

# Continuous Process Improvement Within DoD

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“Cost savings and expense reductions that result from improvements in overall operating effectiveness can be retained by the organizations which generate them.”

Gordon England  
Deputy Secretary of Defense

**M**uch of what we do within the Department of Defense is guided by process. We have an acquisition process for developing and acquiring our defense systems, processes for overhauling equipment, processes for submitting travel claims, and so on. Consequently, the effectiveness, quality, and efficiency of our work is very much driven by the processes we use to do our jobs. It is being increasingly recognized in both industry and government that organizations that commit to the continuous improvement of their processes enjoy higher levels of organizational performance.

Within DoD, there have been several disparate initiatives in continuous process improvement or CPI. The Naval Air Systems Command's AIRSpeed program and the Air Force's Smart OPS 21 are just two examples. In our repair depots, there are dozens of examples of how the application of CPI techniques has translated into significant productivity gains, lower costs, and reduced cycle times. DoD is now adopting these best practices and absorbing the lessons learned from these isolated pockets of CPI success. The result is a strategic approach to developing a Department-wide culture of continuous improvement in the areas of reliability, process cycle time reductions, costs, quality, and productivity. In May of 2006, in sup-

port of this new initiative, DoD published the *Continuous Process Improvement Transformation Guidebook*. Significantly, in the guidebook's cover letter, Deputy Secretary of Defense Gordon England writes, "DoD's policy on the capture of benefits from improvement efforts is that cost savings and expense reductions that result from improvements in overall operating effectiveness can be retained by the organizations that generate them."

## Defining CPI

Continuous process improvement provides methods, tools, and philosophies that can be used to improve the way we work. It is applied on a never-ending basis, resulting in greater efficiency and effectiveness. CPI, as applied in DoD, is based on three complementary but distinct viewpoints: Lean, Six Sigma, and the Theory of Constraints:

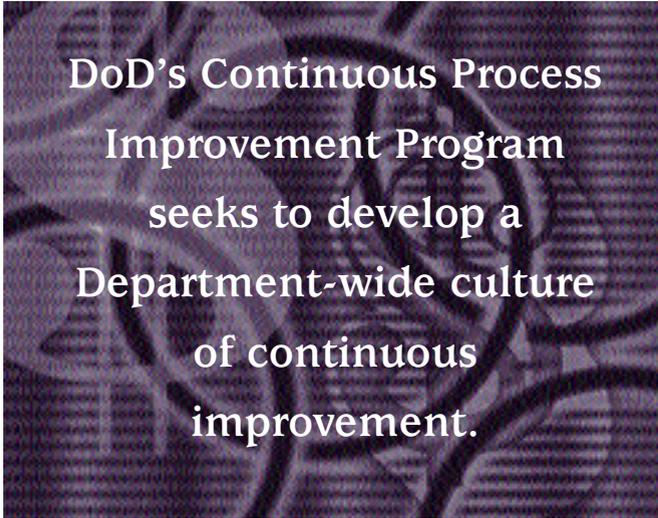
- **Lean:** Key elements of Lean as applied in CPI are customer-defined value, reduction in non-value-added activities, and the pursuit of perfection.
- **Six Sigma:** Uses a series of tools to identify the sources of variability in our processes, allowing us to focus our improvement efforts.
- **Theory of Constraints:** TOC recognizes that there are constraints that organizations must overcome in order to achieve their goals. It employs a five-step methodology to continuously improve processes.

## The CPI Deployment Cycle: Planning

The *CPI Transformation Guidebook* introduces a CPI deployment cycle (illustrated on the next page) outlining how CPI principles will be disseminated throughout DoD. As a necessary prerequisite, the Guidebook first defines our customer as the warfighter and his or her readiness as the primary goal of the initiative. Like many models, the CPI deployment model begins with the development of CPI mission and vision statements and is complemented by a strategic plan on how to make the vision a reality. Alignment with DoD strategic planning guidance is desired.

Borrowing a key tool from the Lean philosophy, the second step of the deployment cycle calls for the development of a value stream map and conducting the associated analysis. A value stream map captures all the actions

currently required to deliver a product or service to the customer; and only through using a value stream map to first document how we currently do our jobs, can we identify those processes or activities that add no value to our customer.



The success of any initiative is dependent upon strong leadership. The third step of CPI deployment—“develop structure/behavior”—creates an organizational structure and training certification program to successfully institutionalize CPI within an organization. Led by a CPI champion and guided by a CPI steering committee, a CPI support team provides CPI training and facilitates the management of CPI initiatives. At the working group level, ownership of specific processes is assigned and the CPI tools are applied to achieve process improvement goals. The hierarchy is completed with the establishment of CPI peer groups, which provide for mutual support and the sharing of CPI information across the organization, and seek ways to smartly optimize results across many processes.

The fourth step in CPI deployment is the alignment and deployment of goals. Goals established for an organization must support and be consistent with the goals of its higher level commands. There should be a clear link between the goals of a major command and those of its reporting sub-units. These goals need to be quantified through thoughtfully developed metrics. These metrics will guide behavior on a daily basis as an organization pursues its mission. The *CPI Transformation Guidebook* calls for a direct, identifiable, causal relationship between metrics and one or more organizational goals.

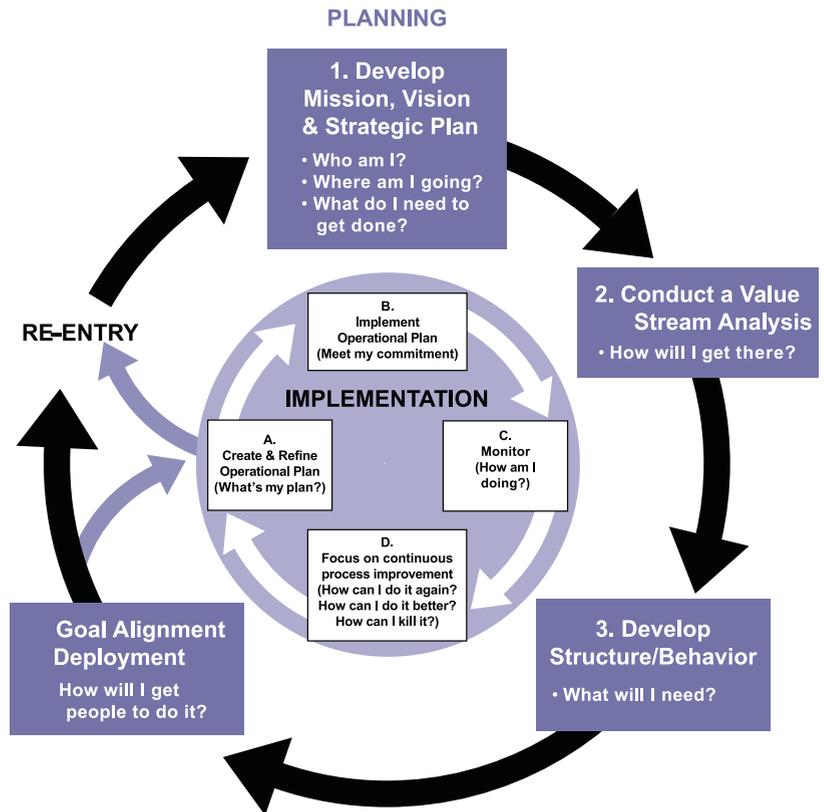
### The CPI Deployment Cycle: Implementation

Once the foundation of CPI deployment has been established with the four planning activities, the emphasis on deployment now transitions to an implementation phase guided by an operational plan. The Operational Plan is created and refined by the CPI organizational structure ensuring it reflects the intent of the organization’s mission/vision statements and its strategic plan. It accounts for the assignment of resources, includes a prioritized schedule of implementation, and identifies specific improvement activities. Finally, the plan recognizes how the quality of a product or service is going to be maintained while focus and energy shifts to process improvement.

In executing the approved operational plan, teams are first identified, manned, and trained on CPI techniques. Using Lean approaches, targeted processes are baselined using value stream maps. Then, by applying six sigma tools, the team’s focus shifts to standardizing policy, procedures, and processes. Progress against the operational plan is monitored using the previously agreed-upon metrics and reported to stakeholders. Feedback via coaching from peers, support teams, steering committees, and CPI champions is used to improve results.

The CPI deployment planning and implementation processes are complementary. Just as CPI implementation is guided by deployment planning, results from implementation are fed back into the planning cycle. This

### CPI Deployment Cycle



feedback serves as the basis for subsequent planning activities as the never-ending continuous improvement process continues.

### **CPI Training and Certification**

Critical to the success of CPI transformation throughout DoD is the training and subsequent certification of the workforce. The goal is to have employees who have not only received training in CPI, but who can demonstrate through certification that they can select and properly apply CPI tools, techniques, and methodologies.

The DoD *CPI Transformation Guidebook* calls for training beyond the technical aspects of CPI and emphasizes three areas: core competencies, goal alignment, and common terminology and conceptual approach. Significantly, the 20 training competencies (see sidebar) go far beyond the nuts and bolts of histograms and scatter plots and are divided into three broad areas. Conceptual Skills introduce the CPI philosophy and cover such subcategories as project and process management, systems engineering, and decision analysis. Recognizing the team approach to CPI implementation, human interaction skills make up the second major competency area. Finally, the tools, techniques, and methodologies usually associated with CPI reside in the final competency area—technical skills.

In addition to competency familiarization, the training program must also ensure a common understanding of CPI terminology and philosophy. Further, consistent with the CPI deployment model, training must also cover goal alignment. Practitioners of CPI within DoD must be capable of selecting, monitoring, and tracking lower-level process- and organizational-level metrics and ensuring their alignment and consistency with higher-level or enterprise-level goals. The CPI training program ensures competence across all aspects of CPI and ensures alignment of goals while establishing common terminology and approach.

Training, however, is not enough to achieve CPI certification within DoD. In addition to training, certification requires a training project, satisfactory completion of a proficiency test, and mentoring by other CPI practitioners. Current separate certification approaches for Lean, Six Sigma, and Theory of Constraints can be referenced against the total requirements required for DoD CPI certification. Similar to Defense Acquisition Workforce Improvement Act (DAWIA) certification, DoD's CPI approach calls for three levels of certification: I, II, and III. Each level of certification has requirements for education, work experience, technical capability, computer proficiency, team skills, and training/CPI project experience. As an example, CPI level II requires 200 hours of targeted training, participation in three to five improvement events, and the leading of three improvement projects. Finally, depending upon certification level, a required level of com-

## **TRAINING COMPETENCIES**

### **CONCEPTUAL SKILLS**

- CPI Philosophy
- Project Management
- Process Management
- Systems Thinking
- Systems Engineering
- Problem Solving
- Decision Analysis

### **HUMAN INTERACTION SKILLS**

- Conflict Resolution
- Leadership
- Change Management
- Team Dynamics
- Communications

### **TECHNICAL SKILLS**

- Value Analysis
- Waste Analysis
- Risk Analysis
- Flow Analysis
- Constraints Analysis
- Metrics
- Probability/Stats
- TPM/RCM

prehension, ranging from awareness to authority, is also needed for each of the 20 CPI core competencies. Training and certification are cornerstones of CPI transformation within DoD.

As acquisition professionals, processes drive what we do to accomplish our jobs and how well we do them. Within industry and in selected areas of DoD, significant gains have been realized in driving down costs, reducing cycle time, and improving quality through the application of Lean, Six Sigma, and Theory of Constraints philosophies. Through selectively using these approaches and others, DoD's Continuous Process Improvement Program seeks to develop a Department-wide culture of continuous improvement. It is DoD policy that organizations may now retain cost savings and expense reductions associated with improvement efforts. The *CPI Transformation Guidebook* provides a model for deploying CPI throughout the department and establishes training and certification requirements. It is available through the Acquisition Community Connection at <<https://acc.dau.mil/CommunityBrowser.aspx?id=32364>>.

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