



KEYNOTE



Principles and Models to Promote Effectiveness in Sustainable Design

By Prof. Steven J. Skerlos

Abstract

Sustainable design of breakthrough technology systems is fantastically challenging. Think up a technology that protects the environment and perhaps a business model cannot be developed for it. Think up a business model that resonates with the market and consumers use so much of the technology that Earth would have been better without it. In the meantime the landscape is constantly shifting due to transient regulations. This presentation focuses on two models for evaluating the effectiveness of would-be sustainable designs that simultaneously evaluate market success, environmental impact, and meeting societal needs under regulatory constraints. One model is geared towards introducing new product categories via entrepreneurial ventures and the other model is geared towards mature and highly competitive products in oligopolistic markets. Commonly cited sustainable design principles are evaluated for their effectiveness and utility in the context of advancing sustainability in practice.

Biography

Steven J. Skerlos, Ph.D. is Arthur F. Thurnau Professor of Mechanical Engineering and Civil and Environmental Engineering at the University of Michigan (UM). Professor Skerlos is known as a scholar in the field of sustainable design focusing on product design, manufacturing, and water reuse. Professor Skerlos is Chief Technology Officer of Fusion Coolant Systems, a startup developing gas-based coolants and lubricants for manufacturing, which is the second successful start-up company based on his laboratory research. Professor Skerlos is Director of Sustainability Education Programs in the College of Engineering and is Co-Director for the UM Institute for the Design of Humanitarian Technologies. He has co-authored over 80 publications in refereed journals and conference proceedings and has served as Associate and Guest Editor for four different journals in design, manufacturing, and environmental science. He was awarded the National Science Foundation CAREER award in 2000, and has since been recognized consistently for novel contributions and excellence in research scholarship and education.