analyze and visualize research data from more than 7,000 publishers in 105 countries.

Drawing on Scopus data, SciVal enables institutions to visualize their research performance, benchmark it relative to peers, foster strategic partnerships, identify and analyze emerging research trends and generate customized reports.

In this case study, UM explains how it uses the two solutions to guide research strategy, enhance the institution's profile internationally and achieve key research goals.

> *"Many of our users have found the vast amount of data available in Scopus and SciVal useful."*

Prof. Wei Ge
Vice Rector (Research), University of Macau

The challenges that UM faces

University of Macau is situated in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) – an integrated economic area comprising nine cities and two special administrative regions in South China. To align with the national strategy, UM is striving to become an international hub for science and technology innovation, supporting the nation's innovation-driven development through higher education.

However, according to Prof. Wei Ge, the university's Vice Rector (Research), the distribution of higher education is not well balanced across the GBA. For example, "on the west side, UM is the only QS- / THE-ranked public university with multiple state key laboratories." As a result, UM believes it has a responsibility to take the lead in promoting scientific innovation and talent cultivation in the GBA's western region.

To fulfill its obligation, the university has implemented a research strategy that includes "highlighting unique features, leveraging existing advantages, striving for excellence and strengthening collaboration." To support and reinforce this approach, it has adopted the P.I.C.K. strategies – problem orientation, interdisciplinary interaction, collaborative innovation and knowledge translation.

Helping UM's academic units understand how they are performing in line with these strategies is the role of the university's library. However, in the past, this was not an easy task, as Priscilla Pun from the library's Technical Process Unit explains: "It involved manually downloading the relevant publications from Scopus into Excel files for analysis. Not only did it require a lot of time and extra staff support, there was also always a danger that errors could creep in."

With such a large time commitment and a rising number of requests, it was often challenging for Priscilla and her colleagues to respond to data requests on time.

How Elsevier's solutions help to resolve those challenges

In 2007, UM subscribed to Scopus. Thirteen years later, it expanded its resources by adding SciVal.

The integration of SciVal and Scopus has revolutionized the workflow of UM's library, automating manual tasks and significantly speeding up processes.

Priscilla explains: "With SciVal and the useful features in Scopus, we can now generate research information, such as trend analysis and collaboration insights, more quickly and at any time. One of the features I really like is the SciVal home institution setting – it filters out publications that aren't relevant to our university, ensuring greater accuracy in our analyses."

The university's Scholars Page is a prime example of how these solutions have reduced the administrative burden on the library while advancing institutional objectives. This in-house built institutional repository was launched by UM in 2018 to showcase research outputs and relevant indicators for its individual researchers. Before Scopus and SciVal, each profile had to be updated manually, either by the researchers themselves or the library team. Now, using SciVal and Scopus APIs, the Scholars Page harvests data directly from the two solutions.

Priscilla says: "In the beginning, we solely utilized the Scopus API because we were interested in citation and publication data. These data were imported into our 'pool' for the researchers to check and make any necessary corrections. This also provided them with the opportunity to include any missing information; for example, Chinese-language or Portuguese-language publications. Later on, we used the SciVal API to incorporate additional data, such as the Field-Weighted Citation Impact (FWCI) and appearances of publications in the top citation percentiles. This type of information can help researchers evaluate their own performance." She adds: "It is also useful for researchers outside our university who may be interested in collaborating with Macao."

Using the APIs together in this way not only saves time for both librarians and researchers, it also enhances data accuracy and contributes to elevating the university's international profile – a crucial objective for UM.

The user-friendly nature of the solutions is also helping other departments to work more independently: "SciVal and Scopus are more accessible to researchers and administrators, enabling them to extract valuable insights from the data themselves," Priscilla explains.

The extensive volume of data in Scopus and SciVal is another major benefit: "Many of our users on campus are impressed by the vast amount of research data available. These tools provide access to a wide range of scholarly literature, citation metrics, collaboration networks and funding information. The comprehensive coverage allows institutions to gain a holistic view of their research landscape and make well-informed decisions."

When it comes to strategic planning, SciVal and Scopus are proving to be invaluable, enabling the library to generate data and analyses for other departments to use in their reporting and decision-making processes. Specific use cases include:

Understanding and benchmarking research performance

Prof. Ge explains: "Using data from SciVal, our university can analyze research performance by institution, groups or at a personal level, and we can benchmark or identify new benchmark institutions at any time. This allows us to compare our research performance to other universities in the nearby region, as well as worldwide."

The university uses this information to identify its research strengths and weaknesses, and to monitor trends in different Topic Clusters. It also helps identify UM's top researchers and acknowledge their contributions. For Prof. Ge, this ability to recognize star performers is an important step towards attracting and retaining talents of high caliber at the university. "This is one of our key challenges as we face competition both regionally and globally."

He adds: "Users of SciVal and Scopus on campus are surprised by the depth of insights they provide regarding research impact. These tools go beyond basic publication counts and citation metrics, offering more nuanced indicators such as FWCI, percentile rankings and benchmarking against peer institutions. This enables us to gain a comprehensive understanding of the influence and significance of our research in a broader context."

Tracking and driving collaboration

Collaboration in all its forms holds great significance for UM. The university places a major focus on interdisciplinary cooperation, especially between the realms of science, technology and areas of humanities and social sciences. By promoting collaboration across disciplines, UM encourages the exchange of ideas, expertise and perspectives, and ultimately enhances the quality and impact of its academic endeavors.

International collaboration is also a priority, and SciVal demonstrates UM's strong performance in this area. It shows that nearly 80 percent of its publications are generated through collaborations with institutions outside the Macao Special Administrative Region, and these collaborations have a high citation impact. SciVal also shows the university's long-standing partnerships with Portugal, the growing partnerships with English-speaking countries, and UM's ongoing efforts to expand international collaboration with various European countries across different subject areas.

For Prof. Ge, embracing an international perspective is one of the key factors contributing to the success of the university. "We have a multicultural campus and a system of whole-person education underpinned by faculties and residential colleges in an international education setup. It is one of our unique advantages," he points out.

SciVal plays an important role in supporting collaborations at UM. In the case of existing partnerships, the university uses SciVal to monitor its outputs and impact. For new relationships, the solution helps UM find potential candidates. "It helps us identify our research strengths and potential partners, and assess the impact of their research outputs," Prof. Ge explains.

Photo credit: UM.

About University of Macau

University of Macau (UM) is a public, comprehensive university in Macao with an international reputation. In recent years, UM has experienced remarkable growth, now offering over 130 programs to more than 13,400 students. Some of these programs are recognized internationally and UM was also ranked 245th in the QS World University Rankings 2025.

UM's international status is evident in its education and research activities. It constantly expands its international network and actively establishes new platforms for collaboration to broaden the horizons of students. UM has signed collaboration agreements with nearly 300 higher education institutions in over 30 countries and regions, offering students a wide range of exchange opportunities with over 160 of these institutions. In addition, over 80 percent of the 660 faculty members are from outside Macao and English is the primary language of instruction. The university also provides students with many internship opportunities, both locally and overseas, to enhance their employability upon graduation.

UM has formulated a '3+3+3+3' strategic research blueprint, with the four 3s referring to:

- **3 state key laboratories –** State Key Laboratory of Analog and Mixed-Signal VLSI, State Key Laboratory of Quality Research in Chinese Medicine, and State Key Laboratory of Internet of Things for Smart City.

- **3 emerging research fields –** Precision Medicine, Advanced Materials and Regional Oceans.

- **3 interdisciplinary research fields –** Cognitive and Brain Sciences, Data Science, and Artificial Intelligence and Robotics.

- **3 research platforms for the humanities and social sciences –** Institute of Advanced Studies in Humanities and Social Sciences, Centre for Macao Studies, and Asia-Pacific Academy of Economics and Management.

Scopus®

Scopus is a comprehensive, multidisciplinary, trusted abstract and citation database curated by independent subject matter experts. Quickly find relevant and authoritative research, identify experts and gain access to reliable data, metrics and analytical tools. Be confident in advancing research, educational goals, and research direction and priorities – all from one database.

For more information about Scopus, visit
elsevier.com/products/scopus

SciVal

SciVal provides access to the research performance of more than 24,000 research institutions and their associated researchers from 234 nations worldwide – so you can visualize research performance, benchmark relative to peers, develop strategic partnerships, identify and analyze new, emerging research trends and create uniquely tailored reports.

For more information about SciVal, visit
elsevier.com/products/scival