

Editorial | Global Challenges for Structural Engineers

By Taka Kimura, P.E., M.ASCE, F.SEI



Similar to the industrial revolution of the early 19th century, we are in the midst of an *information* revolution. But rather than reducing the price and increasing the speed at which a cog can be manufactured, the current information revolution is reducing the price and increasing the speed at which *services* can be rendered. We live in a time where a variety of influences, including technological advances, growing affluence of the working class, and a changing geopolitical landscape, have created a world in which physical distance and geographic boundaries no longer pose barriers to international economic competition. Geographic distances are increasingly irrelevant when providing goods and services. One only has to call customer service for any major corporation to experience outsourcing first hand.

So how will this impact our profession as structural engineers? As technological advances and social shifts continue and broaden their impact on our work, the long term consequences are yet to be seen. One thing is clear – globalization is a trend that impacts virtually every aspect of the way we perceive, pursue, and perform our work. Global economies are increasingly intertwined and the rapid advance of technology facilitates collaboration across national boundaries. High quality, low cost technical expertise from abroad can be viewed as a challenge for our profession. This will be offset by more opportunities for all of us to work on innovative projects around the world and to provide our expertise and services to improve conditions in areas that have previously been underserved.

Accordingly, the future structural engineer must be prepared for this rapidly changing environment in order to thrive. He or she cannot depend solely on technical prowess for success. In addition to the technical skills that have been traditionally required of structural engineers, cultural awareness, knowledge of a foreign language, team building skills, and general adaptability will be essential traits of a globally minded worker.

Globalization was one of the key issues influencing our profession that was identified by the Structural Engineering Institute (SEI) Board of Governors during their Strategic Visioning efforts in 2011. Subsequent to that meeting, SEI established the Task Committee on the Qualifications of Future Structural Engineers to study changes impacting the structural engineering profession, and to provide background and present ideas for change, as well as recommendations for action by the SEI Board of Governors. After careful consideration of the Task Committee's report, the SEI Board of Governors unanimously voted to establish a new Global Activities Division in November 2015.

The mission of this newly established Division is to:

- Increase SEI member's awareness of global issues that impact our profession
- Advance the role of SEI and its members globally
- Facilitate the development of skills that allow SEI members to thrive in the world market
- Serve as the communications mechanism for Global Chapters and members to express needs and make recommendations to the SEI Board of Governors.
- Support and participate in the global activities of the profession of structural engineering.



ASCE and SEI leaders meet with representatives of The Institution of Structural Engineers, (IstructE) to help further the goal of international cooperation. Left to right: Jim Rossberg – Managing Director, Engineering Programs; Tom Smith – Executive Director, ASCE; David Odeh – President, SEI; Martin Powell – Chief Executive, IstructE; Mark Woodson – President, ASCE; Darren Byrne – Director Membership and Education, IstructE.

- Act as a global voice on behalf of structural engineers.
- Promote high quality services that are global in scope.

The intent is not to have the new Division act as a separate entity within SEI, but rather to integrate itself with the rest of SEI and its Divisions and to be a seamless part of what SEI is and how it operates. These are lofty goals for the new Global Activities Division, but the experienced and diverse members of its appointed Executive Committee are prepared for this challenge and held their first in-person meeting at the Geotechnical & Structural Engineering Congress in Phoenix, Arizona in February 2016.

In a word, what globalization presents to our profession is change. Charles Darwin once said, "It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change." Rather than labeling globalization as a threat or an opportunity, what is important is to recognize, understand, and prepare for it. Change is nothing new to structural engineering. From the constant evolution of the materials used in our designs, to the incorporation of various technologies that enable us to do our work with increasing efficiency, change has always been something structural engineers have recognized, embraced, and sought. The impact of globalization on our profession should be no different.

As the inaugural Chair of the SEI Global Activities Division, I look forward to the support of SEI and the broader structural engineering community as we attempt to prepare for the challenges and opportunities that globalization presents to our profession.

If you want to learn more about the SEI Global Activities Division and become involved, please contact Taka Kimura at taka.kimura@ch2m.com. ■



Taka Kimura is a Design Manager and Lead Structural Engineer at CH2M. Taka currently serves as the Global Activities Division Chair for the Structural Engineering Institute.