

## The Future of Engineering

By Stacy Bartoletti, S.E., Chair CASE Executive Committee



We are all busy taking care of our clients, delivering structural engineering expertise, and running our businesses; we probably do not take much time to sit back and contemplate the future of engineering and, more specifically, the impacts of future changes on structural engineering. Fortunately for all of us, there are organizations and groups of highly engaged professionals considering these questions and developing some interesting material and ideas. I am one of the professionals who believe the engineering profession is heading into a period of rapid change that will ultimately have an impact on all of us and society at large.

The American Society of Civil Engineers (ASCE) is investing heavily in analyzing and producing a number of future scenarios through their *Future World Vision* project. The ASCE work is based on the premise that change is coming rapidly, with trends in smart infrastructure, alternative energy, intelligent transportation, and other areas. These trends are captured in a series of scenarios looking out 50 years and will



ultimately be presented in five future worlds. If you have not seen this work, I encourage you to take a look and imagine how these future visions will impact structural engineering and your business.

The Structural Engineering Institute (SEI) of ASCE also developed a *Vision for the Future of Structural Engineering* in 2013 and recently produced a progress report on actions taken to achieve the vision. The SEI *Vision* was the seed for the three national structural engineering organizations, CASE, NCSEA, and SEI to come together and develop a one-page *Vision for the Future of Structural Engineering*. Endorsed by all three organizations, the Vision is being used as a guide for future activities in all of the organizations. As the current Chair of CASE and a practicing structural engineer, I am particularly pleased to see the three national SE organizations speaking with a collective voice and actively collaborating to advance our great profession.

Beyond these activities, I am personally involved as a member of the steering committee for a more recent initiative and an organization called the Engineering Change Lab USA (ECL). The idea to form ECL came from a small group of people active in the American Council of Engineering Companies (ACEC) and gained early insight from a similar activity in Canada. ECL believes that the world is facing an unprecedented wave of change. Accelerating technological progress, rapidly evolving societal needs, and growing environmental imperatives, including climate change, all present significant challenges and opportunities. Maintaining the status quo is not an option for the engineering community, and, as an uncertain future unfolds, it must serve as stewards of technology, the natural and built environments, and the public health, safety, and welfare.

The Mission for ECL is to be a catalyst for change within the engineering community, helping it reach its highest potential on behalf of society. To achieve the Mission, the organization convenes stakeholders to explore new knowledge about the role of engineering in an emerging future, complements the work of other organizations, has a goal to be a communications hub, and leads collaborative initiatives designed to transform the engineering community. Over the past two-plus years, ECL has convened seven workshops around different

areas of exploration focused on strategic issues impacting the future of engineering. These strategic issues have included public perception of engineers, diversity and inclusion, leadership skills for future engineers, education, public policy, technological forces impacting engineering, engineering ethics, entrepreneurship, new models for licensure, and the future of consulting engineering. Some of these issues have transformed into chartered initiatives, each designed for further experimentation and exploration.

The initiatives currently being undertaken by ECL USA, and captured by their future vision statements, include:

**Education** – Imagine if, guided by educators and mentors who understand emerging technologies, every student was prepared and excited to address challenges and problems by applying science and math concepts, using an engineering approach.

**Future of Consulting Engineering** – Imagine if engineering firms are thriving in the future by bringing value to their clients and society as change occurs, leading changes in technology, attracting top talent, and embracing diversity in the profession.

**New Models for Engineering Licensure** – Imagine a future where the practice of engineering is regulated in a simple and transparent manner that enhances public health, safety, and welfare, and technological development for all.

**Technological Driving Forces Impacting the Engineering Community** – Imagine if engineers led the thoughtful embrace and acceptance of integrated technologies to drive business.

**Public Policy** – Imagine if engineers used their knowledge and skills to have a positive impact on society through engagement in public policy.

ECL USA has a growing list of stakeholders and is always looking for more people interested in engaging at any level. If you would like to learn more about ECL USA, please check out their website at [ecl-usa.org](http://ecl-usa.org) or contact the Executive Director, Mike McMeekin, at [mike.mcmeekin@lamprynewson.com](mailto:mike.mcmeekin@lamprynewson.com).



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