Organizations face complex decisions that require advance decision support to solve their most challenging problems. To meet these challenges, Booz Allen Hamilton developed Argo™ – an innovative software package that is designed to promote efficient decision making through dynamic and responsive simulation capabilities.

Navigating Complex Decision Environments with Argo™

Booz Allen Hamilton, a leading strategy and technology consulting firm, leveraged simulation R&D combined with wide-ranging experience applying simulation analytics to inform client strategies in the development of Argo™, a software package tailor made for today’s complex decision landscape. Argo™ utilizes algorithmic, hardware-independent efficiencies that dramatically reduce run-times and streamline the resources required to perform sophisticated analysis. The Argo™ software’s processing speed enables models to serve as investigative tools that allow decision makers to explore trade-off scenarios, gain greater insight into the impacts of risk and uncertainty, and measure the effectiveness of potential decision strategies – without ever leaving the meeting room. Using Argo™, simulation based analytics reaches its full potential for informing decisions.

Argo™ dramatically reduces runtimes of complex predictive analysis models. Models are standard-sized, scalable Excel files which retain all data generated during simulations.

Features

1. **Spreadsheet based Monte Carlo Simulation.** As a Microsoft Excel® add-in, Argo™ can be incorporated directly into existing spreadsheet models and provides an intuitive, easy-to-navigate, user interface. Argo™ simulation features are seamlessly integrated with standard Microsoft Excel® functions providing a flexible and familiar environment for conducting simulation analysis and building Excel based risk & uncertainty visualizations.

2. **Dynamic Simulation.** Possibly the most revolutionary feature of Argo™ is the ability to re-run the entire analysis with new assumptions in mere seconds. Simulations, formerly requiring minutes or hours to run, are updated almost instantaneously as cells are changed in the worksheet. This allows what-if scenarios to be run without ever leaving the meeting room, leading to better and more efficient decision making.

3. **Sensitivity Analysis.** Simulation models are best used to provide an understanding of how variables that are under the decision maker’s control influence model outcomes. The Argo™ sensitivity analysis feature
allows decision makers to measure the influence of each model input – giving insight into how potential decision strategies will play out in real-world scenarios. Knowing which inputs are most significantly impacting results gives leaders the information they need to identify important decision variables and make informed strategy choices.

4. **Distribution Fitting.** Select the distribution that best describes your data. Argo™ utilizes Goodness of Fit tests to fit a variety of probability distributions to empirical data. The Argo™ tool’s intuitive distribution fitting interface automatically selects optimal distribution parameters, ranks distributions according to their fit performance, and displays the results in CDF overlay charts to help you choose the best distribution for your model.

5. **Stochastic Optimization.** There are two factors that drive the time required to optimize stochastic problems: the run-time of the simulation and the number of steps required for optimization. By running simulations in <0.1% of the time required by existing technologies, Argo™ drastically reduces simulation run-time as a constraint when applying stochastic models to identify optimal strategies under uncertain conditions.

**Application Success Stories**

Argo™ can be applied wherever spreadsheet simulations are called for. Whenever leaders need to understand the range of possible outcomes in a world of uncertainty, Argo™ can help. Some examples of Booz Allen analysis with Argo™ include:

- **NASA Analysis of Alternatives (AoA).** Argo™ was used to perform a real-time trade-off analysis to determine the optimal technical solution based on cost constraints and project requirements, as part of an AoA.

- **Kill Chain Analysis.** Argo™ was used to perform kill chain modeling in the design of experiments stage of a missile defense system analysis. The tool’s dynamic simulation capability allowed engineers to propose and evaluate the system’s performance against potential emerging threat capabilities in real-time.

- **Wargaming Modeling & Simulation.** Argo™ was used to provide real-time player feedback and analysis of decisions and strategies employed in a wargaming environment.

- **Financial Portfolio Valuation.** Argo™ was used to forecast a venture capital firm’s portfolio valuation over the life of the fund. The tool’s dynamic simulation capability allowed fund managers to understand how differing scenarios could impact individual investments and the portfolio as a whole.

**Ready to Help You**

Our work with NASA and the US military are just a few examples of how Booz Allen’s decision support tools like Argo™ can help government and industry organizations improve processes and achieve mission goals.

**About Booz Allen**

Booz Allen Hamilton is a leading provider of management consulting, technology, and engineering services to the US government in defense, intelligence, and civil markets, and to major corporations, institutions, and not-for-profit organizations. Booz Allen is headquartered in McLean, Virginia, employs more than 23,000 people, and had revenue of $5.76 billion for the 12 months ended March 31, 2013. In 2014, Booz Allen celebrates its 100th anniversary year. To learn more, visit www.boozallen.com. (NYSE: BAH)