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A Systems Dependency Framework for Individual, Multi- and Systemic Risks

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ABSTRACT: New approaches for the assessment and management of individual, multi- and systemic risks are needed. In this work, we present a framework for the assessment and management of these risks based on the system dependency perspective. We suggest that dependencies may act as one guiding principle not only for assessing such risks but also for evaluating risk management options. The two most extreme cases within the suggested systems dependency perspective are the independence and full dependency state, representing the two ends of the risk continuum. Such a perspective enables an integration of risk management strategies within a coherent framework across geographical and governance scales (i.e., from local to global). Furthermore, individual and multi-hazard risks can be tackled simultaneously as well as independently through the assumption of different strengths of connectedness during a disaster event. The real-world challenges of risk bearers (e.g., households, businesses, governments, supranational institutions) to account for such interdependencies are discussed within the context of optimal complexity.

***Keywords*:** Individual Risk, Multi-Risk, Compound Risk, Systemic Risk, Dependencies, Optimal Complexity.