



Key Points

- We have invested in developing a systems engineering methodology that supports quality-managed, performance-based processes within a responsive, modular, and agile framework.
- Our processes have proven successful for a number of Federal and Department of Defense (DoD) clients and incorporate best practices from ISO 9001:2008, IEEE 12207, CMMI, ISO 20000-1:2011, and ITIL V3.
- Our software/systems development approach focuses on frequent customer interaction to ensure our design remains consistent with customer needs.

Customer Challenges

Conventional systems engineering processes traditionally assume that firm, fixed, and conflict-free requirements can be identified at the outset and that it is simply a matter of following a process to meet those needs. However, with tighter budgets, shorter timelines, and the need for more complex system capabilities, rigid and non-responsive development methodologies do not provide the agility most customers require. Beyond adapting and conforming, development and integration processes must allow systems to be delivered in increments, thereby shortening the "time to value" and decreasing overall project cost.

Customer Benefits

We are CMMI appraised and hold certifications in ISO 9001:2008, and we fully integrate ISO 20000-1:2011 quality aspects into our corporate engineering methodology to ensure we deliver high-quality products and services on time and within budget. Integrating quality frameworks further ensures that we incorporate a continuous improvement feedback loop and that performance metrics identify areas for efficiency and correction. Our flexible and modular methodology covers the full lifecycle of software and systems development from "requirements" to "retirement," thereby providing a single proven end-to-end approach to managing system design, development, and sustainment.

NCI Solutions

As codified in our agile Hybrid Engineering Lifestyle Methodology (HELM), we provide a full range of software development, systems engineering, and integration services. HELM combines best practices from ISO 9001:2008, IEEE 12207, CMMI, ISO 20000-1:2011, and ITIL V3 for comprehensive systems lifecycle management. Focused primarily on our customers' high-end mission-oriented programs, NCI leverages HELM to rapidly prototype and field production applications and enhanced capabilities to address our customers' missions—not in months and years but in days and weeks.

Software and Systems Development/Integration

NCI's HELM is based on Forsberg and Mooz's "V" model and was adapted to include elements from our corporate ISO 9001:2000 quality system, select components of the Carnegie Mellon Institute's CMMI, and service delivery aspects influenced by ITIL and ISO 20000 processes. We apply this hybrid framework to ensure that thorough, robust full lifecycle engineering processes are kept in balance with efficiency and rapid, responsive delivery goals. Our software development and systems engineering services include the following:

- Agile and Open Source Software Development
- Database Design and Management
- Enterprise Portal Implementation
- Commercial and Government Off-the-Shelf (COTS/GOTS) Integration, Test, and Evaluation
- Legacy System Integration and Modernization
- Cloud-Based Development Testing and Quality Assurance
- Full Systems Lifecycle Development and Deployment

- Advanced Analytical Computing Solutions
- Data Warehousing/Mining
- Information Sharing and Collaboration

NCI emphasizes stakeholder involvement early and frequently in the process and incorporates statutory and regulatory requirements and related best practices for each milestone and acquisition phase. As appropriate, we identify the desired capability even when the end-state requirements may not initially be known. We refine requirements through a process of demonstration and risk management with continuous user feedback with each increment, providing the customer the best possible capability. Requirements for future increments depend on customer feedback and ongoing technology maturation. Maintaining frequent and focused communication with the customer community enables an effective "spiral" approach to development that stays attuned to evolving client needs.

NCI Facts

- Our engineering methodology leverages industry best practices and has been certified and appraised with standards like ISO 2000-1:2011, CMMI Level 3, and IEEE 12207.
- We focus on continuous improvement and performance monitoring throughout the systems and software lifecycle to assess process, product, and team effectiveness.
- We invest in our people, their skills, and repeatable processes.
- We embed frequent customer interaction, rapid prototyping, peer reviews, and other key process components to promote high-quality deliveries.

**NCI—Trusted partner when
and where you need us most.**

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