

Real options analysis becomes invaluable in assessing investment projects when high risks are involved. However, classical cash-flow, sensitivity, risk and multi-criteria analysis are still of great help in providing a balanced, multi-viewed perspective in investment assessment and appraisal, hence these techniques must not be underestimated or neglected. **RIO - Real Investment Options Evaluation Software** integrates real options analysis with classical techniques to provide a powerful tool that combines the best characteristics of all these techniques for enhanced investment project assessment and appraisal.

Real options analysis is one of the most important techniques in business decision analysis developed in the last century. It represents an integrated framework which can address investment decisions under an extreme form of uncertainty, the random walk, the behavior seen in financial and highly competitive commercial markets.

In a traditional cash-flow analysis the future is forecasted, this forecast is treated as if it were true and a high risk-adjusted discount rate is used. In real options analysis this is reversed: the future is unknown, only today's market state is known (plus the rate at which today's state is losing its value as a guide to the future) and the risk-free discount rate is used.

A real option exists if we have the right to make a decision at one or more moments in the future (e.g. "to invest or not to invest"). Between the present time and the time of decision, market conditions will change unpredictably, making one of the available decisions better for us, and we will have the right to choose whatever decision will suit us best at the time. The new techniques of real options analysis mean that traditional cash-flow analysis is valid only in special circumstances.

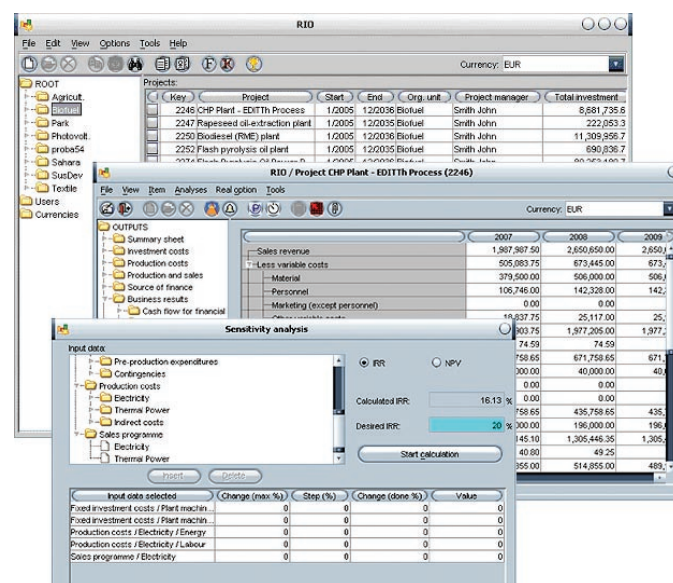
RIO supports two types of real options that can be applied to investment projects:

• Production option

The framework for the production option is an analogy between a factory production and a series of call options. Owning a factory is equal to owning a series of call options, where each option gives the right but not the obligation to produce by paying the necessary production costs (described by variable production costs). It is not an obligation, since the owner may decide not to produce if it is not profitable to do so.

• Delay option

The value of delay option is the time value of a call option to invest. Investment decision-maker should defer exercising any option as long as its time value is above zero.



Technical information

RIO is implemented as a Web-based application with three-tier architecture using Java 2 Platform, Enterprise Edition (J2EE).