STARTING A SMART COMMUNITY EVOLUTION

THE JOURNEY TO URBAN SYSTEM RESILIENCE
A successful Smart Community evolution requires insightful selection of ideal smart projects and careful integration of complex systems to avoid a disconnected set of technology solutions.

Black & Veatch focuses on the foundation of all smart functions—the convergence of physical infrastructure, communications and analytics—to infuse intelligence into communities. Communities that operate from an integrated framework boost their sustainability, resiliency and citizen satisfaction, and expand their opportunity for economic development. Black & Veatch has been providing unparalleled engineering, procurement and construction (EPC) services across Energy, Water, and Telecommunication domains for 100 years. We are experts in multiple, concurrent distributed infrastructure programs, with first-hand knowledge of the intricate planning, permitting, site design and construction related to Smart Community engagements. A community’s journey to smart status can begin and end with Black & Veatch.

WE ENABLE INTELLIGENCE ACROSS THE SPECTRUM OF SMART

Communities define their own brand of “smart.” Some cities describe citizen engagement apps or health and government e-Services as “smart”, whereas others focus on integrated college campuses or advanced energy infrastructure. Black & Veatch understands that the definition of “smart” is variable and unique to each community, which is why Black & Veatch focuses instead on the technology that enables intelligence.

A Smart Community forms as the physical infrastructure, communications networks and data analytics converge creating a smart network. This network enables intelligent applications that allow a community to deliver its essential services of energy, water, communications and transportation with greater efficiency and reliability. Black & Veatch’s Smart Solution Framework illustrates how these elements converge to measure, move and manage data. The combination of hardware, smart analytics and the web’s limitless connectivity and cloud computing allow vast amounts of data from multiple systems to move across a shared platform. This common platform allows for richer analytics and the ability to extract actionable insights from the data. On a community level, this means city managers can integrate their community systems and optimize system performance, which enables a Smart Community to be truly intelligent.
A Smart Community project integrates several components. The complexity of this integration requires careful planning and deployment to ensure the numerous moving parts function as a whole.
STARTING A SMART COMMUNITY EVOLUTION

The evolution starts with a single step

When communities enable a single service or application, they establish a common infrastructure that can support subsequent applications. This common framework lets a Smart Community evolve over time as budgets, planning priorities and financial return on investment (ROI) analysis allow. To help communities plan their approach, Black & Veatch offers Smart Community Roadmaps. An important planning tool, our Smart Community Roadmaps merge community strategy and objectives with available technologies to identify a set of ideal smart projects that are aligned with sufficient financial and ROI analysis.

Programs that are carefully planned and implemented can achieve a measured ROI and actionable results, which provide incentive and support to invest in additional smart projects. A phased approach allows the Smart Community vision to adaptively develop and take advantage of converged opportunities. Black & Veatch specializes in advancing Smart Communities, and can engineer, deploy and integrate selected smart projects and applications to boost a community’s infrastructure IQ. Our in-house specialists have expert knowledge across the key technical domains of Smart Community applications – Communications, Analytics and Infrastructure.

Smart grids are just one implementation of our smart community definition. Black & Veatch helps electric utilities across the U.S. monitor and control grid distribution or connect smart meter technologies.

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THE SMART COMMUNITY NEXUS
The genesis of a Smart Community is at the nexus of infrastructure, communications, and analytics.

COMMUNICATIONS ENABLE SMART SYSTEMS
Communications are a crucial component of intelligent systems because they connect distributed assets and enable smart analytics—the brains of a Smart Community. Black & Veatch designs and deploys the network infrastructure that is foundational to an intelligent community, including wireless or fiber links scaled to provide appropriate coverage or capacity, as well as a core network, data routing to appropriate databases and security across all data layers. Data-intensive Smart Community solutions require a complex, integrated system of high-bandwidth networks and edge processing that may not exist in the community. We can guide communities through their best smart solutions for transport through use of public carrier, private network or hybrid. Black & Veatch offers:
- Voice and data network design and optimization
- Coverage design
- Capacity design
- Data center planning
- Security compliance

ANALYTICS: WE BRING DATA TO LIFE
Analytics is an important element in a community’s smart evolution. Current technologies enable ubiquitous connectivity, and communities have unprecedented access to an abundance of information. However, without the right tools, vast amounts of data have little value. Black & Veatch’s ASSET360™—our powerful cloud-based analytic engine—helps transform information overload into information that matters. ASSET360™ integrates data from numerous systems, formats and timescales to deliver actionable information. Regardless of the scale of operations, ASSET360™ optimizes infrastructure assets and processes. At the city level, municipal systems—such as transportation, public safety, and utilities—can be integrated and managed to optimize the function of all city services. This means bridging information silos across operations—from maintenance to compliance—to render operational decisions that improve efficiency and resiliency.

WE USE SMART COMMUNITY INSTEAD OF SMART CITY BECAUSE SMART SOLUTIONS CAN START SMALL AND SCALE OVER TIME TO CITYWIDE, MULTI-SYSTEM ENGAGEMENTS.
Next Generation Energy and Water Nexus Management

Smart communities often start their smart evolution at existing electric and water distribution systems. These systems enable smart technologies and serve as the common platform that supports the addition of other applications within and across domains. Communities, especially those prone to severe weather, are seeking greater energy and water resilience. Black & Veatch understands how energy and water influence each other, and knows how to use communications to monitor the aggregate system. As industry-recognized experts, we provide research and best practices, timely and accurate project planning, various OEM relationships and proven EPC delivery across the Water and Energy domains.

We are Global Leaders in Energy and Water Engineering
- EPC services for both Energy (power plant design and renewable integration) and Water (treatment, storm water, and distribution)
- Hybrid wireless network design for Smart Grid control and smart meter planning
- Energy audits for municipal water utilities
- Microgrids and Energy Storage for resilience, peak demand cost reduction or grid demand response

Innovation in Electric Vehicles and Connected Transportation

EV and Fuel Cell Electric Vehicle (FCEV) technology is paving the way for zero-emission travel, but a convenient and reliable charging network is essential. Black & Veatch has deployed thousands of miles of foundational infrastructure that forms the backbone of successful charging systems. Our vision extends beyond the charging infrastructure. As transportation technology advances,
individual networks will converge into a connected transportation system that uses real-time data to optimize mobility and movement of goods. Communities will be able to aggregate and analyze data from multiple sources—speed and traffic sensors, video cameras, electric charging stations, and smart meters—to facilitate synergies across their systems.

Innovations in energy storage will enable transportation, benefit the grid, and become a critical component of a community’s energy efficiency program. Black & Veatch is front and center as vehicle-to-grid capabilities unfold around personal vehicles, fleets, heavy-duty vehicles, public transportation, and freight, adding another technology layer to Smart Transportation. Black & Veatch’s domain expertise in Telecommunications and Energy uniquely qualify us to lead the development of a transportation and storage network centered on intelligent design.

WHO INITIATES THE SMART COMMUNITY EVOLUTION?

- City CIO, CSO, or Manager
- Airport Authority
- University or Business Campus IT / Manager
- Hospital Administrators

PROGRAM MANAGEMENT: LEADERSHIP THROUGH A SINGLE POINT-OF-CONTACT

A Smart Community often involves five or more vendors, several independent systems, and complex system integration and task management. Our Smart Community Roadmaps emphasize Program Management because smart projects, regardless of their scope, involve numerous moving parts. Comprehensive Program Management ensures successful vendor relationships and a cohesive design. Our in-house expertise primes us to be a single point-of-contact for Smart Community integration efforts—from Smart Community Roadmaps to full EPC services. Equally, when communities decide to oversee their smart projects, Black & Veatch can be a trusted advisor to local leaders, augmenting their staff, expertise and management as needed. The benefits of Black & Veatch’s Program Management include:

- Navigate contracting requirements
- Improve project execution
- Available expertise, scaled to meet client needs
- Reduced risk
- Schedule and budget adherence
- Vendor-neutral status to ensure best-fit technology

START YOUR SMART COMMUNITY JOURNEY HERE

Are you unsure about how to begin your community’s smart evolution? Black & Veatch’s Smart Community Services will guide your progress, from initial planning or a single smart application to a full system rollout:

- Energy, Water, Communications and Analytics Technology Assessment and Roadmaps
- Operational and forecast analytics
- Financial and ROI analysis to support realistic deployment plans
- Program and Project Management, single point-of-contact

Visit bv.com/sii and follow us on Twitter @BVSII to learn more.
BUILDING A WORLD OF DIFFERENCE®

Black & Veatch is an employee-owned, global leader in building critical human infrastructure in Energy, Water, Telecommunications and Government Services. Since 1915, we have helped our clients improve the lives of people in over 100 countries through consulting, engineering, construction, operations and program management. Our revenues in 2014 were US $3 billion. Follow us on www.bv.com and in social media.

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