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Augmenting Our Thinking through the Nexus of Engineering, Science, Technology, and Art

Julio M. Ottino

Distinguished McCormick Institute Professor Walter P. Murphy Professor of Chemical and Biological Engineering Northwestern University

Friday, April 12th, 11:30 AM 130 Koffolt Lab, CBEC 151 W Woodruff Ave Reception at 11:00 AM - CBEC Lobby

<u>Bio</u>

Julio M. Ottino is the Distinguished McCormick Institute Professor and Walter P. Murphy Professor of Chemical and Biological Engineering, and professor (by courtesy) of mechanical engineering at Northwestern University. He is the former dean of the McCormick School of Engineering and Applied Science at Northwestern and is currently Professor of Management and Organizations at the Kellogg School of Management in Northwestern. He previously held positions at UMass Amherst as well as chaired and senior appointments at Caltech, Stanford, and Minnesota. He is the founder of the Northwestern Institute on Complex Systems (NICO) and numerous university-wide initiatives, programs, and centers in the areas of design, energy and sustainability, human-computer interaction, and entrepreneurship, with the Kellogg School of Management, the Pritzker School of Law, the Feinberg School of Medicine, the Medill School of Journalism, and the School of Education and Social Policy, all these within Northwestern, as well as with external partners ranging from the Argonne National Lab to the Art Institute of Chicago.

His work on fluid mixing and granular dynamics has impacted a wide range of fields in physical and geophysical sciences, engineering, and nonlinear dynamics. He has supervised and co-supervised more than 65 Ph.D. theses. His monograph "The Kinematics of Mixing" has been cited over 3,600 times.

He is member of the National Academy of Engineering, the National Academy of Sciences, and the American Academy of Arts and Sciences. He is an American Physical Society (APS) Fellow, a Guggenheim Fellow, and the recipient of the APS Fluid Dynamics Prize. Within the AIChE is the recipient of the Alpha Chi Sigma Award, the W.H. Walker Award, the Founders Award, identified as one of the "100 Engineers of the Modern Era", and selected to deliver its Institute Lecture. His most recent award is the G.I. Taylor Medal from the Society of Engineering Science. He has been a senior advisor to Unilever, a member of the technical advisory board of Dow Chemical, and the science board of AkzoNobel.

He received his Ph.D. in chemical engineering at the University of Minnesota. He recently wrote a book, with B. Mau, titled The Nexus, dealing with creativity and innovation at the intersection of art, technology, and science. The book was published in May by MIT press and was just selected as category winner in Engineering and Technology for the 2023 PROSE Award from the Association of American Publishers.

Abstract

The world faces enormous challenges of unprecedented complexity—problems that intertwine in a dizzyingly interconnected, interdependent, and changing landscape. Few of them—especially those dealing with energy, environment, and social structures—admit clean solutions with clear endpoints. How can we increase the chances of finding creative solutions? One way is to augment our thinking spaces, by blurring the boundaries art, technology, and science. Such a unification bridges the analytical, logical, methodical, sequential, and convergent, the kind of thinking normally associated with the sciences with the creative, holistic, exploratory, metaphorical, and divergent, typically associated with the arts. Intertwined in the totality of this landscape is engineering, a connector that shares elements with science, technology, and, to a lesser, but no less significative extent, art. Are there creative processes and lessons that can be transferred across domains? In what ways do the domains intersect and enrich each other? I will argue that a comparison across domains contains lessons for creativity, innovation, and leadership.

