

# Key Terms and Players of Operations Research

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published on BNET.com 2/13/2008

More and more companies are turning to data analysts and mathematical engineers to solve key business problems. Here's a guide to the key players and the basic lexicon of their craft — operations research.

## Key Players

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**Oracle:** Oracle is one of the enterprise application developers that has helped bring OR models to mainstream business. The analytic tools built into its systems draw heavily on operations research techniques and keep the intimidating math behind the scenes.

**SAP:** Oracle's big German competitor in the enterprise application space has also opened inroads for operations research in the corporate suite. Like Oracle, its ERP and BPM solutions make extensive use of OR techniques, again hiding math functions that would otherwise put off users.

**Frontline Systems:** Frontline Systems is the maker of the Solver Add-In for Excel. The company has helped put optimization within reach of the greater management population, not just the analytical few.

**ILOG:** This Paris-based company makes optimization engines and has new "business rules" software that uses OR techniques to create and enforce business policy. ILOG is also the maker of powerful large-scale optimization software, called CPLEX.

**Rockwell:** Rockwell Software makes Arena, one of the most widely used simulation packages in business.

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## Key Terms

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**Business modeling and analysis:** The mathematical model of a business problem or challenge. The model is analyzed to figure out the best course of action. There are several modeling techniques, including optimization, simulation, game theory, and statistics.

**Analytic competitor:** A company that builds competitive advantage by coordinating the widespread use of sophisticated analytic techniques to gain business insight.

**Optimization and math programming:** A key method of OR that relies on mathematical algorithms — and software that can run them — to work its magic. All optimization models include an objective function, constraints, and decision variables.

**Simulation:** There are hundreds of simulation programs, all with different ways of modeling a particular problem. At the core of each package is a process called “event scheduling,” in which certain events will change the state of the system if certain conditions are satisfied.

**Stochastic vs. deterministic:** If models include any sort of randomness, they’re described as stochastic models. Otherwise, they’re deterministic. Stochastic models are harder to build, but they more closely resemble reality.

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