Overviews of Uncertainty: Concepts, Categories and Coping Strategies in Decision Making

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Abstract. Uncertainty is not a new issue in decision making. A wrong decision made of a lack of certainty is every decision maker's nightmare. Although uncertainty is broadly discussed in academic literature, uncertainty has been defined in many definitions, terms and conceptions. Some of the terms often overlap with similar terms from different perspectives. In the light of this, this paper takes the opportunity to explain uncertainty under 3 C's perspectives; the Concept, the Categories and the Coping Strategies. An overview of uncertainty concepts provides the basis for understanding how it is defined from a particular perspective related to decision support for decision making. The categories of uncertainty are explained based on their characterisation to provide a better understanding. Since there is no fixed way to treat uncertainty, this study takes the opportunity to compile the possible coping strategies in handling uncertainty. As an outcome, the contributions of this study come in two ways. First, this paper provides insights on uncertainty concepts and uncertainty categories that are worthy of being reflected in decision support for decision-making research domains. Second, this paper provides solutions and ideas for potential mix-and-match coping strategies that might be helpful in dealing with uncertainty in decision-making.

Keywords: Uncertainty Concept, Uncertainty Categories, Coping Strategies, Decision Making.

1 Introduction

Uncertainty is a critical issue in decision making [1]–[3]. Decision-makers often find it hard to decide due to uncertainty. Most of the time, decision-makers are afraid to make bad decisions. Often, bad decisions can lead to adverse consequences. That is why considering uncertainty in decision making can reduce the chances of making wrong decisions [4]. Although understanding uncertainty may take time, it provides significant advantages. First, it helps decision-makers, analysts, and modellers recognise the uncertainty types they are dealing with [5], [6]. Second, it helps decision-makers, analysts,

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