Black & Veatch IgniteX

Sustainable Infrastructure Accelerator Program

BV IgniteX®

2026

Connected Intelligence Across the Infrastructure Lifecycle

DIGITAL PROJECT DELIVERY - SMARTER INFRASTRUCTURE

IMPROVED ASSET MANAGEMENT - EMPOWERING THE WORKFORCE

The program's goal is to align participants with Black & Veatch professionals and our utility clients to foster stronger connections, explore co-innovation opportunities, and enable an applied research approach. We want to gather authentic client feedback on value, validate capabilities through real-world scenarios with clients, and demonstrate measurable benefits.

We are looking for participants developing technology across distinct yet highly impactful areas.

AI-Enabled Project Delivery	Digital Twins: Planning, Optimization, Resilience	Immersive Intelligence: Empowering the Workforce	Decision-Ready Data for Modern Infrastructure
We seek innovative companies and capabilities that help us apply AI across the project lifecycle to streamline workflows, enable data-driven insights and help deliver predictability in outcomes.	**We seek innovative companies and capabilities that** help us simulate scenarios, predict potential issues, optimize infrastructure operations, and strengthen resiliency while maintaining compliance.	**We seek innovative companies and capabilities that** combine the latest in wearable technology, spatial computing, and spatial intelligence to transform how our professionals and our clients safely operate in the field and within facility operations.	**We seek innovative companies and capabilities that** can capture, ingest and normalize infrastructure and asset management data from diverse sources, converting it into prioritized, decision-ready datasets with clear data quality metrics and traceability.

EXPLORE FURTHER DETAILS BELOW

AI-Enabled Project Delivery

Infrastructure projects are becoming increasingly complex, data heavy, and fast paced. Our teams handle massive volumes of project and engineering information across disciplines, phases, and locations. While our current technology provides a strong foundation, we have valuable opportunities to further enhance efficiency by reducing manual reviews, minimizing rework risk, and improving workflow connectivity and data reuse to strengthen our processes even more.

AI offers a transformative opportunity to improve how we plan, design, build, and operate projects. By combining our proven methods with intelligent automation, real-time insights, and connected data, we can reduce low value manual tasks, improve quality, and increase predictability.

Our opportunity is to integrate AI across the full project lifecycle, enabling proactive quality intelligence, faster design generation, streamlined documentation, and real time visual and spatial awareness. With AI as a force multiplier, we can shift teams toward higher value tasks, deliver more consistent and efficient outcomes, and strengthen our leadership in digital project delivery.

We're looking for:

- **Quality Intelligence:** Innovative AI solutions and capabilities that elevate quality management by continuously analyzing the full spectrum of project deliverables including BIM models, engineering drawings, specifications, design reports, schedules, execution plans, checklists, and applicable codes and standards. A desired outcome is to automatically surface risks, uncover inconsistencies, verify compliance, and streamline reviews. This would help create a proactive, real-time quality assurance environment that strengthens project performance, reduces rework, eliminates manual tasks and improves project outcomes.

- **Document Intelligence:** Innovative AI solutions and capabilities that streamline the production and updates of essential project documentation including technical design reports, technical memoranda, and specifications to operations and maintenance (O&M) manuals, standard operating procedures (SOPs) and commissioning documentation. A desired outcome is to accelerate document development, enhance accuracy and consistency, maximize use of existing data, minimize rework and significantly reduce manual effort across the lifecycle of project delivery.

- **Design Generation:** AI-enabled capabilities that accelerate design through AI-assisted optioneering that generate layouts, produce 3D BIM spatial content, creating one-line engineering diagrams, and/or performing engineering calculations. A desired outcome is to shorten design time, enable exploration of more alternatives in less time, reduce manual effort, improve reuse of existing data, and serve as a force multiplier while maintaining quality and supporting informed decision-making.

- **Visual Intelligence:** AI-enabled capabilities that can interpret images, video, and other visual or spatial data to automatically assess asset condition, classify and catalog physical infrastructure, monitor physical environments and assets, and conduct real-time inventory and assess progress. A desired outcome is to measure and track engineering and construction

progress and operational performance, deliver continuous, real-time feedback on the status of our projects, projects sites, and operating facilities. By leveraging rich visual data for actionable intelligence, AI can enhance situational awareness, improve decision making, lower risk, and drive more predictable, high-quality outcomes.

Digital Twins: Planning, Optimization, Resilience
Enabling Team Members

Utilities face increasing challenges from isolated data, limited real-time visibility across treatment, generation, transmission, and distribution assets, and a lack of predictive insight into how water, electric, and gas networks and facilities will perform under operational or environmental stress. This often forces teams into reactive decision making that can contribute to service interruptions, operational inefficiencies, and greater vulnerability to failures. As systems become more interconnected and regulatory, climate, and customer pressures intensify, the need for proactive intelligence becomes essential.

Digital twins offer new opportunities for utilities and other critical infrastructure clients to unify data across facilities, networks, and field operations; simulate complex hydraulic, electrical, gas transmission, and treatment process conditions; and continuously optimize system performance across water, electric, and gas infrastructure networks By integrating real-time operational data with predictive modeling, analytics, and spatial visualization, digital twins can help operators anticipate risks before they escalate, test scenarios, and respond more effectively to disruptions. They also strengthen long-term planning by enabling rapid comparison of alternatives and clearer communications.

We are interested in generating predictive models that forecast asset failure and the likely failure mode, as well as provide clear, human understandable reasons for each risk prediction, including the main signals driving the risk, and practical recommended actions. The desired solution should be continuously improved based on new data and feedback, enabling improvements in reliability, safety, and cost performance across diverse asset portfolios.

A desired outcome is to explore and accelerate next generation digital twin capabilities that support planning, resilience, optimization, and system operations. These solutions can deliver deeper insight, faster analysis, and more agile decision-making, ultimately improving reliability, enhancing efficiency, strengthening emergency preparedness, and supporting more resilient, future ready infrastructure.

We're looking for:

- **Infrastructure Planning:** Capabilities that help teams visualize complex scenarios, test alternatives, and forecast outcomes so they can make smarter long-term infrastructure planning decisions, turning uncertainty into actionable strategy. This includes forecasting future demand, comparing alternatives, analyzing risks, and clearly communicating key sensitivity factors.
- **Disaster Response and Resiliency:** Capabilities that simulate emergencies, stress test systems, and support real-time decision-making during disruptive events. This includes modeling hazards, rapidly assessing damage, optimizing recovery actions, and strengthening

preparedness. These solutions should support more accurate capture of existing conditions before an event, enable digital response plans, provide better insight for emergency response teams, improve communication, and speed the collection of site intelligence to guide effective recovery efforts.

- **Infrastructure Facility Optimization:** Capabilities that monitor, maintain, and enhance infrastructure operations and assets to ensure optimized performance and long-term reliability through intelligent systems and predictive analytics. Key capabilities include water treatment process optimization, real-time rapid data ingestion, spatial intelligence leveraging BIM, GIS, reality capture, indoor mapping, photos, video and other advanced technologies, along with AI-enabled functionality designed specifically to support predictive capabilities in facility operations, maintenance, and asset management. Key capabilities also extend across electric and gas solutions, including grid optimization, substation and distribution system monitoring, pipeline integrity management, leak detection, and load/pressure forecasting enabled through advanced analytics and AI-driven insights.

- **Lifecycle Asset Management:** Capabilities that can automatically transform real world utility, asset, and external contextual data into scalable, explainable digital twin models with minimal manual configuration—producing accurate predictions of risk, lead time, and failure modes that continuously improve as new data and outcomes become available. Asset lifecycle management.

- **Automated Model Development:** We seek solutions that can predict probability/time-to-failure and identify likely failure modes with explainable reasoning to support targeted mitigation actions. Ability to turn real-world utility data into actionable, scalable predictive models with minimal manual configuration. The solution should produce accurate, explainable predictions (risk, lead time, and failure mode) across diverse assets and data conditions, and demonstrate improving performance as more data and outcomes become available.

- **Asset Population and Cohort Intelligence:** Ability to identify and quantify reliability patterns across asset populations (e.g., manufacturer, model, vintage, location, operating context, maintenance history) to surface cohorts with elevated failure risk and likely failure modes. Outputs should support actionable decisions such as targeted inspection programs, replacement prioritization, and mitigation strategies, with clear evidence for why a cohort is higher risk.

- **Cross-Asset Generalization:** We seek solutions that can transfer learned patterns across asset classes and continuously improve over time with closed-loop feedback from work orders, inspections, and operational outcomes. Ability to leverage what is learned from one set of assets to improve predictions for other asset types, including asset classes with limited or no historical failure examples. The solution should generalize across diverse utility infrastructure (electric, gas, and water) and provide clear confidence or uncertainty indicators when making predictions outside of previously observed data.

- **Continuous Learning & Closed-Loop Feedback:** The solution should improve prediction accuracy and relevance over time by learning from new data and confirmed outcomes

(inspections, repairs, and failures). It should reduce false alarms, adapt to changing conditions, and maintain consistent performance as it scales.

- **Explainability, Trust, and Actionability:** Provide clear, human understandable reasons for each risk prediction, including the main signals driving the risk, the likely failure mode, and practical recommended actions. Outputs should be easy to review, support safe decisions, and be traceable for compliance and audit needs.

Immersive Intelligence: Empowering the Workforce
Field professionals and facility operators use a wide range of media including physical documents, digital files, PCs, tablets, and mobile devices to access data, reference information, and complete their tasks. However, they often require staff to pause, switch screens, or move between systems to find the information they need. As work environments become more complex and data intensive with new technology advances, an opportunity emerges to explore new methods that could deliver information even faster, more intuitively, and with greater context—right at the point of work. Emerging immersive intelligence technologies including augmented reality (AR), virtual reality (VR), mixed reality (MR), and spatial computing enhanced with AI and wearables for field services can complement what teams use today. The desired outcome is to provide hands free access, real time data overlays, and rich operational insight, enabling staff to perform tasks safely, efficiently, and confidently with enhanced spatial context—whether in an operating facility, on a construction site, or during a one-off site visit. The goal is not to replace trusted tools or established data sources, but to discover what new capabilities now exist to enhance how we interact with knowledge in the field and on the go, unlocking new levels of clarity, connection, and performance by enhancing today's workflows and preparing teams for the future.

We're looking for:

- **AR-Enabled Field Guidance:** Solutions and capabilities that deliver hands-free, spatially anchored instructions for complex tasks such as equipment installation, maintenance, and procedures resulting in reduced errors and improving efficiency and clarity.
- **Remote Expert Assistance:** Solutions and capabilities that allow field teams to connect with experts in real-time through immersive digital collaboration tools, enabling faster troubleshooting, reducing downtime, and improving clarity and connection at the point of work.
- **Context-Aware Data Visualization:** Solutions and capabilities that overlay live operational data, asset tags, KPIs, and asset health indicators directly onto physical assets and spaces, giving operators immediate insight without switching between screens or systems or leaving the work area to access information. Additionally, solutions that could provide a more visually rich, immersive, and more accurate digital representation of a facility, accessible directly from an operator's desk or other remote location.
- **Immersive Training & Simulation:** Solutions and capabilities that create AR and VR training environments for high-risk or complex tasks, improving safety, simplifying and accelerating staff onboarding, and enhancing understanding while reducing overall training time.

- **Digital Workflows in the Field:** Solutions and capabilities that replace paper-based checklists and manual data entry with voice-activated, AR-supported workflows, improving compliance, enabling real-time progress tracking, and providing easier access to digital information.
- **Safety & Hazard Awareness:** AR solutions and capabilities that display safety information, restricted zones, and real-time hazard warnings directly in the user's view, enhancing situational awareness and reducing the likelihood of incidents, while enabling quick access to safety information and documentation. Use of robotics for field inspections for high-risk access areas with human enabled controls, augmenting our team's capabilities while reducing exposure to hazardous or dangerous conditions/spaces.

Decision-Ready Data for Modern Infrastructure

Utilities across electricity, gas, and water are challenged by fragmented asset data, inconsistent inspection practices, and limited labeled failure histories. Condition monitoring, IoT telemetry, work orders, operator notes, images, and inspection reports often exist in separate systems and in incomplete or unstructured forms. As a result, many organizations rely on reactive maintenance or narrow, asset-specific models that do not scale and cannot generalize to new equipment types or changing operating contexts.

We see an opportunity to partner with startups that can deliver an AI solution capable of ingesting 'any' utility asset data (structured and unstructured), and learning from sparse or noisy inputs.

A differentiator for this focus area is cross-asset generalization: the ability to extrapolate knowledge from known asset classes to new or data-scarce classes. This would allow rapid time-to-value in client environments where data coverage and maturity vary widely.

We seek innovative companies and capabilities that can ingest and normalize asset data from virtually any source—SCADA, IoT, EAM/CMMS, GIS, AIM, APM, inspection tools, mobile forms, unstructured data and document repositories—turning it into prioritized decision-ready datasets with clear data quality scoring and traceability to avoid unplanned failures-ready datasets with clear data quality scoring and traceability. Any Data, Decision-Ready

We're looking for:

- **Data Ingestion & Interpretation**: We seek innovative companies and capabilities that can ingest and normalize asset management data from virtually any source—SCADA, IoT, EAM/CMMS, GIS, AIM, APM, inspection tools, mobile forms, unstructured data and document repositories—turning it into prioritized decision-ready datasets with clear data quality scoring and traceability ready datasets with clear data quality scoring and traceability. The **We seek innovative companies and capabilities that** with software capabilities that can ingest and normalize asset data from virtually any source—SCADA, IoT, EAM/CMMS, GIS, AIM, APM, inspection tools, mobile forms, unstructured data and document repositories—turning it into prioritized decision ready datasets with clear data quality scoring and traceability to avoid unplanned failures

- **Data Model Adaptation and Mapping:** We seek solutions that can ingest and harmonize incomplete, heterogeneous utility data (asset, condition, IoT/SCADA, inspection, maintenance, imagery, documents) and automatically build reliable prediction models. Ability to work with and adapt to a client's existing asset and network data model (e.g., common utility GIS and EAM models) without requiring a full re-modeling effort. The solution should include configurable mapping/translation capabilities that normalize meaning across disparate schemas while preserving the client's source-of-truth structure. Where a client lacks a defined model, the solution should be able to default to BV reference data models and rapidly configure mappings as the client's model matures.