

PART 3. CPI STEP-BY STEP INSTRUCTIONS

STEP 1: REVIEW MISSION AND VISION

OBJECTIVE:

- The purpose of this step is to assure alignment of improvement efforts with the overall unit mission and vision.
- Key services and supporting processes should be linked to the unit mission and be important to achieving the unit vision.

CRITICAL ACTIVITIES:

- Review the existing mission and vision.
- Revise/develop if needed.

TIPS:

- Mission:
 - Why does our unit exist?
 - Who do we serve? What do we do for them?
 - What are our key products or services?
 - What value does our unit add to the organization?
- Vision:
 - Where are we going?
 - How would we like to view our services in 5 or 10 years?

TOOLS:

- Brainstorming
- Affinity
- SWOT (Strengths, Weaknesses, Opportunities, and Threats)

STEP 2: CHOOSE A PROCESS

OBJECTIVE:

- The goal of this step is to prioritize the list of possible improvement opportunities and select a key or critical process used to produce one of the units primary services.

CRITICAL ACTIVITIES:

- Develop a list of key services.
- Identify the primary processes in producing those services.
- Develop criteria for selecting a process for improvement.
- Identify and collect pertinent data.
- Prioritize improvement opportunities.

TIPS:

- A process is a step-by-step activity intended to obtain results.
- Is the process repetitive?
- Can you identify the beginning and ending of the process?
- Can you identify the inputs and outputs?
- Who is the process owner?
- Does the process cross functional/unit boundaries?
- Are data needed to determine process significance?
- Possible selection criteria might include:
 - Process complexity
 - Clarity of customer identification
 - Authority to change the process
 - Potential for improvement
 - Performance measurements
 - Benchmarks
 - Direct influence on service quality

- Impact of improvement
- Unit resources consumed by the process
- Alignment with unit mission
- Alignment with unit vision

TOOLS:

- Brainstorming
- Affinity
- SWOT (Strengths, Weaknesses, Opportunities, and Threats)
- Force Field Analysis
- Multivoting
- Graphs and Charts of Data (Line, Bar, Pie, Trend, Control, Pareto, Scatter, Histogram)
- Cost/Benefit Analysis
- Benchmarking
- Decision Matrix
- Macro-Process Flow Chart
- Key Process/Service Identification Summary at Appendix A

STEP 3: IDENTIFY VALID CUSTOMER REQUIREMENTS

OBJECTIVE:

- The goal of this step is to clearly and accurately identify the required performance or characteristics of the outputs from the process.

CRITICAL ACTIVITIES:

- Identify all persons or units impacted by the process.
- Identify the recipients of the outputs of the process.
- Determine the primary customers.
- Develop measurable characteristics defining the quality of the process outputs.
- Verify output specifications are customer-driven.

TIPS:

- Every process has a result: the process produces a product or service.
- Examples of measurable quality characteristics could include: timeliness, accuracy, cost, completeness, quantity, dimension, and waiting time.
- Every process must serve a customer who is the immediate recipient of the product or service.
- There are internal customers as well as external customers.
- The internal customer should never expect or demand any service or product which does not ultimately serve the external customer.
- The customer sets the valid requirements for the product or service resulting from the process. The customer defines quality.
- Suppliers can negotiate customer requirements. Customers can and often will have unrealistic expectations for a process. It is up to the supplier to negotiate requirements that are reasonable and will still satisfy the customer.
- Requirements change and must be continuously validated.
- Current and future requirements can be different. Future requirements must sometimes be anticipated and planned for.
- Only by knowing the customer and knowing the customer's requirements can we be sure the process is indeed meeting those needs, meeting the valid requirements which the customer defines.
- If there is no customer, there is no reason a process should exist.

TOOLS:

- Brainstorming
- Survey
- Questionnaire
- Pareto
- Focus Group
- Interview
- Complaint Data

- Suggestion Systems
- Decision Matrix
- Benchmarking

STEP 4: DOCUMENT THE PROCESS

OBJECTIVE:

- The goal of this step is to develop a visual map of exactly how the process works now.

CRITICAL ACTIVITIES:

- List the process inputs and outputs.
- Identify the process owner/decision maker
- Identify key suppliers.
- Use existing flow charts or procedures manuals as a guide.
- Determine the level of detail.
- Document the steps as they actually occur.
- Revise to expand the detail if needed.
- Identify processes which "touch" this process.

TIPS:

- Flexible tools like index cards and post-it notes can help with revisions.
- Don't skip this step.
- Identify when laws/statutes are involved.

TOOLS:

- Flow Chart
- Interview
- Key Process/Service Identification Summary at Appendix A

STEP 5: MEASURE THE PROCESS

OBJECTIVE:

- The goal of this step is to identify and collect the data needed to determine if our process is producing the desired results.

CRITICAL ACTIVITIES:

- Identify the customer's most important, valid requirements (e.g. accuracy, turnaround time, waiting time, completeness, durability).
- Establish measurements.
- Gather the data.

TIPS:

- What is data?
 - Data is information about a process. It can be numerical values such as amount of time spent waiting in line or the number of missing items from an invoice statement. Data are also opinions and behaviors.
 - Data serves as a foundation for action.
 - Data represents the reality of a process as opposed to an opinion or guesswork about the process.
- Purpose for collecting data:
 - To understand the process, rather than rely on hunches.
 - To reflect fact and help make educated decisions about the process.
 - To identify and prioritize improvement opportunities.
 - To analyze root causes.
 - To create a baseline from which you would monitor improvement in the process.
- Planning for data collection:
 - What questions do we need to answer about the process with the data?
 - What data analysis tools (Pareto diagrams, histograms, control charts, etc.) do we envision using?
 - At what stage in the process can we get the desired information?

- Who in the process can provide us with the data?
- How can we collect the data from these people with minimal effort and minimal potential for error?
- What additional information do we need to gather for future analysis and investigation of the process?
- Dr. Joseph Juran gives the following criteria for selecting a unit of measure:
 - **It should be related to the final external customer.** If the customer does not benefit in a meaningful and measurable way, then the measurement is diluted.
 - **It should provide an agreed upon basis for decision making.** Unless the measurement is reliable and all concerned (those involved in the process and customers) agree it is a valid measurement, it simply will not be useful.
 - **It should be understandable.** At the technical or technology level, understanding is less a problem. Understanding becomes more crucial at the managerial and administrative levels where many times terminology is not precise and words have more than one meaning. Those involved must reach a common understanding of the terminology and definitions to be used.
 - **It should be economical to apply.** There should be a balance between the value of the measurement and the cost of measuring. The measurement should be done with relative ease, preferably with tools, knowledge and data already available to those who will be measuring or monitoring.

TOOLS:

- Survey
- Interview
- Checksheet
- Flow Chart
- Graphs and Charts of Data

6: IDENTIFY IMPROVEMENT OPPORTUNITIES

OBJECTIVE:

- The goal of this step is to determine how the process can be improved and the best way to achieve the improvements.

CRITICAL ACTIVITIES:

- Review data concerning process inputs, outputs, and customer satisfaction/ complaints.
- Review the flow chart to identify possible duplication, outdated procedures or technology, actions which add no value, and other indicators of possible improvement opportunities.
- Determine if obvious improvements can be made. (If so, go to Step 6A)
- Determine if process re-engineering is needed. (If so, go to Step 6B)
- Determine if process improvement through problem solving is necessary. (If so, go to Step 6C)

TIPS:

- Has a clear problem statement been developed?
- Are additional data needed to better understand the process performance?
- Will pareto analysis help prioritize possible improvement projects?
- How much improvement is really likely?
- How important are the possible improvements towards meeting unit objectives?
- What are the anticipated benefits of an improvement project?
- How much work will it be to further study the process?

TOOLS:

- Flow Chart
- Brainstorm
- Survey
- Interview
- Force Field Analysis
- Check Sheet
- Graphs and Charts of Data
- Cause and Effect Diagram

STEP 6A: IMPLEMENT OBVIOUS IMPROVEMENTS

OBJECTIVE:

- The goal of this step is to implement those improvements which require no further study.

CRITICAL ACTIVITIES:

- Determine if additional data are required to validate the solution/improvement will solve the problem without causing problems elsewhere.
- Determine who needs to know about the changes? Trained?
- Acquire all needed coordination and approvals to test the changes.
- Determine who will be responsible for making the change.
- Document the new procedures and update the flow chart if needed.
- Decide how you will measure the improvement.
- Train those affected by the change.
- Implement and measure the effects.
- Standardize the process.

TIPS:

- Are the root causes of the problem clear?
- Is it clear that the change will net improvement?
- Are you sure it won't have negative impacts elsewhere?
- Can the change be made easily and quickly?
- Does the change add value for the customer?
- Will "touched" processes be affected?

TOOLS:

- Cause and Effect Diagram
- Root Cause Analysis
- Value Added Analysis
- Cost/Benefit Analysis
- Checksheet
- Graphs and Charts of Data
- Checklist
- Action Plan

STEP 6B: RE-ENGINEER THE PROCESS

OBJECTIVE:

- The goal of this step is to **completely redesign the process** to obtain significant increases in efficiency and/or effectiveness in producing quality outputs.

CRITICAL ACTIVITIES:

- Start at the end of the process and work backwards.
- Assure you have a clear and valid description of the output requirements, current and future. Focus on the most important outcomes.
- Identify all requirements mandated by laws.
- Consider significant use of alternative technology.
- Benchmark best practices.
- Set a "stretch" objective.
- Do value-added analysis on each activity you build into the process.
- Construct a new flow chart from a clean sheet.
- Substitute parallel for sequential "hand-off" activities.
- Implement and measure the results.
- Standardize the re-engineered process.

TIPS:

- Barriers include: turf battles, resistance to change, unable to think "outside the box," lack of commitment from top management or process owner.
- Be sure the process and the owners are ready for re-engineering.
- Re-engineer before designing automation systems.
- There should be a large gap between desired and actual process outputs/outcomes.
- Capture information one time as close to the source as possible.
- Provide a single point-of-contact for customers and suppliers whenever possible.
- Organize around outcomes versus functions.

TOOLS:

- Brainstorming
- Flow Chart
- Cost/Benefit Analysis
- Value Added Analysis
- Force Field Analysis
- Checksheet
- Graphs and Charts of Data
- Checklist
- Action Plan

STEP 6C: SOLVE THE PROBLEM

OBJECTIVE:

- The goal of this step is to identify and implement process improvements.

CRITICAL ACTIVITIES:

- Use a systematic problem-solving model (process improvement model) such as:
 - 1. Identify and Select the Problem**
 - a. Develop a clear problem statement.
 - b. Identify a measurable goal for improving the process.
 - c. Determine coordination and approval requirements.
 - d. Collect data to verify the problem statement and to establish a baseline.
 - 2. Analyze the Current Situation**
 - a. Document the history of the problem.
 - b. Expand the flow chart detail to facilitate the needed level of analysis.
 - c. Collect and analyze data related to the problem.
 - d. Verify or revise the original problem statement.
 - 3. Identify the Potential Root Causes**
 - a. Conduct root-cause analysis.
 - b. Collect additional data if needed to verify root causes.
 - c. Look at systemic issues.
 - 4. Identify and Pilot Solutions**
 - a. Develop a list of criteria for selecting solutions.
 - b. Generate a list of potential solutions.
 - c. Select a solution.
 - d. Develop a plan for a pilot test.
 - e. Obtain approval to test the solution.
 - f. Conduct a pilot implementation of selected solution.
 - 5. Measure the Results of the Changes**
 - a. Compare results with established goal in problem statement.
 - b. Determine if process adjustments are needed.
 - c. Identify any new or continuing problems.
 - d. Determine if a different solution is needed and return to step 4.
 - 6. Standardize the Revised Process**
 - a. Identify systemic changes and training needs for full implementation.
 - b. Plan and implement the solution system-wide.

TIPS:

- Follow the steps in the problem-solving model and avoid jumping to solutions.
- Base analysis and decisions on facts.
- Opinions are beneficial when used appropriately, understood as opinions versus facts, and when supported by data when needed.
- Customer needs and requirements are not static.
- Involve the right people in changing the process.
- People resist being changed more than change.
- When making process changes consider the impact on "touched" processes.

TOOLS: All

STEP 7: PLAN ONGOING MONITORING

OBJECTIVE:

- The goal of this step is to set up a procedure for measuring the performance of the process.

CRITICAL ACTIVITIES:

- Review the process measures developed in Step 5 for validity and effectiveness.
- Decide on a format for recording and displaying data collected.
- Periodically collect and document performance measures.
- Develop a plan to ensure that the process is reviewed by the process owner and decision maker on a regular basis.
- If applicable, use statistically derived upper and lower control limits.
- Investigate out-of-control variation to determine special and common causes.

TIPS:

- Variation occurs in every process.
- The more variation there is within a process, the less stable the process and the greater likelihood that the output will not meet customer-defined valid requirements.
- Special causes come from a condition external to the normal process.
- Common causes occur normally and predictably within the process.
- The goal is to have a controlled process, continually measured and continually improved.

TOOLS:

- Sampling
- Benchmarking
- Checksheet
- Graphs and Charts of Data
- Checklist
- Action Plan

STEP 8: DOCUMENT RESULTS

OBJECTIVE:

- The goal of this step is to capture information on results of improvement efforts.

CRITICAL ACTIVITIES:

- Identify the product or service and specific process which was studied.
- Describe the process changes which were made and associated measurement of results.
- Document both tangible and intangible benefits of the improvements.
- Provide documentation to the Productivity Services Section.

TIPS:

- Process improvement records will help to understand how the process has evolved in future reviews of the process.
- Records will help prevent undoing improvements in future changes.
- Records will enable the sharing of improvement successes so others can learn to improve their processes.
- Records will help to prevent "reinventing the wheel."

TOOLS:

- Meeting Minutes
- Sample format at Appendix C.

STEP 9: EVALUATE THE EFFORT

OBJECTIVE:

- The goal of this step is to capture lessons learned in using this guide to improve a process.

CRITICAL ACTIVITIES:

- Identify what steps or tools seemed to work really well.
- Identify what steps or tools didn't work well.
- Identify suggestions for improving this guide.
- Identify what you would want to do differently next time.
- Send the Feedback Sheet to the Productivity Services Section.

TIPS:

- Capturing this information throughout the process will aid in providing valuable feedback.
- Should any steps be expanded?
- Should additional tools be added?
- Are there additional tips which would be useful?
- Would additional appendices be useful?

TOOLS:

- Meeting Minutes
- Process Improvement Guide Feedback Sheet at Appendix D.

STEP 10: CHOOSE A NEW PROCESS OR CAUSE

OBJECTIVE:

- The goal of this step is to select the next key process for improvement or the next most significant cause of the problem.

CRITICAL ACTIVITIES:

- Return to Step 2 or 6.
- Use the criteria to determine if another process should be reviewed.
- Consider processes previously analyzed and showing indicators of possible problems or opportunities for new improvements or re-engineering.
- If multiple causes contributed to the problem, select the next cause for problem solution.

TIPS:

- Customer requirements are not static and must be continuously evaluated for changes, current and future.
- Technology innovations can provide new opportunities for improving or re-engineering processes.
- New products or services provide candidates for process management.

TOOLS:

- Brainstorming
- Multivoting
- Decision Matrix
- Pareto