


OODA – Observe, Orient, Decide, Act  
 PDCA – Plan, Do, Check, Act  
 DMAIC – Define, Measure, Analyze, Improve, Control  
 DDRFSI – Discovery, Design, Relevance, Feasibility, Sustainability, Impact

# USAF Practical Problem Solving Model & Related Toolsets

NOTES:  
 - Tools listed are non-inclusive and can be used in multiple steps; use as required  
 - Adjust block positions as needed to allow all 8-steps to fit on A3size paper


### 1. Clarify & Validate the Problem



- Does this problem, when solved, help meet identified needs?
  - Is it aligned to the organization's prioritized strategy as well as higher echelon strategy or to our AF five priorities?
  - Does it help satisfy customer needs (VOC)?
- Will this problem, when solved, address key issues identified in the Discovery phase or by using SWOT analysis?
- Has this problem been identified and directed by a Value Stream Map at the appropriate level?
  - What does the "Future State" need?
  - What resources have been identified to address the issue?
- What opportunities were identified or observed by the process or problem area "walk"? (Includes administrative flows that are hard to "walk")
  - Will addressing or improving these issues deliver results related to #a or #b?
  - Will addressing or improving this problem deliver the future state from #c?

**TOOLS:** SA&D, SecAF & CSAF five-priorities memo (31 July 2017), Voice of Customer, VSM, Go & See, Pain Point observations, SWOT


### 4. Conduct Cause Analysis



- What analysis tools are necessary?
  - Who'll need to be involved in root cause analysis?
    - 10 heads are better than one
    - Remember to address "cultural" issues related to problem
- What is (are) the root cause(s) according to the tools?
- How will the root cause be addressed?
- Will addressing these address the performance gap?
- Can the problem be turned on or off by addressing the root cause?
- For each potential root cause does it make sense if the 5 Whys are worked in reverse?
  - Working in reverse, say "therefore" between each of the "whys"
- Is there data supporting the true root causes?

**TOOLS:** 5 Whys, Brainstorming (Idea platform), Pareto Chart, Affinity, Fishbone, Control Charts, Histogram, Run Chart, Process Map, Scatter Diagram, FMEA, Interrelationship Graph


### 6. See Countermeasures Through



- Is there an Action Plan for each Countermeasure?
- When is the completion date?
- Develop the team and workforce
  - What training or education is needed? By Whom? Best method?
- Monitor and Control Implementation
  - Control Scope
  - Control Schedule
  - Control Costs
  - Control Quality

**TOOLS:** Action/Implementation Plans, Timelines, Gantt chart, Quality Assurance Surveillance Plan, Project Budget


### 2. Break down the Problem & Identify Performance Gaps



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


**TOOLS:** KPI/Metrics, Performance Gap Analysis, Lessons Learned Analysis, Bottleneck Analysis, Pareto Chart, Control Chart, VSM/Process Maps, Run/Bar/Pie charts

### 5. Develop Countermeasures (CM) & Implementation Plan



- Develop and design potential countermeasure features
  - Tools and philosophies from Lean, TOC, 6 Sigma, and BPR (as appropriate)
  - Use empirical data to judge the relevance, value, and effectiveness of countermeasures to the needs of the customer and verify they will use it
  - Test the feasibility of implementing the countermeasure
- Select the most practical and effective countermeasures
- Develop an Implementation Plan/Project Management Plan
- Build consensus with others by involving all stakeholders appropriately
  - Provide leadership with the body of data to decide if the organization can sustain the effort and scale if applicable
- Prioritization of countermeasures for implementation
- Develop "straw man" action plan for Vector Check

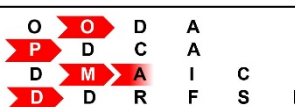
### 7. Confirm Results & Process Change



- How are we performing relative to the Observe phase (Steps 1 & 2)?
- Monitor overall effectiveness of the countermeasures to determine impact against desired outcome(s)
- How are we performing relative to Step 3?
- How are we performing relative to Resource Payoff projections?
- 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, Resource Breakdown Structure, Performance Management, Audit

### 3. Set Improvement Target(s)




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

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

**TOOLS:** [Design] 6S & Visual Mgt, Standard Work, Cell Design, Variation Reduction, Error Proofing, Quick Changeover, TPM  
 [Tradeoff Analysis] Force Field Analysis, PICK Chart, Financial Payoff Analysis (Hard/Soft Savings/Cost Avoidance), EVM  
 [2d/3d Order Effects] DOTmLPP-P analysis  
 [Level of Effort] Just Do It, Kaizen Burst, RIE, BPR, Project  
 [Project Management Plan] Resource Plan, Management Plan, Communication Plan, Change Management Plan, Risk Management Plan, Stakeholder Management Plan, Procurement Plan, Critical Path, Project Schedule (Gantt chart) with OPR/OCR/POC, RACI/RASCI Chart

### 8. Standardize Successful Processes



- What's needed to Standardize Improvements or Scale?
  - Tech Order changes?
  - Air Force Instruction changes?
  - Official Instruction changes?
- How should improvements and lessons learned be communicated?
  - Process Model Library updated
  - Key meetings?
  - Idea platform community discussion
- Were other opportunities or problems identified by the Problem Solving Process?
  - Restart OODA Loop?

**TOOLS:** Checkpoints/Standardization Table, Standard Work/AFI/policy changes, Network diagram, Precedence Diagram, Process Model, Performance Management update