Smart Analytics
Adaptive Planning Solutions

PREDICT OUTCOMES TO SHARPEN OPERATIONAL, STRATEGIC, AND ASSET PLANNING

BUILDING A WORLD OF DIFFERENCE®
BLACK & VEATCH
Adaptability to Navigate a Challenging Business Environment

Black & Veatch’s Adaptive Planning (AP) Solutions perform predictive simulations using past and current data to create, compare, and inform complex planning, operational, and business decisions. Our solutions provide a dynamic, flexible planning framework that enables utilities, communities, and power producers to rapidly adapt to changes in present conditions and strategically plan for potential future conditions.

**OUR ADAPTIVE PLANNING SOLUTIONS INCLUDE:**

- **Strategic Options Assessment:** Advanced scenario creation and comparison analytics evaluate capital investment, Smart city projects, infrastructure resilience projects, maintenance, operations, consumables, and compliance options against a wide range of metrics for strategic planning.

- **Asset Planning:** Probabilistic analytics inform asset investment and maintenance plans with an understanding of risks, impacts and criticality for operational and strategic planning.

- **Operational Planning:** Recurring planning analytics predict performance variances and provide an understanding of variance sources and improvement opportunities for operational planning such as responding to unexpected or upset conditions.

The Options Explorer analyzes an infinite number of scenarios (each signified by a bubble) with up to four different operational or planning parameters (such as revenue or performance) represented in each scenario. The x and y location, size and color of the bubbles relay the magnitude of impact on the parameters. For example, green conveys a favorable outcome, whereas red denotes undesirable impact to that parameter.
INSIGHT THROUGH INTEGRATION
Complex systems have many planning areas: asset management, capital investments, regulatory compliance, market dynamics, maintenance, and overall cost and performance. These areas are interrelated — operational decisions about one area can affect several. Our AP Solutions illuminate these interdependencies by integrating assets and networks, linking previously disparate sets of data. This integration enables a single point-of-truth with respect to all planning areas, simplifying complex management decisions. Users evaluate options with a precise, cohesive understanding of the impact to each planning area of the system, which enables truly informed decisions.

SMART, SCALABLE SOLUTIONS
Building from our powerful, proven ASSET360® analytics platform and specialized software, we configure and customize scalable solutions starting with the basics of data structuring, analytics and visualization. Our scalable framework means that clients can focus on select assets or Smart City projects and increase their adaptive planning reach one project at a time. Power producers could begin with one unit and scale to fleet-wide management. Water utilities could network pump assets, expanding in phases to include water plants, reservoirs, and distribution systems. Water and energy utilities can improve the resilience of their infrastructure using AP to inform planning and operating decisions. Similarly, cities could use AP Solutions to increase their resiliency by forecasting and comparing the impacts of different Smart projects to city resilience metrics, cost, community benefit, and return-on-investment targets. Regardless of domain, when systems become fully integrated, leadership is empowered to make time-critical decisions and forecast future strategies with the benefit of a comprehensive system view.

OUR ADAPTIVE PLANNING SOLUTIONS INCLUDE:

NAVIGATE TECHNOLOGY TRANSFORMATION
The influx of unprecedented amounts of rooftop solar has created grid instability and a shifting revenue base for one of our medium-sized electric utility clients (1,700 MW). To meet these challenges, our client uses AP Solutions to make more informed decisions about their increasingly complicated service criteria. By running numerous operational and business-case scenarios, they are able to construct operational plans that identify the optimal path from the current grid and generation state to the desired future state.

PROACTIVELY PLAN ASSET REPLACEMENT
A medium-sized water utility client (daily average demand of over 17 MG) uses our AP Solutions to visualize their distribution system and improve asset management. Through dynamic data management, our client can quickly pinpoint valve leaks and more accurately characterize meter failure. This insight allows them to stop water losses more effectively and plan meter replacement proactively. Using AP Solutions, our client can analyze different replacement scenarios to estimate the capital expense and understand the return-on-investment over time.

Strategic Options Assessment Solution helps clients navigate technology transformation and evolve from current state to future state.

Black & Veatch’s Operational Planning Solution helps Water domain clients clearly visualize leaks and proactively plan meter replacement.
SMART ANALYTICS FOR A CHALLENGING MARKET
Our business, industrial, utility and community environments are complicated by fluctuating markets, shrinking budgets, competing priorities, aging infrastructure and an aging workforce. Achieving operational balance is a challenge. At the same time, our world is more data-rich than ever before. Black & Veatch Smart Analytics leverages this data to bridge information silos and enable wiser decisions. We are redefining standard business operation and cultivating new systemwide intelligence across all domains.

A 360° PERSPECTIVE
Smart Analytics Solutions (Adaptive Planning and Operational Intelligence) are built on the Black & Veatch ASSET360® platform, which structures, integrates, and analyzes data to produce actionable insights; enables knowledge sharing across applications; and puts current operational and forward-planning decisions in the same context. Operational Intelligence Solutions enable better understanding to improve the day-to-day performance and health of assets, and Adaptive Planning Solutions improve operational and business planning decisions and facilitate system adaption to changing conditions. Smart Analytics Solutions are coupled with Black & Veatch’s engineering experts who work with users to solve problems and ensure lasting benefits. Visit BV.com/SII or follow us on Twitter @BVSII to learn more.

SMART ANALYTICS BENEFITS
- Enables rapid comparison of strategic options
- Informs Smart project and city resilience planning
- Helps return lost capacity margins
- Improves reliability with early detection and resolution of equipment issues
- Informs maintenance planning practices
- Balances compliance, efficiency, reliability and financial goals and constraints
- Reduces overall emissions
- Helps businesses, utilities, and cities operate with increased resiliency