

Strategic Value: Incorporating Real Options into System Dynamics Models

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Real Options is a technique for the financial valuation of projects or assets that have "option-like" characteristics-future options to expand, or exit, taking account of the volatility of the underlying asset value. Real options give managers a way to articulate the value of investments (the option value) that were long considered "strategic" in nature-i.e. the value could not be demonstrated with traditional valuation techniques such as ROI and Net Present Value.

Incorporating Real Options logic into a system dynamics model extends the capability of each discipline by 1) clearly illustrating the change in option value over time, 2) providing insight into the drivers of option value and their relative impact resulting from a strategic action, 3) incorporating non-financial variables into the analysis, and 4) allowing key assumptions in the model to vary dynamically over time.

This paper will illustrate the concept of Real Options and System Dynamics with a case study of a capital investment project. We will show how an integrated model can guide managers through the complex decision making pathways (and opportunities) that real options create.