

“Academy Operations”

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Comments Received from Member Academies

Argentina – ANI

Benefits

It could be said that ANI’s Institutes of Energy, Transportation as well as Construction and Structures, are working hard, delivering technical papers that regard their issues of interest.

Also, public sessions to welcome new Members and bestow awards are still held regularly.

Drawback

During this year, operations in our Academy suffered a major cut due to a financial crisis because government funding is not enough. In this way, the Academy is barely able to fulfill its daily tasks.

We are still dealing with the possibility of making ANI being heard at a public level.

Unfortunately, not every member is interested in cooperating with ANI’s activities.

Australia – ATSE

ATSE – What we do well:

1. **Getting our evidence-based policy voice heard:** Engagement with Australian Government, industry and research sector and other key stakeholders is strong. A priority set of seven National Technology Challenges has allowed ATSE to make clear position statements and develop practical priority actions to address national and global challenges. ATSE has high engagement with its Fellows via membership of the seven National Technology Challenge Forums. We are acknowledged as producing valuable high impact reports, position and occasional papers and the ATSE FOCUS, that all contribute to highlighting the role of technology and engineering to Australia's social, economic and environmental wellbeing. ATSE also is commissioned to provide science and technology briefings to legislators in three of the six Australian States (NSW, South Australia and Victoria).
2. **STEM Education Schools program: Outreach to secondary schools** - as exemplified by the STELR (Science Technology Education: Leveraging Relevance) Program, a national secondary school science education initiative that makes teaching physical sciences easy and fun to learn (via 91 lessons within 15 modules all fully aligned to the Australian Curriculum). STELR has developed hands-on, inquiry-based, learning via in-curriculum program. Currently in 485 schools, designed for Year 7-10 students, using relevance topics such as global warming and renewable energy and sustainability. Over 2015 school year STELR will be delivered to an average of 150,000 students. Funding is provided by a one off Government Grant, ongoing corporate sponsorship, donations and a small co-payment by individual schools.
3. **Research-Industry Engagement.** ATSE has developed a suite of activities and proposal to enhance research translation and research-industry engagement with a view to boost the commercial returns from Australian research. A key activity is the ATSE proposed new Research Engagement in Australia (REA) metric to be applied across Australian Universities. ATSE is just completing a pilot study in universities that will be published end of October/early November.

ATSE: Areas for improvement:

1. **Voice:** ATSE sees the increased science literacy of the Australian community as vital and a challenge. The STELR Program (see above) is aimed to increase science literacy generally, but current levels of science engagement across the community are low.
2. **International Engagement** While ATSE is contracted by the Government to undertake specific international activities; it maintains its international relationships predominantly from its own reserves. ATSE has called for the Government to establishment an International Strategy for Research, Science and Technology as a priority action.
3. **Enhanced Engagement with ATSE Foreign Fellows** – ATSE is exploring how best to enhance its Foreign Fellows Program including access and use of valuable networks and S&T policy intelligence on a wide range of issues that has direct relevance to Australian S&T and innovation policy and practice.

Belgium – BACAS

Three operations that work well:

- co-operation between representatives of universities and representatives of private business in the Belgian academy of technical sciences in studying important challenges for the Belgian society
- setting up working groups for studying specific problems and publishing academic viewpoints
- attracting high potential Belgian and foreign scientists and business people to join the academy of technical sciences

Three operations that do not work well:

- attracting media interest in the academy's operations
- achieving a gender equilibrium in the memberships of the academy
- avoiding too much bureaucracy in the academy's management

Canada – CAE

Strengths

- Good nominations for new Fellows every year and enthusiastic participation in gala induction ceremony. The ceremony and AGM are also strongly profitable given sponsorship from universities and industry.
- Vastly improved workflow for new fellow voting, annual fee billings, members database, all incorporated into a new, relatively inexpensive website.
- Improved social media presence, especially LinkedIn for internal communications and Twitter with the rest of the world (>400 followers in two years), plus improved news release email distribution list. Personnel connections with mainstream media allows placement of op eds in national and regional newspapers
- Making research partnerships with well recognized Canadian social science think tanks e.g. Institute for Public Policy, Conference Board of Canada
- Strong participation on public interest studies sponsored by the Council of Canadian Academies

Weaknesses

- No government funding. Member fees and sponsorship only allow 1.5 FTE employees, virtually no travel budget and no office support. Small size forces nearly entire budget to

go towards “overhead” and nothing for programs. In Canada, government funding for engineering studies goes towards other organizations.

- Confused engineering organization structure in Canada. There are at least 20 organizations that purport to represent engineers and engineering in Canada and its provinces.
- All government funding for science and engineering studies is channeled through the Council of Canadian Academies rather than through the CAE
- Very difficult to carry out studies with only volunteers.
- Poor member engagement

Croatia – HATZ

Operations that work well:

- organization of public roundtables on the relevant topics pertinent to scientific, engineering, and higher-educational issues,
- support and organization of number of the scientific symposia and engineering workshops,
- communication and collaboration between other Croatian academies,
- communication and collaboration with academic institutions in Croatia and the EU,
- publishing activities that emphasized relevance of scientific and engineering topics in the social architecture.

Areas for improvement:

- collaboration with local industries,
- attracting media interest in the Academy’s operations,
- governmental support and raising funds activities,
- improvement of members activities in international projects (for example by organizing promotional events demonstrating successful projects and best practice in the field).

Czech Republic – EACR

Support of the and Applied Engineering Research

EACR since its establishment in 1995 has been systematically supporting applied research in engineering disciplines. It prepared a concept of an Applied Research Agency, which similarly to the Czech Science Foundation would procure financial resources for applied research projects. EA CR thus contributed to the establishment of the Technology Agency of the Czech Republic in 2009. Members of the EACR continue to support activities of the agency as members of the Control and Scientific Board, members of Advisory bodies and Evaluators of projects.

Support of young scientists and young talented Engineers

In 1998 EACR, prepared a concept of Postdoctorate grants to support young scientists/engineers who completed their postgraduate education to continue their research projects. This concept was adopted by the Czech Science Foundation and contributed to stabilization of young scientists and highly qualified engineers at research institutions and universities.

EACR also supports further professional growth of young talented engineers both from research and industry. EACR acts as national promoter of the joint project of the Euro-CASE and the National Academy of Engineering USA “Symposia Frontiers of Engineering”.

EACR Annual Prize

The Engineering Academy of the Czech Republic established, on the basis of a resolution accepted by the Plenary Meeting of the EACR on December 11, 1996, the Award of the Engineering Academy for outstanding completed engineering projects and significant achievements of engineering R&D

performed in the Czech Republic. The Award of the Engineering Academy of the Czech Republic is presented annually to Czech and Foreign individuals and teams for results of their creative work put into practice or published for the first time within the last five years.

Since 1997 when the Award was presented for the first time EA CR awarded the prize to whole range of excellent project. To the most significant belong the projects "Centre for High-Power Lasers PALS", "Rejuvenation and Restoration of a Mosaic on the Golden Gate of St.Vitus' Cathedral at Prague Castle Dated 1370-1371 Using Sol-Gel Technology", "Restoration of the Historical Charles Bridge in Prague from the 14th century", "A-GLOBE, Technology and Software Tool for Integration and Simulation of Extensive Distributed Systems" project "Underground Metropolitan Railway Tunnels Dragged into Position and Sunk into the Bed of the River Vltava", project "CAMEL Pneumatic Weaving Loom" and others.

Expert Assessments

Expert Assessments have been important activities of EACR. EACR prepared number of expert assessments of the large traffic projects in the Czech Republic

Unsuccessful activities

Engineering Academy of the Czech Republic has not been able in 20 years of its existence to persuade the State Administration to grant EA CR regular financial support. EA CR has to apply for grants for its projects.

Hungary – HAE

We feel that the support of the talentfull youngsters through our Foundation is the field where we are succesfull and to provide the necessary financial sources to our operation is our weakest point.

Japan – EAJ

Three operations that work well:

- * Programs to foster younger generations that are linked to bilateral, multilateral and domestic activities.
- * Activated regional activities by encouraging establishment of regional chapters that would make autonomous activities easier.
- * Delivery of recommendations to the government on hot issues.

Three operations that need improvements:

- * More active delivery of recommendations that would have major effects on the government and the public.
- * Smooth generational shift in the academy and desired involvement of elder members that would enable sustainable development of the academy.
- * Strengthening of financial basis

Korea – NAEK

Programs working well

Strong industry and academic linkage

NAEK has been running several flagship forums covering various issues on science, technology, engineering, energy, education and society. Being NAEK members consists of 50/50 from industry and academy, the regular forums provide lively discussion platform among two sectors oftentimes with

leaders from Government, National Assembly and other communities like press. The results are well promoted and widely benchmarked by other organizations in science and technology in Korea.

NAEK organizes many site-visit programs through which members could keep abreast with recent progresses and current issues in industries, research institutes and universities. Members' participation is very active both in annual event and divisional ones.

Well established engineering promotion to society

NAEK publishes various newsletters and books for engineering promotion. As an example, NAEK Voice mainly covering policy issues is well distributed and quoted.

Outreach to young generation consists of two parts. Young Engineers Honor Society(YEHS) and Young Intellectual Property Leader(YIPL) are for engineering students in college. Another popular one is Junior Engineering Class for elementary school students. Corporate executives, managers, and engineers visit a local elementary school, and teach engineering kit with students side by side

Areas for Improvement

Regional activity

Being our activity pretty much centered in the Seoul metropolitan area, NAEK has been trying to promote regional programs at or near industrial centers, which needs further progress.

Recruiting new members from emerging area

NAEK considers diversity is important for sustainable future, and thus has started a proactive measure to invite new members from emerging and multi-disciplinary areas.

UK – RAEng

Strengths

Industry/academic collaboration

Enterprise and Innovation

Education

Areas for improvement

Developing a long term International Strategy

Engagement with Fellowship

Improving links with government

US – NAE

With respect to operations, I do think here is one thing we could do so that everyone has a common frame of reference for their thinking. Each Academy has a different relationship with their government. We are likely one extreme in that we get no baseline funds yet service is our independent variable and honorific selection the dependent variable. We do studies, but no direct R&D. Other Academies have baseline funding, some do "real" work, and so forth. Understanding where each Academy stands in this regard will be imperative for a frame of reference to identify what best practices may be appropriate a for a given academy and which ones may not.

Uruguay - ANIU

A.-Successful activities of the ANIU

Our Roundtables are named in Uruguayan professional and business environment as "state of the art" and they are unique because we have the capacity to call uncompromising interest experts of different areas.

Our Annual Competitions convene young engineers. We select the most outstanding projects and thesis. The interaction among the authors, Colleges and tribunal members has positive synergistic effects to promote the ANIU.

B.-Unsuccessful issues

The public sector or government does not identify the role of the Academy as an advisory institution without spurious interests. They usually consult the State University.

Weaknesses to reach economical supports.

Low participation of Members of the Academy, some of them because of old age and young people lack time...