Investing in Infrastructure: Connecting Processes, Products and People Using System-of-Systems Approaches

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The traditional approach to infrastructure rehabilitation and reinvestment has been one of reacting to failures instead of preventing failures. Traditional materials, construction processes and funding mechanisms have all been applied to address immediate rather than long-term needs. Many nations, both developed and developing, invest less than half of what is required for effective infrastructure, often leading to a widening gap between needs and spending capability.

Using a System of Systems Approach, this presentation will discuss some of the challenges and opportunities in infrastructure renewal. Drawing on examples from research projects, the impact of variability in decision-making, and uncertainties in cash flows and cost of capital are analyzed. The value of engaging diverse stakeholders in infrastructure decision-making is examined using case studies from service-learning activities and multi-disciplinary global design teams.

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