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Continuous Process Improvement

Cognitive Lesson Objective:

- Comprehend principles of Air Force Continuous Process Improvement (CPI)

Cognitive Samples of Behavior:

- Explain the CPI principles.
- Identify CPI roles and responsibilities.
- Summarize methods of CPI.
- Identify the purpose of the Airmen Powered by Innovation Program (API).

Affective Lesson Objective:

- Value the importance of supporting ongoing commitments to improve processes, products, services, and people.

Affective Sample of Behavior:

- Openly express acceptance of the principles of CPI.

AIR FORCE

CONTINUOUS PROCESS IMPROVEMENT (CPI)

Introduction

Today, our Air Force faces some of the greatest challenges we've seen in our 60 year history. In addition to the expected long-term fight of the War on Terror, we must be prepared to simultaneously fight another major theater conflict. If those two tasks aren't daunting enough, we're also faced with substantial personnel drawdowns, an extremely tight budget, and an aging aircraft fleet. Fortunately, one of the strongest weapons we have in our arsenal (strongly supported by our senior Air Force leadership) is the ability to adapt and change the processes that drive our Air Force, which will better enable us to face these considerable challenges. Adapting and strengthening our collective processes is the role of Air Force Continuous Process Improvement, CPI. CPI is what was formerly referred to as Air Force Smart Operations for the 21st Century or AFSO21.

CPI Executive Summary

Air Force Continuous Process Improvement encapsulates our intent to develop and institutionalize a comprehensive, service-wide, strategic-level continuous process improvement approach. The aim is to take our high-performing organization to the next level by reviewing how we maximize value and eliminate waste in all of our environments—operational, support, and otherwise; and, fully integrate CPI across the Total Air Force.

There is a call to action reaching a critical “crescendo”: Our people and aircraft have been in combat environments for many years, asymmetric threat advantages challenge the cyber-integrity of our national defensive systems, and fiscal challenges combines with demographic changes in our nation make the adversary of today a real and present danger. This call to action is our burning platform.

CPI is an improvement process which leverages improvement methods from various sources including Lean, Six Sigma, Theory of Constraints, and Business Process Reengineering. CPI is a transformational initiative empowering all Airmen to eliminate waste from every end-to-end process. It is about delivery of war-fighting capabilities today and tomorrow. It is about our warfighters successfully engaging and defeating the adversaries of today and beyond. CPI aligns our innovative Air Force with a world-class continuous process improvement culture to create a standardized, disciplined approach. CPI is applicable across organizational, functional, and capability boundaries with the ultimate objective of improving combat capability.

This Concept of Operations (CONOPS) articulates the Air Force requirements to continue to assure asymmetric air, space, and cyberspace capability by focusing on our core governing and enabling processes. Fundamentally, CPI is a mindset to attack problems and identify opportunities for improvement. It emphasizes the use of our

greatest resource—our innovative, dedicated Airmen. Guided by world-class leadership and unique core values, they address the Air Force’s physical system, its management infrastructure, and cultural mindsets and capabilities.

Philosophy: CPI Vision

The vision for CPI is to establish an environment whereby all Airmen actively eliminate waste and continuously improve processes. These improvements must be centered around the core missions we, as Airmen, are responsible for conducting. Specifically, to maintain the asymmetric advantages and capabilities the Air Force delivers in air, space, and cyberspace. We need to ensure we are also driving efficiencies and improvements across-the-board. Therefore, we must use the right tools and techniques to see and attack problems and leverage opportunities for improvement. The vision directly supports the Air Force’s mission statement. The desired effect is an increase in AF combat capability directly linked to the core AF mission.

Operational View. The overarching intent of CPI is to effectively and efficiently deliver war-winning, expeditionary capabilities (deployed and in-place) to the joint commanders. Toward that end, we must have the methods and means to continually improve and eliminate waste across all Air Force processes. CPI provides the methods and the means. By achieving a CPI operating style, the Air Force will be better positioned to:

- prepare for and participate in the joint fight—anywhere, anytime.
- develop, maintain, and sustain the war-fighting edge.
- provide motivated and accountable Air Force warriors.
- continually improve our ability to meet the ever-changing demands of the world, our enemies, and inevitable fiscal constraints.

The CPI Process

Everything we do in the Air Force is a process, and the improvement of those processes will always be necessary as long as the world in which we operate continues to change. As we map out the new change processes, we must identify waste, identify new standard work processes, implement those processes throughout our Air Force, and assess the results. As we implement CPI, we must remain focused on several key areas:

First, this cannot be just another program; it needs to become our operating style. In other words, this needs to be the way we see ourselves, how we think about our Air Force, and how we attempt to operate. Second, we need to retain our primary focus on mission effectiveness. Third, CPI requires commander involvement, participation, and leadership at all levels. The emphasis here is on leadership. Those that do the work every day have the best understanding of the processes that are needed to effectively operate their units, so they are in the position to know where the greatest opportunities for improvement in combat capability and return on investment are located. Leaders need to trust their people and listen to them.

CPI needs to be tied to measurable results. Improvements can come in many fashions—quality, cost, manpower, and equipment availability, to name just a few. The bottom line is that we need to understand what it is that we desire from any given CPI effort and then be able to measure and assess the results. Finally, there has to be a direct link to programming and resourcing activities. It's not enough to simply do something better and then be able to measure the results. Given the enormous challenges we face in recapitalizing our aging equipment and infrastructure, along with the need to free up more people to support new missions, the Air Force is making tough decisions that will result in manpower reductions. CPI provides a way to provide leaders with better information to make those decisions.

CPI is a mindset as well as a continuous process improvement plan. It is essential that our commanders and supervisors at all levels embrace this new mindset. We must openly support CPI, while actively minimizing and removing roadblocks preventing CPI from helping us achieve our goal of remaining the world's premier air and space force. As we examine our requirements and capabilities for today and beyond, CPI focuses on these key areas:

- CPI can align our Air Force to a culture of continuous process improvement with a standardized, disciplined approach to achieve world-class results.
- CPI is applicable across organizational, functional, and capability boundaries with the ultimate objective of improving the combat capability we provide. If you can see the process then you can define it and apply CPI tools and methods to improve it.

Initial Steps

Implementing CPI effectively is not an overnight process; there are three initial steps that we should take. First, we must continue to use lessons learned from the Lean Six Sigma and continuous improvement programs. It is important to understand what the desired outcome is from any given CPI effort and then be able to measure and assess the results. This is where leadership needs to ensure there is a strategic plan for the organization. CPI is a great tool that can be used to improve processes. However, many organization are stuck in a rut of doing the same processes they have done for 20 years simply because that is what has always been done. CPI cannot decide whether a process is effective for the organization. This is where leadership needs use their strategic plan to look at all the processes to determine if they are necessary for the organization and identify gaps. A strategy, prioritized goals and measurable objectives provide a firm foundation on which to begin using CPI to improve processes.

Critical Success Factors

CPI program success is based on three factors: being results-oriented, involving the total Air Force, and implementing a sustained and deliberate application of CPI principles.

- Results oriented. The results and outcomes of CPI efforts will be measured. Measures are tied to CPI and Air Force objectives to maintain alignment and provide focus.
- Total Air Force involvement. The focus on war-fighting effectiveness, efficiency, and the elimination of waste applies to all Airmen. Many of our processes have evolved over time, often incrementally and in reaction to limited objectives or one-time problems. The Total Air Force must change its mindset from “that is the way we have always done things” to “what is best way we can accomplish our daily work.”
- Sustained and deliberate application. CPI ideas and methodologies have gained momentum as various organizations achieve and verify results. However, to realize the gains required to meet our program goals, CPI efforts must be focused; deliberate; sustained over the long term; and ultimately, embedded in our culture.

CPI is Problem Solving

At the core of process improvement is solving problems that create waste in the day-to-day work of our Airmen. Waste and inefficiencies come in many forms and a significant amount of waste is a product of the processes and methods used. Many of these methods were never engineered in the first place. Instead, they evolved over time around organizational boundaries and business rules. Each of the different methods of process improvement are problem solving methodologies that help us organize work and outputs in synchrony with requirements. This, in turn, allows us to satisfy customer requirements more reliably, resolve constraints in our processes, and assure that the heart of CPI is the identification and resolution of problems, whether they are at the tactical or the strategic level. We can only fail in our improvement efforts if we hide problems instead of acknowledging them and tackling them head on. We must also insist that we take a nonblaming approach in identifying and resolving problems. Our people are in the best position to help identify barriers and inefficiencies in their everyday jobs. Many times the problems are derived from outdated and inefficient processes and not those doing the work.

Five Desired Effects

There are five desired effects associated with CPI. They are as follows:

- Increase productivity of our most valued asset—our Airmen
- Significantly increase critical asset availability
- Improve response time and decision making agility
- Sustain safe and reliable operations
- Improve energy efficiency

Organizational Components of Continuous Improvement

The three major components of any enterprise include its operating system, management infrastructure, and mindset, and capabilities. It only makes sense that the greatest gains will come from actions involving all three components instead of limiting improvement activities to one. The three components are as follows:

- **Operating System:** The physical tools and techniques to create value and minimize losses.
- **Management Infrastructure:** The formal structures, processes and systems through which the operating system is managed to deliver warfighting capability.
- **Mindsets and Capability:** The way people think, feel and conduct themselves in the workplace, both individually and collectively.

CPI Methods

The CPI methods and principles must become part of our culture. CPI problem solving incorporates the methodologies listed below.

- **Lean.** A systematic approach to identify waste, Lean focuses activities on eliminating it and maximizing (or make available) resources to satisfy other requirements. Lean is about removing waste. The goal is to stop performing those activities and processes that do not add to a product or service's value. Value is solely defined by the customer. Many experts estimate that before Lean is applied, processes are 90- 99% waste. The correct application of Lean tools and techniques will show how to peel away layer after layer of waste. When first taught beginning Lean tools, students may complain that it just seems like common sense; however, as understanding is deepened, conventional wisdom is questioned and students never look at the world the same way again. Lean is a journey of continuous improvement rather than a destination. There is no end point, only a never-ending journey of relentless waste elimination.
- **SixSigma.** A disciplined, data-driven approach and methodology for eliminating defects in any process – from manufacturing to transactional and from product to service. The fundamental objective of the SixSigma methodology is the implementation of a measurement-based strategy that focuses on process improvement and the identification, reduction and control of process variation. The term SixSigma is a statistical term that measures how far a given process deviates from perfection. The central idea behind SixSigma is that if you can measure how many “defects” you have in a process, you can systematically figure out how to eliminate them and get as close to “zero defects” as possible.

- Theory of Constraints. A philosophy and a methodology for addressing logical thinking, scheduling and controlling resources, and measuring performance. This philosophy emphasizes that a single constraint or bottleneck exists in any process and controls the output from the entire process. Therefore, the main focus of this method is to identify and mitigate the bottleneck to maximize throughput in the process.
- Business Process Reengineering. Involves the radical redesign of core business processes to achieve dramatic improvements in productivity, cycle times and quality. In BPR, organizations start with a blank sheet of paper and rethink existing processes to deliver more value to the customer. They typically adopt a new value system that places increased emphasis on customer needs. Organizations reduce management layers and eliminate unproductive activities in two key areas. First, they redesign functional organizations into cross-functional teams. Second, they use technology to improve data driven decision making.

Use of the CPI methods above will be dependent upon the type of improvement and problem being addressed with CPI tools. Regardless of the method, the Air Force has adopted an eight step Practical Problem Solving Method (PPSM) to progress from assessment of current operations to measuring results after improvements are made. The PPSM is discussed in more detail later on in this reading.

Roles and Responsibilities

CPI must be integrated into normal command and control chain responsibilities. Commanders are expected to organize and lead process improvement efforts within their command authority. Most effective CPI efforts will be aligned with strategies and goals outlined by commanders. This is to ensure CPI efforts are integrated and aligned with commander priorities and objectives. The Air Force-level office organizing and leading CPI efforts— The Director, Management Improvement, (SAF/MGM)—reports directly to the Under-Secretary of the Air Force and is the focal point for all CPI matters/issues. Each MAJCOM will appoint a Master Process Officer who will advise on CPI tools and methods for continuously improving mission effectiveness and efficiency. A Wing Process Manager will be appointed to present project status and impact, and provide information to commanders on upcoming CPI opportunities. Commanders will use CPI methodologies to fulfill requirements spelled out in guidance. The foundation for CPI will be laid by standardizing and stabilizing best practices that maximize value and minimize waste. CPI will be institutionalized across the Air Force by integrating it into workforce development programs with appropriate training and education from the newest Airmen to the most senior leaders.

A standard training and education approach will establish and sustain CPI core concepts throughout Air Force organizations and among our Airmen. Below are general training tenets:

- Training for CPI event participants will be delivered just-in-time.
- All training will use CPI standard material and approved trainers.
- The general workforce does not require certification training. The communications strategy will be used to reach the general workforce as well as just-in-time training. CPI concepts will be taught by CPI trained instructors, Green Belt (GB) and Black Belt (BB) practitioners, through multiple education courses for officers, enlisted, and civilians.

Eight-Step Practical Problem Solving Model (PPSM)

The Eight-Step Practical Problem Solving Method provides a common and structured approach to problem solving, focusing on determining the root cause of the problem and developing countermeasures to provide a sustainable solution to the problem. This method provides structure to problem solving and ensures the correct problem is identified. Once the problem's cause is established, countermeasures are developed, implemented and the improved process is standardized and sustained.

Step 1 – Clarify & Validate the Problem

Step 2 – Break Down the Problem/Identify Performance Gaps

Step 3 – Set Improvement Targets

Step 4 – Determine Root Causes

Step 5 – Develop Countermeasures

Step 6 – See Countermeasures Through

Step 7 – Confirm Results & Process

Step 8 – Standardize Successful Processes

Consistent application of this process provides a concise and common format for the presentation of data, problem solving facts, and information. This eases benchmarking and sharing of best practices when similar problems arise in other areas. The common structure provides a common language, which more easily translates into a common understanding.

Effective problem solving must follow the PPSM. Attempting to skip, reorder, or shortcut steps invariably leads to, at best, suboptimal solutions, and at worst outright failure. Following the eight steps will ensure that actions lead to the desired results with an absolute minimum of wasted effort. Following the steps will also ensure the results are aligned with the needs of the organization. All of this leads to a virtuous nesting of organizational purpose and activities and increased Air Force combat capability.

Airmen Powered by Innovation Program

The Airmen Powered by Innovation (API) program was designed to harness Airmen's ideas. This program replaced other Air Force "good idea" programs—including the Innovative Development through Employee Awareness, Productivity Enhancing Capital Investment, and Best Practices. API consolidates the benefits of each program and simplifies the process for submitting ideas, making it easier for Airmen at the lowest levels to effect change across the entire Air Force. API is a way for anyone in the Air Force to allow their good ideas to be replicated throughout the Air Force.

All Airmen Should:

- Elevate ideas that affect cost savings, quality, productivity, cycle time, process improvement, and morale.
- Provide evaluation-ready ideas with sufficient detail describing the current method, proposed method, expected benefits, and cost of implementation to support the idea.
- Seek assistance, as needed, from local talent to build idea proposal.
- Search the "idea pool" for similar ideas previously processed to prevent unnecessary processing of an idea.
- Use mutually exclusive, established improvements processes for Tech Order changes, Zero Overpricing proposals, and Patents/Inventions.
- Use the chain of command and institutionalized processes (i.e. Inspector General, Equal Opportunity).

Ideas can be submitted at any time by any Airman at the following website: <https://ipds.afpc.randolph.af.mil>.

Conclusion

For the Air Force to succeed in the face of new challenges we will encounter in the twenty-first century, we must implement and support CPI. This is critical as we continue to prosecute what is expected to be a long War on Terror. By implementing CPI, we identify waste, develop and implement a standard work process, ensure those processes add value, assess the results, and are prepared to start the improvement process over again as circumstances demand. This cycle is never-ending because we can always improve on how we do our mission.

We are the world's premier air force—powerful, respected, and even feared by our adversaries. If we fail to adapt and overcome the new challenges we face, we will lose our combat edge, possibly the Global War on Terrorism, and ultimately our freedom; we cannot fail! This is the right thing to do for our Air Force, our Airmen, and our country.

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