Systems Engineering and Integration (SE&I)

Solving critical SE&I problems throughout our customer's product lifecycle

KBR has over 50 years of experience providing innovative solutions for complex SE&I problems for the U.S. Air Force, Army, Navy, Marine Corps and other federal agencies and foreign allies. We provide experienced project management, systems, design and test engineering expertise; hardware/software design and analytical tools; physical and virtual prototyping and development laboratories; and unique test equipment to rapidly realize our sustainment solutions today.

AREAS OF EXPERTISE

Our systems engineering capabilities include project management, requirements analysis, architecture/ development, design, simulation and analysis, cyber-security, prototype, integration, verification and validation (V&V), documentation, and configuration and data management.

Expert Skills: KBR provides experienced and PMI certified managers, engineers and technical personnel. We manage complex development projects including all aspects of contract deliverables, requirements analysis, trade study development, risk analysis, design reviews, configuration management, supplier performance, and product delivery.

Quality Management Systems: Our management and supplier processes are certified to ISO 9001-2015 QMS, while our engineering design and development processes for components, circuit cards, cables, enclosures and complex systems are certified to AS9100D QMS.

Digital Engineering: KBR design engineers and subject matter experts can access a large pool of virtual design, modeling and simulation software tools including SolidWorks, AutoCAD Electrical, NI Design Suite, OrCAD, SPICE, LabVIEW, Nlign, nCode, ANSYS Engineering, SysML simulation, that we use to support solutions using Model Based Systems Engineering (MBSE) design and analytics to reduce technical risks before rapid prototyping.

Technical Data Packages: Our experts will help you properly document and manage all the digital information for your complex systems. This includes documentation that is compliant with MIL-STD-31000, ASME Y14 and JEDMICS standards.

Rapid Prototyping: KBR's development experience covers designs for undersea, surface, shore, airborne, mobile, lab and space systems applications. Our certified staff and in-house laboratories are equipped to support reverse engineering and rapid prototyping of mechanical and electronics products to reduce risk, finalize design decisions and make "speed to the fleet" a reality.

Integration: KBR is skilled and certified in hardware and software integration from subsystem to platform systems integration. Key facilities are outfitted with controlled environments, ESD controlled workbenches, tool control and some with high-bays to accommodate armored vehicle systems. Our skilled technicians are certified to IPC J-STD-001 for soldering and IPC/WHMA A-620 for cable assembly, and are also experienced with SAE AS508811 for system integration.

Testing: KBR has unique in-house test capabilities that afford technical, cost and schedule risk reduction for our SE&I project V&V. Our breadth reaches from NDI/NDE of materials, mechanical and specialized electronic circuit testing, to remote airfields, human factors, software and cyber-security testing. New testing capabilities are routinely being developed and brought on-line, such as material testing of novel 3D printed parts, MIL-STD-704 aircraft power testing, and MIL-STD-461 EMI/EMC testing in a new anechoic chamber, and MIL-STD-810 climatic and physical testing in temperature/humidity chambers and future mechanical/fluid labs.

Configuration Management (CM): Throughout the SE&I process our digital data is controlled using Product Lifecycle Management (PLM) tools, which enables efficient CM for reuse of design, back-ward/ forward compatibility, upgrades and quality reviews.

Systems Engineering & Integration Services

PROVEN PERFORMANCE

KBR is driving advanced SE&I projects forward using leading-edge technology and proven processes to:

- Solve SE&I problems through requirements development, reverse engineering, digital design and prototyping
- Evolve Digital Engineering processes for solid modeling, physics-based modeling and SysML ecosystems
- Document designs using MIL-STD-31000 and Model Based Systems Engineering (MBSE) practices
- Manage data using state-of-the-art Product Lifecycle Management and Configuration Management tools
- Conduct Airworthiness and Operational Safety, Suitability & Effectiveness (OSS&E) engineering studies
- Employ certified instructors and personnel at our laboratory sites to ensure efficient and effective execution
- Provide in-house rapid development and risk reduction through well outfitted KBR facilities:
  - 3D printing, prototyping, assembly, integration, modification, maintenance, repair/rework, calibration
  - Testing for wiring systems, power, analog, digital, video, RF electronics circuits, RF data links, antennas, EMI/EMC, ESD/P-Static, temperature/humidity, mechanical and material properties, Non-Destructive Inspection (NDI), ground and flight testing at remote airfields, etc.
- Execute in-house subsystem/system level design and qualification testing for MIL-STD-704, -461, -464 and -810
- Retain facility and SCIF clearances, and policies that meet ITAR and EAR technology control regulations

WHY KBR?

Adopting emerging technologies and integrating these into legacy systems to sustain aging fleets requires agile methods, a deep bench of expertise, and continued investments in resources that provide value and innovation to our customers. Combining the best practices from project management, systems engineering and systems design, our engineering and integration solutions are powered by the foremost leaders, engineers and technicians in their respective fields. From the creation and development of new systems to the upgrading of older technology and systems design, we have the capability to drive innovation and prolong aircraft, ship and ground assets and information systems lifecycles. By helping our clients modernize mission-critical processes, systems and equipment, we lessen the need for costly replacements and deter obsolescence. KBR is a trusted partner free of Organizational Conflict of Interest (OCI). Our collaborative approach and iterative development process ensure that customers are central to design and final product decisions. This close partnership ensures mission focus, allowing us to vet and evaluate concepts that result in building the most successful solutions for our company, our customers and our nation.

NEXT STEPS

Let's talk about your sustainment engineering goals and how KBR can help you achieve them. Contact us to learn more and schedule a consultation with ***Jim Bolin at james.bolin@us.kbr.com, 301.863.4280*** or ***Chris Bergey at chris.bergey@us.kbr.com, 904.644.6606.***

ABOUT US

We deliver science, technology and engineering solutions to governments and companies around the world. KBR employs approximately 29,000 people worldwide with customers in more than 80 countries and operations in 40 countries.

KBR is proud to work with its customers across the globe to provide technology, value-added services, and long-term operations and maintenance services to ensure consistent delivery with predictable results. At KBR, we are the Team Behind the Mission.

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