

Viewpoints on synergising ASEAN academic visibilities through research collaboration and the establishment of an ASEAN Citation Index Database¹

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Abstract: *This opinion article expresses two key viewpoints regarding the options for Association of South-East Asian Nations (ASEAN) universities in pursuit of fulfilling the demand for greater research visibility and academic reputation. The first viewpoint outlines the importance of promoting research collaboration among ASEAN researchers and their international peers in increasing the visibility and impact of ASEAN research. The second viewpoint examines the ASEAN research characteristics, the challenges and existing best practices of its journal publishing landscape, the potential role of non-ASEAN international journals in improving the profile of ASEAN research and explores the needs and benefits of establishing an ASEAN Integrated Journal Publishing Network (IJPIN). It is through these combined approaches, we believe, that effective policy change, the standardisation of publishing structure, procedures, and systems to drive journal development, improvement of journal quality, and establishment of a consistent framework for measuring researcher performance will result. This article also includes a proposal for the IJPIN structure and implementation plan, and highlights the key benefits of taking a collaborative approach to achieving this common goal.*

Keywords: *Academic visibility, ASEAN Citation Index, higher education, research collaboration, research performance*

Introduction

In a globally competitive knowledge economy, successful economies are deemed to be those which can develop and exploit new knowledge to stay ahead of their global rivals. As such, the ability of Association of South-East Asian Nations (ASEAN) Higher Education Institutions (HEIs) to produce the highly skilled workers and new knowledge through academic research

needed for moving the ASEAN economy further up the value chain is essential to boost the economic growth and social development of the region. Such abilities are becoming increasingly crucial to securing the long-term prosperity of this region in view of the rapid rise of China and India over the last two decades.

While research publications from ASEAN HEIs in internationally circulated journals have increased more than threefold from slightly over 6000 publications in 1996 to over 28 000 in 2008 (see Table 1), the rankings of ASEAN universities according to the Academic Ranking of World Universities (ARWU) and QS World

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Table 1. Worldwide, Asiatic and ASEAN publications during 1996–2008 in SCOPUS

	Worldwide	Asiatic	ASEAN
1996	1 124 261	159 052	6 132
1997	1 150 355	171 533	7 232
1998	1 142 426	178 062	7 372
1999	1 151 601	187 781	8 675
2000	1 221 158	199 746	9 806
2001	1 318 342	217 054	9 769
2002	1 350 850	218 864	10 406
2003	1 413 906	251 756	12 955
2004	1 565 695	296 032	14 059
2005	1 730 364	370 477	17 876
2006	1 811 071	416 089	22 096
2007	1 891 849	447 061	23 663
2008	1 924 519	487 563	28 188
Total 96–08	18 796 397	3 601 070	178 249
Growth	71%	207%	360%

University Rankings (QS WUR) are far from impressive. In fact, there is only one university from ASEAN ranked among the top 200 universities in the ARWU 2010 rankings, and only five made it into the top 300 in the QS WUR 2010 rankings. Without doubt, such results have put most ASEAN universities, particularly those publicly funded, under intense scrutiny. Policy makers, funding agencies, media and the public require greater accountability for the investments made in HEIs.

Although there are endless commentaries on the accuracy and flawed methodologies used by these rankings, the results are still widely perceived as a legitimate reflection of the quality and visibility of university research performance and academic reputation. Consequently, university leaders are under pressure to take immediate and swift action to rectify the current situation. Many are heeding the calls for greater transparency and objectivity in assessing researcher performance, in considering academic promotion cases and in setting strategic goals and budget allocations.

The stakes are high – the competitiveness of this region and the region's ability to realise its full potential hinge on the abilities of our leaders to make the right decisions at this critical juncture. Hasty quick fixes to achieve quick ranking gains may bring undesirable consequences in the longer term. Hence, before taking any action, ASEAN academics, university administrators and policy makers must critically examine the

probable causes of such disparity between ASEAN research output growth and its university standings. All key stakeholders must agree on the common goal of increasing research visibility and academic reputation. Any actions taken must be based on reliable sources of information, due consideration and thorough analyses of ASEAN research characteristics and the publishing landscape.

ASEAN research characteristics and publishing landscape

Judging from the rapid growth in research publications and the number of new journals launched, ASEAN is not the only region investing in higher education and academic research. In fact, there are a staggering number of peer-reviewed journals published worldwide. According to Ulrich's periodical (Ulrich's Periodicals Directory, 2011), there are 26 476 active journals, with 2398 new journals launched between 2008 and 2010. From this huge number of journals, only a handful of world journals like *Science*, *Nature*, *Lancet* and *Cell* are highly regarded and have high visibility. There are many more high-quality lesser known journals beneath them, and even more unknown journals with little or no visibility at all. With such a high volume of journals competing for researchers' attention, the quality of an ASEAN journal needs to be high before it can attract the attention of global researchers. How do ASEAN journals compare in terms of quality and visibility against worldwide competition?

At present, the quality of ASEAN research output varies widely with very few high-quality journals achieving international standing and many needing improvement in terms of quality and visibility. Upon careful examination of the ASEAN publishing landscape, the following have been identified as the main causes of this phenomenon:

- 1 Dominance of English language – English is the medium of instruction in many of the most prominent academic systems like the United States, the United Kingdom, Canada and Australia. Other countries are offering academic programmes in English to attract international students willing to learn local languages and to improve the English-language skills of domestic students (Altbach, 2004). English is

also the medium of almost all the internationally circulated scientific journals. In many ways, the place of English at the pinnacle of higher education and scientific communication poses a significant disadvantage for ASEAN countries, as, with the exception of Singapore, the Philippines and arguably Malaysia, English is used by only the elite few.

This disadvantage is best illustrated by the significance of research done in local languages published in local journals. While such research is meant to solve local issues, and serve the needs of local communities, nevertheless, the findings and solutions offered by such research are worthy of wider recognition. Unfortunately, due to the language barrier, they are not accessible to global researchers.

- 2 Varying levels of maturity of information and communications technology (ICT) infrastructure within ASEAN, coupled with the lack of proficient English language abilities among local researchers, significantly hinder the circulation of local research, often limiting the distribution of local research publications in print and within its own national boundaries, thereby curtailing its visibility and influence.
- 3 Most ASEAN journals are underfunded – the typical level of funding for ASEAN journals is only sufficient to support the basic editing and printing of the journals. Very few journals receive enough funding to support full-fledged editorial and marketing expertise. A lesser number have enough funding to invest in technology to support online publishing. In addition, most journals are established to demonstrate the academic achievements of their sponsoring HEIs, academic societies or government agencies. As a result, each journal is doing its own thing to satisfy its own needs while giving little or no consideration to market feedback, the circulation of the journal, the quality, how to reach researchers on the global level and how to improve its visibility.
- 4 ASEAN research tends to have a narrow focus, achieving world-class standards in niche research areas like sustainable agriculture development, tropical medical, infectious and emerging diseases to name a few. Unfortunately, achieving excellence in niche areas does not measure up well against global peers

in various university rankings, where universities are ranked based on broader conventional research categories like physical sciences, engineering and technology, social sciences and so on. Using such broad categories to benchmark ASEAN research performance against its global research results in meaningless comparisons at best. Such comparisons only serve to circumvent the true ASEAN research strength, short changing ASEAN research visibility.

The factors listed above have adverse effects on the quality and development of ASEAN journals and on the overall visibility of ASEAN research. It is important for stakeholders in ASEAN higher education to recognise the existing inequalities in global academic systems and the publishing landscape. The question now is what can ASEAN collectively do to enhance unique ASEAN research strengths, and to build a more cohesive publishing framework for journal development and journal quality improvement? How can concrete precedence and best practices be concluded from the experience of others to put ASEAN research visibility and journal development on the right path or, better still, on a fast track?

Learning from others – Our proposals

Although the 10 ASEAN member countries are diverse in their language, culture, ICT infrastructure, economic and social development, they do share a common objective – the desire to improve ASEAN research quality and visibility. With this in mind, drawing lessons from others, and from best practices, we would like to explore ways in which ASEAN can collectively work towards improving its research visibility by introducing a common framework, system and procedure to influence the quality and development of local journals.

- Increase research visibility by encouraging greater research collaboration among ASEAN researchers and their international peers:

The results of two studies, Adams *et al.* (Adams *et al.*, 2007: 25) and Matthews, M *et al.* (Matthews *et al.*, 2009: 9) as shown in Tables 2 and 3, clearly indicate how collaboration across national boundaries can increase the visibility of research output and attract higher average citations per paper.

Table 2. Relative average impact of total national papers for various countries during 2001–2005 (Adams *et al.*, 2007)

Country	Clinical	Health	Biological sciences	Environment	Mathematics	Physical sciences	Engineering
UK (total)	1.21	1.37	1.42	1.29	1.20	1.33	1.12
UK and USA	2.33	2.66	2.40	2.09	1.56	2.25	1.71
UK and France	2.61	3.00	2.20	2.00	1.39	1.86	1.80
UK and Germany	2.33	2.99	2.24	1.94	1.70	1.90	1.75
UK and China	1.77	1.44	1.67	1.10	0.81	1.20	0.91
USA (total)	1.32	1.45	1.43	1.29	1.32	1.55	1.33
USA and UK	2.33	2.66	2.40	2.09	1.56	2.25	1.71
USA and France	2.59	3.65	2.31	2.17	1.84	1.99	1.83
USA and Germany	2.16	3.02	2.24	2.15	1.64	2.02	1.89
USA and China	1.30	1.13	1.22	1.18	1.29	1.34	1.16
France (total)	1.12	1.05	1.17	1.22	1.13	1.11	1.14
France and UK	2.61	3.00	2.20	2.00	1.39	1.86	1.80
France and USA	2.59	3.65	2.31	2.17	1.84	1.99	1.83
France and Germany	2.93	4.14	2.38	2.09	1.40	1.64	1.58
France and China	3.13	1.53	2.86	1.77	1.12	1.64	1.55
Germany (total)	1.11	1.19	1.28	1.28	1.10	1.26	1.31
Germany and UK	2.33	2.99	2.24	1.94	1.70	1.90	1.75
Germany and USA	2.16	3.02	2.24	2.15	1.64	2.02	1.89
Germany and France	2.93	4.14	2.38	2.09	1.40	1.64	1.58
Germany and China	2.10	0.80	1.73	1.21	1.25	1.51	1.39
China (total)	0.73	0.62	0.55	0.71	0.85	0.66	0.78
China and UK	1.77	1.44	1.67	1.10	0.81	1.20	0.91
China and USA	1.30	1.13	1.22	1.18	1.29	1.34	1.16
China and France	3.13	1.53	2.86	1.77	1.12	1.64	1.55
China and Germany	2.10	0.80	1.73	1.21	1.25	1.51	1.39

Source: Adams *et al.*, 2007.

Table 2 summarises the average citations per paper for five countries: the United Kingdom, the United States, France, Germany and China for seven research areas, namely clinical, health, biological sciences, environment, mathematics, physical sciences and engineering. Taking China as an example, papers by Chinese researchers only in the clinical field received an average citation impact of 0.73 whereas collaborative papers between the Chinese and scholars from the United Kingdom, the United States, France and Germany received much higher average citations, scoring 1.77, 1.30, 3.13 and 2.10 respectively. The same observation is valid across almost all subject areas with one exception – that of collaborative papers between Chinese and UK researchers in mathematics. In fact, collaborative papers significantly outperform national papers in almost all subject areas in terms of average citation impact with very few exceptions (highlighted in the table above).

Another similar study was conducted by Matthews *et al.* (2009) to determine the impact

of Australian, Australian-USA, and Australian-European collaboration across the 10 subject areas summarised in Table 3. The results of this study further support the benefits of research collaboration, clearly revealing the median relative citations per paper of Australian collaborative papers outperforming those solely by Australians in almost all areas.

With such clear evidence supporting the benefits of research collaboration, cross-border collaboration looks like a sure way to increase the awareness and visibility of ASEAN research. The idea of encouraging research collaboration among ASEAN researchers and international peers is not new. In fact, many have tried but failed to achieve this desired outcome with the road to effective research collaboration being hindered by many barriers. Many of these obstacles to successful research collaboration are highlighted in a report entitled ‘International Cooperation of Competence Research Centers’ (Boekholt *et al.*, 2010: 40). Figure 1 outlines the possible key barriers to successful research collaboration.

Table 3. Median relative citations per paper by major science fields of Australian researchers during 1991–2005 (Matthews *et al.*, 2009)

Citations per paper median (1991–2005)	Mathematical sciences	Physical sciences	Chemical sciences	Earth sciences	Biological sciences	Information, computing and communication sciences	Engineering and technology sciences	Agricultural, veterinary and environmental sciences	Medical and health sciences	Science- general
Median relative citations per paper for all Australian-authored papers	1.10	1.24	1.12	1.14	0.92	0.96	1.14	1.09	1.06	0.91
Median relative citations per paper for Australian- and European-authored papers	1.31	1.62	1.36	1.57	1.31	0.95	1.30	1.56	1.80	1.56
Median relative citations per paper for Australian- and US-authored papers	1.56	2.11	1.47	1.78	1.50	1.21	1.67	1.72	2.12	1.81
Median relative citations per paper for Australian-, European- and US-authored papers	2.45	2.74	1.35	2.44	2.11	0.89	1.67	2.58	3.58	2.97

Source: Matthews *et al.*, 2009.

Survey respondents from the various Competent Research Centers (CRC) of the European Union clearly indicate constraints in time and funding as the most important factor hampering the development of international cooperation: 85% of the CRC experienced this as a substantial barrier to cooperation. The second most important factor hampering international cooperation is finding the required partners. Close to 80% of the CRC mentioned this as a substantial barrier to cooperation.

ASEAN higher education leaders can benefit greatly from the findings of this study. Such awareness can help them enact policy and set aside sufficient funding to encourage wider research collaborations among researchers in the region, effectively removing the biggest hindrance to successful research collaboration.

In terms of helping researchers identify potential collaborators with beneficial skills and knowledge, there are now ways of complementing traditional programmes like faculty and student exchange programmes, post-doctorate fellowships and academic conferences, which are cost-efficient and -effective. ASEAN higher education leaders should consider adopting new technology advances that use semantic search and ontology matching capabilities to help researchers identify suitable collaboration partners.

- Joining the e-world, introducing a common framework, system and procedure to influence the quality and development of local journals:

This is not merely about jumping onto the bandwagon to create online journal sites, but about creating online journal sites with strong online presence. Going online is important not only to stay in tune with the shifting habits of today's researchers who prefer to access journals online (Chandra, 2007) but also to ensure the greater probability of discovery of ASEAN research by international researchers.

To do so, ASEAN higher education leaders may consider adopting an 'Integrated Journal Publishing Network' (IJPN) approach by introducing a common framework, system and procedure to influence the quality and development of local journals in the region, as illustrated in Figure 2. At the heart of this proposed initiative is the establishment of an ASEAN Citation Index (ACI) database.

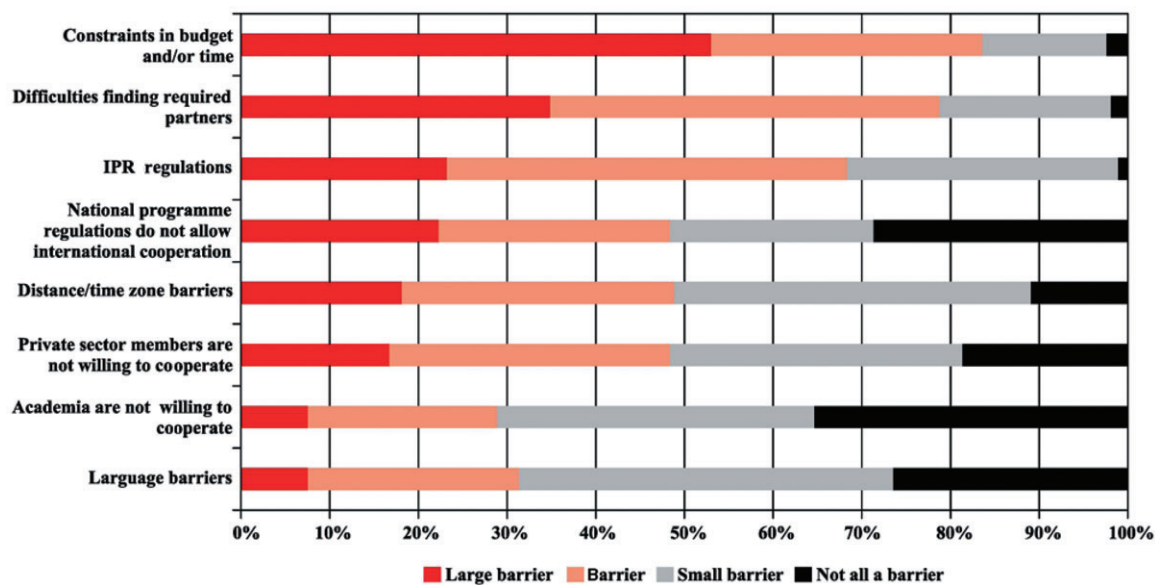


Figure 1. Factors and barriers for research collaborations (Boekholt et al., 2010)

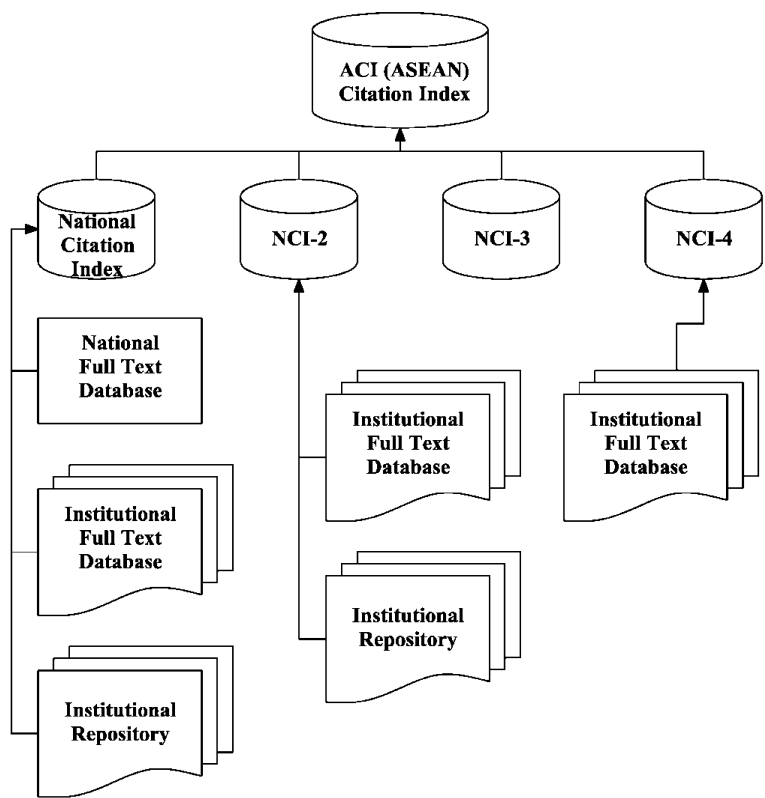


Figure 2. ASEAN integrated journal publishing network

This flowchart depicts an ideal scenario in which online journal sites at institutional (repository and full text databases) and national (full text database) levels are well integrated along with a national citation index database. The NCI will serve as a national Abstract and Index (A&I) database, which provides data like article usage and article citations for local journals so that the quality of all local journals can be objectively measured. In addition, as an integral part of this integrated framework, each ASEAN country is encouraged to establish its own so-called 'National Citation Index (NCI)', shown in Figure 2 as NCI-2, NCI-3 and so forth, so that individual country bibliographic data can be integrated to form the regional ACI database. The detailed roles of the NCIs and ACI database, and the benefits of establishing such a publishing network will be examined in a later section. The critical question at this point is, does ASEAN have the expertise and capability to implement such a publishing network successfully?

While the proposed ASEAN IPJN does not yet exist, a quick survey of the region's publishing landscape reveals that pockets of excellent programmes for improvement of ASEAN quality and visibility do exist. These programmes have been successful in supporting the development of ASEAN journals, helping to improve quality and establishing a strong online presence. For instance, at the institutional level, ASEAN has well-established institutional level platforms like the University of Philippines Diliman Journal Online (UP Diliman Journals Online, 2011) and the Electronic Journal of University Malaya (Electronic Journal of University Malaya, 2011). At the national level, the Vietnam Journals Online launched in December 2006 has successfully established a strong online presence for Vietnamese research output (Vietnam Journals Online, 2011).

In addition, two separate developments, one launched in the Philippines in 2009 and the other in Thailand in 2002, have brought added dimensions to improving the overall evaluation procedure of the quality and performance of local journals. The Philippines' Commission on Higher Education established a Journal Accreditation Service (Padua, 2011) and introduced a national peer review standard for journals to accredit journals based on the agreed standard,

ensuring greater consistency in terms of the quality of journals published by colleges, universities and other research institutions in the country.

The Thai-Journal Citation Index Center (TCI; Sombatsompop *et al.*, 2007: 58–70) established in 2002 is provided with continuous financial support from the Thailand Research Fund (TRF), King Mongkut's University of Technology Thonburi (KMUTT) and Thammasart University. Since its establishment, TCI has taken the central role in providing data like the number of articles, regularity of publication, citations impact of Thai journals and other related information for measuring the progress made by Thai journals in terms of research quality and visibility.

These programmes are successful in their own right and can form a solid foundation for the IJPN initiative. However, the question is, can ASEAN as a whole assemble these seemingly piecemeal initiatives into an integrated framework to improve the quality of visibility of research regionally? What will further motivate member countries to act collectively instead of driving such initiatives at their own pace according to their local economic conditions, technical capabilities and needs?

- Partnership with international publishers, the added motivation for a collective approach: The two main reasons for establishing an ASEAN-International publisher(s) partnership are: (i) to tap into the international publishers' extensive network and global reach of researchers to increase visibility of local research; and (ii) to learn from international publishers' vast experience and expertise in managing large scale journal publishing, journal quality assurance system, and journal evaluation processes.

(i) Tapping into the publishers' network to increase visibility of local research involves getting as many local journals indexed in international Abstracts and Index (A&I) databases like Elsevier (Scopus), Thomson Reuters or PubMed as possible. There is strong evidence to support the notion that getting indexed in international A&I databases would increase the visibility of local research among international researchers.

For example, the article by the Thai scholars S. Maneerate and K. Phetrong titled 'Isolation of Biosurfactant-producing Marine Bacteria and Characteristics of Selected Biosurfactants' published in 2007 in *Songklanakarin Journal of*

Science and Technology, a Thai journal indexed in Scopus has received seven citations to date. It is interesting to note that seven citing articles are from authors affiliated to universities in Brazil, Spain, Turkey, India and Taiwan. Such exposure would not have been possible without tapping into Scopus' reach to researchers globally. This example further illustrates that there is indeed good research done by ASEAN researchers published in local journals worthy of international attention. We like to believe there are many more such undiscovered gems among ASEAN journals.

(ii) Get involved, learn and introduce procedures, processes, and systems to improve local journal quality. The recent pilot programme between TCI and Scopus is a good illustration of this point. To put the benefits of this programme into proper context, it is important at this point to describe the approach taken by Scopus to evaluate and select suggested journal titles globally for indexing as part of its content coverage. Through its Content Selection and Advisory Board (CSAB), Scopus takes an inclusive approach by involving the scientific communities in the evaluation and selection of journal titles. The Scopus CSAB comprises over 30 scientists with subject matter experts from all over the world. Apart from using STEP (the Scopus Title Evaluation Platform) to evaluate suggested journals, the CSAB members help to ensure the processes and criteria used for journal evaluation and selection are objective, transparent, and robust.

As part of this Scopus-TCI pilot programme, TCI has established a national advisory board, known as the 'Expert Content Selection and Advisory Committee of Thailand' (ECSAC of Thailand). The ECSAC comprises 27 prominent Thai scientists with extensive experience in research and international publishing with many occupying senior positions in HEIs of Thailand.

Under this pilot programme, the ECSAC is given access to STEP, and has the authority to pre-select suitable journals published in Thailand for further evaluation by the Scopus CSAB. Through such an arrangement, the Thai members use the same system and criteria as the Scopus CSAB members to evaluate and select suitable Thai journals for Scopus coverage.

By being involved in the entire evaluation process, the Thai ECSAC members are in a strong

position to understand the entire Scopus evaluation criteria and selection process. The learning accumulated over time helps them implement processes and procedures to bring positive changes to Thai journals. We are confident that this will eventually result in the overall improvement of the quality of Thai journals, and in getting more journals indexed in Scopus. In addition, the sharing of such insights and experience will benefit the wider ASEAN journal publishing community.

The potential role of non-ASEAN international journals in improving the profile of ASEAN research

Since the publication of the *Journal des Savans* and the journal *Philosophical Transaction* in mid-17th century, journals continue to be the most common methods of scholarly and scientific communications. Journal articles serve as building blocks for scientific discovery, and facilitate exchange of ideas between authors, editors and reviewers. Hence, securing support of editors and publishers of appropriate journals outside of ASEAN can certainly contribute towards greater visibility of ASEAN research. But, why would non-ASEAN international journals want to publicise ASEAN research?

As mentioned in the earlier section, there are many high-quality journals that desire greater visibilities. These journals could benefit by increasing author diversities and citations from ASEAN researchers. Such benefits would be a strong motivation to encourage editors and publishers of these journals to establish meaningful collaborations and help publicise ASEAN research. In determining the appropriate international journals to collaborate, apart from the obvious criteria like journal prestige and geographical focus, it is important to consider the fields of research covered, and types of article published by the international journals. Most journals are highly specialised, thus serving a specific group of researchers or research community. Of all article types found in journals, Review Articles that oversee research in a particular topic area appear to be the most appropriate medium in journals to create awareness and visibility of ASEAN research. Thematic focus review articles based on ASEAN research areas

of interest in appropriate journals is a good way of promoting the visibility of ASEAN research.

Apart from using appropriate international journals as a vehicle to improve ASEAN research visibility, it is also useful to examine recent trends in journal publishing and focus on the broader role of journal publishers in facilitating the flow of scientific knowledge among researchers, and between academia and society at large. On this front, some journal publishers are embracing the internet to make research more searchable, structured, interlinked and dynamic (Hannay, 2009). One recent example is the Elsevier's SciVerse initiative, which adopts an open system architecture enabling content syndication application and application programming interface. Such initiatives aim at integrating familiar and trusted content like ScienceDirect, Scopus and relevant scientific websites, with community developed applications to enrich the value of scientific content, as well as the overall improvement of the scientific communication workflow. The important question at this point is can ASEAN journals, editors and publishers take advantage of such development to increase research visibility?

ASEAN Integrated Publishing Network: Structure and benefits

To stay in tune with today's researcher preference for conducting literature searches online and to enhance the visibility of ASEAN research, it is critical for ASEAN higher education leaders to work collectively towards establishing a strong online presence for local research publi-

cations. In this section, we would like to explore the possible structural dimensions with which to integrate institutional repositories, institutional and national full-text databases to National Citation Indexes (NCIs), and to link NCIs to ASEAN Citation Index (ACI), and international A&I databases, as shown in Figures 3 and 4. In this section, we would also like to expand on the roles of NCIs and ACI, and the benefits that can be derived from such an initiative.

Why establish NCIs and ACI? Are there any differences in their roles?

At the national level, each ASEAN country should establish its own NCI. Each NCI should serve as the national A&I database, and strive to become the most comprehensive source of bibliographic data for all locally published research either in English or in the local language. The ACI on the other hand, will serve as an aggregator of bibliographic data for ASEAN journals published in English or at least those with English language abstracts. The ACI will also serve as a gateway for international researchers to access such ASEAN journals. By taking such an approach, we can better present the breadth and depth of ASEAN research in a more meaningful way to sustain the interest of international researchers, and attract the interest of potential collaborators. Another important function of the ACI is to act as the main conduit in interacting with interested international publishers. In such capacity, ACI can help improve the overall effectiveness and accuracy of their evaluation of ASEAN journals by sharing with them the local tacit knowledge and

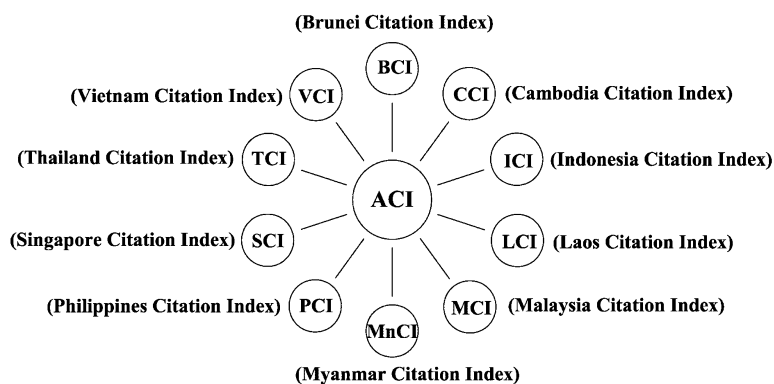


Figure 3. Linkage of national databases and the ACI

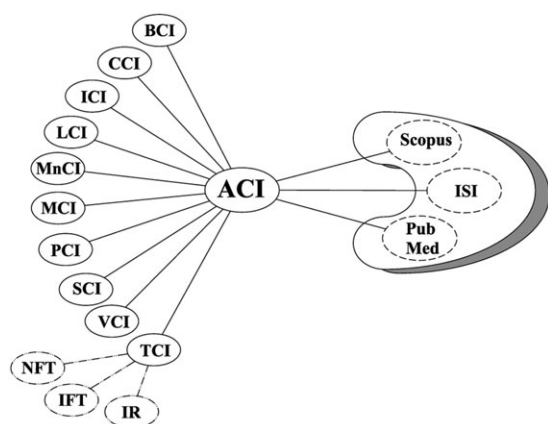


Figure 4. Conceptual linkage of national, ACI and other international databases

objective usage, citations and publication history of these journals. Under this arrangement, more ASEAN journals can gain greater visibility once they are indexed in international A&I databases.

Structure, policy framework and other practical issues to consider

To facilitate linkages between ACI and NCIs, it is important to maintain the structural compatibility between the NCIs, and between the NCIs and ACI. To achieve better integration of this proposed network, the following suggestions need to be given due consideration.

- 1 The introduction of a standardised journal evaluation policy for measuring journal quality and performance at national and regional levels – through standardisation of policy, we would be able to benchmark and identify an existing gap of journal quality and performance across ASEAN. With such insights, ASEAN publishers and editors could take proactive action to raise the quality of their journals – an important step needed before broader confidence regarding the quality of ASEAN research among the global scientific community could be instilled.
- 2 The ensured compatibility of online journal publishing platforms used by local publishers – while it is important to allow local publishers to choose an online platform that supports their access policy (fee based or open access) and also to maintain the unique characteris-

tics of each journal, it is equally important for the chosen platform to be compatible with the NCI and ACI. This will ensure that we will be able to support the access demand of international researchers by providing a direct link to local research articles of interest.

- 3 The minimisation of the manual uploading of bibliographic data into NCI as it is tedious, time consuming and may even introduce a high level of data inaccuracies. In fact, it is important to invest in technology that can support the direct uploading of bibliographic data into NCI and ACI. This would result in the greater accuracy of these indexes' data, improving the confidence of the data provided by these centres to support wider performance evaluation purposes.

To sustain the viability and success of such initiatives over the longer term, it is important for higher education leaders and government agencies from ASEAN to provide full support in terms of human resource, funding and endorsement. Since the ACI serves regional research interests, the entire issues of funding, staffing, managing and hosting of this centre can become a sensitive issue. However, it also presents a unique opportunity (or a challenge for some) for ASEAN higher education leaders to agree on a solution framework that can potentially serve as a showcase for the best of the ASEAN collaborative spirit at work. To this end, only the collective effort and mutual support from all in the ASEAN research community can help realise this common mission of establishing a regional citation index that will enable the improvement of ASEAN research quality and researcher visibility.

Benefits of an Integrated Journal Publishing Network (IJP)

The establishment of IJP could bring about a number of benefits to the region as outlined below.

- 1 It is important to note the intrinsically built-in flexibility of IJP. This proposed network allows ASEAN member countries to adopt and implement the system at their own pace, according to their needs, available resources and the readiness of the supporting policy and infrastructure. This way, countries can work independently to pursue their objectives to achieve greater research visibility. At

the same time, the commonality in the structure and framework of the proposed IJPN allows for the mutual sharing of experience and learning. Through the standardised structure and policy framework used to form the IJPN, there will be access to a uniform and consistent dataset that will possibly facilitate the comparison of journal quality among ASEAN countries, and will also allow for research performance to be benchmarked across ASEAN.

- 2 At the national level, the ability of NCI to provide comprehensive local bibliographic data serves two purposes. Apart from using the data to evaluate the quality of local journals, it is valuable for policy makers, funding agencies and university leaders to assess researcher performance without having to limit themselves to international publications and citations.
- 3 The ACI serving as a regional citation index centre will play an important role in consolidating ASEAN niche research areas, giving it a significantly greater mass audience to our unique research strength. This may drive an increase in the number of collaborations among ASEAN and international researchers and the number of international manuscripts submitted. In addition, this consolidated bibliographic data can bring an added dimension to existing university ranking services when comparing the research performances of ASEAN universities.
- 4 By having the ACI database, the performance of individual researchers could be assessed on three different levels (national, regional and international). This would result in more accurate research performance evaluations for researchers, research institutions and countries. With such information, funding agencies and university leaders can make better funding and promotion decisions. In addition, both ASEAN and non-ASEAN students will have more reliable information with which to select the university to further their education.
- 5 Adopting international publishers' journal evaluation and selection standards to benchmark ASEAN journals is an integral part of this IJPN initiative. This would also involve implementing processes and procedures to narrow the identified gap in the quality

among ASEAN journals. In the longer term, we are confident that this will result in the overall improvement of ASEAN journal qualities, thereby getting more of these journals indexed in international A&I databases. This in turn can strengthen the positioning of ASEAN universities in global university rankings.

Conclusion

This viewpoint article has proposed ways to increase the academic visibility of ASEAN research output. The driving forces for increasing the research visibility include the encouragement of research collaboration, the establishment of an Integrated Journal Publishing Network (IJPN) and ASEAN Citation Index (ACI) database, and partnering with international publishers. In terms of collaboration, it should not be limited to collaboration among ASEAN and international researchers but also to actively explore opportunities to establish potential partnerships with non-ASEAN international journals as a mean to improve the profile of ASEAN research. The establishment of the IJPN and ACI databases will serve to consolidate the existing expertise for improving journal quality and research visibility, and to ensure compatibility among the National Citation Indexes (NCIs) within ASEAN, and between the NCI and ACI databases. This would minimise the manual uploading of bibliographic data resulting in greater data accuracy, and would facilitate the benchmarking of journal quality and research performance assessment across ASEAN. While there is a common motivation to improve journal quality and research visibility among the ASEAN research community, to sustain the viability and success of this initiative would require full support, which includes human resources, funding and endorsement from the higher education leaders in the region.

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