

# **A Multi-Domain Resilience Modeling Framework: Assessing the Impact of Future Disruptions on Initiative Selection**

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## **Abstract**

Resilience modeling framework aims to provide a clear understanding of how systems react and withstand future disruptions. Developing a framework for such analysis requires more than independent approaches to ensure that it is built on a robust analytical foundation. The importance of resilience modeling lies in its ability to evaluate how future disruptions affect criteria evaluations, which in turn affects the selection of alternatives. This research proposes a conceptual resilience modeling framework for decision makers that ensures long-term and sustainable alternative selection, thus supporting more informed decisions. The existing research studies often perform resilience modeling in isolation, or in limited combinations such as combining it with various risk analysis methods only. This limits the ability of the resilience analysis to be based on evidence-based and data-driven approaches that combine multiple analytical perspectives. The proposed research addresses this limitation by integrating interdisciplinary approaches from quality control, risk analysis and decision analysis methods, which also fills the gap in integrating these three domains into a logical and connected flow where the output of each domain feeds into the others and strengthens them. As a result, the combined outputs from these three domains mentioned earlier feed into a broader resilience modeling framework, forming the core subcomponents that drive the analysis.

## **Keywords**

resilience modeling, quality control, risk analysis, decision analysis.

## **Biographies**

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