

# Variety Dynamics overview for ICCPM

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Variety Dynamics is a new approach to effectively controlling and managing highly complex situations that are not well addressed by other methods.

It originated following the author's critical review of the human biological limits that apply to other methods for managing complex socio-technical situations. In short, that analysis, first undertaken more than 20 years ago concludes that humans cannot mentally understand or predict the outcomes of situations with two or more feedback loops. This is important in two ways. First, for management to be effective, all decision making about situations depends essentially on being able to predict the changes in outcomes of the situation due to the decisions made. Humans can mentally understand and predict the outcomes of situations with either one or no feedback loops. Situations with two or more feedback loops are not only more complicated, but they also behave characteristically very differently. This gap, and the associated problems can be seen in the failure of Australia's current approach to managing the COVID-19 epidemic. The effects of feedback loops and their associated time lags (or lack) are overlooked in the discussions and in the modelling. In short, the Discrete Event modelling approach used typically does not adequately consider the effects of the complex of feedback loops and instead follows a relatively linear process model. The result being opportunities for control by rapid response are overlooked.