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Civil Vision 2030

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Abstract: The civil engineer's world of 2030 will be even more challenging than today. Today's status of Civil Engineering served as the Summit's benchmark. Examples of current issues and trends noted at the Summit include the poor condition of the infrastructure in many nations, the occurrence of corruption in the global engineering and construction industry, the minimal involvement of civil engineers in the political process, the need to more fully embrace sustainability, the globalization of engineering practice, and the desire to attract the best and brightest to the profession. Dealing with the preceding problems and opportunities will require intra-disciplinary, cross-disciplinary, and multi- disciplinary collaboration on projects and in research and development. More advances in areas such as information technology, intelligent infrastructure, and digital simulation will be needed.

Keywords: Summit's benchmark, globalization, problems and opportunities.

I. INTRODUCTION

In 2030, civil engineers will serve as master builders, environmental stewards, innovators and integrators, managers of risk and uncertainty, and leaders in shaping public policy An ever-increasing global population that continues to shift to urban areas will require widespread adoption of sustainability.

Demands for energy, drinking water, clean air, safe waste disposal, and transportation will drive environmental protection and infrastructure development. Society will face increased threats from natural events, accidents, and perhaps other causes such as terrorism.

Civil engineers are rightfully proud of their legacy. During the past century, clean water supplies have extended general life expectancies. Transportation systems serve as an economic and social engine. New bridges, blending strength and beauty, speed transport and bring communities closer together.

Public and private construction, for which engineers provide the essential underpinnings of design and project oversight, produces hundreds of thousands of jobs and drives community development.

From the functional and beautiful Golden Gate Bridge in the United States, Petronas Towers in Malaysia, and Pont du Gard in France to the largely hidden water supply and sanitary sewer systems, civil engineers have made their mark in many aspects of the daily life of essentially everyone around the globe.

II. ISSUES AND TRENDS

An Civil engineers know they cannot rest on their laurels. Current trends pose questions about the future of the profession. These questions address the role that civil engineers play—and could play—in society, in the ultimate integrity of the world's infrastructure, and in the health of the natural environment.

- Civil engineers know they cannot rest on their laurels. Current trends pose questions about the future of the profession. These questions address the role that civil engineers play—and could play—in society, in the ultimate integrity of the world's infrastructure, and in the health of the natural environment.
- For many years, civil engineering leaders sounded the alarm about the lack of investment in maintaining and improving the infrastructure. Some of those shortcomings were tragically illustrated by the death and destruction caused by failures in which engineering designs, government funding, and the community oversight systems were all called into question. Civil engineers are painfully aware of the consequences for public health, safety, and welfare when the infrastructure does not get the attention it requires.
- Yet those same engineers also know that they could do better in speaking out in the social and political arena, and in becoming leaders in the policy- and decision-making process, to ensure it is based on a sound technical foundation. Civil engineers know they must step up to the plate and participate in political and public service.
- The public has become increasingly aware that development need not result in a compromised and depleted environment. Enlightened citizens see sustainability, not as an unattainable ideal, but as a practical goal. To answer that call, civil engineers realize that they must increasingly transform themselves from designers and builders to project life-cycle "sustainers."
- Such broadened responsibilities—along with the increasing breadth, complexity, and rate of change of professional practice— all put greater emphasis not only on continuing education but also on what a basic civil engineering education must deliver up front. The body of knowledge necessary to effectively practice civil engineering at the professional level is beyond the scope

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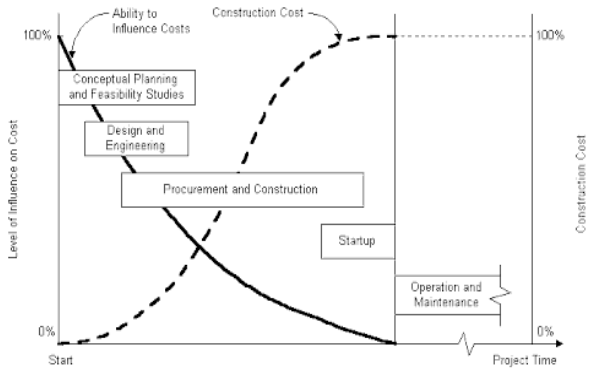
of the traditional bachelor's degree, even when coupled with the mandated early-career experience.



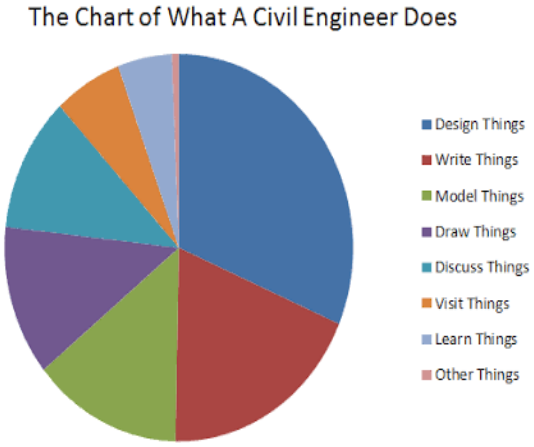
- Education must meld technical excellence with the ability to lead, influence, and integrate—preparing the engineer to weigh the diverse societal issues that shape the optimal approaches to planning, design, and construction.

III. NEW PRESSURES

- Technology and market forces place additional pressures on how civil engineers play out their roles. Knowledge-based civil engineering software increasingly shifts routine engineering tasks from the realm of the engineer to that of the technologist and technician. How will this trend play out in the years ahead? Will civil engineers move further into a systems role?
- Civil engineering risks becoming commoditized. Clients and owners may increasingly use low-bid procurement—and thus the lowest innovation denominator—rather than qualificationsbased selection and its opportunities to provide the best life-cycle options.
- Further, how will civil engineers in advanced nations react as the need to have project teams all in one place continues to shrink and lower-cost engineers from rapidly expanding technological workforces around the world vie for a piece of the global economic pie?
- Because of their work with infrastructure and the environment, civil engineers can contribute to world stability. Consider one example: Virtually every nation is either facing some type of water supply challenge today or will face one within 20 years.
- That demand for this life-giving resource, coupled with the need to share it across national boundaries, could create an explosive situation. The application of civil engineering knowledge and skills to enhance water supply and improve distribution could become one of civil engineering's greatest challenges.

IV. CAREER APPEAL

- All these issues represent critical tests for civil engineers, with new responsibilities looming ahead for a new generation. For many years, the profession has wrestled with its career appeal to a diverse population of the best and brightest.

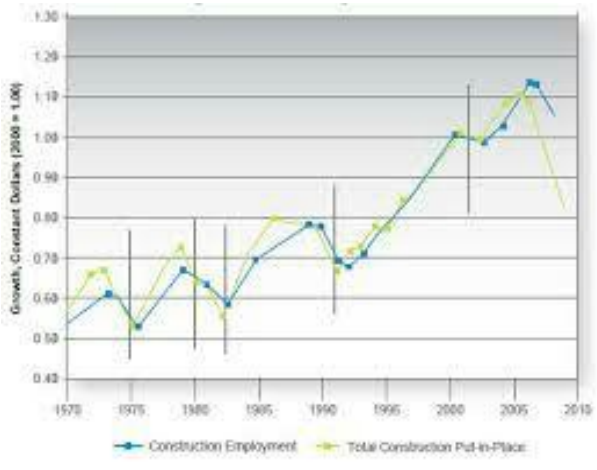


V. FUTURE DIRECTIONS

- Civil engineers thus find themselves as keepers of an impressive legacy while raising concerns about future directions. They know they must take more risks. They know they must show more leadership. They know they must control their own destiny rather than letting events control them.
- The Summit on the Future of Civil Engineering in 2030 represented an ambitious step on the road to that new future.

VI. WHY A SUMMIT?

- The Summit on the Future of Civil Engineering was convened in response to the status of, concerns with, and opportunities for the civil engineering profession.
- The Summit's purpose was to articulate an aspirational global vision for the future of civil engineering—addressing all levels and facets of the civil engineering community, that is, professional (licensed) civil engineers, non-licensed civil engineers, technologists, and technicians.



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VII. THE VISION FOR CIVIL ENGINEERING

• VISION:
The Summit produced a series of aspirational visions stimulated by participant views of the world of 2030. The resulting integrated global aspirational vision is:
Entrusted by society to create a sustainable world and enhance the global quality of life, civil engineers serve competently, collaboratively, and ethically as master:

a. planners, designers, constructors, and operators of society's economic and social engine—the built environment
b. stewards of the natural environment and its resources.
c. innovators and integrators of ideas and technology across the public, private, and academic sectors.
d. managers of risk and uncertainty caused by natural events, accidents, and other threats.
e. leaders in discussions and decisions shaping public environmental and infrastructure policy.

VIII. PROFILE OF THE 2030 CIVIL ENGINEER

• What could civil engineers be doing in 2030? In addressing this question Summit participants created a profile of the civil engineer in 2030, that is, the attributes possessed by the individual consistent with the profession's aspirational vision.
• Summit participants identified many, varied attributes, organized into the categories of knowledge, skills, and attitudes. The results are presented here.

a. The civil engineer is knowledgeable. He or she understands the theories, principles, and/or fundamentals of:
i. Mathematics, physics, chemistry, biology, mechanics, and materials, which are the foundation of engineering
ii. Design of structures, facilities, and systems
iii. Risk/uncertainty, such as risk identification, data-based and knowledge-based types, and probability and statistics
iv. Sustainability, including social, economic, and physical dimensions
v. Public policy and administration, including elements such as the political process, laws and regulations, and funding mechanisms
vi. Social sciences, including economics, history, and sociology

b. The civil engineer is skillful. He or she knows how to:
i. Apply basic engineering tools, such as statistical analysis, computer models, design codes and standards, and project monitoring methods
ii. Learn about, assess, and master new technology to enhance individual and organizational effectiveness and efficiency
iii. Collaborate on intra-disciplinary, cross-disciplinary, and multi-disciplinary traditional and virtual teams
iv. Manage tasks, projects, and programs to provide expected deliverables while satisfying budget, schedule, and other constraints

c. The civil engineer embraces attitudes conducive to effective professional practice. He or she exhibits:
i. Commitment to ethics, personal and organizational goals, and worthy teams and organizations
ii. Honesty and integrity—telling the truth and keeping one's word.
iii. Respect for and tolerance of the rights, values, views, property, possessions, and sensitivities of others

IX. 2030: THE CIVIL ENGINEER'S WORLD

• The Summit generated many, varied ideas by discussing the civil engineer's world of 2030. More specifically, the breakout groups addressed two questions:
○ What will be different in the world of 2030?
• What could civil engineers be doing in that different world?
The answer to the first defines the stage on which civil engineers will perform two decades from now. Answers to the second define the roles civil engineers could play. While civil engineers will not be able to greatly influence the stage, they can determine the acts they will appear in and the roles they will play.
The following scenario was developed using Summit results and a pre-Summit ASCE member survey about aspirations and visions for civil engineering in 2030.

a) THE SCENARIO BEGINS
The year is 2030. At the second World Civil Engineering Societies Triennial Symposium in Rio de Janeiro, Brazil, engineers from industry, education, and government met to continue the collaboration started six years ago in Porto, Portugal. At the conclusion of deliberations, conference organizers submitted the following reports about the status of the sustainability of the world, research and development, risk management, innovation and integration, and reform in the preparation of engineers.

b) A SUSTAINABLE WORLD
The global civil engineering profession has increasingly recognized the reality of shrinking resources, the desire for sustainable practices and design, and the need for social equity in the consumption of resources. Civil engineers have helped raise global expectations for sustainability and for environmental stewardship. The profession has led world acceptance of green design and has been at the forefront in making environmental considerations part of life-cycle and cost-benefit analyses. Civil engineers have urged clients to use new, environmentally-friendly technologies to improve the quality of life in urban environments. Designs routinely incorporate recycling,

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either by using recycled materials, or by making project components recyclable at the end of their useful life. New processes, less harmful to the environment, have been implemented, and most new construction is based on green and smart-building technologies. Many new buildings actually produce more energy than they consume.

On the demographic front, the world is well on its way to a population exceeding 10 billion people in 2050. Today, people occupy more space on the planet than they did 30 years ago, and they are straining the earth's environment, particularly the needs for energy, fresh water, clean air, and safe waste disposal. During the past 30 years, gradual global warming has profoundly affected the more than half of the world's population that lives within 50 miles of coastal areas. These areas have become much harsher places to live because of sea-level rise, increased storm activity, and greater susceptibility to flooding. Growing population, shrinking resources, and climate change have put sustainability at the forefront of issues requiring global attention.

Shifting demographics and population growth continue to strain the overburdened infrastructure. The shift of people from rural areas to cities and exurban areas has accelerated, resulting in increased population density around the world. In the developed world, infrastructure is aging, and maintenance or replacement has not kept pace with its deterioration.

In the developing world, the need for new infrastructure outstrips society's ability to put it in place. Influenced by civil engineering leadership, people now better understand the crucial link between infrastructure and quality of life, which has caused a major public policy shift in favor of improved infrastructure maintenance and accelerated infrastructure construction.

Demands for sustainable energy, fresh water, clean air, and safe waste disposal drive infrastructure development on a global scale. Constrained resources and growing energy demands have led to the need to prioritize energy resources and use alternative fuels. The use of clean coal along with carbon sequestration, nuclear energy, and renewable sources such as wind, solar, waves, and geothermal have made it possible to meet growing demands. In addition, increased urbanization has led to greatly increased use of mass transit and much less reliance on personal automobiles, which has greatly reduced demand for fossil fuels. Most vehicles now use fuel cell technology or renewable resources, such as ethanol.

One key to stability in the world is greater equality among living standards. Ahead of plan, leadership and collaboration with major stakeholders around the world have closed the gap between advanced, developing, and underdeveloped nations. Innovative approaches have resulted in infrastructure addition, removal, repair, or replacement based on the changed societal requirements. Engineers are recognized as leaders, teachers, and learners in a wide range of environmental and infrastructure topics. Infrastructure financing routinely involves life-cycle costing analysis with public debate as to tradeoffs for different issues.

c) RESEARCH & DEVELOPMENT

Facing daunting issues following multiple global natural and manmade disasters in the first decade of the 21st century, along with an apparent lack of data pertaining to design, maintenance, and lessons learned, an international commission was established to define a strategic direction for global investment in research and development. As a result, civil engineers have led the shift from a remedial to preventive approach.

The profession has defined a balanced approach in driving the research agenda, spearheading intra-disciplinary, crossdisciplinary, and multi-disciplinary collaboration in prioritizing basic research needs on national and global levels. In addition, civil engineers provide critical technical guidance in defining public policy throughout the government and global commissions.

Civil engineering quickly moved to the forefront to define the research agenda for nanoscience, nanotechnology, and biotechnology applications in the 2030 infrastructure environment. Engineers recognized that nanoscience and nanotech products are the vehicles for major technological innovation across a spectrum of products affecting virtually every industry sector. Civil engineers from across industry, academia, and government worked on the development of instrumentation, metrology, and standards to realize a robust nanomanufacturing capability. This permitted the physical dimensions, properties, and functionality of the materials, processes, tools, systems, and products that constituted nanomanufacturing to be measured and characterized. This, in turn, enabled production to be controlled, predicted, and scaled to meet market needs.

In 2030, the civil engineering enterprise is focused on fast-track development and deployment of technologies. Steps taken by the profession during the past two decades in the areas of information technology and data management have significantly improved how facilities are designed, engineered, built, and maintained.

Intelligent sensors have put productivity at an all-time high. Smart chip technologies enhance materials tracking, speed construction, and reduce costs. Wearable computing devices facilitate communication among onsite engineers, workers, and inspectors and provide access to remote documents and resources across global divides.

d) MANAGING RISK

The world of 2030 presents a high-risk environment, with the ongoing threat of large-scale natural disasters and possible acts of terrorism. Civil engineers are at the forefront in developing appropriate approaches and designs to managing and mitigating risk, realizing that high reward can come from high-risk solutions. Project-specific risk decisions are made at multiple levels as engineers become leaders of enterprise risk management, with some carrying the title of chief risk officer.

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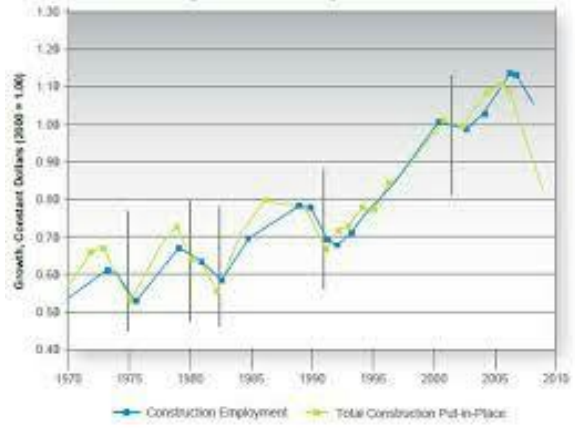
Risk is clearly a major driver of innovation, as engineers evaluate what new materials, processes, and designs might be used while weighing the potential for failure—balancing risk versus reward. Engineers reduce risk and, therefore, liability exposure by building living models of major structures that incorporate untried technologies and by investigating, in a flexible way, long-term performance. To aid the process, governments have instituted faster turnaround times for new regulations, permitting ever accelerating innovation.

The application of global, performance-based codes and standards has become widespread in enhancing the world's infrastructure, and civil engineers have been at the forefront in developing such guidelines. To address heightened threats and threat variability from place to place, the global codes and standards have become risk-based, thereby more readily addressing local conditions. Natural and terrorist threats continue to change as world conditions evolve, and developers of codes and standards have become more proficient and proactive in adapting standards accordingly. In addressing the variations of local risk, engineers are also educating society on the limitations of new technology so that educated decisions can be made on how infrastructure is constructed while also managing expectations. This realistic management of expectations, however, has not degraded the standard of care.

Large, multi-national corporations have continued to expand and become major economic forces on a global scale, with total corporate revenues exceeding the gross domestic product (GDP)



The effort to manage and mitigate risk is led by civil engineers.

Civil engineers have been in the forefront in developing and applying global, performance-based codes and standards.

Of many nations. Due in part to the interrelated nature of their global production and supply network, they have gained great influence over environmental norms and standards across nations. These multi-national corporations are now major drivers of global environmental standards, and the opportunity for promoting tougher standards in all countries has grown. Economic forces help drive such environmental improvement, but less stringent environmental standards still prevail in some lesser-developed countries. Local compliance issues also remain a challenge.

Master Innovators and Integrators

In the civil engineering profession, project delivery has become an increasingly complex and diverse process. Twenty-five years ago, an owner often hired a design professional to develop plans and specifications that were given to a contractor who transformed them into a finished product. The design team of 2030 includes a multitude of participants, many of whom are not in the engineering profession, but in related areas of management, environmental sciences, social sciences, legal, planning, geographic and other disciplines. Likewise, the contractor's team no longer comprises a few trades, but dozens of trades that are specialized in particular areas coming together in a managed process to complete the constructed project.

As the master innovators and integrators, civil engineers are the leaders who help develop and implement new technologies to create appropriate competitive advantages. Civil engineers are educated, trained, and well-equipped to be at the forefront of adapting and integrating these new technologies into both design and construction. Civil engineers recognize that a narrow focus on construction is no longer valid. Their focus must be multi-faceted, multi-disciplined, and holistic.

Civil engineers are also the leaders in developing and implementing appropriate continuing education that encompasses the master builder/integrator concept. The team and integrator attributes are part of the continuing education curriculum.

As master innovators and integrators, the real-time exchange of ideas between engineers and other professionals has facilitated great teamwork in decentralized work environments. In those locations where cyberspace is still not available, the provision of wireless hand-held, voice-activated devices has kept engineers connected. Projects are now staffed and managed as if the project team were its own company. This has greatly cured the

Multi-national corporations are now major drivers of global environmental standards.

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Civil engineers lead in adapting and integrating new technologies into design and construction.
Many improvements in project management, especially involving virtual teams, are attributed to civil engineers.
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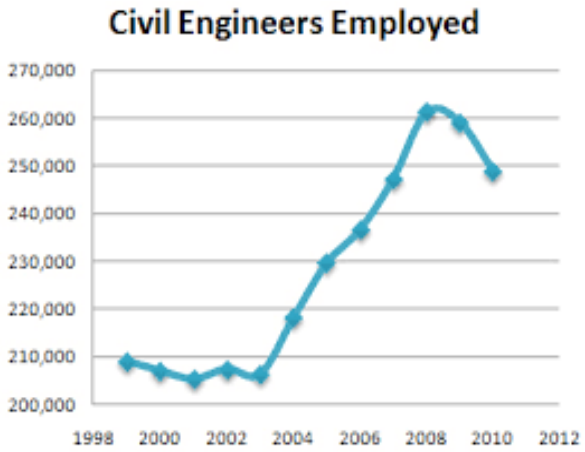
"curse of the matrix" as well as unambiguously clarified the role, responsibility, and accountability for each team member. Some have reported that the focus on the project outcome, not which discipline was in charge, has led to dramatic changes. The civil engineer, as a master integrator, facilitated this improvement.



Reform in the Preparation of Engineers

Led by civil engineers, the global engineering profession has implemented broad changes to the academic prerequisites to professional practice. Today, those seeking admission to the professional practice of engineering must demonstrate that they have fulfilled the appropriate body of knowledge through education and experience. Gaining acceptance of the body of knowledge concept has taken more than 20 years, but is now common practice throughout much of the world.
Civil engineering education and early experience have been reformed. This change was driven in part by the recognition that academia and industry need to cooperate and partner in the delivery of baccalaureate, post-baccalaureate, and lifelong learning educational activities.

Industry has aggressively brought real-world issues into university classrooms and has implemented broad steps to ensure continuing professional development of engineers throughout their careers. The academic-industrial partnership has enabled formal education to keep pace with new technologies and rapidly-changing current practices.

The sea change in engineering education—both formal and on-the-job—has transformed civil engineering into a "learning profession," further enhancing its image as a problem-defining and problem-solving profession in the eyes of the public. This enhanced reputation as a learning profession that identifies opportunities and addresses major problems has been cited as a key reason why great numbers of young people are making civil engineering their career of choice. Civil engineering's outreach to help build capacity in the developing world has "put a human face" on the profession, which in turn has attracted more women, minorities, and people interested in social justice to the ranks of civil engineers. Because of this influx of new faces, the civil engineering profession today mirrors the population it serves.

In addition to requiring body of knowledge fulfillment for entry into professional practice, the civil engineering profession has led the way in recognizing specialty certification as a means of demonstrating competency in specialized areas of civil engineering. During the past 20 years, specialty certification has become widely recognized, both within and outside the profession, as a measure of proficiency in a technical field. As a result of both board certification and reform in the preparation of civil engineers, the public perception of civil engineers as knowledgeable professionals has steadily improved.

Civil engineers have also been at the forefront of curbing corruption in the construction industry worldwide. Engineering ethics is one of the cornerstones, and academia and industry have fostered lifelong learning in this key area.

1. What Next?

The aspirational vision presented in this report represents a beginning—the springboard to launch a sustainable, influential process so that the vision for civil engineering in 2030 can be attained. The Summit's sole goal was to define this aspirational vision; it was not to create the roadmap on how to achieve it. That map-making begins now—with you. If we are to succeed, we must rally everyone in the engineering community to help move this process forward.

Now that the vision has been set and the future envisioned, leaders have a target to guide their policies, plans, processes, and progress on a broad and diverse front, within and outside the engineering community. After all, simply publishing the vision for the future will accomplish little.

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In moving forward, leaders in the civil engineering community should recognize that:

- A variety of partners must be engaged, and opportunities for collaboration and action identified.
- The international engineering community must also be engaged to maximize the reaches of the vision to the global civil engineering community.
- The public and policy-makers must be engaged so that the profession serves society to the fullest.
- The education and training of future civil engineers and the continued development of today's civil engineers must include and go beyond the required technical competencies.

Forging a long-term action plan to achieve the vision will require input and cooperation from a diverse group of leaders and organizations. Individual leaders within the civil engineering community must build awareness and excitement for achieving
The vision presented in this report is intended to inspire the global civil engineering community.

The vision. Additionally, civil engineering organizations have to create momentum toward the attainment of the vision within their organizations. Specific opportunities to present the vision for 2030 at board meetings, annual conferences, and the like must be identified and pursued. Organizations need to share knowledge and work together to make measurable progress toward the vision. For example, within the United States, ASCE, the American Association of Engineering Societies, the American Council of Engineering Companies, and others might collaborate, holding joint workshops or conferences that focus on how to accomplish the vision for the civil engineering profession. Partnering with sister organizations such as the American Institute of Architects, the American Planning Association, and others will also maximize the success in meeting the goals for civil engineering.

In addition to technical and professional organizations, clientrelated organizations must also be engaged. Finally, civil engineers must also engage the public—the primary beneficiaries of civil engineering services. Such efforts among individuals and organizations around the world will be key to the achievement of the vision.

Today's civil engineers will need to transform themselves to meet the challenges of tomorrow. They must stay abreast of changing technologies, market trends, and business developments. Civil engineers need to develop and implement new methods and products that are sustainable and sensitive to the environment. Moreover, they must cultivate the new technologies, direct the market, and develop new business practices to lead the transformation into tomorrow.
Collective, long-term actions to help achieve the vision might include:

- A more robust educational path for civil engineers that prepares them for leadership and provides the multifaceted non-technical skills to serve on projects affecting the public good.
- A more clearly defined organizational structure for the engineering team, where the licensed civil engineer takes on the role of master program/project integrator.
- More civil engineers involved in public policy forums where future directions for society are developed and where civil engineers can gain the public's trust.
- More civil engineers elected to public office where they can directly influence infrastructure and sustainability policy and legislation.
- A greater level of collaboration and communication among civil engineers and those non-engineer stakeholders, seeking to balance a sustainable environment with needed infrastructure.
- Increased research and development to mitigate the effects of natural disasters, with civil engineers playing a leading role in devising and implementing the innovations.
- Greater education and training of engineers in ethics and a greater emphasis on ethics in global engineering practice, allowing engineers to serve as role models.
- Sharing the vision with pre-college students, and their parents and counselors, to better inform them about the profession and thus attract even more of the best and brightest to it.

We hope that through these first sketches of possible action, you, the reader, will begin to contemplate how you, your organizations, and your countries can begin planning and implementing the next steps to making this vision a reality. This will be no small task. However, a united civil engineering community can start the hard work that will ultimately fulfill that promise.

X. CONCLUSION

After hearing a technology keynote presentation by John Voeller (see Appendix A), all participants went into one of six breakout groups. Two probed the professional practice dimension of technology, two the infrastructure dimension, and two the environmental dimension. The technology theme team then synthesized input from the six breakout groups and presented the results to a plenary session.

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Similarly, the efforts of co-chairs **Stephen D. Bechtel, Jr., Ph.D., Hon.M.ASCE,** chairman emeritus of the Bechtel Corporation and Patricia Galloway, Ph.D., P.E., F.ASCE, past-president of ASCE, CEO, The Nielsen-Wurster Group, Inc. are appreciated..

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1. Ron Dubois, Pulitzer Prize-winning biologist suggested the value of vision when he said “In human affairs, the willed future will always prevail over the logical future.” In a humorous fashion, U.S. Hall of Fame baseball player Yogi Berra pointed to the need for vision, or at least direction, when he said “If you don’t know where you are going, you’ll end up somewhere else.”
2. From Burt Nanus, management consultant as quoted on http:// www.heavypen.com/vision/index.html, 5 April ’06.
3. From management researchers Peg Thomas and David Greenberger as quoted on http://www.heavypen.com/vision/index.html, 5 April ’06.
4. http://www.thefreedictionary.com/vision, 11 April ’06.
5. http://www.iastate.edu/~vision2020/Phase1/b5b/B5aPeter.html, 11 April ’06.
6. Hensey, M. 1995. Continuous Excellence: Building Effective Organizations, ASCE Press.
7. Besides the United States, Summit participants came from Australia, Canada, China, England, Japan, Mexico, South Africa, and Tunisia.
8. As used here, intra-disciplinary means within civil engineering, cross-disciplinary means among engineering disciplines, and multi-disciplinary means involving engineering and other disciplines such as planning, economics, and law.
9. “Pre-preg,” short for pre-impregnated, is a term used to describe a material system that is comprised of a fiber mass or other means of reinforcement that is then impregnated with a resin, slurry, or some other type of matrix, to which heat, pressure, etc. are applied to achieve desired final properties (e.g., stiffness).

BIOGRAPHY

In 2008, the Board met and put forth the following strategic vision for the profession 25 years into the future:
In 2033, the Structural Engineering profession will be:
 A unique, fully engaged profession with a strong identity;
 Recognized for the contribution the profession makes to – public safety and risk management, – economic and sustainable use of resources, – the use of innovative technologies, and – the creation of inspiring structures;
 Stewards of the built environment; and
 Attractive to the best and brightest.
At that time, the goal was to envision the desired characteristics for the structural engineering profession at large. The stated vision statement represented the long view of 25 years into the future. Three years after it met to establish the above statement, the Board met again to build upon the strategic vision of 2008 and specifically to identify topics and strategic issues that it would like to consider for action