

Development of a New Cross Effect Model Considering Influences of Effect on Interdependent R&D Events

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The objective of this research is to develop a model which estimates effect influence, the influence on the goal achievement level as the cross impacts between the R&D events completion times are considered.

To attain the above research objective, we adopt the relative evaluation method to make it convenient and reliable for experts when they estimate the individual effect of the R&D events. We also develop a new methodology which uses the distribution of order statistics and transforms the relative evaluation method into absolute evaluation method.

And, the parameters which can quantify the degree of cross effect according to the correlation of R&D events is designed.

Major contributions of this research can be summarized as follows;

First, the scope of forecast has been expanded by the introduction of a model for estimation of the impact goal which takes account of the effect influence of the completion time of events. It is shown that the effect influence of the completion time affects the individual, composite, and total effect of R&D events.

Second, a methodology has been developed for estimating the individual, composite, and total effects of R&D events as we considered the effect of time interval between completion time of events.

Consequently, we are enabled to make forecasts at the government and company levels which consolidate the time and effect influences.