



3120 Fairview Park Drive  
Suite 800  
Falls Church, VA 22042  
www.karthikconsulting.com

**KARTHIK CONSULTING**  
*Beyond the expected*

# AT A GLANCE

## Design, build and operate the JAIC JCF Platform on Cloud One (AWS GovCloud)



### KEY STATS

- Designed and built the Joint Common Foundation (JCF) on Cloud One (AWS GovCloud), as the DoD-wide AI/ML platform using tools such as SageMaker, Jupyter notebooks, R, Python and Ansible
- Led the efforts in obtaining the first ATO of the JAIC JCF environment in AWS GovCloud at Impact Level 5 (IL5)
- Worked closely with the Government security and engineering teams to remediate over 500 open security exceptions (POA&Ms) by addressing each of the issues with appropriate patches, configurations, developing procedures, uploading evidence/artifacts, running SCAP scans and uploading the CKLs into eMASS system.
- Built a design system (process, QC, delivery, analytics for measurement, technology to modernize) across all JAIC channels of communication.
- Designed the infrastructure for effective internal and external communications between JAIC and key audiences.
- Developed enterprise-wide communications framework to support JAIC's Responsible AI initiative.

### **KC CUSTOMER IN FOCUS:**

The Joint Artificial Intelligence Center (JAIC), a division of the U.S. Department of Defense (DoD), contracted with Karthik Consulting (KC) to provide mission critical information systems support and modernization solutions for legacy IT platforms. Specifically, KC led initiatives to transform strategic communication capabilities, build the Joint Common Foundation (JCF) on Cloud One (AWS GovCloud) and integrated these solutions across the entire DoD wide AI/ML technology network.

In addition to systems modernization requirements, KC also led the initiative to build a technology-based strategic communications system to improve internal and external communications and delivery of key marketing/communications messages to target audiences. Through this tech-led strategic communications system, JAIC will become a government-wide services enterprise for AI solutions.

Through the re-engineering and IT modernization process, JAIC will lead government and industry in its effectiveness to provide enterprise-wide and best-in-class delivery of strategic (and collaborative) communications across a secure network – built to continually evolve as demands increase and new capabilities are required.

### **SIGNIFICANCE OF REQUIREMENTS:**

Like many large-scale organizations, the JAIC has an important mission with a wide variety of applications across government, industry, academia, and other key audiences. The need to improve technology and communications systems and delivery processes, in an agile and completely secure environment (JCF Platform on Cloud One – AWS GovCloud), was a needed

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requirement which became a mission-critical necessity for the JAIC. Using KC's past performance and ability to uniquely solve problems with creativity and proven best practices produced an innovative and "built to last" set of solutions for the JAIC.

### **OPPORTUNITIES FOR KC IMPACT:**

Working with the JAIC's Chief Design Officer, the determination was made what deliverables and work products would help launch a more effective system of design and strategic communications delivery. KC designed a comprehensive design system to support JAIC marketing/communications. To support deliverables developed through the design system, KC established a design (look/feel/structure) that would support the creative development of product/initiative slicks, PPT presentation templates, several infographics, photo/image styles, and logo guidelines to establish brand structure and consistency for the JAIC's strategic communications.

In addition to brand and strategic communications standards, KC also assisted with the development of improved security and IT architecture protocols/SOPs to modernize JAIC's enterprise-wide IT systems. Through this work, JAIC was better positioned as a leading organization in the area of AI solutions for government, the private sector, and the entire AI ecosystem.

### **DELIVERED RESULTS:**

Through this process, KC led strategy enabled JAIC to improve its communication and collaboration-building between internal departments, other government agencies, and external partners to the JAIC. In short, the enterprise-wide communications capabilities of KC provided needed solutions to the JAIC, which produced immediate impact for the organization and positioned JAIC as a best-in-class leader around strategic communications to support its AI-driven mission.

Through these primary deliverables, the stage was set to establish a consistent brand identity and platform for delivering mission-critical JAIC communications to internal and external audiences. UX and UI design practices were employed during this process to develop targeted, measurable, user/customer-friendly, effective, and broadly adaptable design and communications solutions, all of which was supported by the KC developed design system.

KC led and participated in the efforts to design and build the JAIC's Joint Common Foundation (JCF) AI/ML DevSecOps platform in AWS at Impact Level (IL) 5. Redesigned, created, operated (and maintain) a new "to-be" JCF environment with VPCs, subnets, security groups, IAM profiles, routing tables, and firewalls.

Design best-practices to support business processes were established and implemented to work seamlessly with the KC developed comprehensive design system to manage the entire design workflow, delivery, budget management and accountability process for the JAIC with regard to design to support strategic communications goals. Design solutions also incorporated UX/UI methodologies to improve overall user experiences with regard to JAIC communications and marketing with key stakeholders and constituents.



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## KEY AREAS OF KC IMPACT.

Specific products and implemented best-practices to support the development and delivery process of JAIC strategic communications (through the design system and security/architecture protocols) included:

- Worked with JAIC JCF security and engineering stakeholders to develop a roadmap for reaching a continuous ATO model.
- To ensure effective strategic communications to help JAIC establish the brand as an AI thought and practice leader, logo standards and basic visual brand guidelines were established. Logo trademark process was initiated with the USPTO to protect IP.
- Automated the security patching process with Ansible playbooks to update patches across multiple environments within (weekly scheduled) maintenance windows.
- Following the Infrastructure as Code (IaC) concept, create Terraform scripts to dynamically build and tear down the JCF environment by segments.
- Supported Robotic Process Automation (RPA) efforts by designing and developing software for JAIC user groups, specifically their USAF working partner.
- Through creative development of “product/initiative slicks” and “PPT templates” a standard was set with regard to the look/feel/tone of JAIC communications (color scheme, graphic styles, image/photo use, logo usage standards).
- Slick sheet and PPT templates were built so that brand elements for the JAIC and guidelines for layout were part of a template structure, yet flexible enough to enable users from across the JAIC to update and modify “specified” content areas while still maintaining JAIC communications standards for design and brand consistency.
- Messaging styles were established to enable better overall strategic communications, both within the government and to “public/private” sector audiences.
- Creation of JAIC image library to effectively (and consistently) communicate JAIC from a visual presentation standpoint.
- Design of a series of executive presentation templates to be used for internal and external communications. Audiences include Congress, DoD and other government agencies, Media/Press, partners, industry.
- Participated in the JAIC JCF engineering review board and Request for Change (RFC) processes developing the required artifacts and submitting them for review and approval by the boards.
- A series of infographics to communicate specific solutions provided by JAIC and also showing the AI ecosystem (according to DoD) and how JAIC leads in the innovation and the application of AI process for key stakeholders.



“KC employees are highly professional and studious and bring a serious and mission-success-focused bearing....

They were a great vendor to work with....

KC overcame obstacles caused by COVID-19 operational issues.....

helping to get the JCF their first ATO...”

– JAIC/GSA Contracting Officer comments from the CPAR

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## AT A GLANCE *(continued)*

- Operated and managed the AWS IL-5 infrastructure operating in US Air Force Cloud One Platform One and managed the RHEL and Windows server/EC2 maintenance protocols.
- Design and messaging for JAIC's Project Orion initiative, which showcased (for internal audiences) the importance of JAIC as a central component to ensure the U.S. DoD's position of global leadership and strength from a warfighting perspective, through the use of AI technologies.
- KC was responsible for applying all DISA STIGs and hardening the infrastructure to make sure the systems are fully compliant.
- KC worked with the JAIC JCF team to configure and deploy containerized DevSecOps tools such as Jira, Git, GitLab, KeyCloak, Twistlock, and ELK Stack within JCF. KC integrated pre-approved hardened Containers from the US Air Force Platform One DoD Centralized Artifacts Repository (DCAR) (aka Iron Bank) as the starting point for the DevSecOps pipelines.
- Work with AWS and GSA SMEs to assess the architecture choices for deploying SageMaker within JCF as Containers vs. using the native AWS SageMaker SaaS offering.
- Provided UX/UI consulting and design support to improve user interface efficiencies for JAIC's contract award management systems. Conducted several end-user interview sessions as part of research and discovery stage of product development with regard to how UX/UI can help to enable the new Project Orion interface to enhance productivity and efficiency for end-users when conducting pricing evaluations.



### ABOUT US

Karthik Consulting was founded in 2008 to be a reliable and trusted advisor for our customers, providing independent, unbiased, and proven solutions that mitigate risk and help solve enterprise-wide IT challenges.

Our Cyber Security, Software Development and Program Management focus areas (and work methodology) ensure that we can deliver not just solutions, but architecture that scales and grows with the customer's needs over time. We are able to assist in projects ranging from short advisory engagements to assembling a full team to deliver a solution from concept through implementation and on-going management. KC has access to industry experts in various technologies and teaming partners to meet any of your IT challenges. <sup>SEP</sup> The vision of KC is to bring the innovation, passion and agility of the commercial IT industry to meet the unique challenges of the federal government. We are a DOD Cleared Facility with a DCAA-approved accounting system.

### CONTACT

Felix Martin, 571 435 7632  
fmartin@karthikconsulting.com

**CAGE: 56GH3**  
**DUNS: 828199880**  
**UEI: FGNNM7KNUPF6**

### PRIME CONTRACT VEHICLES:

GSA STARS III 8(a)  
GSA MAS  
GSA OASIS Pool 1 and 3  
NIH CIO-SP3 8(a) & SB  
Air Force SBEAS  
Army RS3  
Navy Seaport-NexGen  
FAA eFAST



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