# Quality Assurance Model Streamlines Acquisition Through Process Improvement

MAJ T.J. Wright and Danny W. Hanson

**Today's most business-savvy industry and government professionals are integrating quality assurance (QA) and process improvement techniques, promising an era of more efficient, effective operations. The paradigm shift is rippling throughout the defense acquisition community, and Program Executive Office (PEO) Soldier is seeing the techniques take root in its own operations. The product management offices (PMOs) within PEO Soldier welcome an influx of new QA engineers who are introducing new process improvement and QA techniques to our standard business practices — those we implement internally and those we employ with our stakeholders. The number of QA engineers continues to grow, as does support for their practices. Product managers (PMs) and PEOs recognize this, as do senior acquisition leaders who offer initiatives such as the Army Lean Six Sigma (LSS) Additional Skill Identifier. The looking glass appears to have turned inward, with a heavier focus on process improvement in the PMOs.**

PEO Soldier's Personnel Airdrop Systems Team uses QA processes to improve communications to its airdrop manufacturers. Here, Soldiers from B Troop, 504th Battlefield Surveillance Brigade (Bde), parachute into a drop zone during an airborne exercise. (U.S. Army photo by SGT Matthew Cooley, 15th Sustainment Bde.)

PEO Soldier's Personnel Airdrop Systems team integrates QA processes into all functions, from daily meetings and document reviews, to the planning and execution of program development, testing, production, and life-cycle support. We believe this streamlined approach to process improvement will revolutionize the acquisition process when collectively employed across the Army and the entire Defense Acquisition System.

The ideals for a quality system already exist within the Defense Acquisition Management Framework, although accomplishing the ideals can be difficult without the correct tools. *DoDD 5000.1, The Defense Acquisition System*, directs defense acquisition programs to employ "flexibility, responsiveness, innovation, discipline, and streamlined and effective management" into acquisition procedures. "Acquisition streamlining," a process improvement technique that aims to eliminate unnecessary specifications and standards, is complex. Program offices must take into account factors such as interoperability, collaboration, information assurance, and performance-based acquisition and logistics, to name a few. Acquisition streamlining is not easily accomplished without clearly defined and documented organizational processes, and a lack of clarity can lead to decisions that are not based on empirical data evaluations.

## Implementing a Quality Management System (QMS)

To implement a proper QMS, an organization's current operating environment must be understood. The organization must embrace *International Organization for Standardization* (*ISO*) principles, recognized standards developed by a worldwide federation of national standards bodies. Lean, another important QMS component, is a structured set of tools that are used to remove waste from an organization. Yet another tool, Six Sigma, uses the define, measure, analyze, improve, and control (DMAIC) principle to remove variation from processes and fully support best practices. These quality management programs help an organization adopt a QA and performance improvement ideology.

So how can quality professionals help organize an office? Here is a road map to follow based on a plan adapted from J.R. Broomfield's article "Develop a Process Based Management System."

- **Obtain senior management buy-in.** The senior management team must agree that there are opportunities for improvement and changes are required. Management must act as agents for change and enable their personnel to make the necessary changes by leading by example.
- **Understand the tools and requirements that you want to implement.** The organization must understand QA principles and how to use them. QA professionals need to educate, reinforce skills, and facilitate improvement efforts.
- **Define the scope and organization of the system.** Not all QA tools fit the requirement of every job. The QA team must offer informed suggestions that will yield desired results. For example, a QA team facilitator may recommend developing a fishbone diagram to determine potential root causes for an issue.
- **Determine road map and assess current conformity level.** Define where you are, where you want to go, and how to get there. The organization must evaluate its ability to conform to the desired state.

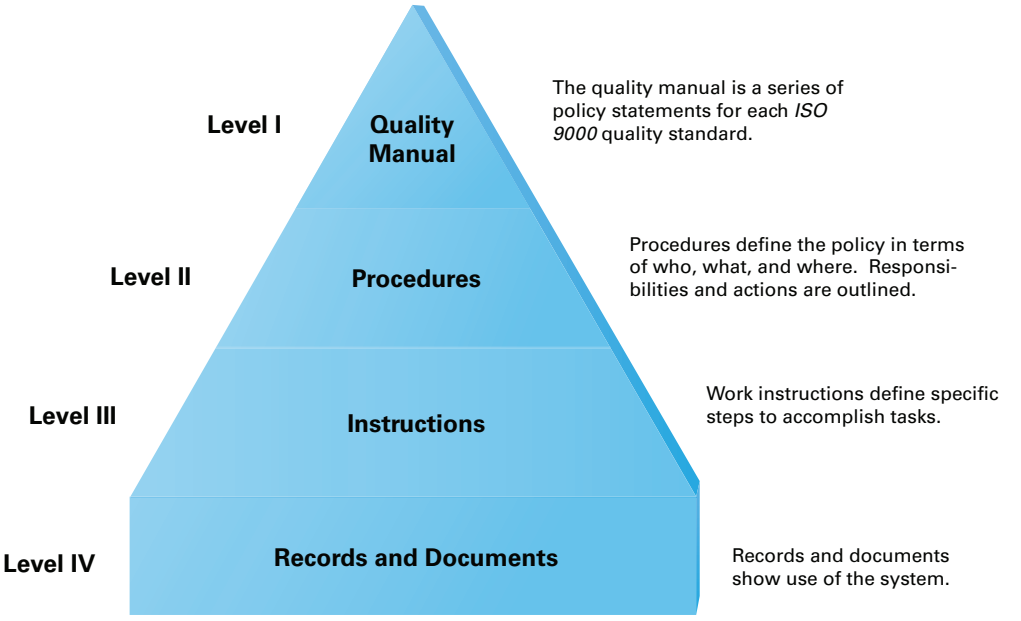


**Figure 1. *ISO 9000* System Model**

This evaluation will identify system gaps and pinpoint opportunities, as well as courses of action for improvement. Caution and restraint are paramount at this step. Many organizations want quick fixes without understanding the effect that changes will have on the system. Employ the DMAIC road map to ensure that impacts are fully assessed and actions are data driven.

- **Analyze core processes.** Identify process leaders and examine internal processes that convert requirements into fielded products. Leaders must meet with teams to develop flowcharts showing inputs, objectives, tasks, meetings, milestones, and process outputs. These exercises will reveal how teams:
  - o Determine requirements.
  - o Translate requirements into product specifications.
  - o Plan, develop, and design processes to achieve specifications.
  - o Operate value-added processes.
  - o Deliver products that meet or exceed the customer expectation.

  The flowcharts will determine the structure for measuring customer satisfaction, data analysis, decision making, audits, and performance reviews for future improvement opportunities.

- **Identify key processes.** Each core process has key sub-processes or support processes that direct, sustain, and continually improve the core process. For example, "quality" is a core process. There are many supporting key processes, including defining contract language, developing quality requirements, writing performance specifications, evaluating test plans and procedures, conducting quality system reviews, evaluating corrective action effectiveness, and implementing metrics and process controls. Processes will emerge as the system matures; document as they arise. Assign owners to defined processes, and make them responsible for accuracy and completeness. The procedure should include:
  - o Process objectives.
  - o Sources of inputs, such as data, information, or material.
  - o Responsibilities and decision-making authorities.
  - o Process controls.
  - o Evaluation of the process outputs to determine conformity.

  Of the many models available, the *ISO 9000* system is internationally recognized and easy to follow. (See Figure 1, Page 71.)

- **Review each process.** Use internal personnel to review the process. The effort's goal is to determine if the processes are accurate. Return all responses to the process

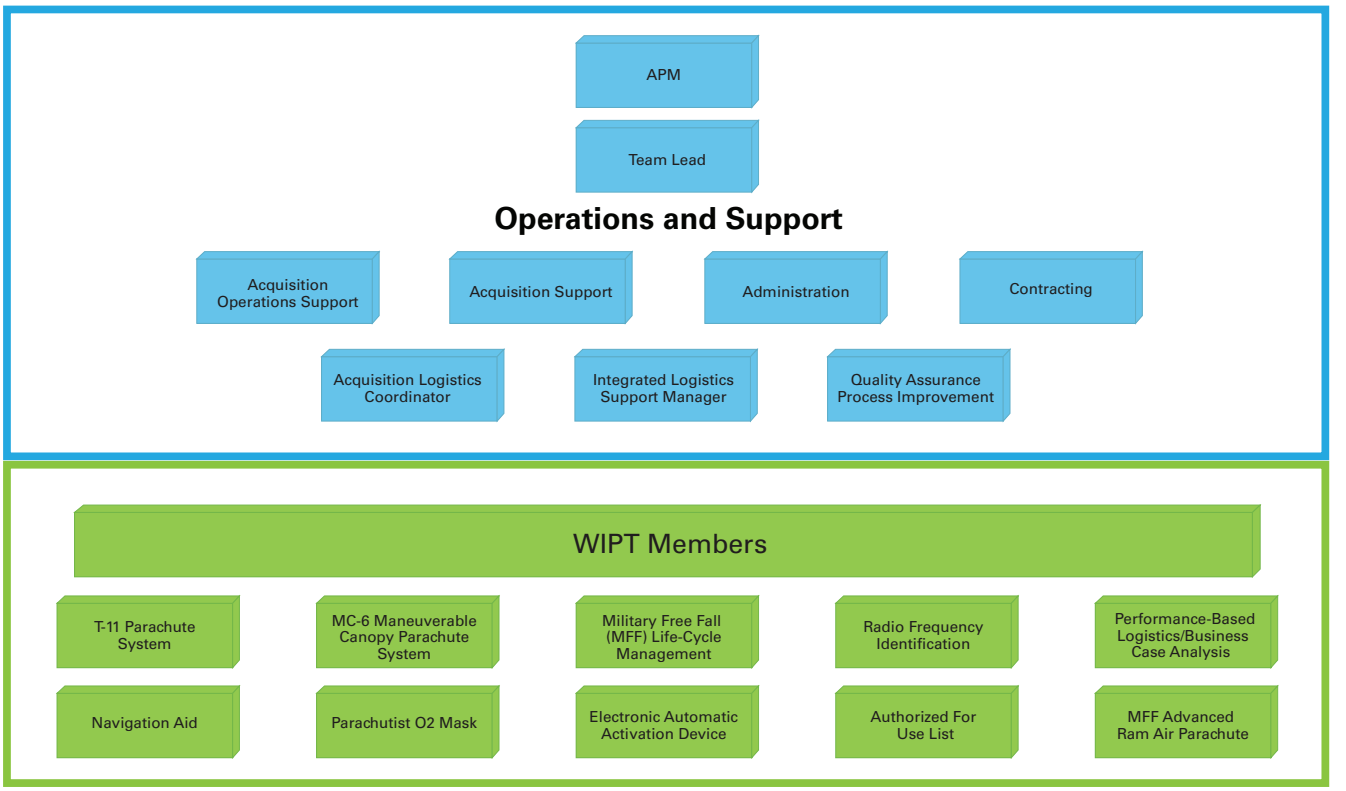


**Figure 2. Personnel Airdrop Team**

**Soldiers prepare to jump the MC-6 Maneuverable Canopy Personnel Parachute System, which offers the Airborne Soldier a new tactical, static line-deployed, steerable personnel parachute system, replacing the legacy MC-1 series parachute assembly, associated harness, and reserve. (Photo courtesy of PEO Soldier.)**

owner by the agreed upon due date.

- **Complete the Project Management Plan.** This plan lists key processes, responsible parties, and dates for implementation. It is a road map for implementation.
- **Implement metrics.** Metrics illustrate the ability to achieve goals and measure efficiency. For example:
  - Lower costs by 10 percent.
  - Keep weekly staff meetings to 45 minutes or less.
  - Complete document reviews in 5 days or less.

  Connect metrics to improvement sources, such as:
  - Customer identification.
  - Customer satisfaction (internal and external) — Do we meet their needs?
  - Process performance — Are processes capable of meeting customer specifications?
  - Product conformity — Does the product meet the specifications?
  - Supplier performance — Are suppliers delivering the quality product on time?
- **Train teams on the value-added business process.** Provide employees training on the process improvement system structure. Use reference manuals, procedures, work instructions, and DMAIC. Keep training ongoing because the QMS is a living system. Add and remove documents as necessary and keep employees aware of current documentation.
- **Launch the system and audit.** Implement the system and audit to measure efficiency and effectiveness without assigning blame. This will identify system gaps and improvement opportunities. Process owners should use the audit result to drive improvements.
- **Measure, analyze, and improve.** Use advanced tools such as Lean and Six Sigma to reduce waste and variation within each process. Metrics will guide improvement opportunities throughout the entire process. Use all-hands meetings to determine what is working and identify gaps in the system.

## Embracing QA

Within PEO Soldier's Personnel Airdrop Systems Team, we have embraced QA as a way of doing business. We imbed QA into every aspect of our programs and daily operations. Using the philosophy of "get our own house in order," everyone is responsible for identifying improvement opportunities. Here are our accomplishments:

- Developed a team charter congruent to *ISO*.
- Defined our team structure, leadership, operations support, and working integrated product teams (WIPTs). (See Figure 2, Page 72.) Each WIPT leader is responsible for team identification and operation. The QA engineer facilitates each WIPT and assists with process development. WIPT members are categorized as follows:
  - o **Approval authority.** Individuals having the authority to implement an action.
  - o **Resources.** Individuals who are not involved in all aspects of the team, but are contacted for their knowledge (subject matter experts).
  - o **Members.** Individuals who are involved in running the WIPT.
  - o **Interested parties.** Individuals who have a need to know about the WIPT and may be affected by actions taken by the WIPT.
- Developed communication directories for each airdrop manufacturer providing contact information for program management, contracting, engineering, logistics, and quality. Our manufacturers provided their respective information. This tool improved communication significantly.
- Defined roles and responsibilities for team members.
- Developed a template for weekly team meetings. The QA engineer facilitates keeping these meetings at the predetermined 30-minute limit.
- Adopted a configuration management database as a repository of information that team members can use anywhere there is an Internet connection. The system's main feature is to track revision levels of documents, thereby showing the complete history of changes. Examples of other documents include trip reports, staff notes and updates, and temporary duty (TDY)/significant activity reports. Each has a defined template that was refined by the team.
- Used a weekly updated TDY/leave/event calendar to track all team members' location and activity at any given time.
- Conducted a process improvement activity to better track test assets. The effort is underway and a working process was scheduled to be implemented in late summer 2008.

> Acquisition streamlining is not easily accomplished without clearly defined and documented organizational processes, and a lack of clarity can lead to decisions that are not based on empirical data evaluations.

We have just scratched the surface in QA process improvement. The new approach will help us avoid cost, shorten schedules, and improve quality and performance of products fielded to Soldiers. Our path forward involves frequent team huddles, continuous education, and cross-training. We must maintain a QA mindset and look for areas to improve. Our QA engineers' involvement, education, and facilitation "upfront and early" are critical in everything we do, as is leadership's understanding and buy-in.

There is no end state, but rather an objective to continually improve our own processes both organizationally and programmatically. There is great potential to expand the QA factor across every level of the Army and defense acquisition framework. This mindset of continually looking for areas to systematically improve organizationally and programmatically will reduce the cost of doing business, move the schedule left, and provide better systems to the entire force to fight and win our Nation's wars.

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