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Interdependence-based risk analysis methodology in project risk response

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***Abstract*—In risk response analysis, risks are often assumed independently. In fact, however, risks in a project mutually affect and the independent risk seldom exists in reality. This paper develops a new approach to measuring risk interdependence. In the method, the evaluations on the risk interdependence by all experts are regarded as a discrete random variable with probability distribution. For measuring the risk interdependence, the definition of the relative strength of risk interdependence and its related properties are given. Further, an optimization model considering risk characteristics, risk interdependence and PM's risk attitude for selecting risk response strategies is constructed. The computation results obtained by solving the given model show that the relative strength of risk interdependence and its direction have significant effects on decisions about risk response. There are two major findings. First, the overall utility is more sensitive to the risk interdependence itself than to the direction of it. Second, the insufficient attention paid to or neglect of the risk interdependence lowers the overall utility and increases the implementation cost.**

Keywords—risk interdependence; risk response strategies; utility; optimization

BIOGRAPHY

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