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Special Management

CONTINUOUS PROCESS IMPROVEMENT

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This instruction implements **AFPD 90-1, Policy Formation, 8 August 2003**. This instruction provides guidance on implementing and sustaining Continuous Process Improvement (CPI) across the command. Its purpose is to formalize and codify the AETC CPI program and outline a disciplined process to execute CPI initiatives. (For additional CPI guidance, see DoDD 5010.42, *DoD-Wide Continuous Process Improvement/Lean Six Sigma (LSS) Program*, the OSD Continuous Process Improvement/Lean Six Sigma Guidebook, and the Air Force Smart Operations for the 21st Century (AFSO21) Playbook, all available through the CPI Community of Practice [CoP] Web site.) This instruction applies to all HQ AETC staff, AETC numbered Air Forces (NAF), Air University (AU), Air Force Recruiting Service (AFRS), direct reporting units (DRU), field operating agencies (FOA) and other organizations assigned or attached to AETC. It does not apply to Air National Guard (ANG) or Air Force Reserve Command (AFRC) units. Refer recommended changes and questions concerning this instruction to the office of primary responsibility (OPR), HQ AETC/CCO, using AF Form 847, *Recommendation for Change of Publication*, at 1 F Street, Suite 1, Randolph AFB TX 78150-4330, or E-mail to afso21.workflow@randolph.af.mil. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of according to the Air Force Records Disposition Schedule (RDS) located at <https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm>. See Attachment 1 for a glossary of references and supporting information.

Chapter 1—CONTINUOUS PROCESS IMPROVEMENT (CPI)	4
1.1. Introduction to CPI.	4
1.2. CPI Goals:	4
1.3. AETC Goal.	4
Chapter 2—INSTRUCTION PURPOSE	5
2.1. CPI Mindset.	5
2.2. Common Governance.	5
2.3. Resource Allocation.	5
2.4. Cultural Challenges.	5
2.5. Results of an Effective Governance Process:	5
Chapter 3—PERFORMANCE, ALIGNMENT, INTEGRATION, INNOVATION	6
3.1. Performance.	6
3.2. Alignment.	6
3.3. Integration.	6
3.4. Innovation.	6
Chapter 4—INTEGRATED CPI AND STRATEGY MANAGEMENT ENVIRONMENT	7
4.1. Air Force Objectives.	7
4.2. Integration and Role of the Strategy Map.	7
Figure 4.1. AETC CPI and Strategy Management Integration.	8
4.3. CPI Desired Effects.	8
4.4. AETC/CC Support.	8
Chapter 5—MAJOR ROLES AND RESPONSIBILITIES	9
5.1. AETC/CC and Vice Commander (CV):	9
5.2. CCs/Directors (All Levels):	9
5.3. HQ AETC Directorates:	9
5.4. HQ AETC/CCO CPI Office:	9
5.5. All AETC Organizations (Assigned and Attached):	10
5.6. Wing CPI Offices:	12
Chapter 6—CPI PROCESSES AND OPERATIONS	13
6.1. Categories of Initiatives.	13
6.2. Sources of CPI Initiatives:	13
6.3. Plan, Conduct, Implement, Sustain Model.	13

6.4.	Command Standard Processes.	15
6.5.	Process Owners.	16
Chapter 7—CONTINUOUS PROCESS IMPROVEMENT MANAGEMENT TOOL (CPI-MT)		17
7.1.	CPI-MT.	17
7.2.	Purpose:	17
7.3.	Point of Contact Procedures.	17
7.4.	Roles and Responsibilities.	17
7.5.	Content Organization.	18
7.6.	Account and Documentation Procedures.	18
Chapter 8—TRAINING AND CERTIFICATION		19
8.1.	HQ AETC/CCO.	19
8.2.	SAF/USMS.	19
8.3.	Responsibilities:	19
8.4.	Certification Requirements.	20
Table 8.1.	Certification Requirements.	20
8.5.	Green Belt Training/Certification.	21
8.6.	Black Belt Training/Certification:	21
8.7.	Master Black Belt Training/Certification:	22
Chapter 9—AWARDS AND RECOGNITION		23
9.1.	Air Force Awards Programs.	23
9.2.	AETC CPI Awards and Recognition.	23
9.3.	Quarterly and Annual Award Eligibility.	23
9.4.	Selection Criteria.	23
9.5.	On-the-Spot Recognition.	23
9.6.	Prescribed Forms.	23
9.7.	Adopted Forms.	23
Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION		24
Attachment 2—SAMPLE CHARTER WORKSHEET/DESCRIPTIONS		26
Attachment 3—USAF PROBLEM-SOLVING PROCESS AND RELATED TOOLS		27
Attachment 4—CHANGE MANAGEMENT (CM) CONCEPTS AND TOOLS		37

Chapter 1

CONTINUOUS PROCESS IMPROVEMENT (CPI)

1.1. Introduction to CPI. AETC process improvement shares the Air Force CPI model that uses various methodologies, depending on the needs of the situation or problem under review. Methodologies include problem solving, lean, business process reengineering, Six Sigma, and theory of constraints. The phrase "CPI initiatives" encompasses all CPI, problem solving, improvement and change activities conducted across AETC.

1.2. CPI Goals:

1.2.1. Fundamentally change the culture of the Air Force so that Airmen understand their role in improving daily processes and eliminating wasted efforts that add no value to mission accomplishment.

1.2.2. Instill a mindset of CPI and problem solving across the workforce.

1.2.3. Provide an objective assessment of key Air Force processes and focus on using and applying CPI tools and techniques to promote process improvement, eliminate waste and create a feasible action plan.

1.3. AETC Goal. To create and sustain an environment of continuous improvement that cascades from AETC/CC to every squadron, flight, and work center. Within this environment, all AETC members must strive to integrate CPI into core missions, codify and implement standard processes, eliminate duplication of effort or redundant resource use, and learn from others' successes in order to achieve higher levels of productivity, efficiency, and effectiveness.

Chapter 2

INSTRUCTION PURPOSE

2.1. CPI Mindset. USAF emphasis on implementing a culture of continuous process improvement will generate numerous opportunities for change that require a governing directive. AETC uses an all-encompassing program for CPI, which could include any number of process improvement tools or methodologies, but primarily consists of problem solving, lean, business process reengineering, Six Sigma and Theory of Constraints. Lean makes up roughly 80 percent of the overall AETC CPI program.

2.2. Common Governance. The complexity of change requires the command provide a single, unified governance process that eliminates redundancy in managing initiatives. This document outlines the command's approach to continuous improvement that will integrate efforts from HQ AETC across all NAFs, DRUs, FOAs and other organizations assigned or attached to AETC. A command wide, enterprise-level, integrated approach will maximize efficiency across the command, contribute to a culture of continuous improvement throughout the workforce and develop our Airmen in a structured and consistent manner.

2.3. Resource Allocation. The process of prioritizing CPI initiatives for resource allocation and redistribution requires consistent information and leadership insight.

2.4. Cultural Challenges. To achieve success, the command must overcome historic and cultural challenges including:

2.4.1. Failure to follow through to results.

2.4.2. No accountability for initiative performance.

2.4.3. No strategic alignment to leadership goals.

2.4.4. Insufficient resources allocated for change initiatives.

2.4.5. No middle-tier leadership involvement, enthusiasm or commitment to cultural change.

2.5. Results of an Effective Governance Process:

2.5.1. **Accountability.** Clear accountability for specific objectives that affect command-wide performance.

2.5.2. **Control.** Effective decision making at leadership levels to ensure appropriate emphasis and resource allocation are applied to priorities.

2.5.3. **Alignment.** Sufficient senior leader insight into design and execution of initiatives to ensure alignment with command goals and objectives.

2.5.4. **Transparency.** Ability to clearly see processes that steer the command to effectively perform the mission and clarify the command vision.

2.5.5. **Results.** Fact-based, quantifiable data showing measured improvements, elimination of waste, tangible cost savings and/or cost avoidance.

2.5.6. **Benchmarks.** Enable benchmark sharing, also referred to in this instruction as command standard processes, across all units and all levels within AETC by using a common process to identify, coordinate and communicate benchmark candidates.

Chapter 3

PERFORMANCE, ALIGNMENT, INTEGRATION, INNOVATION

3.1. Performance. Accountable, measurable, continuously improving performance across the command.

3.1.1. Lead implementation of process improvement techniques end-to-end.

3.1.2. Set tangible performance targets for cost, schedule, and performance. Measure, report, compare, and reward results.

3.1.3. Create an environment that inspires trust, teamwork, and continuous improvement.

3.2. Alignment. Link to, and alignment with, AETC core, enabling, and governing processes and process owners, as depicted on the AETC strategy map. In particular, initiatives must align with AETC perspectives and objectives.

3.3. Integration. Process improvement initiatives should be directed at closing performance gaps depicted on strategy maps across the command, thereby enabling one enterprise to recruit, train and educate America's Airmen.

3.4. Innovation. Ability to innovate is essential in order to keep pace with warfighting requirements, leverage new technologies and improve AETC recruit, train and educate support processes. Effective use of CPI gives AETC the ability, through innovation, to implement the best practices in recruiting, training and educating.

Chapter 4

INTEGRATED CPI AND STRATEGY MANAGEMENT ENVIRONMENT

4.1. Air Force Objectives. The Secretary of the Air Force and Chief of Staff defined the following CPI objectives, which in part form the basis for the AETC/CC intent:

4.1.1. Provide a standard Air Force approach to continuously improve all processes that affect the Air Force ability to deliver required effects.

4.1.2. Develop a culture that promotes elimination of waste, best practice sharing of and cycle time reduction across all products and services. Involve all Airmen in the relentless pursuit of excellence.

4.1.3. Ensure all Airmen understand their role in saving resources and eliminating waste, develop the ability to effect change, and continuously learn new ways to improve daily activity processes.

4.2. Integration and Role of the Strategy Map.

4.2.1. AETC uses the strategy map as a tool to develop and drive command strategy, which includes specific objectives, measures and initiatives targeted to address gaps in performance or other problem areas. Figure 4.1 visually illustrates the AETC integration philosophy. Also, see steps 1 through 4 in paragraphs 4.2.1.1 through 4.2.1.4.

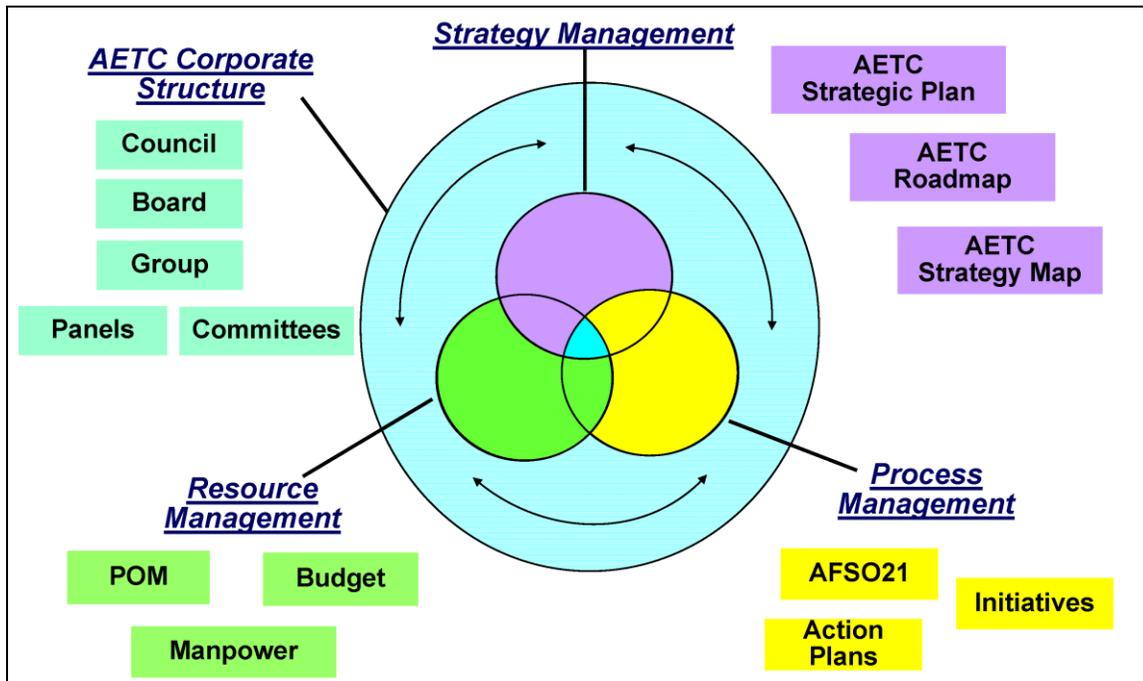
4.2.1.1. **Step 1.** Apply challenging, stretch goals to strategic measures to identify performance gaps during periodic reviews.

4.2.1.2. **Step 2.** Use CPI (lean) principles to find the root cause and help develop the countermeasures to find the best solution (most effective and efficient).

4.2.1.3. **Step 3.** Align resource prioritization processes with desired strategic objective outcomes.

4.2.1.4. **Step 4.** Use strategy reviews to track and report results of countermeasures. Measure the success, and then standardize the success.

Figure 4.1. AETC CPI and Strategy Management Integration.



4.2.2. The strategy map serves as a pointing mechanism for command improvement opportunities. AETC will use CPI tools and prioritize improvement efforts to address strategy map performance gaps.

4.3. CPI Desired Effects. The Air Force defined five desired effects that organizations should target and strive to achieve:

- 4.3.1. **Productivity.** Increase the productivity of our most valued resource: people.
- 4.3.2. **Asset Availability.** Significantly increase critical asset availability rates.
- 4.3.3. **Agility.** Improve response time and decision-making agility.
- 4.3.4. **Safety and Reliability.** Sustain safe and reliable operations.
- 4.3.5. **Energy.** Improve energy efficiency.

4.4. AETC/CC Support. AETC/CC fully supports all CPI desired effects. With regard to recruiting, training and educating America's Airmen, AETC strives for effectiveness and efficiency. Directors and CCs at all levels are responsible for measurable performance improvements. It is the responsibility of all AETC Airmen to improve the way they work.

Chapter 5

MAJOR ROLES AND RESPONSIBILITIES

5.1. AETC/CC and Vice Commander (CV):

5.1.1. Establish and articulate key command themes, organizational direction and specific priorities.

5.1.2. The AETC/CV serves as the command CPI champion.

5.2. CCs/Directors (All Levels):

5.2.1. Establish CC/director intent for CPI, strategy development and execution efforts, and CPI initiative implementation.

5.2.2. Align organizational activities and mission performance with AETC strategic requirements and focus.

5.2.3. Remove barriers that inhibit all Airmen from improving mission effectiveness and efficiency.

5.2.4. Align CPI initiatives to organizational strategy and ensure strategy supports AETC governing, core and enabling processes.

5.3. HQ AETC Directorates:

5.3.1. Sponsor field-level CPI initiatives that require command-level support (i.e., policy, funding, resourcing and command sponsorship).

5.3.2. Serve as objective owners for key strategic objectives.

5.3.3. Follow through with implementation and oversight responsibilities as defined in this instruction.

5.3.4. Monitor wing level and below initiatives for best practices, potential command standard processes (AETC benchmarks) and other synergetic opportunities that could extend across AETC mission areas.

5.3.5. Ensure adequate number of trained problem solvers is available, including Green Belts, Black Belts and Master Black Belts. **Note:** See Chapter 8 for certification requirements.

5.4. HQ AETC/CCO CPI Office:

5.4.1. Provide CPI expertise to the AETC/CC, headquarters staff, AETC corporate structure and field organizations. Develop and publish policy governing the command CPI program. Establish the policy and procedures framework, and advocate for resources necessary to train, organize and equip AETC certified CPI staff.

5.4.2. Implement Air Force standards for CPI facilitator training and CPI tool certification, and identify approved training sources.

5.4.3. Lead command wide integration of all CPI initiatives. Facilitate rapid dissemination of wing-level improvements across the command in order to maximize efficiencies and establish standard processes. Maintain a portfolio of command-wide initiatives; make those

initiatives visible across the command, initiate policy changes through the appropriate HQ AETC directorate to codify and lead cross implementation of those improvements and/or command standard processes.

5.4.4. Review initiatives conducted by other major commands (MAJCOM) to select those with potential application within AETC. Maintain a process to push information to AETC directorates, NAFs and wings.

5.4.5. Lead selected enterprise-level CPI efforts. Provide qualified facilitators to address enterprise improvement opportunities identified by the AETC/CC.

5.4.6. Maintain open communication channels and conduct regular meetings with CPI and strategy development points of contact (POC) across the command.

5.4.7. Maintain and update AETC CPI CoP.

5.4.8. Plan, schedule, coordinate and administer an annual CPI program management review (PMR). Program managers from across the command will be invited to review the previous year's command process improvement efforts and performance. Chair the PMR; publish an agenda, and post read-ahead and follow-up material as necessary on the AETC Process Improvement Office CoP.

5.4.9. Serve as the AETC single focal point for all activities associated with CPI efforts. The Secretary of the Air Force Undersecretary Chief Management Officer (SAF/USM) will work all CPI issues through HQ AETC. AETC organization representatives will work exclusively through their chain of command to HQ AETC/CCO.

5.4.10. Establish business rules to prevent duplication of effort and/or redundant resource commitment.

5.4.11. Develop and oversee execution of the command CPI maturity matrix model.

5.4.12. Develop and oversee execution of the command annual improvement plan (AIP).

5.4.13. Develop and oversee execution of the command CPI facilitator training tracker.

5.4.14. Provide status of maturity matrix, AIP and facilitator certification progress to AETC/CC during quarterly strategy reviews. **Note:** HQ AETC/CCO is not the approval authority for CC or director measures of performance (MOP).

5.4.15. Provide CC, headquarters staff and field organizations with change management (CM) guidance.

5.4.16. Develop CM tools, techniques and processes; publish guidance to enable AETC organizations to manage change initiatives.

5.4.17. Facilitate rapid dissemination of best practices and lessons learned.

5.4.18. Provide green belt and 8-step problem solving training as required.

5.5. All AETC Organizations (Assigned and Attached):

5.5.1. Directors, NAF/CCs and wing/CCs will establish their CPI execution intent. This includes strategy development and execution, as well as implementation of CPI initiatives. In addition, wing CCs establish an executive council (EC) (see AFSSO21 Playbook) or use an existing corporate structure to govern and lead integrated CPI and strategic planning efforts.

The EC will provide CPI and strategic planning governance and leadership. At wing level, the EC integrates CPI and strategic planning activities and oversees development and implementation of CPI initiatives. The wing CC or CV chairs the wing EC, which is at minimum composed of the wing CC and/or vice CC and group CCs.

5.5.2. Establish an integrated capability to lead and execute a CPI program that complies with the command program; develop and execute a strategy aligned with command strategy; and plan, conduct, implement and sustain CPI initiatives.

5.5.2.1. HQ AETC/CCO provides CPI expertise, but CPI is a commander program. Commanders establish integrated capability on their respective staffs.

5.5.2.2. For the purposes of this instruction, AU is considered a NAF equivalent. AU centers are considered wing equivalents. Policy guidance directed at AETC wings also applies to AU centers. Schools reporting to AU centers are considered group equivalents.

5.5.3. Implement a CPI organizational structure that takes advantage of organizational synergies and potential efficiencies.

5.5.4. Dedicate an appropriate number of personnel to CPI duties. The AFSO21 Playbook provides a guideline to help commanders determine the proper balance and synergy between dedicated staffing and organizational structure.

5.5.5. Wing CCs establish an EC, as outlined in the AFSO21 Playbook, or use an existing corporate structure to govern and lead integrated CPI and strategic planning efforts. The purpose of the EC is to provide governance and leadership to CPI and strategic planning efforts within the organization. At wing level, the EC integrates CPI and strategic planning activities and oversees development and implementation of CPI initiatives; typically focuses on specific CPI activities and strategy execution; is chaired by the CC or CV; and at minimum is composed of the CC and/or CV and group CCs.

5.5.6. Conduct maturity assessments using the AETC CPI assessment scorecard. The scorecard, available on the HQ AETC/CCO CPI SharePoint site (<https://eis.aetc.af.mil/hq/cc/afso21.aspx>) functions as a self-inspection tool for directors and commanders to measure an organization's progress in implementing and sustaining CPI. E-mail results through the appropriate chain of command to HQ AETC/CCO at afso21.workflow@randolph.af.mil, and the SharePoint site.

5.5.7. Develop and execute an annual improvement plan (AIP). An AIP (template available on the CPI SharePoint site) is an organization's prioritized list of strategically aligned process improvement efforts. HQ AETC/CCO tracks and reports each organization's top three process improvement efforts (PIE) from the AIP. E-mail results through the chain of command to HQ AETC/CCO and the SharePoint site.

5.5.8. Ensure adequate number of green belt and black belt facilitators. Certification requirements are listed in Chapter 8. E-mail progress reports, using the facilitator certification tracker, through the chain of command to HQ AETC/CCO workflow and SharePoint site.

5.5.9. To request CPI facilitator support, complete AETC Form 94, *Facilitator Work Request*, located on the e-Publishing site, and submit it to the HQ AETC/CCO workflow E-mail address. For more information, contact HQ AETC/CCO.

5.6. Wing CPI Offices:

- 5.6.1. Maintain a portfolio of all wing CPI initiatives that directly support the wing strategy map.
- 5.6.2. Oversee and manage CPI training across the wing.
- 5.6.3. Represent the wing, through the respective NAF, to HQ AETC/CCO and communicate wing concerns, issues, initiatives and any other relevant information.
- 5.6.4. Work with HQ AETC/CCO to request facilitation, training or other support not available or accessible at wing level.
- 5.6.5. Work with HQ AETC/CCO to request CM training or other support not available or accessible at wing level.
- 5.6.6. Report maturity matrix, AIP and facilitator training progress to HQ AETC/CCO monthly via E-mail.
- 5.6.7. Update MOP tracker on the HQ AETC CPI office SharePoint site to meet quarterly suspense requirements
- 5.6.8. Serve as the POC for all CPI communications from HQ AETC/CCO. Disseminate information as required to the wing workforce. Serve as liaison between field and HQ AETC to ensure improvement effort integration across the enterprise. Represent the wing at command sponsored CPI meetings. Ensure all communication with HQ AETC/CCO, including MOP updates, is coordinated through the NAF.
- 5.6.9. Integrate CPI strategies across respective organizations.

Chapter 6

CPI PROCESSES AND OPERATIONS

6.1. Categories of Initiatives. A CPI initiative typically focuses on saving time, money, or other resources, or on improving performance and/or product quality, or on eliminating waste and/or nonvalue-added activities. Typical CPI initiatives are:

6.1.1. **Just Do It (JDI).** Small, common-sense improvements over which the implementing office has complete control. JDIs are also quick fixes of processes and products identified during CPI events and completed during the event week or as quickly as possible afterward. They are part of the CPI process and results are captured as part of the overall execution and sustainment of an entire CPI event, but they are not typically staffed or tracked. JDIs would not count toward facilitator certification requirements.

6.1.2. **Rapid Improvement Event (RIE).** Short-term, high intensity effort to address a specific problem. The focus is typically in a dedicated 3- to 5-day session, though preparation normally begins several weeks in advance and followup continues after. An RIE generally follows a structured, systematic approach to identifying and eliminating waste by developing baseline performance measures, current and future state maps, key metrics, an action plan, and other deliverables. RIEs are sometimes identified during value stream mapping or enterprise value stream mapping.

6.1.3. **Improvement or Change Project.** Longer term improvement events involving processes that are large in scope or complexity and could require application of CPI tools such as Six Sigma, business process reengineering, and Theory of Constraints.

6.2. Sources of CPI Initiatives:

6.2.1. **Strategy Driven.** Initiatives that directly contribute to achieving a strategic objective or closing performance gaps on the command, directorate, NAF, or wing strategy map.

6.2.2. **Process and Operations.** Initiatives that improve command processes or operations.

6.2.3. **CC/Director or Leadership Insight.** Initiatives directed by the commander/director as a result of leadership insight into performance issues or required changes.

6.3. Plan, Conduct, Implement, Sustain Model. The process for planning a CPI initiative, conducting the CPI event, executing through to completion, and implementing and reporting results should follow a standard, consistent process throughout the command, although the nature of the initiative and source will cause the initiative to follow different paths as appropriate.

6.3.1. **Plan.** The directorate, NAF, or wing CPI office is the focal point for all CPI initiatives conducted across the unit, and for managing the portfolio of initiatives. Individual organizations and process owners are responsible for identifying improvement opportunities, developing those opportunities into specific improvement initiatives, executing those initiatives, and following up in a spirit of continuous process improvement. Once an improvement opportunity or initiative is identified, the responsible organization takes these actions:

6.3.1.1. Check the CPI management tool (MT) database or other known sources for a similar improvement initiative conducted in AETC or the Air Force.

6.3.1.2. If a similar improvement initiative exists, determine feasibility to adapt results to shape the planned initiative or possibly rescore the planned initiative based on the work already accomplished.

6.3.1.3. Complete the charter template/worksheet. See Attachment 2. The charter completely defines the improvement initiative and establishes scope and responsibility. The template/worksheet includes all requirements specified in the AFSO21 Playbook and establishes additional AETC requirements for signatures of those who own the process and lead the improvement event. Key leader signatures are critical to agreement and overall understanding, commitment and accountability. The charter format may differ from that shown in Attachment 2, as long as all information is addressed. Additionally, the first three blocks of the report (prepared on and briefed from a ledger/tabloid size sheet called the A3) can substitute for the charter template. See Attachment 3 for general information and specific examples of how the A3 is used.

6.3.2. **Conduct.** The responsible organization or process owner works with the directorate, NAF, or wing CPI office or HQ AETC/CCO as necessary to obtain facilitation support and conduct the improvement event. For many CPI events, the responsible office or process owner conducts the event using internal resources once adequate numbers of facilitators become available.

6.3.2.1. The AFSO21 Playbook outlines a standard improvement event approach modeled after a systematic problem solving methodology.

6.3.2.2. Solving day-to-day work area problems, regardless of organizational level, goes to the heart of CPI efforts. Problems equal improvement opportunities. This proven, systematic problem-solving model serves as the foundation for all lean, Six Sigma, Theory of Constraints and other Air Force CPI initiatives. See Attachment 3 for more information on these steps.

6.3.2.2.1. **Step 1.** Clarify and validate the problem.

6.3.2.2.2. **Step 2.** Break down the problem and identify performance gaps.

6.3.2.2.3. **Step 3.** Set improvement target.

6.3.2.2.4. **Step 4.** Determine root causes.

6.3.2.2.5. **Step 5.** Develop countermeasures.

6.3.2.2.6. **Step 6.** See countermeasures through.

6.3.2.2.7. **Step 7.** Confirm results and process.

6.3.2.2.8. **Step 8.** Standardize successful processes.

6.3.3. **Implement:**

6.3.3.1. At the conclusion of the CPI event, the facilitator, working with the process owner completes an A3 report, as outlined in the AFSO21 Playbook. See Attachment 3. Other documentation typically required at the conclusion of an event includes an outbrief to the process owner and champion, implementation action plan, value stream or process maps, and any other documentation deemed appropriate or dictated by the event. The facilitator or responsible organization enters the final A3 report and all other

documentation (or links to documentation) into the continuous process improvement management tool (CPI-MT), accessible on the CPI CoP.

6.3.3.2. The champion and/or process owner takes responsibility for implementing action items reported from the improvement event.

6.3.4. **Sustain.** The directorate, NAF, or wing CPI office establishes a reporting process (typically at the 30-, 60-, and 90-day, 6-month, and 12-month points) for the champion and/or process owner to monitor improvement plan execution, and measure and record results in CPI-MT.

6.3.4.1. The implementing office reports results on selected initiatives to the directorate, NAF, or wing CPI office, based on agreements made during or immediately after the improvement event or project. Otherwise, the implementing office tracks results and reports to the process owner. Results could include one or more of the items in paragraphs 6.3.4.1.1 through 6.3.4.1.6, or other results captured by the implementing office.

6.3.4.1.1. Improvement objectives achieved and/or not achieved.

6.3.4.1.2. Return on investment.

6.3.4.1.3. Cycle time reduction.

6.3.4.1.4. Direct and/or indirect cost savings.

6.3.4.1.5. Personnel savings.

6.3.4.1.6. Tangible and/or intangible results affecting one or more of the five CPI desired effects.

6.3.4.2. The directorate, NAF, or wing CPI office will follow up on selected initiatives with the event owner 30, 60, and 90 days, and 6 and 12 months after implementation to ensure the improvement is being sustained. The directorate, NAF, or wing CPI office determines the follow up time frame. A key area to examine during follow-up is whether the improved process caused unintended consequences (i.e., transfer or increase of nonvalue-added work to another process). Unintended consequences are not always immediately apparent.

6.3.4.3. Process owners identify one or more key measures, preferably during the actual improvement event, to help ensure newly improved processes remain under control and on track. The directorate, NAF, or wing CPI office can help establish measures and control systems for newly improved processes.

6.4. Command Standard Processes. Selected improvements have potential application across AETC.

6.4.1. The directorate, NAF, or wing CPI office identifies selected improvements that have potential command-wide application, and during the annual PMR, works through HQ AETC/CCO to share the improvements. Directorate, NAF, or wing CPI offices can report improvements with command-wide applications at any time via the command CPI workflow E-mail.

6.4.2. HQ AETC/CCO will sponsor an annual PMR to review and select AETC benchmarks as candidates for replication across the command.

6.4.3. HQ AETC/CCO staffs potential command standard processes through the appropriate HQ AETC functional directorate for consideration and approval.

6.5. Process Owners. Closely manage changes to ensure strategic alignment with command, NAF, directorate, and wing strategy maps and organizational commitment, and identify and address barriers to successful implementation.

6.5.1. Standard processes outlined in the AFSSO21 Playbook and this instruction incorporate change management practices at every level. For example, the process of developing the event charter clearly defines the initiative, change, or problem solving activity for all involved up and down the chain of command, facilitating leadership alignment.

6.5.2. Bringing the right subject matter experts together to analyze the problem and formulate implementation action plans capitalizes on clear and open communication, and involves the right people in order to facilitate follow through.

6.5.3. CPI initiative scope and complexity will dictate the level of effort required when identifying subject matter experts, whether planning a simple meeting during which the process owner and team lead select participants or comprehensive stakeholder analysis that may include a voice of the customer analysis.

6.5.4. Standard A3 reporting and out brief processes serve to keep everyone involved with the improvement informed on progress and the way ahead. The AETC CM Process complements the AFSSO21 Playbook by providing expanded definitions and a reference to an automated tool with templates and tutorials to help develop and execute change management strategies. (See Attachment 4.)

6.5.5. If implementing an initiative that requires a change or waiver to a governing directive or instruction, the change/waiver request will be submitted through the appropriate functional channel for approval. The SAF/USM administrative guidance memorandum may be attached to the waiver package. It is accessible on the HQ AETC/CCO SharePoint site.

Chapter 7

CONTINUOUS PROCESS IMPROVEMENT MANAGEMENT TOOL (CPI-MT)

7.1. CPI-MT. CPI-MT is a tool to enable leaders to oversee their initiatives in a single integrated platform, and ensure strategy alignment, maintain visibility and drive productivity

7.2. Purpose:

- 7.2.1. Serve as the central repository for project management, reports and queries.
- 7.2.2. Provide real time project status, documents, issues, and metrics visibility.
- 7.2.3. Help execute projects to completion.
- 7.2.4. Facilitate team collaboration.
- 7.2.5. Support tracking/monitoring using portfolios and dashboards.
- 7.2.6. Reduce E-mail chains and manual status reporting.

7.3. Point of Contact Procedures. Each directorate, NAF, or wing CPI office will assign one primary and one alternate CPI-MT POC to be responsible for overall CPI-MT issues within their organizations. POCs will develop local plans to enter all approved current and ongoing projects.

7.4. Roles and Responsibilities. CPI-MT rights and privileges are associated with assigned roles and groups. Users are assigned to one or more roles and/or groups based on the tasks they perform in CPI-MT. **Note:** Some CPI-MT roles and groups have the same names as formal CPI roles (for example, process owner/champion), but actual CPI-MT tasks may differ and require delegation to other users.

- 7.4.1. Generally, users are not assigned to a specific CPI-MT role or group. They maintain their CPI-MT profile (contact information and preferences) and may search and view everything in the database except metrics.
- 7.4.2. Team members have the same rights as general users, and may use CPI-MT discussions, issues and taskings to collaborate on projects to which they are assigned. They may also view, add or edit documents and view metrics and status reports for their assigned projects.
- 7.4.3. Team leads have the same rights as team members, for the projects to which they are assigned, and may enter information into CPI-MT. They may create or modify charters, create or manage projects, add or remove team members, update metrics (performance and operational) and request permission to proceed to the next project phase (gate approval) if required. **Note:** Team leaders are responsible for the accuracy of data loaded into CPI-MT.
- 7.4.4. Process owners and champions have the same rights as team leaders, and may approve/reject requests to proceed to the next project phase (gate).
- 7.4.5. Financial representatives currently have the same rights as team members, and may validate and lock performance tracking (financial) metrics. This role is under review based on efforts to import applicable data from the financial reporting template into CPI-MT.

7.4.6. Work tree administrators (WTA) may create or modify the work tree structure. They may edit and move projects within their respective branch of the work tree, invite new users, assign users rights and privileges, edit user profiles, and delete users. They also perform database quality control with respect to work tree issues (i.e., project location, user accounts, etc.). WTAs are not responsible for the accuracy of data associated with individual projects, such as planned or actual milestone dates, metrics, etc.

7.4.7. Master process officers (certification group members) update user certification status. HQ AETC/CCO is the master process officer for AETC personnel.

7.5. Content Organization. Projects are organized in CPI-MT under a work tree (a hierarchic structure, much like the Windows[®] file system). The root directory, CPI Projects, contains two branches: Air Force Key Processes and Air Force Organization Type and Location. AETC is under Air Force Organization Type and Location, and is further divided into branches for each major installation. HQ AETC/CCO will create branches for additional organizations as necessary.

7.5.1. HQ AETC/CCO has appointed a primary and an alternate WTA for AETC and will appoint additional WTAs as needed for subordinate work tree branches.

7.5.2. Users create and maintain AETC AFOS21 projects in the appropriate AETC work tree branch. AETC AFOS21 projects will not appear above the AETC subordinate branch work tree level without approval of the AETC WTA.

7.6. Account and Documentation Procedures. Facilitators and team leads should ensure appropriate members of a project team have a CPI-MT account established in order to participate in the collaborative environment. All significant documents related to a project will be posted in CPI-MT. At minimum, post deliverables for the project; including the charter, event agenda, event out brief, A3 report, value stream maps, action and/or implementation plan, financial reporting template and any other documents deemed necessary or potentially helpful from a lessons learned or historical perspective.

7.6.1. CPI-MT users may use their common access card (CAC) to register at <https://www.my.af.mil/afso21prod/AFSO21/Home.page>.

7.6.2. Self-registered users who require access rights other than search/view should E-mail the HQ AETC AFOS21 workflow account.

Chapter 8

TRAINING AND CERTIFICATION

8.1. HQ AETC/CCO. HQ AETC/CCO is the office of primary responsibility (OPR) for various levels of training and certification throughout AETC.

8.1.1. 8-Step Problem Solving Training. Basic CPI training and an overview of the concepts, benefits, principles, and expected outcomes associated with CPI. Although CPI involves various methodologies, the 8-step training focuses on the Air Force 8-step problem solving process and a standard approach to lean, which is a business philosophy advocating cutting waste from processes.

8.1.2. Green Belt Training. Applied process improvement training in a classroom environment; includes group dynamics and facilitation skills. Certification also requires candidates to observe, co-lead and lead three CPI process improvement/problem solving events, and teach one awareness course. An individual certified at Green Belt or above can also conduct ongoing awareness training.

8.1.3. Black Belt Training. Advanced process improvement methodologies, group dynamics, facilitation, and process engineering training in a classroom environment followed by participation and application of skills in a series of lean, process reengineering or other CPI improvement events or projects in more than one CPI methodology, with one or more events at a cross-functional or enterprise-wide level. Green Belt certification is a prerequisite for Black Belt Training. The Department of Defense (DoD) course, sponsored by SAF/USMS, satisfies Black Belt certification requirements.

8.1.4. Master Black Belt Training. Consists of additional experience of up to 20 process improvement events or projects in more than one process improvement methodology done primarily at a cross-functional or enterprise-wide level, in addition to classroom training as necessary to satisfy knowledge and skill requirements. Black Belt certification is a prerequisite for Master Black Belt training. The Department of Defense (DoD) course, sponsored by SAF/USMS, satisfies Master Black Belt certification requirements.

8.1.5. Senior Leader and Executive Training. SAF/USMS sponsors senior leader (colonels, GS-15 and equivalents, and chief master sergeants) and executive (general officers and senior executive service personnel) training at various times throughout the year. The senior leader course is scheduled through HQ AETC/CCO. The executive course is scheduled through the Air Force Senior Executive Management Office.

8.2. SAF/USMS. Establishes standards for CPI education and training course material and instruction. The AFSO21 Playbook outlines specific requirements for Green Belt, Black Belt and Master Black Belt certification.

8.3. Responsibilities:

8.3.1. HQ AETC/CCO:

8.3.1.1. Assists wings and directorates in establishing and sustaining training programs.

8.3.1.2. Serves as AETC sole authority for Green Belt certification.

8.3.1.3. Maintains a list of approved Green Belt trainers.

8.3.1.4. Monitors training and certification for all Black Belt and Master Black Belt trainees.

8.3.2. AETC Wing/Directorate/NAF CPI Offices:

8.3.2.1. Manages the Green Belt training program.

8.3.2.2. Approves qualified personnel to serve as Green Belt trainers.

8.3.2.3. Identifies requirements for Green Belt, Black Belt and Master Black Belt certified individuals to HQ AETC/CCO.

8.3.2.4. Provides standardized facilitator tools and templates on the HQ AETC/CCO SharePoint site "Facilitator Tool Kit" folder.

8.4. Certification Requirements. Table 8.1 describes Green Belt, Black Belt and Master Black Belt certification requirements, including standard academic requirements. Paragraphs 8.5 through 8.7.5 provide additional information on AETC certification requirements.

Table 8.1. Certification Requirements.

I T E M	A	B	C	D
	Requirement	Green Belt	Black Belt (See Note)	Master Black Belt
1	Problem Solving Prerequisite (Desired)	N/A	Lead 10 Events (13 total cumulative)	Lead 10 Events (23 total cumulative)
2	Problem Solving Certification (Minimum)	Observe, co-lead, and serve as lead facilitator for a total of three CPI events.	Lead problem solver/facilitator for three or more group level or higher CPI events.	Lead problem solver/facilitator for five CPI projects, and 2 years of lean/Six Sigma experience.
3	Teaching (Minimum)	Teach one awareness class	Teach one green belt class and mentor two Green Belt trainees	Instruct one Black Belt class and mentor two Black Belt trainees
4	Training Time Frame (Suggested)	6 months	6 to 8 months	15 to 24 months
5	Academic (Minimum)	SAF/USMS approved Green Belt course	SAF/USMS approved Black Belt course	SAF/USMS approved Master Black Belt course
Note: Black Belt trainees are required to attend a Business Partner Immersion (BPI) Internship.				

8.5. Green Belt Training/Certification.

8.5.1. Only approved trainers may teach the Green Belt course. Organizations may approve and maintain a pool of certified trainers as determined by the needs of the organization. At minimum, trainers must be Black Belt certified (or in training to become Black Belt) and possess teaching competencies (ability to communicate effectively, desire to teach, etc.). CPI offices shall periodically monitor Green Belt training classes to ensure consistency and adherence to standards.

8.5.2. Directorate, NAF, and wing CPI offices schedule and conduct Green Belt courses to meet organizational needs. Key considerations include the ability of the organization to certify students in the prescribed timeframe and the number of students requiring training and/or coaching/mentoring. If open seats exist for a class, directorates, NAFs, and wings should contact HQ AETC/CCO to allow students from other locations to fill the seats.

8.5.3. Trainers use only SAF/USMS-approved training material located at <https://www.my.af.mil/afknprod/community/views/home.aspx?filter=OO-TR-AF-43>. Additional locally developed material may supplement or augment the Green Belt course as long as SAF/USMS approved material is taught in its entirety.

8.5.4. After each Green Belt class, directorate, NAF, and wing CPI offices update CPI-MT for students who successfully completed the class.

8.5.5. Directorates, NAFs, and wings assign a coach/mentor to each Green Belt trainee to mentor students through the certification process. Coaches/mentors must either be certified Black Belts or SAF/USMS Black Belt program candidates. Coaches/mentors should strive to ensure students receive as much practical experience as possible to build on the material taught in the Green Belt course, including observing events conducted by experienced facilitators.

8.5.6. Directorates, NAFs, and wings ensure students complete all certification requirements. All CPI events performed by Green Belt candidates must appear in CPI-MT. HQ AETC/CCO will generate certificates of completion and forward certificates to directorate, NAF and wing CPI offices along with a notification letter from AETC/CV to the appropriate commander or director. **Note:** HQ AETC/CCO will manage the training program for HQ AETC, including determining needs, scheduling classes, filling student quotas, assigning coaches/mentors, and tracking student certification progress, until each director has the in house ability to manage this program.

8.6. Black Belt Training/Certification:

8.6.1. Black Belt training and certification is managed at SAF/USMS.

8.6.2. Directorates, NAFs, and wings will submit training requirements and candidates' names to HQ AETC/CCO. Candidates' organizations are normally responsible for travel costs associated with training.

8.6.3. HQ AETC/CCO manages command training allocations and forwards candidates' names to SAF/USMS.

8.6.4. Directorate, NAF, and wing CPI offices work with AETC/CCO to assign a qualified Black Belt coach/mentor to each student. Ideally, coaches/mentors and students reside at the same location to minimize travel costs and enable greater interaction.

8.6.5. Coaches/mentors monitor student progress and periodically update the directorate, NAF or wing CPI office and CPI-MT. All CPI events performed by Black Belt candidates must appear in CPI-MT.

8.7. Master Black Belt Training/Certification:

8.7.1. Master Black Belt training and certification is managed at SAF/USMS.

8.7.2. HQ AETC/CCO will identify training requirements and the names of candidates. The candidate's organization is normally responsible for all travel costs associated with training.

8.7.3. HQ AETC/CCO manages command training allocations and forwards candidates' names to SAF/USMS.

8.7.4. HQ AETC/CCO will assign a qualified Master Black Belt coach/mentor to each student. Ideally, coaches/mentors and students reside at the same location to minimize travel costs and enable greater interaction.

8.7.5. Coaches/mentors monitor student progress and periodically update the HQ AETC/CCO and CPI-MT. All CPI events performed by Master Black Belt candidates must appear in CPI-MT.

Chapter 9

AWARDS AND RECOGNITION

9.1. Air Force Awards Programs. AETC/CC recognizes the value of Air Force recognition programs such as the Innovative Development through Employee Awareness (IDEA), Best Practices Clearinghouse, and Air Force Chief of Staff Team Excellence Award. CPI teams and individuals are encouraged to submit their initiatives for those recognition programs.

9.2. AETC CPI Awards and Recognition. AETC/CC wants to recognize people and organizations that use CPI tools and processes to move their agencies forward. Command CPI awards recognize the most effective AETC organizations and individuals for outstanding accomplishments.

9.3. Quarterly and Annual Award Eligibility. Teams and individual facilitators are eligible for the quarterly and annual awards. Event documentation must be uploaded to CPI-MT for consideration.

9.4. Selection Criteria. Winners will be selected based on event results, use of data, sustainment, and cross tell potential. The scoring tool is located on the HQ AETC/CCO SharePoint site. HQ AETC/CCO will run reports from CPI-MT quarterly and review events posted during that quarter. Quarterly award winners will be selected by the HQ AETC/CCO staff. Annual award winners will be selected by peer CPI POCs.

9.5. On-the-Spot Recognition. AETC/CC will be briefed on incidents of outstanding performance. POCs are encouraged to highlight CPI results any time AETC/CC is on their base.

9.6. Prescribed Forms.

AETC Form 94, *Facilitator Work Request*.

9.7. Adopted Forms.

AF Form 847, *Recommendation for Change of Publication*.

ANTHONY F. PRZYBYSLAWSKI,
Major General, USAF
Vice Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DODI CPI 5010.43, *Implementation and Management of the DoD Wide Continuous Process Improvement/Lean Six Sigma (CPI/LSS) Program*, 17 July 2009

AETCI 90-1101, *Strategy Management*, 16 November 2009

Abbreviations and Acronyms

AFRS—Air Force Reserve Command

AFSO21—Air Force Smart Operations for the 21st Century

AIP—annual improvement plan

ANG—Air National Guard

AU—Air University

CAC—common access card

CM—change management

CPI—continuous process improvement

CPI—MT—continuous process improvement management tool

DoD—Department of Defense

DRU—direct reporting unit

EC—executive council

FOA—field operation agency

HQ—headquarters

IDEA—Innovative Development through Employee Awareness

JDI—just do it

MAJCOM—major command

MOP—measures of performance

NAF—numbered air force

OPR—office of primary responsibility

PIE—process improvement effort

PMR—program management review

POC—point of contact

RIE—rapid improvement event

SAF/USM—Secretary of the Air Force/Undersecretary Chief Management Office

WTA—work tree administrator

Terms

Air Force Smart Operations for the 21st Century (AFSO21)—An objective assessment of key Air Force processes focused on improvement. AFSO21 (CPI) tools and techniques are applied to promote process improvement, eliminate waste and create feasible action plans.

AETC Benchmark—A superior method or innovative practice that contributes significantly to improved performance of a process across the command.

Annual Improvement Plan—A prioritized list of strategically aligned process improvement efforts.

Champion—An individual who takes an active sponsorship and leadership role in conducting and implementing CPI projects. Champions are aware of CPI methodologies, can adequately review projects, can remove barriers, and secure adequate resources and support.

Maturity Matrix—A self-inspection tool for directors and commanders to measure progress toward implementing and sustaining continuous process improvement.

Process Improvement Efforts—Just Do It, Rapid Improvement Event, or Improvement Project/Event.

Process Owner—The manager of a process; has the authority to change the process.

Strategy Map—Strategy management framework designed to clarify the leadership strategic priorities, and translate strategic objectives into operational terms.

Attachment 2

SAMPLE CHARTER WORKSHEET/DESCRIPTIONS

A2.1. Sample Charter Worksheet/Descriptions. The charter worksheet in Figure A2.1 is used to formulate all process improvement information before the improvement effort begins. The template is available on the HQ AETC/CCO Sharepoint site at <https://eis.aetc.af.mil/hq/cc/afso21.aspx>.

Figure A2.1. Sample Charter Worksheet, Element Descriptions.

Charter: <Event Title Here>

Champion/Process Owner	Individual in an organization with the authority to commit and dedicate resources.
Problem/Opportunity Statement	Statement that describes as many of the following as possible: what is happening, what should be happening, what is not happening, where it is happening, when it is happening and who is affected by the problem.
Impact Statement:	Statement that describes how the problem affects the people and mission accomplishment.
Project Scope:	Statement describing the depth and organizational breadth of the improvement event.
Brief Description of Current Process:	Describe the steps involved in the process.
Current Performance:	Quantifiable data that supports the problem/opportunity.
Team Members:	Team Lead: Facilitator: Other:
Potentially Affected Users:	Statement listing who is affected by the problem, and who will be (or may be) affected by the improvement/change.

Attachment 3

USAF PROBLEM-SOLVING PROCESS AND RELATED TOOLS

A3.1. Process. Figure A3.1 through Figure A3.18 illustrate the Air Force problem-solving process, and common tools related with each step of the process. Figures A3.1 and A3.2 show what the A3/ledger report looks like and how it can be used. Figure A3.3 through Figure A3.18 show the list of tools used in each step, followed by an example of how a unit accomplished the step.

A3.2. Template. The problem-solving process A3 template is available on the HQ AETC/CCO SharePoint site at <https://eis.aetc.af.mil/hq/cc/afso21.aspx>.

Figure A3.1. USAF Problem-Solving Process and Related Tools.

<p>OODA - Observe, Orient, Decide, & Act 8-Step Problem Solving Process</p>	 <p>USAF Problem-Solving Process & Related Toolsets</p>	<p>Notes: - Tools listed are non-inclusive and can be used in multiple steps - Adjust block positions as required to allow all 8-steps to fit on paper</p>
<p><u>1. Clarify & Validate the Problem</u> (See Figures A3.3 and A3.4.)</p>	<p><u>4. Determine Root Cause</u> (See Figures A3.9 and A3.10.)</p>	<p><u>6. See Countermeasures Through</u> (See Figures A3.13 and A3.14.)</p>
<p><u>2. Break Down the Problem/Identify Performance Gaps</u> (See Figures A3.5 and A3.6.)</p>	<p><u>5. Develop Countermeasures</u> (See Figures A3.11 and A3.12.)</p>	<p><u>7. Confirm Results & Process</u> (See Figures A3.15 and A3.16.)</p>
<p><u>3. Set Improvement Target</u> (See Figures A3.7 and A3.8.)</p>	<p>Vector Check: "Permit-to-Proceed" on this plan</p>	<p><u>8. Standardize Successful Processes</u> (See Figures A3.17 and A3.18.)</p>
<p>Vector Check: Approval of work done and "Permit-to-Proceed"</p>	<p>Vector Check: "Permit-to-Proceed" on this plan</p>	

Figure A3.2. USAF Problem-Solving Process, Sample Completed Event A3 Report.

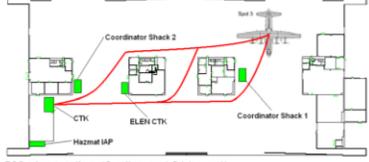
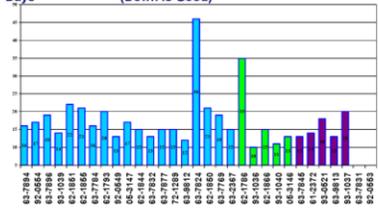
<p>Team: SSgt Jackson, SSgt Johnson, SSgt Smith, SSgt Clark, SSgt Chess, AIC Shambless, and Civ Watson</p>	<p>AW/MXG C-130 Isochronal Inspection VSM AW/MXG Anywhere AFB</p>	<p>Champion: Col White Process Owner: Maj Gray Team Lead: TSgt Brown Facilitator: Maj Black Event Dates: 22 Jan 2010 Completion Date: 25 Jan 10</p>
<p>1. Clarify & Validate the Problem ○ ○ D A</p> <ul style="list-style-type: none"> •Problem: High demand for C-130. Unpredictable ISO process does not allow for reconstitution, training and program management •Link to SA&D—O2.1/3.1; P1.2/4.1 W2.1/3.1/4.1/5.1 •Future state direction: Reduce 3 days and eliminate weekend duty (taking care of our Airmen) •Initial \$30K budget to establish improvements •Waste walk opportunities: Waiting, transportation, motion; numerous 6 S areas for improvement; management of personnel appears to be "controlled chaos" 	<p>4. Determine Root Cause ○ ○ D A</p> <ul style="list-style-type: none"> •Utilized brainstorming, fishbone and affinity •Main causal factors: No organizational structure, lack of visual management, no supply inventory, no pre-kits, CTK location, lack of standardized toolboxes, ISO stands and paper tech orders. •Average trip to CTK—409 ft; 2 min 30 sec  <p>•509 trips totaling 46 miles and 21 hours!!</p>	<p>6. See Countermeasures Through ○ ○ D A</p> <ul style="list-style-type: none"> •Second look will take place in Feb 10—a standardized flow for the Isochronal process—Rapid Improvement Event •6S is planned for Jun 10 •Visual Management budget purchased 4 LED monitors •AFSO21 funds requested for ISO stands and facilities upgrades, but denied due to cost avoidance versus real cost savings •CTK move scheduled for Fall 10 •Ran 1st aircraft through with 2-day reduction in lead time
<p>2. Break Down the Problem/Identify Performance Gaps ○ ○ D A</p> <ul style="list-style-type: none"> •More analysis required; current process is not documented or visually displayed •KPI/Metrics: Current fly-to-fly time can (and usually does) exceed 16 days; large number of failed inspections by quality audit •Current performance: in hangar for 8+ days •No production to TAKT •Maintenance members working 4 planes at various stages in the ISO process at one time—based upon urgency of ISO coordinator 	<p>5. Develop Countermeasures ○ ○ D A</p> <ul style="list-style-type: none"> •Utilized pick chart and determined action plan •Action items: <ul style="list-style-type: none"> • Clarify personnel structure through standardized organizational flowchart and visual management • Strategic prioritization of ISO work cards and develop standardized process flow chart • Standardized supply inventory process to meet current operational demand while implementing visual aids • Develop standardized AFSC specific toolboxes and evaluate tool-brand compatibility • Relocate CTK to streamline tool checkin/checkout process and co-locate primary aircraft spots with tool/equipment location • Identify and procure user friendly ISO stands with proper utilities, allow access to entire airframe, allow jacking, general overall ease of maintenance and increase safety • Provide laptops/hardcopies for high demand technical orders 	<p>7. Confirm Results & Process ○ ○ D A</p> <p>•Days (Down is Good)</p> 
<p>3. Set Improvement Target ○ ○ D A</p> <ul style="list-style-type: none"> •Improvement target set: Get ISO bird out during 1 work week (Monday through Friday) •Challenge: Showing the waste to the workers; changing current culture of leadership and maintenance •Free up weekends for ISO dock 	<p>8. Standardize Successful Processes ○ ○ D A</p> <ul style="list-style-type: none"> •Ongoing project—initial look has trimmed 48 hours off of old process •Standard work implementation in progress •Two-dock system being developed and fine tuned •Key to getting it down to one week will be new ISO stands (POMd through AMC for next year) 	

Figure A3.3. Step 1, USAF Problem-Solving Process.

<p>1. Clarify & Validate the Problem</p> <ol style="list-style-type: none"> Does this problem, when solved, help meet needs identified by the organization? <ul style="list-style-type: none"> - Is it linked to the SA&D of organization? - Does it help satisfy customer needs (VOC)? Does this problem, when solved, address key issues identified during SWOT analysis? Has this problem been identified and directed by a Value Stream Map at the appropriate level? <ul style="list-style-type: none"> - What does the "Future State" need? - What resources have been identified to address this issue? What opportunities were identified or observed by the process or problem area "walk"? <ul style="list-style-type: none"> - Will addressing or improving these issues deliver results that relate to #a or #b? - Will addressing or improving this problem deliver the desired future state from #c? <p>TOOLS: SA&D, Voice of Customer, VSM, Go & See</p>
--

Figure A3.4. Step 1, Sample Completed Event, USAF Problem-Solving Process.

O O D A

1. Clarify & Validate the Problem

- Problem: High demand for C-130. Unpredictable ISO process does not allow for reconstitution, training and program management
- Link to SA&D—O2.1/3.1; P1.2/4.1 W2.1/3.1/4.1/5.1
- Future state direction: Reduce 3 days and eliminate weekend duty (taking care of our Airmen)
- Initial \$30K budget to establish improvements
- Waste walk opportunities: Waiting, transportation, motion; numerous 6 S areas for improvement; management of personnel appears to be “controlled chaos”

Slide

Figure A3.5. Step 2, USAF Problem-Solving Process.

2. Break Down the Problem/Identify Performance Gaps

- a. Does the problem require more analysis or does leadership have enough information to execute a solution?
 - Is this simply a leadership directive?
- b. If more data is needed, how do we measure performance now?
 - What are the KPIs? What is the performance gap?
- c. Does other “non-existent” data need to be gathered?
- d. What does the data indicate are the potential root causes?
- e. Does the data review indicate a bottleneck or constraint?

TOOLS: KPI/Metrics, Performance Gap Analysis, Bottleneck Analysis

Figure A3.6. Step 2, Sample Completed Event, USAF Problem-Solving Process.

2. Break Down the Problem/Identify Performance Gaps O O D A

- More analysis required; current process is not documented or visually displayed
- KPI/Metrics: Current fly-to-fly time can (and usually does) exceed 16 days; large number of failed inspections by quality audit
- Current performance: in hangar for 8+ days
- No production to TAKT
- Maintenance members working 4 planes at various stages in the ISO process at one time—based upon urgency of ISO coordinator

Slide

Figure A3.7. Step 3, USAF Problem-Solving Process.

3. Set Improvement Target

- a. Is the improvement target measurable? Is it concrete? Is it challenging?
- b. Is the target “Output Oriented”?
 - What is the desired output?
 - Should be “things to achieve”; should avoid “things to do”
 - Will be addressed by Action Plans (Step 5)
- c. The desired target should:
 - Do what? By how much? By when?
- d. If it is a Process Problem, what is the future state?
 - How will it be realized?

TOOLS: Ideal State, Future State Mapping, B-SMART

Vector Check: Approval of work done and “Permit-to-Proceed”



Figure A3.8. Step 3, Sample Completed Event, USAF Problem-Solving Process.

O O D A

3. Set Improvement Target

- Improvement target set: Get ISO bird out during 1 work week (Monday through Friday)

- Challenge: Showing the waste to the workers; changing current culture of leadership and maintenance

- Free up weekends for ISO dock

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Figure A3.9. Step 4, USAF Problem-Solving Process.

4. Determine Root Cause

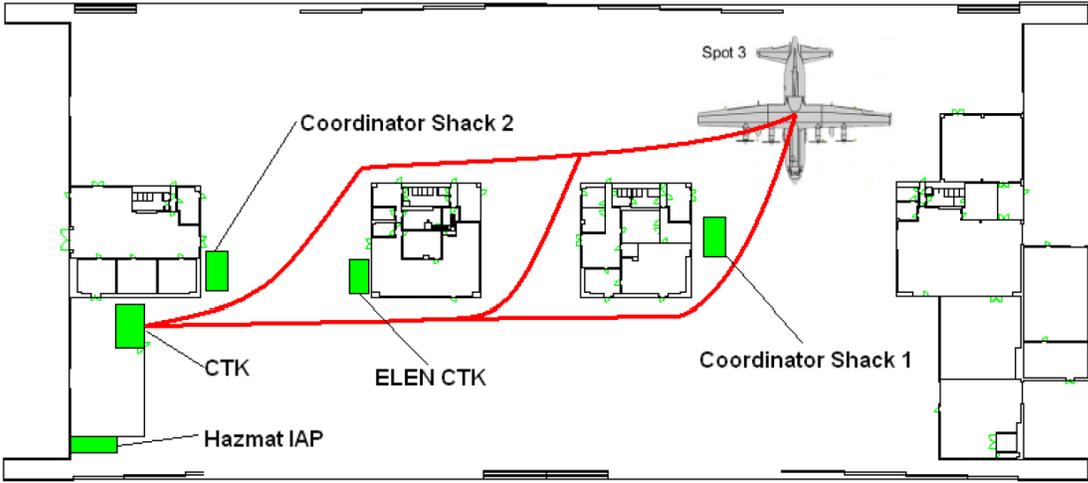
- a. What root cause analysis tools are necessary?
 - Why are these tools necessary?
 - What benefit will be gained by using them?
 - Who will need to be involved in the root cause analysis?
 - 10 heads are better than one
 - Remember "cultural" issues related to problem
- b. What is (are) the root cause(s) according to the tools?
- c. How will the root cause be addressed?
- d. Will addressing these address the performance gap?
- e. Can the problem be turned on or off by addressing the root cause?
- f. Does the root cause make sense if the 5 Whys are worked in reverse?
 - Working in reverse, say "therefore" between each of the "whys"

TOOLS: 5 Whys, Brainstorming, Pareto, Affinity, Fishbone, Control Charts

Figure A3.10. Step 4, Sample Completed Event, USAF Problem-Solving Process.

4. Determine Root Cause O O D A

- Utilized brainstorming, fishbone and affinity
- Main causal factors: No organizational structure, lack of visual management, no supply inventory, no pre-kits, CTK location, lack of standardized toolboxes, ISO stands and paper tech orders.
- Average trip to CTK—409 ft; 2 min 30 sec



• 509 trips totaling 46 miles and 21 hours!!

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Figure A3.11. Step 5, USAF Problem-Solving Process.

5. Develop Countermeasures

- Develop potential countermeasures
 - Tools and philosophies from Lean, TOC, 6 Sigma and BPR as appropriate
- Select the most practical and effective countermeasures
- Build consensus with others by involving all stakeholders appropriately
 - Communicate, communicate, communicate
- Create clear and detailed action plan
 - B-SMART actions
 - Reference Facilitation Techniques as appropriate

TOOLS: A3, Action Plans, Timelines, Financial Reporting Template

Vector Check: "Permit-to-Proceed" on this plan



Figure A3.12. Step 5, Sample Completed Event, USAF Problem-Solving Process.

O O **D** A

5. Develop Countermeasures

- Utilized pick chart and determined action plan
- Action items:
 - Clarify personnel structure through standardized organizational flowchart and visual management
 - Strategic prioritization of ISO work cards and develop standardized process flow chart
 - Standardized supply inventory process to meet current operational demand while implementing visual aids
 - Develop standardized AFSC specific toolboxes and evaluate tool-brand compatibility
 - Relocate CTK to streamline tool checkin/checkout process and co-locate primary aircraft spots with tool/equipment location
 - Identify and procure user friendly ISO stands with proper utilities, allow access to entire airframe, allow jacking, general overall ease of maintenance and increase safety
 - Provide laptops/hardcopies for high demand technical orders

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Figure A3.13. Step 6, USAF Problem-Solving Process.

6. See Countermeasures Through

- a. Which philosophy best prescribes tools that address root cause(s)?
- b. Which tools best address root cause(s)?
- c. Which method for implementation fits the tool and improvement need?
 - Rapid Improvement Event?
 - Improvement Project?
 - Point Improvement or "Just Do It"?
- d. If RIE or Project, create "Charter" and communicate
- e. What training or education is needed? By Whom?

TOOLS: 6S & Visual Mgt, Standard Work, Cell Design, Variation Reduction, Error Proofing, Quick Changeover, TPM, RIE

Figure A3.14. Step 6, Sample Completed Event, USAF Problem-Solving Process.

6. See Countermeasures Through O O D **A**

- Second look will take place in Feb 10—a standardized flow for the Isochronal process—Rapid Improvement Event
- 6S is planned for Jun 10
- Visual Management budget purchased 4 LED monitors
- AFSO21 funds requested for ISO stands and facilities upgrades, but denied due to cost avoidance versus real cost savings
- CTK move scheduled for Fall 10
- Ran 1st aircraft through with 2-day reduction in lead time

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Figure A3.15. Step 7, USAF Problem-Solving Process.

7. Confirm Results & Process

- a. How are we performing relative to the Observe phase (Steps 1 & 2)?
- b. How are we performing relative to Step 3?
- c. How are we performing relative to Financial Reporting Template projections?
- d. If we are not meeting targets, do we need to return to Step 4?
 - Most problem solving “breakdowns” occur relative to improper root cause identification

TOOLS: KPIs/Metrics, Performance Mgt, SA&D, Standard Work, Audit

Figure A3.16. Step 7, Sample Completed Event, USAF Problem-Solving Process.

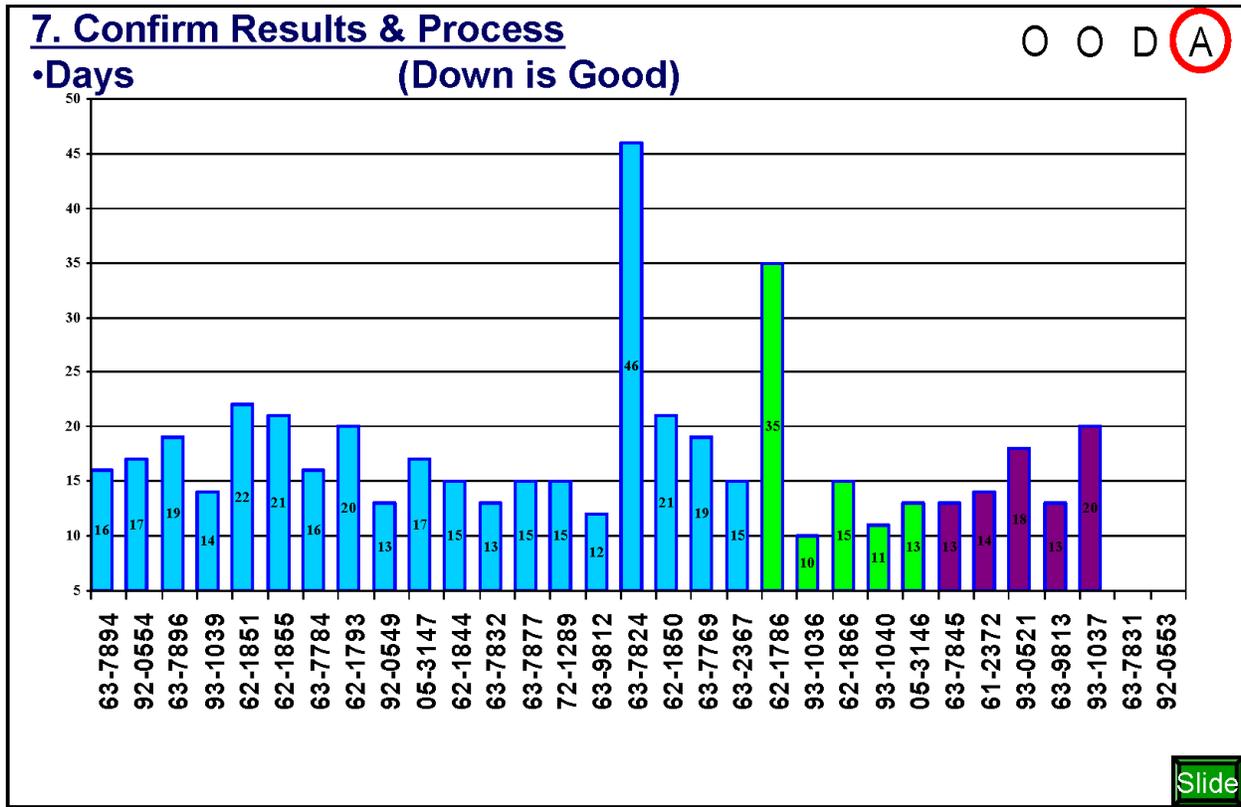


Figure A3.17. Step 8, USAF Problem-Solving Process.

8. Standardize Successful Processes

- a. What is needed to Standardize Improvements?
 - Tech Order changes?
 - Air Force Instruction changes?
 - Official Instruction changes?
- b. How should improvements and lessons learned be communicated?
 - PowerSteering
 - Key meetings?
- c. Were other opportunities or problems identified by the Problem Solving Process?
 - Restart OODA Loop

TOOLS: Checkpoints/Standardization Table, Report Out Theme Story, Broad Implementation, CPI Mgt Tool

Figure A3.18. Step 8, Sample Completed Event, USAF Problem-Solving Process.

8. Standardize Successful Processes O O D **A**

- Ongoing project—initial look has trimmed 48 hours off of old process
- Standard work implementation in progress
- Two-dock system being developed and fine tuned
- Key to getting it down to one week will be new ISO stands (POMd through AMC for next year)

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Attachment 4

CHANGE MANAGEMENT (CM) CONCEPTS AND TOOLS

A4.1. CM. CM is a planned and systematic process of continuously aligning and improving an organization's people, structure, and culture to meet organizational strategy. Its purpose is to help organizations initiate, accept, adapt to, and ultimately integrate changes to improve productivity and customer support. CM strategies are normally determined by the scope and size of the change initiative, and the priority senior management places on the initiative. The AETC CM Process provides a structured, consistent approach for change initiative teams responsible for building and executing effective CM strategies.

A4.2. Objectives:

A4.2.1. Minimize disruption often associated with the impact of change, while increasing the pace, improving implementation efficiency, and allowing the organization to focus on continued growth.

A4.2.2. Build ownership and commitment to change, enhanced capability to support envisioned changes, and an organizational environment that makes changes work.

A4.2.3. Ensure leadership alignment and commitment, communication and organizational buy-in, effective workforce training and education, and sustainability to anchor change into the organization's systems and structures.

A4.2.4. Anticipate and address potential obstacles to implementing change initiatives.

A4.3. Method. The AETC method describes five essential elements for successfully implementing change: leadership mobilization and alignment, assessing and managing readiness and risk, communicating and engaging with stakeholders, preparing and equipping the workforce, and institutionalizing the change. These elements can be performed in a sequential process, where one builds upon the results of the previous element, or they can be performed individually, depending on the size and scope of the change initiative. Table A4.1 shows the critical success factors for each of the elements. For instructions on completing steps associated with each element, go to the AFMC Change Management CoP at <https://wwwd.my.af.mil/ASPs/CoP/OpenCoP.asp?Filter=OO-XP-MC-52>.

Table A4.1. Change Management Elements/Critical Success Factors.

F A C T O R S	A	B	C	D	E
	ELEMENTS				
	Leadership Mobilization and Alignment	Assessing and Managing Readiness and Risk	Communicating and Engaging with Stakeholders	Preparing and Equipping the Workforce	Institutionalize the Infrastructure
1	Leadership buy-in and commitment to the vision of the future state that will result from change initiative.	Identification and removal of barriers to successful implementation of the change initiative, within both the stakeholder audience and the workforce affected by the change initiative.	Clear, consistent, constant messages delivered by the appropriate messenger to the appropriate audience.	Motivational factors that build and maintain active participation of the workforce and solidify its commitment to the change initiative.	A process is in place for future decision making, managing and monitoring the progress of the change initiative.
2	Well-defined roles for decision making, problem solving, and leadership involvement throughout the change process.	Effective use of enablers and supporters of the change initiative.	Messages are delivered in a timely manner using the most efficient methods of delivery.	Necessary competencies and skills are being developed to accommodate process changes.	Roles and responsibilities have been defined for sustaining the change.
3	Effective coalitions across and within the organization.	Acknowledgment and mitigation of risks, issues and concerns among stakeholders.	Well-used feedback methods between the change initiative owner, the change team, stakeholders, and the affected workforce.	Education and training needs have been addressed to accommodate process changes.	Celebration strategies are executed as milestones are reached.
4	Demonstrated leadership engagement with stakeholders, change initiative team members and the workforce.				