

ASCE news

Pioneer of Life-Cycle Cost Analysis Honored with 2016 OPAL for Education

BY Ben Walpole

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Frangopol

It started with a paper.

It spawned a movement.

Dan Frangopol took pride in "Life-Cycle Cost Design of Deteriorating Structures," written with two of his former Ph.D. advisees, Kai-Yung Lin and Allen C. Estes and published in the October 1997 *Journal of Structural Engineering*, but he never expected that the paper would prove to be such a boon to the industry.

"I thought it would be influential," said Frangopol, now the first Fazlur R. Khan Endowed Chair of Structural Engineering and Architecture at Lehigh University. "But I didn't think it would be so much to where now in most developed countries almost everyone is using life-cycle cost when looking at inspection, maintenance, and management planning, as well as risk-informed decisions."

For a career of achievements including that landmark paper, Frangopol, Sc.D., P.E., F.SEI, F.EMI, Dist.M.ASCE, has been honored by ASCE with the [2016 Outstanding Projects And Leaders](#) award for education.

The life-cycle approach quantifies cost and performance of structures and networks over their lifetime, rather than considering only the up-front expenses and the initial performance of civil infrastructure systems.

"The problem of maintenance has become a major area of interest for civil engineers in the United States," Frangopol said. "We invest more for maintenance and repairs of existing structures than in new structures. When you look at different alternatives the goal should be to minimize the price and maximize the performance over the entire life of structures and infrastructures."

Frangopol's work is fundamental to the ASCE Grand Challenge strategic initiative to significantly reduce the life-cycle cost of infrastructure by 2025. He aided ASCE in development of a survey sent to thousands of engineers to gather more information about the challenge.

"It's quite ambitious," he said of ASCE's initiative. "It will take time, but it will be positive."

Frangopol wrote his seminal paper in the mid-1990s while serving as a professor of civil engineering at the University of Colorado at Boulder, where he taught for 23 years, and is now professor emeritus. Twenty of his former Ph.D. students and postdoctoral researchers are university professors, and many are prominent in professional practice and research laboratories.

Frangopol has built the case for embracing life-cycle maintenance as founding president of the International Association for Bridge Maintenance and Safety and of the International Association for Life Cycle Civil Engineering, past director and co-founder of the Consortium on Advanced Life Cycle Engineering for Sustainable Civil Environments, founding chair of the ASCE-SEI Technical Council on Life-Cycle Performance, Safety, Reliability, and Risk of Structural Systems, and founding editor of *Structure and Infrastructure Engineering*, a leading peer-reviewed journal. Frangopol is committed to a broad and international civil engineering education.

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For his remarkable body of research and contributions to the discipline he is most responsible for, Frangopol has been widely honored, having been awarded ASCE’s J. James R. Croes Medal, Nathan M. Newmark Medal, Arthur M. Wellington Prize, Ernest E. Howard Award, and Moisseiff Award, to name a few.

The OPAL awards honor outstanding leaders whose lifetime accomplishments have contributed to civil engineering in one of five categories – construction, design, education, government, or management. The 2016 honorees will be recognized at the [OPAL Awards Gala](#), March 17, in Arlington, VA. Registration is open now.

ASCE News will profile each of the five 2016 OPAL honorees in the weeks leading up to the OPAL Gala.

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