

Living in a Stochastic World and Managing Complex Risks*

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Abstract

We review the concept of risk, its evolution in history and the big changes in its perception we experienced in the last 50 years. We conclude that peak risks are growing and the need for risk management is becoming a societal demand. Two phenomena, which make risks more complex, are identified: increasing interconnectedness of the world and faster time scale whereby actors have little time to adapt, while the solutions require much longer-term thinking. We conclude by showing the complementarity between qualitative and quantitative risk management and the need to rethink the relationship between optimization and resilience.

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Keywords: complexity; crisis; extreme risk; fertility; life expectancy; resilience; risk management; (industrial, financial) risk; scientific approach; societal demand; uncertainty; urbanization