CMCI AT GLANCE

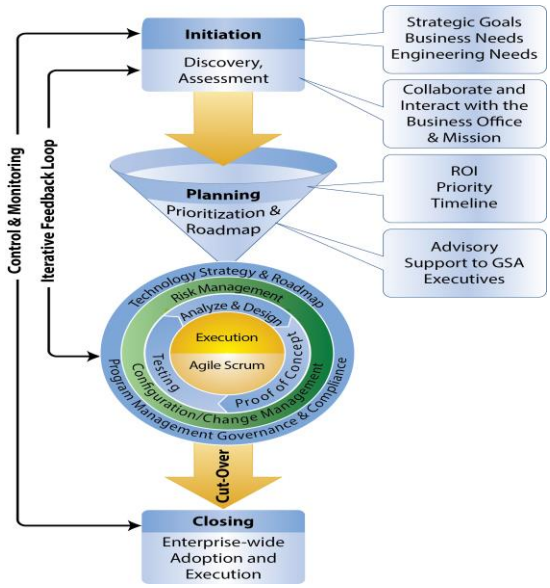
Chakrabarti Management Consultancy, Inc. (CMCI) has been at the forefront in developing technology driven intiatives within the federal government, since its inception in 2005. By leveraging innovative, cutting-edge technology solutions, CMCI demonstrates its ability to implement some of the most advanced systems in the federal technology space. Our expertise in agile development and cost-efficiency not only allows us to address the unique needs and challenges of our partners but also allows us to deliver continuous business support to federal agencies specializing in national security and health and human safety.

A Quick Glimpse

- Virginia based Small Disadvantaged Business (SDB) founded in 2005
- CMMI Level 3-SVC, CMMI Level 3-DEV and ISO 9001:2015; ISO/IEC 20000-1:2011 and ISO/IEC 27001:2013
- Subject matter expertise in National Security Solutions
- Proven track record of forging alliances with top research entities like Sandia National Labs, OAK Ridge National Labs etc. to develop cutting edge solutions to meet national security challenges
- Deep experience supporting National Targeting Center, over 250 global ports and customs program
- Top Secret Cleared Facility with proven success in using Agile and SecDevOps/Continuous Integration Continuous Delivery (CI/CD) methodologies
- Proven track record of implementing and sustaining systems at 99.998% availability for some of the most dynamic worldwide risk and threat assessment missions at DHS, CBP, DNDO, FDA, DOJ, DOT, SBA

We proudly claim a robust track record of modernizing and transforming the information technology (IT) portfolios of our customers. Our customers are able to succeed through the use of value driven approaches which include Lean, Agile, and SecDevOps frameworks, established in our CMMI Level 3 (DEV &SVC) appraised and ISO 9001:2015, ISO 20000-1:2011, and ISO 27001:2013 certified processess.

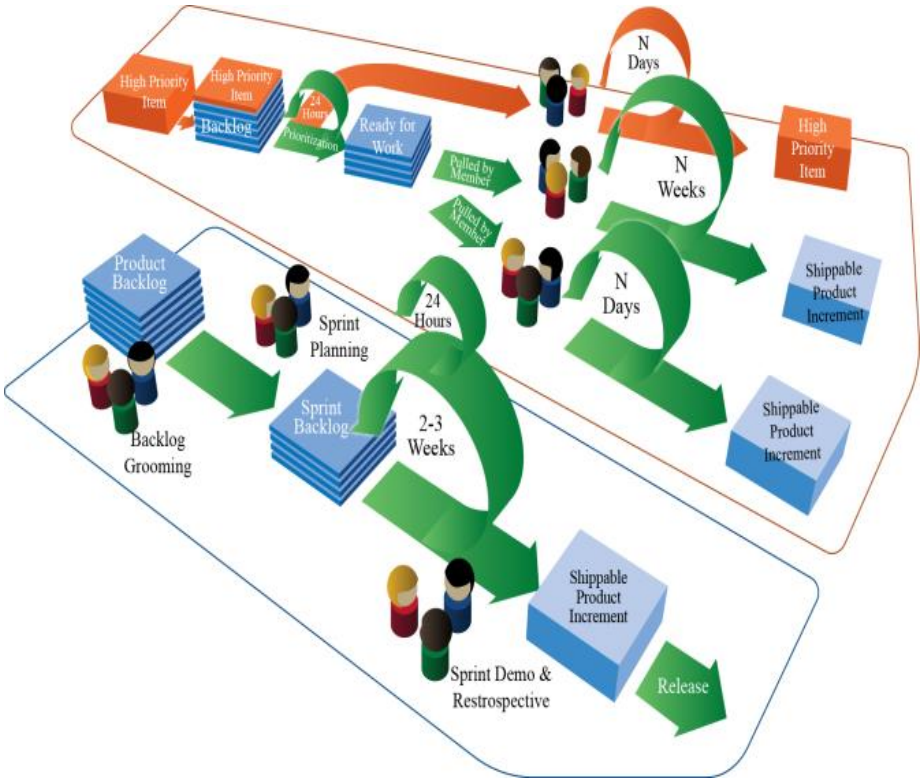
We partner with our federal stakeholders to bring new technologies and approaches to expand their existing IT portfolios; from legacy silos of custom built applications to shared business services and capabilities to include the integration of COTS products, Infrastructure as a Service (IaaS), Software as a Service (SaaS), and Platform as a Service (PaaS). Our “Mission Driven - Agile – Repetitive – Cost Effective” approach can be depicted as follows:



OUR METHODOLGY

CMCI's program management approach follows PMBOK and combines the agility of Agile SCRUM and KANBAN with the discipline of our CMMI Level 3 corporate processes. This approach is flexible, collaborative and minimizes operational risk while allowing for quick and innovative solutions in response to the changing needs of the organizations. We establish on-going partnerships with all stakeholders and their teams through transparent and accurate information-sharing for the ultimate success of the program. CMCI has successfully implemented projects with the U.S. Department of Homeland Security (DHS), U.S Customs & Border Protection (CBP), the Domestic Nuclear Detection Office (DNDO), U.S. Coast Guard (USCG), U.S. Food & Drug Administration (FDA), U.S. Department of Transportation (DOT) and other federal agencies.

We first gain an in-depth understanding of stakeholder issues, challenges and pain points through discovery interviews, meetings and surveys. Second, we vet our progress and approaches with stakeholders so that they can better help us with options for program decision-making and solutions. Third, we deploy a continuous feedback loop that effectively enables stakeholders to provide real-time inputs on any concerns or issues. CMCI's approach to a dynamic improvement process is to leverage our strategic relationships with academic partners and technology industry leaders. This enables us to proactively incorporate best practices and identify recommendations for application enhancements. CMCI SCRUM + KANBAN approach can be depicted below:



OUR TECHNICAL APPROACH

CMCI proposes a modular, Microservices-based enterprise architecture solution that is technology-agnostic to improve responsiveness and performance. Our proposed approach uses open standards and OpenSource technologies combined with components to optimize the customer's freedom to exercise their mission. The table below depicts the salient features of CMCI's approach to improving Modernization of Applications/Systems.

Salient Features	Description	Outcome
Common Framework	Standard Architectural Frameworks, Style Guide, Common Artifacts, UI/UX standardization	Standardized and reusable components, unified look & feel, ease of usability and minimize users training
Open Standards and Technologies	Standard and Technologies developed and maintained via a collaborative and consensus driven process	Non-proprietary solutions, easy integration, low cost of maintenance, and reduced TCO.
Microservices Approach	Independently deployable services which run unique business functions and communicate through a well-defined, lightweight mechanism to serve a business goal	Standardized, reusable, independent, deployable functions
Modular approach	Functional areas that are clubbed together and can be plugged in or out as a complete module	Optimizes agility, flexibility, extensibility and scalability

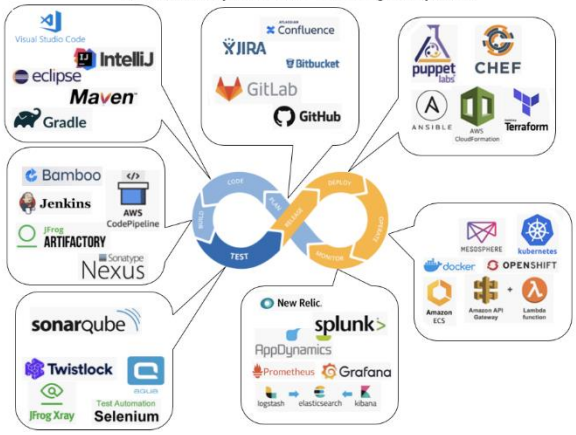
CMCI's technical expertise extends across all tiers to build solutions based on microservices architecture and deliver solutions using SecDevOps and CI/CD methodologies. The following table demonstrates the depth and breadth of CMCI's technology and tools proficiency. We will work in close collaboration with our customers to determine the approved technology stack in accordance with their Technology Reference Model (TRM) and mission needs.

OUR TECHNICAL EXPERTISE

CMCI Cloud Capability Matrix

	amazon web services	Azure	Google Cloud	RED HAT OPENSHIFT
VIRTUAL SERVERS	AMAZON EC2	AZURE VIRTUAL MACHINE	COMPUTE ENGINE	KUBEVIRT
CONTAINER MANAGEMENT	ELASTIC CONTAINER SERVICE, ELASTIC KUBERNETES SERVICE, ELASTIC CONTAINER REGISTRY	AZURE KUBERNETES SERVICE, AZURE CONTAINER INSTANCES, AZURE CONTAINER REGISTRY	KUBERNETES ENGINE	KUBERNETES CLUSTER, REGISTRY, STORAGE, NETWORKING
SERVERLESS COMPUTING	AWS LAMBDA	FUNCTIONS	CLOUD FUNCTIONS	
PLATFORM AS A SERVICE	AWS ELASTIC BEANSTALK	AZURE CLOUD SERVICES	GOOGLE APP ENGINE	
STORAGE SERVICES	RELATIONAL DATABASE SERVICE, DYNAMODB, AURORA, REDSHIFT, S3	AZURE COSMOS DB, AZURE SQL DATABASE, AZURE DATA WAREHOUSE	CLOUD SPANNER, CLOUD BIGTABLE, CLOUD SQL, CLOUD FIRESTORE	

CMCI SecDevOps and CI/CD Technologies Expertise



CMCI Data Analytics, AI & ML Technologies Expertise

OUR SERVICES

CMCI has been successfully serving enterprises within the federal and commercial sectors in transforming technology . Our focus has been to be in the forefront of technology innovations and how it can effectively reshape business processes to meet expectations and opportunities that unfold. We have grown our technical capabilities to improve IT delivery modes that operate in an agile, cost-effective, reliant and resilient manner to help our customers be successful in meeting their strategic goals. Highlights of our mission driven support services are portrayed below:

PROJECT & PROGRAM SUPPORT

- Agile based management
- Business SME
- Risk based KPIs
- Continous process improvements
- Governance & Compliance

APPLICATION DEVELOPMENT

- DevSecOps & CI/CD
- Mobile & UI/UX
- System integration
- Interoperable & extensible

TECHNICAL INFRASTRUCTURE

- Enterprise Technology Strategy
- Technology roadmap
- Data Strategy and Security Strategy
- Digitization and Analytics

CLOUD INFRASTRUCTURE

- Transition & Migration
- Cloud native & Cloud ready
- Single, Multi, Hybrid
- Vendor agnostic

CONSULTING SERVICES

- Resource development
- Process development
- Organizational Change Management
- Strategy Consulting

INNOVATION

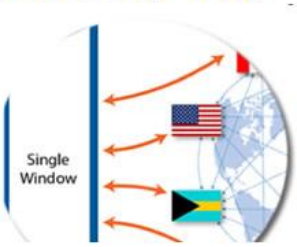
- AI/ML
- Advanced analytics/BI
- Blockchain/Hyperledger
- Serverless

OUR DOMAIN EXPERTISE

CMCI has consistently demonstrated deep domain business knowledge in national security, law enforcement and trade that often exceed the expertise present in very large system integrators. This has been fostered by a tradition of ownership and accountability through an approach that is in the best interest for our customers. While we are always vested in state-of-art technology, we are not influenced solely by what is new, but rather are guided by the principle of delivering 'the right technology for the right application'. We always strive to communicate with our customers in the language of business and their mission goals. Some of our deep domain expertises are depicted below:

TRADE AND TRAVEL FACILITATION

SINGLE- WINDOW – TRADE, CUSTOMERS & PARTICIPATING GOVERNMENT AGENCIES (PGAS)



SCREENING AND TARGETING – RISK AND THREAT MANAGEMENT

DEVICE AND TECHNOLOGY INTEGRATION – CBRNE AND GNDA

OUR STRATEGIC ALLIANCES

CMCI is a vendor-agnostic company. This means we have the agility to form strategic partnerships that leverage the broadest array of innovative solutions and domain expertise to meet each customer's individual business, technology and mission needs. We forge these partnerships in a spirit of intensive collaboration and shared commitment to the highest standards of service excellence.

CMCI looks for these opportunities in its partnerships:

- Leverage unique skill sets and extensive domain expertise with all partners
- Adopt collaborative methodology for the delivery of quality solutions
- Technology-agnostic approach for long-term viability
- Strategic and visionary partnership with industry partners and customers, together

The partnerships we prize above all are those we create with our customers. We take our role as a trusted advisor very seriously and work hand in hand with our customers to chart and execute the strategic technology vision for each organization. Some of our strategic technology partners are:

Microsoft CERTIFIED Partner
amazon web services | Partner Network
SAP® Partner Open Ecosystem
redhat LINUX
Google
HITACHI
ORACLE®
salesforce

OUR FEDERAL PROJECTS

CMCI brings a robust history of supporting, modernizing and transforming the information technology portfolios of our customers through the use of value driven approaches to include Lean, Agile, and SecDevOps frameworks. The following table outlines some of CMCI's major projects and the relevant capabilities and experience we are currently providing in Federal agencies.

Title of Project	Project Description
Project No. 1: The Department of Homeland Security (DHS) Customs and Border Protection (CBP) Targeting and Analysis Systems Program Directorate (TASPD)	As a long-term, strategic partner of DHS and Customs & Border Protection (CBP), CMCI has been at the forefront of CBP's technology transformation initiatives for over 14 years. CMCI is leading the U.S. Customs and Border Protection (CBP) Office of Information and Technology (OIT) Targeting and Analysis Systems Program Directorate (TASPD). The primary mission of TASPD is to facilitate legitimate travel and trade while simultaneously preventing bad actors and/or dangerous cargo from entering the United States. In support of this mission, CMCI is leading Agile application development, modernizing, and enhancing systems, migrating legacy applications, providing production and field support, promoting information sharing, and performing O&M while maintaining 99.998% availability for mission critical systems and applications. CMCI's scope of services to DHS CBP TASPD spans across software development and Cloud Migration support services. The team uses Agile/scrum methodologies, Microservices, DevOps, Continuous Integration/Continuous Delivery (CI/CD), open standards, and technical best practices to lead the design and implementation of CBP's Automated Targeting System (ATS) in support of DHS CBP TASPD IT, which included Cloud operations and maintenance (O&M), upgrades, migration, modifications, enhancements, and modernization, and mobile applications. We are developing an iOS App whose back-end application is a NodeJS application and use AngularJS as a JavaScript Application Framework on Amazon Cloud to track wait times at the border. CMCI created Trade and Travel Centers of Excellence (COE) set up a Cloud technology "sandbox" to develop new processes and techniques.
Project No. 2: The Department of Homeland Security (DHS) Domestic Nuclear Detection Office (DNDO) Information Technology Infrastructure Support	CMCI is supporting the Department of Homeland Security (DHS) Domestic Nuclear Detection Office (DNDO) Systems and Database Administration. CMCI is currently prototyping, operating, troubleshooting, and maintaining information technology infrastructure for use in classified and unclassified DNDO "local" mission support and agile, private virtualization/cloud environments. CMCI fully migrated the applications from on-premise applications data to systems within one year and retired legacy systems as well as implementation of ATO (Authority to Operate) – final audit by government (quality check). CMCI has

	established DNDO CWMD's SecDevOps process and implemented GATE-U AWS CI/CD pipelines supporting CWMD's cloud modernization effort. CMCI onboards various CWMD-DNDO applications onto the Cloud in compliance with Authorize to Operate (ATO) requirements. CMCI has designed and implemented SecDevOps solution for CWMD/DNDO covering the entire CI/CD pipeline from source code management, testing, review, approval, release and deployment. CMCI personnel lead all activities of the organizations release process, including (but not limited to) source code management, code review requirements, build, integrated test, test deployment, environment promotion, production deployment and change management.
Project No. 3: The Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), Cargo Systems program Directorate (CSPD) Systems Engineering Support Services (SESS)	The scope of CMCI's work for DHS CBP Cargo Services Program Directorate (CSPD) Systems Engineering Support contract is comprised both Technical Architecture & Engineering (A&E) support as well as an Application Modernization & Enhancements effort. In the A&E task, CMCI is responsible for the overall architecture and standardization of the systems integrated and housed within CSPD. In the Application Modernization and Enhancements task CMCI has modernized and deployed into production the new AESDirect application, which is used by 1,000s of external users to interact with both U.S. CBP and U.S. Census (the owner of the application). CMCI implemented an Application Life Cycle Management (ALM) solution utilizing Configuration Management (CM) best practices, CBP tools and customized processes to establish a unified CSPD SecDevOps CI/CD system. CMCI led the engineering of a robust build infrastructure solution with dashboards that supported over 1000 builds a day using modern tools Jenkins, Hudson, Bamboo, and custom-built scripts and provided vital source code management (SCM) support in Git. CMCI engineered an automated testing and deployment solution providing a unified process and led the performance of Physical Configuration Audits (PCAs) in conformance with Configuration Management (CM) best practices and government/external audit requirements to monitor the execution of approved Change Requests (CR) in the Production environment. CMCI provided SecDevOps training to the key developers and promotion managers addressing the CSPD SecDevOps processes and CBP requirements.
Project No. 4: The Department of Homeland Security (DHS) Customs and Border Protection (CBP) Passenger Systems Program Division (PSPD)	In support of the Department of Homeland Security (DHS) Customs and Border Protection (CBP) Passenger Systems Program Directorate (PSPD) Data Center Migration (DCM) effort. CMCI participates in enforcing the CBP SecDevOps process through automated CI/CD pipelines; implementing hybrid Cloud solutions with AWS DC/OS, Azure and Red Hat Open Shift Container Platform

	(OCP); guiding application modernization through microservice based CI/CD pipelines and application containerization through Spring Boot framework; enforcing secure engineering through automated Security Information and Event Management (SIEM) tools; streamlining DHS Risk Management Framework (RMF) based ATO process through SecDevOps. CMCI fully migrated the applications from on-premise applications to CBP Amazon Cloud East (CACE) environment within one year and implemented CBP PSPD eBusiness Cloud ATO. CMCI applies best principles, best practices and tools in the life cycle support to the CBP PSPD DCM effort. CMCI has participated CBP OIT's SecDevOps Inter-Project Team (IPT) to consolidate and formalize CBP OIT SecDevOps practice. CMCI applied CBP SecDevOps process and implemented CI/CD pipelines supporting PSPD's cloud modernization effort. The SecDevOps and CI/CD pipelines leverage a common code repository to rapidly develop and deploy new software capabilities in PSPD's containerized environment. These pipelines also provide automated code quality assurance capabilities and enhance security at all phases of the software/systems development lifecycle.
Project No. 5: Interoperability Web Services Food and Drug Administration Customs and Border Protections (IWS FDA CBP) Interface	The FDA IWS Interface with Customs and Border Protection (CBP) integrates FDA with CBP's International Trade Data System (ITDS), a government-wide program designed to allow businesses to transmit through a "Single Window" the data required by U.S. government agencies to import or export cargo. IWS operates in the FDA MARCS environment and portfolio of applications and interfaces with multiple systems and associated databases across FDA, CBP and over 40 other partner government agencies. CMCI planned, architected and implemented the FDA ORA IWS Interface using Agile, DevOps, Scrum and Kanban methodologies, user-centered design principles and test-driven design best practices. CMCI performs full life-cycle development efforts including system design, integration, IT data conversion services, security services, system analysis services, programming services as well as operations and maintenance services. CMCI designed and developed the modern IWS FDA CBP Interface. CMCI implemented a technical framework that facilitates the communication/data/event exchanges between FDA and CBP as required by Automated Commercial Environment (ACE) Modernization and International Trade Data System (ITDS) mandates. The system met CBP and FDA's mutual security requirements, support processing of XML data payloads based on Department of Homeland Security's (DHS) National Information Exchange Model (NIEM), and supports the substantial volume of transactions transferred between CBP and FDA. CMCI developed and enhanced the web service calls to the FDA Inventory of Data

	Assets (FIDA) application web service to validate the entity information maintained by the FIDA application.
Project No. 6 The Department of Technology Services, Cloud Technology and Hosting Office (CTHO) Administrative Office of the United States Courts (AOUSC)	CMCI, through its wholly owned subsidiary, L.A. Systems, responds to various evolving requirements and contingencies, supplying new skills and surge capacity in a multitude of technical disciplines as required to support the CTHO. CMCI has successfully architected and deployed AOUSC's datacenter consolidation/migration and Cloud projects and the modernization of the operational environment. Our Team manages the server virtualization, migration, security administration and application hosting of the active-active, distributed datacenter configurations in Ashburn, VA and San Diego, CA. CMCI has successfully migrated 75 regional courts to the cloud infrastructure using AWS, Azure, MySQL tools. CMCI supported responsibilities for web integration, web services software and utility products in a DevOps environment. This included implementation and support for Drupal, iPlanet, Apache and Tomcat, JBoss, IBM WebSphere Application Server, ColdFusion MX, Varnish, Joomla, PHP and their successors. CMCI oversaw components of IT security activities and compliance and provided hands-on assistance. We supported components in various audit activities and serves as a liaison between auditors, components, and division. We also ensured proper governance and full investment alignment between client IT Architecture and Security Architecture as well as the United States Judiciary Information Security Framework (parallel to NIST, FIPS 199, FISMA, and FedRAMP).
Project No. 7 Small Business Administration Application Lifecycle Management Support (SBA ALMS)	CMCI facilitated SBA's IT cultural change towards Agile and Scrum methodologies in accordance with the Agile Manifesto. This support improved SBA's Software Development Lifecycle (SDLC)/Application Lifecycle Management (ALM). CMCI performed IT project management, systems development, and administration support for OCIO and its customers using Agile-Scrum methodologies and best practices in application and database design, development, deployment, integration, maintenance, enhancement, modernization, decommissioning and migration initiatives to the cloud and other environments using tools such as Azure, Power BI and MySQL. CMCI provided database back-up and recovery and developed automated procedures for monitoring SBA databases and performed database tuning and provided database analysis, design, development, administration and maintenance for SBA's Oracle, Azure, Microsoft SQL, and Postgres SQL systems, including migration services. CMCI provided extensive SharePoint support, including designing, developing and updating SharePoint components; collaborating with OCIO personnel on the development and enforcement of SharePoint standards; updating configuration parameters as needed, and migration to cloud-based SharePoint services.

WHY CMCI


Mission Focused
To make our customers successful
150+ Highly Skilled Solution Architects
Technologically up-to-date
Adaptive, Agile, Rapid, Reusable
Fast, flexible integration & development
Cost Effective Solutions
We look at the "Big Picture"
Maturity
CMMI-DEV ML 3
CMMI-SVC ML 3
ISO 9001:2015 | ISO/IEC 20000-1:2011
ISO/IEC 27001:2013