Developing a strategy for research management and evaluation in ASEAN
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INTRODUCTION

Universities and research organizations around the world are facing new and complex challenges managing their research funding. As they face these new challenges, research administrators have to deal with greater pressure to demonstrate the impact of their research programs to their internal and external stakeholders, particularly the organizations that provide them with funding.

The overarching aims of this paper are threefold.

• The first is to identify the key strategies and best practices that research administrators have developed and regularly use, particularly across the 10 countries that make up the Association of Southeast Asian Nations (ASEAN), to develop a clear picture of research activity within their organization and indicators of future success.

• The second aim is to develop insights into the current barriers that affect research management and research evaluation, both within and without the research organizations themselves, as well as ways of overcoming these barriers and challenges so that organizations can measure research performance effectively and to properly allocate limited funding.

• Finally, this paper aims to discuss how organizations can effectively facilitate collaborations in research and innovation both internally and internationally, as well as support their internal review and reporting processes.

Much of the information on this paper is based on insights generated during the 2015 Thomson Reuters Executive Roundtable with ASEAN Research Administrators held in Singapore in July 2015. The candid views of the participants, senior research administrators from universities and funding bodies in ASEAN, help inform the views and conclusions in these pages. The paper outlines trends and practical approaches in research management as well as how organizations are evaluating the research performance of their people, programs and academic peers. While discussing the different strategies that stakeholders adopt, we also briefly looked at how the People’s Republic of China (PRC) recruits and retains talent from all over the globe to support their scientific endeavors and position China as a global science powerhouse.

The initiatives that ASEAN countries have put in place to expand the pool of national talent and the breadth of academic research that is done in each nation is an ongoing discussion but there are a number of visible trends in ASEAN. Many of these stem out of a push to focus less on recruiting foreign talent and more on developing local talent or attracting local talent back from abroad, and fostering regional cooperation and collaboration.
DEVELOPING A CLEAR PICTURE OF RESEARCH ACTIVITY AS AN INDICATOR OF FUTURE SUCCESS

Trends in research assessment and funding

*Centers of Excellence*

Governments and other stakeholders around the world constantly develop new strategies to identify and target funding targets among leading research institutions and organizations. One such strategy is the development of research programs built around “centers of excellence”. The aim of these programs is to identify leading universities or departments in particular areas and reward them with funding to support their growth and improve the quality of their research output.

One of the best known examples of how this approach can work is in the United Kingdom, which channels funding towards centers of excellence in specific fields. The model has been replicated in Australia through the Excellence in Research for Australia (ERA) program as well as in Germany, Canada and Japan. The bottom-up approach adopted in the UK does not dictate how academic assessments are made, rather, it empowers academics and gives them a strong voice in the funding process. Academics can design and develop evaluation procedures with a high rate of acceptance within the academic community.

“That’s very unique,” said Simon Pratt, manager of institutional research at Thomson Reuters. “In many other countries it is much more driven from the government, enforcing the academics to be assessed, and that creates some tension.”

The model is one that institutions in ASEAN could explore and adopt.

*More formalized approach to research management*

Despite more constrained funding, research organizations in Asia are adopting a more structured approach to research management, often using software that lends the most bang for the buck to available resources. Thomson Reuters Converis, for example, helps institutions manage their research portfolios and assess research results. In Europe and Australia similar software is being widely adopted to assess the value and impact of research and this usage is also spreading in Asia. As a result of more formalized management, there is a growing pool of strong research programs across the region.
Using KPIs and SWOT analysis

Universities in the region are adopting key performance indicators (KPIs) and using SWOT analysis (Strength, Weakness, Opportunity and Threats) to develop more effective research strategies. ASEAN research administrators have noted the increased use of departmental comparison models. Using such models, universities and funding stakeholders are developing KPIs that help better define research performance and also funding levels among different institutions. In turn, SWOT analysis is increasingly important for universities that want to be better prepared to meet their future funding needs and attract funding as they identify research areas of strengths to focus their limited resources on. The availability and accessibility of data makes SWOT analysis that much more powerful.

Alignment to organizational strategy

Singapore universities have had good success with their research assessment and data management departments. The universities work with their people to ensure that areas of research undertaken are in sync with their overall organizational strategy and research direction.

In an ideal world, the library would work closely with the research office and faculties and provide the university researchers with all necessary resources and infrastructure for analyzing research impact. This could even include services to provide citation reports to individual researchers as required by their department heads. For example, the library department of a university in Singapore works closely with its research faculty members to develop a data management plan, a compulsory requirement from their respective funding research agencies. This is a necessary requirement which can be time-consuming for the researcher to manage alone but made more manageable with the help of the library department.

Staff trained in research management, rather than academics with specialist credentials, may be better positioned to manage and interpret research data and leverage specialized software. Universities and libraries in ASEAN, which often have less funding and often lack information, could look to use new tools and adopt best practices to better support and evaluate their research endeavors.

Identifying new research: The Co-citation Model

One challenge which institutions face is how to best identify new or emerging areas of research that can help with the university or institution’s strategic planning. There are various tools available to accomplish this. One commonly used method developed by Thomson Reuters to identify new areas of research is the “co-citation” model. This model examines citation relationships to identify Research Fronts. When a paper cites two other papers in the same field, a link is created. When many papers are being cited together, there is a strong linkage which can be used to create clusters of research.

If the cluster of research is getting highly cited, it usually represents a very hot and important topic that is gaining growing importance. These are emerging research areas or research fronts. There has been strong linkage between identifying these clusters which continue to grow and become genuine new research areas.
CHALLENGES OF MEASURING RESEARCH PERFORMANCE

One common challenge is the difficulty of measuring research impact in the social sciences and humanities, a question that bibliometricians have been studying for a long time. As research moves along the spectrum from the sciences to the humanities, the nature and function of citation changes. Citations in the humanities and social sciences may refer to artworks or authors that have been dead for centuries, so evaluating such research can become more of a subjective exercise than in the sciences. One common and traditional form of evaluation is peer review. The best considered approach would be to complement citations with peer review to ensure.

Said David Pendlebury, consultant for bibliometric analysis at Thomson Reuters, “As proponents of the use of bibliometric analysis and research evaluation, we have never said that they should be used in isolation. In fact, it is always important to have bibliometric data be interpreted by those who have some expertise or have some understanding of the nature and subject of what is being measured, the nature meaning the content and the meaning.”

Another challenge is how to effectively determine the impact of published research. Apart from citation impact, another common tool is the Impact Factor. This is a method that has come under the spotlight since the San Francisco Declaration on Research Assessment (DORA), in which a group of scientists urged that the Impact Factor not be used on its own. The Impact Factor is a convenient number that is easily grasped but is meant to measure the impact of journals, never the impact of the singular research paper.

“Even though we’re making these indicators or making these services and we have a vision of how they should be used, sometimes they’re used inappropriately beyond our control. So it’s also a challenge for us,” said Pratt.

Different points of view

Academics may place more emphasis on citation impact and the journal impact factor, politicians and decision-makers less so. For the latter – including funders, government agencies and companies that want research done – innovation, performance and the economic impact of research is much more important when it comes to decisions of allocating funding and attracting new talent.

Institutions across the region now take this reality into consideration in their research programs which can only improve the quality of research management. In the Philippines, for example, research is placed in context of how relevant it is to the government plans and inter-agency agendas and what the direct applications are to society to make it more relevant for policymakers and grant offices like the Commission of Higher Education. Singapore’s leading universities have implemented practices to boost closer collaboration between their library, research offices and technology departments so that all departments are aligned towards the same organizational strategy and research direction.
FACILITATING COLLABORATION, RESEARCH AND INNOVATION

Barriers to collaboration can include limited IP protection for research outcomes and a lack of interest in some research areas that can stem from the particular needs of the country. On the other hand, as they work to find more common ground, a host of cultural factors can make it possible for ASEAN countries to drive new research.

One approach is to recruit more international postgraduate students with cross-border connections. Modern academic research is rarely a solo venture. Quite the contrary, it is the work of many, a community. Collaborations come in many forms. At the most practical and immediate levels, researchers can work together in a shared environment, such as a laboratory or university. Collaboration can also happen among researchers from different universities and institutions in the same city or country – a type of collaboration that has been happening for decades. Regional collaboration between institutions and industry is a newer form of collaboration that is increasingly commonplace. For ASEAN research administrators, developing and strengthening such collaborative efforts is key.

Said Pendlebury, “International collaboration is the fastest-growing type of collaboration. University-industry collaboration is exceedingly important, especially in the desire to accelerate tech transfer and innovation in knowledge-based economies, but it is international collaboration that has come to the fore as the current hallmark of science.”

“One of the challenges of international collaboration though is how to make this a win-win collaboration because we know that unless this benefits both parties, it will not last,” said Pratt.

One country where considered research has proved mutually beneficial is the Philippines. The country suffers from recurrent geological and meteorological events. These events have turned it into a giant laboratory, spurring research in disaster science and management, making the Philippines a sought-after research collaboration partner in this field as well as the study of climate change from Asia as well as the US and Europe. With international collaboration, institutions in the country can contribute to global science and increase their research impact.
Cross-border collaboration

Most cross-border collaboration often starts as regional efforts, generally between neighbors. Such is the case in ASEAN, where the 10 member countries are generally boosting their links with Japan, which has become a frequent collaborator and a source of both funding and technology.

“Japan is a very close and frequent collaborator with ASEAN nations, and even though Japan’s output has stagnated and its world share has gone down, it is a very important partner, especially for Thailand, Indonesia, Vietnam and the Philippines,” said Pendlebury.

Within ASEAN itself, two groups of nations have emerged as generally more united in their collaborative efforts. The first is the grouping of Vietnam, Thailand, Laos and Cambodia. The second, one that is perhaps geographically and culturally intuitive, comprises Malaysia and its smaller neighbor Brunei.

Beyond the geographical links that sharing borders allows for, countries in both groups often share other historical, cultural and religious factors. This common ground often drives cross-border collaboration efforts. Research administrators say that this kind of shared understanding is a key element to take into consideration when developing a research funding policy. By taking into account the need and importance of such collaboration in the way funds are allocated, research administrators can play a very important role in accelerating research and driving it towards desired results and the organizational goal.

However, shared geography and culture are not always strong enough reasons for researchers and institutions to work together. The research project has to provide mutual benefits to all research parties. The challenge for administrators is to find common ground that can drive the research program.

One of the strategies that countries in ASEAN have adopted is to use postgraduate students as bridges between countries. This can be done, for example, through their participation in international conferences. Postgraduate students, working with more senior researchers, can help improve and strengthen the links between research programs in various locations both through funded research and by finding common interests with their peers abroad, particularly as they advance in their careers in years to come.

To most effectively leverage these links, however, administrators may have to pay more attention to the existing collaborative links that exist within ASEAN. They might only be able to do this with more specialized data focused not on what research programs are but on how they are undertaken, where gaps exist and how regional collaboration may fill these gaps.

However, obstacles such as unclear rules regarding IP protection for cooperation in ASEAN stands as a barrier to the development of more research collaboration.

“That’s something very relevant. We have to discuss and agree on who owns the IP and we must not allow that discussion to become a barrier nor hindrance to research collaboration,” said Andrew Yeoh, ASEAN head of corporate key accounts and former ASEAN head of IP & Science business, Thomson Reuters. More research administrators – as well as officials – across ASEAN countries are calling for clearer IP guidelines among member countries in an effort to boost research collaboration.
THE ASEAN ECONOMIC COMMUNITY

The emergence of the ASEAN Economic Community (AEC) economic zone in 2016 is estimated to be worth US$4.7 trillion by 2020, according to the Singapore Institute of International Affairs. Companies expect both their operations and growth in the region to expand even as they tackle issues arising from a multitude of trade agreements, changing tax regulations and new IP environments. The AEC should have a visible impact on research collaboration and innovation.

In Asia, Japan and South Korea are best known for their innovative mindset. In much of the rest of Asia, both governments and institutions are now working to drive innovation to fuel economic growth and attract talent and funding. The experience of the European Union suggests that greater cross-border collaboration can generate great dividends. A similar model could work in ASEAN. Government programs and grants could kick-start the process, said stakeholders at the Thomson Reuters Executive Roundtable. To date, however, ASEAN has put little emphasis on how to collaborate on research projects. There is an ASEAN University Network in place, but real collaboration requires a more top-down policy.

Existing metrics suggest that countries like Singapore, Malaysia and Thailand have few collaborative research projects, for example. On the other hand, the Jakarta-based ASEAN Secretariat is currently sponsoring research on talent mobility that could serve as a model for closer regional efforts.

IMPORTANCE AND CHALLENGES OF COVERING EMERGING REGIONAL TRENDS

Research stakeholders, both funders and evaluators, regularly call for broader content to suit their needs, including more data to support research assessment and analysis, as well as extended coverage of local content with significant regional scope. These requests may not always be compatible with the choices that the most impactful journals make in regards to the research they publish.

“We are put under pressure by research assessors that they want all of the research outputs to be available for assessment,” explained Pratt. “They want local coverage and things that are of regional importance.”

As journals select the papers that they publish, they must deal with a couple of different priorities. One is to keep a balance in the selection criteria to span the range of their fields of research. Another is to expand the coverage of the content without sacrificing quality. These are both areas of consideration for research stakeholders, institutions, funders and policymakers that rely on journals.

One concern that divides the scientific community is how to deal with smaller and smaller research clusters that may or may not have regional or international impact, but could have great impact within the clusters themselves. Thus, covering emerging regional trends or scientific developments has emerged as a major challenge for data curators.

“We want to cover emerging trends of scientific developments that right now are not being covered in the highly-cited journals, and we want to have the most comprehensive coverage of peer-reviewed journals,” said Pratt. “But we are very, very committed we will not compromise our strict and rigorous editorial process for evaluating and including journals.”

The top data providers make community-driven decisions regarding content expansion, while following emerging trends in the globalization of research. However, this globalization is making it difficult for research curators and editors to filter and maintain data from quality journals of regional scope. This trend is exacerbated by the increasing number of open-access journals that charge fees for researchers to publish their work and lack a proper peer-review system. This system casts doubt on the quality of research and, at times, makes it difficult to link research to funds.
“When it comes to publishers, one of the things that’s particularly worrying us is this new trend of predatory open-access journals where they’re charging a lot of money,” said Pratt. “We have a very strict evaluation process that looks at the editorial practices of the journal, if it’s doing peer review properly. We also look at things such as who are the authors, and who is on the editorial board.”

Another concern is language, which often creates barriers of significant importance at a regional level. There is a common belief that the English language is a key driver of research and research papers but this belies the expansion of research throughout regions such as ASEAN, an expansion that often happens in regionally important languages.

The growth in the availability of content of a regional scope could belie the focus on English-language research. The most immediate challenge lies on the need for English-language references in papers, references that are needed for these papers to be indexed in the largest databases. This is a particular concern for many Chinese researchers and editors and it is a barrier for the expansion of content throughout Asia and ASEAN.

“They don’t want to give the cited references or translate them into English, so it is hard for them to be covered,” said Dr Weiping Yue, director for research and analytics and chief scientist, China, Thomson Reuters.

One challenge with regional expansion in Asia is language. There is a common perception that bibliographical information that is not in English is not counted. This is not entirely accurate. The Web of Science includes hundreds of non-English journals. The key to inclusion is quality of content and the strength of the research and citations.

The aim of data curators is not to police journals but to include the most authoritative research in their databases. Going forward, they may have to put greater emphasis on factors such as regional reach and language as they select the journals and research.
CONCLUSION

In order to develop a sound research management and evaluation strategy that is aligned to the organization’s vision and objectives, it is important for research management to keep abreast of trends in research assessment and choose relevant methodologies to analyze data. This will enable them to benchmark their organizations’ research performance against peers in a transparent evidence-based manner year on year that is meaningful to their objectives. It is critical to establish a good research and research management division within the university/organization; be it for research discovery, research management or research evaluation, and to attract the best people available as the first step.

Equally important is adopting best practices in research management and exploring the use of appropriate software in order to have clarity and visibility of all research programs within the institution.

Universities in the region are adopting key performance indicators (KPIs) and using SWOT analysis (Strength, Weakness, Opportunity and Threats) to develop more effective research strategies. ASEAN research administrators have noted the increased use of departmental comparison models. Using such models, universities and funding stakeholders are developing KPIs that help better define research performance and also funding levels among different institutions. SWOT analysis is increasingly being used by universities that want to be better prepared to meet their future funding needs as they identify research areas of strengths to focus their limited resources on. The availability and accessibility of hard data enhances SWOT analysis.

Research administrators also have to be aware of the correct usage of common research management tools. One example of how research management tools can be misinterpreted revolves around the misuse of the Thomson Reuters Impact Factor, which measures the impact of journals but is not meant to measure the research impact of the paper. This is a nuance that is often not understood and overlooked.

The availability of funding varies greatly from country to country and institution to institution, and research priorities are often driven by the availability of funding and by government policy. However, tighter regional and global links among academic institutions and researchers themselves are creating new opportunities for research administrators.

The creation of “centers of excellence” in specific academic endeavors, commonly adopted in Europe, is one approach that can allow research institutions and universities in ASEAN to identify leading universities or departments in particular areas and reward them with funding to support their growth and improve the quality of their research output.

Research administrators across ASEAN may have to endeavor to find more common ground between themselves and their researchers. A new generation of researchers with international experience and more region-wide research programs driven by institutions with support from governments (especially after the AEC becomes a reality in 2016) can only help boost closer research collaboration while improving and strengthening ties amongst ASEAN members.

Fostering greater regional and international collaboration in academic research while demonstrating evidence-based research impact in a transparent manner is a major challenge but remains a key priority for research administrators in ASEAN.
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