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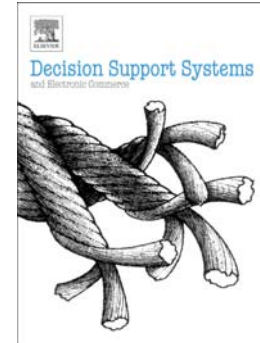
Conceptualization and Demonstration of the Incident Controller's Problem

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Conceptualization and Demonstration of the Incident Controller's Problem
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Abstract

Coordinated response to an emergency is typically the responsibility of a single decision making party referred to as the Incident Controller, who must develop solutions before the nature of the incident and response requirements are fully known. In this study, we argue four concepts necessary to build a quintessential model of the Incident Controller's Problem, and demonstrate their implications with a set of numerical experiments. This problem is characterized by the on-going discovery of information, creating an inherently iterative decision making environment in which the Incident Controller updates solutions employing a mix of complementary and potentially perishable response options, to minimize some undesirable condition while seeking efficiency. Our findings support the utility of decision making habits observed in the field, and underscore the need for better recognition of the distinctive nature of decision making under these conditions.

Keywords: Incident management, emergency and disaster response, lexicographic goal programming

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