



412th Test Wing



War-Winning Capabilities ... On Time, On Cost



U.S. AIR FORCE

**Title: Continuous Process
Improvement: The Air
Force Way Forward**

**Kimberley
Strong
412 TW/IG**

661-277-4598

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Integrity - Service - Excellence



Overview



- Introduction to the Practical Problem Solving Method (PPSM)
- A3
- Steps 1-8
- Successful examples
- Conclusion



Why the Practical Problem Solving Method?



- Proven method of identifying and solving problems
- Structured system that can be used by any level of employee
- Created to handle any level of problem from the smallest to the most complex
- Encourages innovation throughout all areas of a program



History



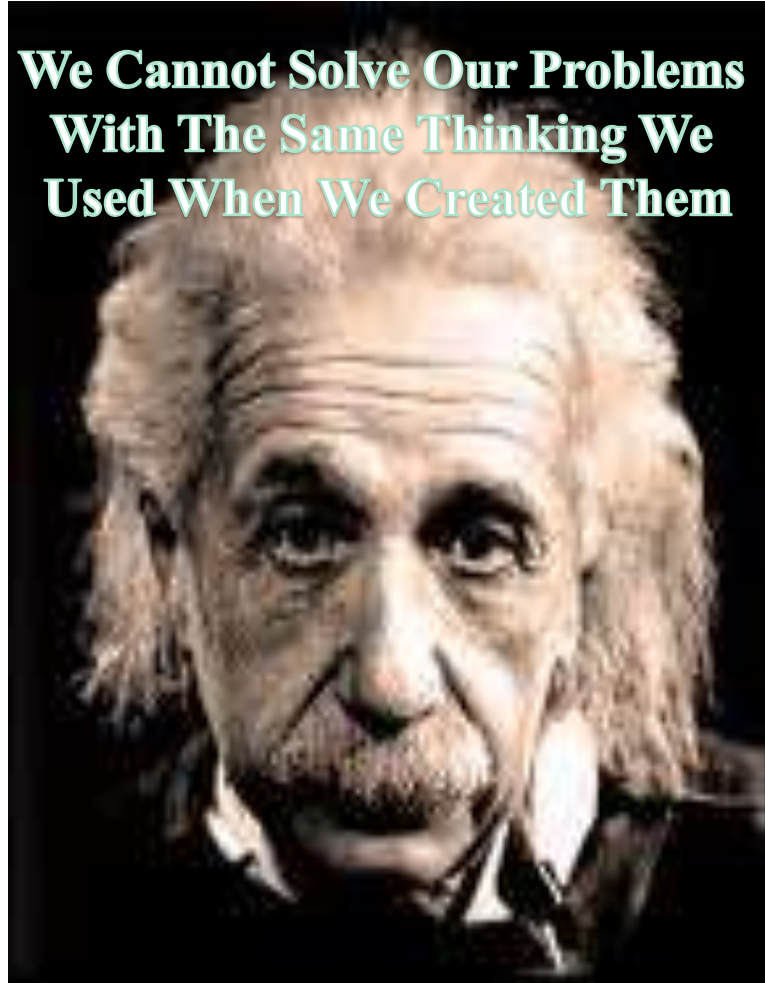
- This methodology was created by Toyota
- Used by companies large and small across the world
 - Boeing
 - Tesla
 - Kaiser-Permanente
 - Costco
- Has been implemented by the AF as the preferred method for problem solving and continuous process improvement



A New way of thinking?



**We Cannot Solve Our Problems
With The Same Thinking We
Used When We Created Them**





A3 Process Improvement Form

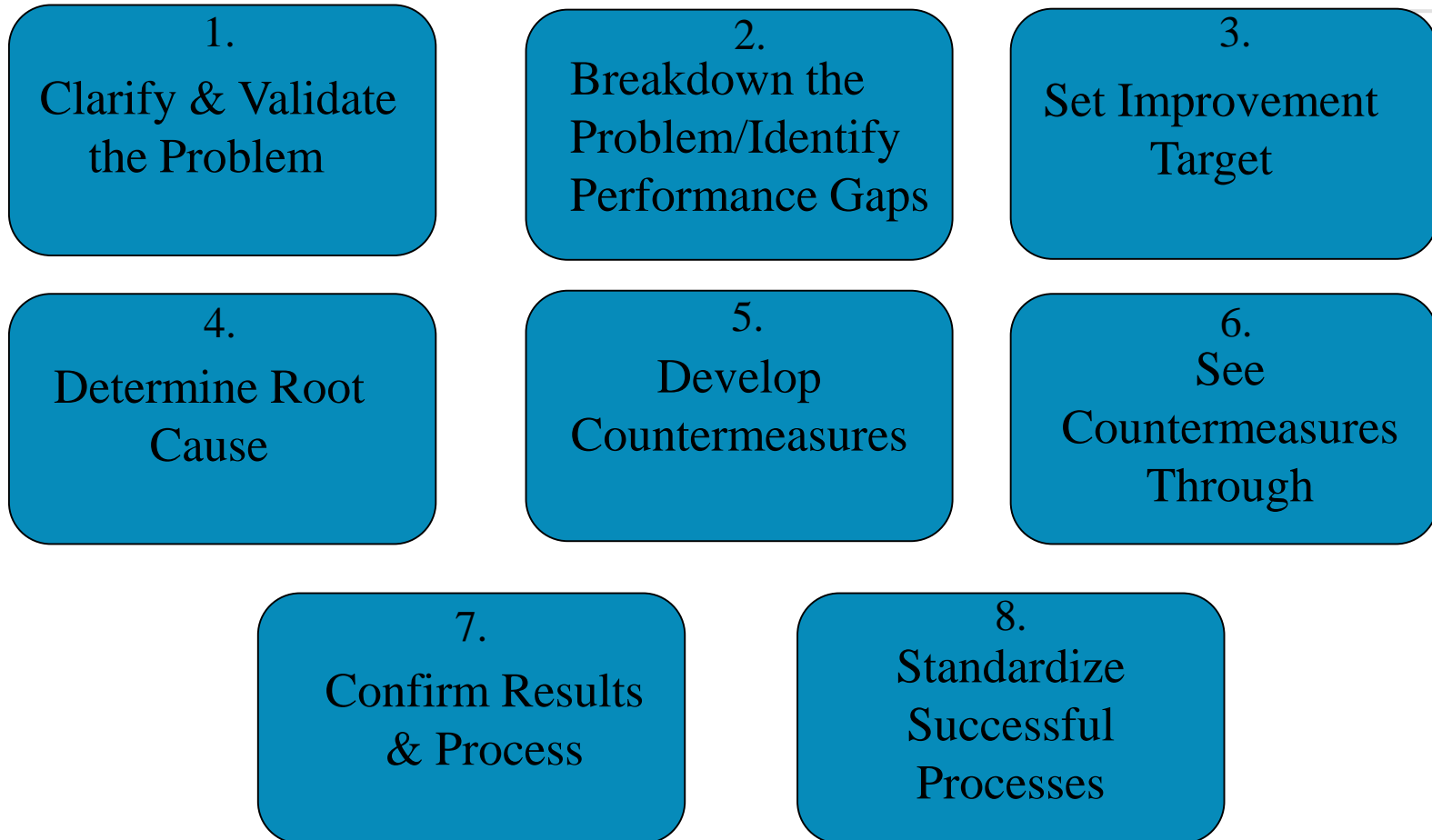


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Team Members:	USAF Problem-Solving Process OODA – Observe, Orient, Decide, & Act 8-Step Problem Solving Process	Approval Information/Signatures
1. Clarify & Validate the Problem ○ ○ D A	4. Determine Root Cause ○ ○ D A	6. See Countermeasures Through ○ ○ D A
2. Break Down the Problem/Identify Performance Gaps ○ ○ D A		7. Confirm Results & Process ○ ○ D A
3. Set Improvement Target ○ ○ D A	5. Develop Countermeasures ○ ○ D A	8. Standardize Successful Processes ○ ○ D A



What are the 8 Steps?





Step 1: Clarify & Validate the Problem



- There are 3 ways to define a problem
 - A deviation from the standard
 - A gap in where something should be and where it is
 - Unhappy customers
- To have a clear picture of any problem you need to understand the process or processes that are involved
- Tools for this step include
 - Gemba Walks/Go & Sees
 - Voice of the Customer
 - Metrics
 - Current State Mapping
 - 4 W's



What are the 4 W's?



WHO?

Who has the problem? Who is unhappy? Who is complaining that something isn't right?

WHAT?

What is the customer unhappy about? What are they not getting?

WHERE?

Where is the problem occurring? (Unit, team, base)

WHEN?

When does the problem happen? Time of day, shift, period of days or months?



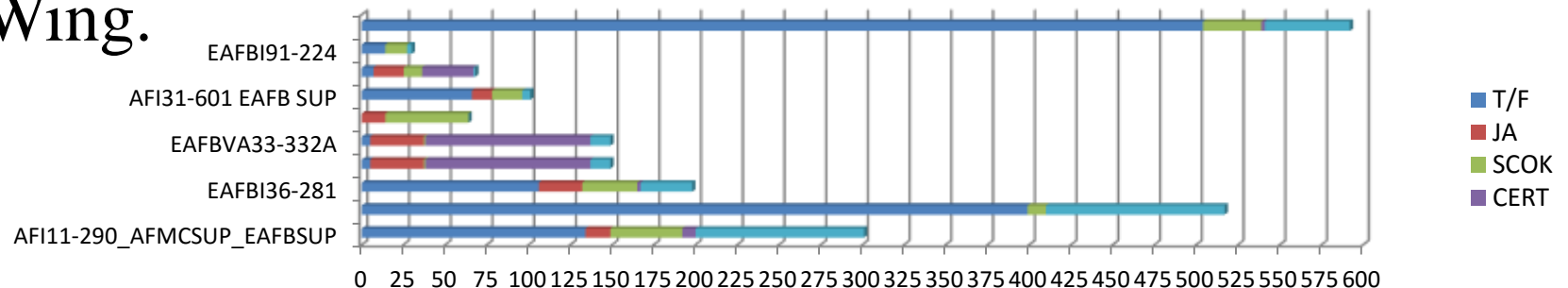
Problem Statement Example



Actual Successful Event at 412 Test Wing

412 Test Wing commanders have identified that the publications process for operating instructions at the wing level is taking 180 days on average, the acceptable timeline is 90 days.

Impact: Delay in publication may cause issues with enforceability of regulations and compliance across the Wing.





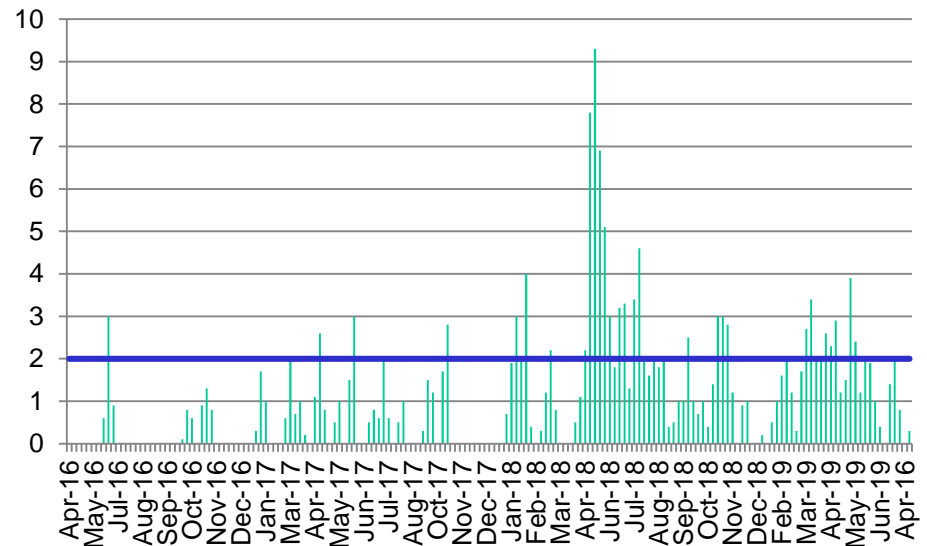
2: BREAKDOWN PROBLEM & IDENTIFY PERFORMANCE GAPS



To breakdown your problem you will need to analyze the different inputs and outputs of the process.

- Some tools for this area are
 - Gap Analysis
 - KPI/Metrics
 - Bottle Neck Analysis
 - SIPOC

JA Load for Pub Review - Unsynchronized





3: SET IMPROVEMENT TARGET



Improvement targets are set by identifying what is needed to meet the customers needs or complete a project and how long it will take you and your team to finish.

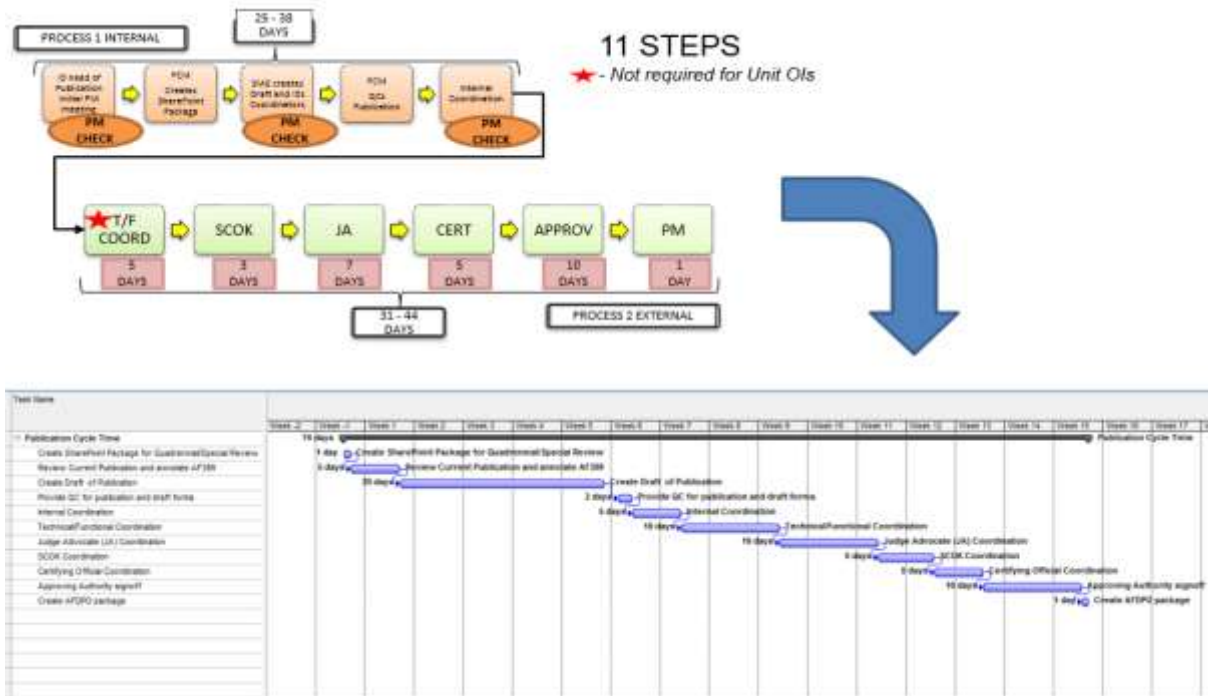
- Ensure your target is realistic, within limits and will not create problems in other areas of the organization
- Use the BSMART Tool
 - Is your target **B**alanced?
 - Is it **S**ustainable over time?
 - Can you **M**easure the results?
 - Is it **A**ttainable?
 - Is it **R**esults focused?
 - Can it be done in a **T**imely manner?



3: SET IMPROVEMENT TARGET



- What would your Ideal State be?
 - How much improvement must you make to reach that state?
- Future State Mapping
 - Set up what your process will look like in the future if you reach this target





4: ROOT CAUSE ANALYSIS

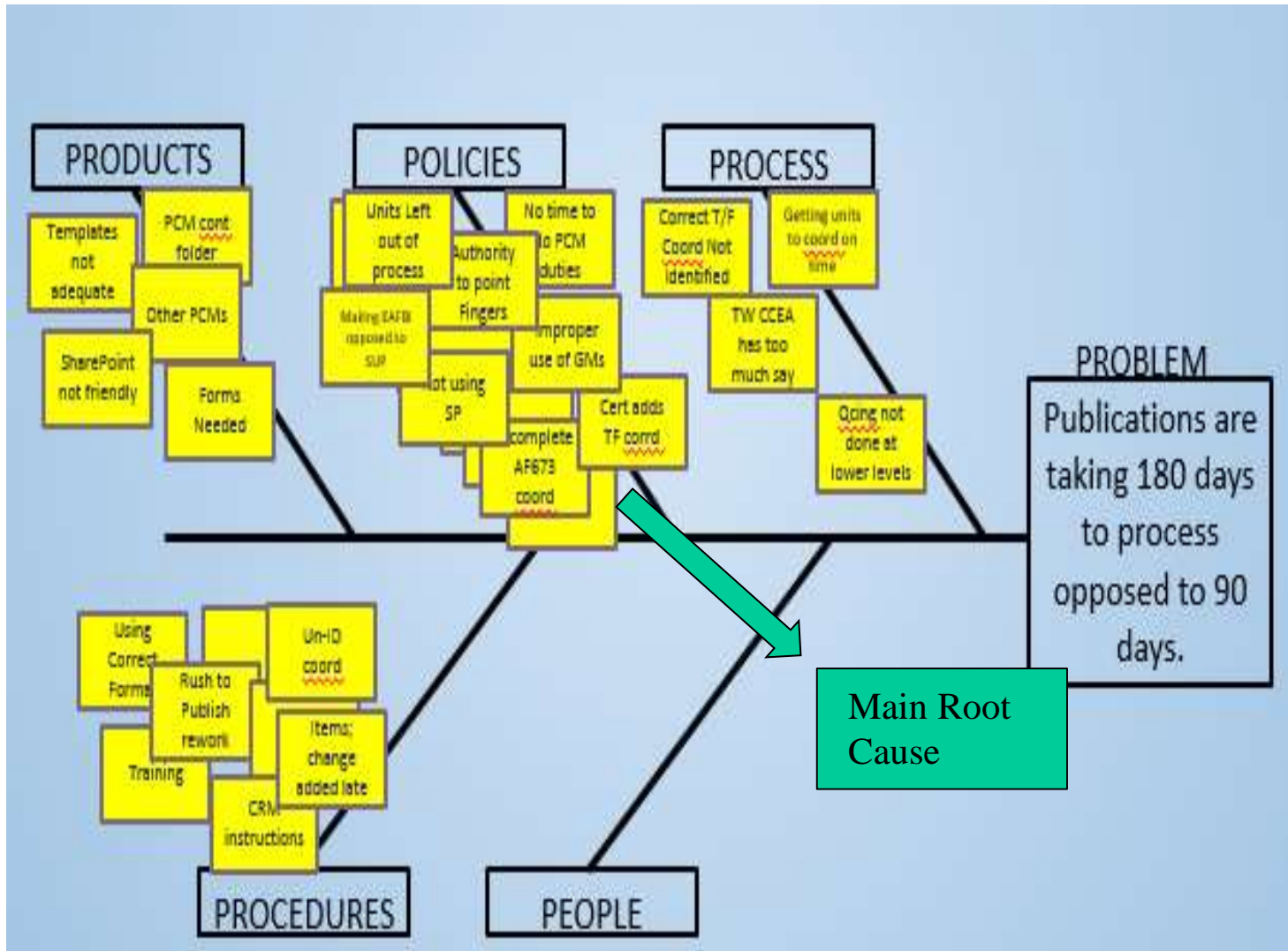


The cause of a problem which, if adequately addressed, will prevent a recurrence of that problem.

- Tools for this Step
 - 5 Whys
 - Brainstorming
 - Affinity diagrams
 - Ishikawa diagram (Fishbone)
- Try to get to one overall RCA if possible or get to the causes that have the largest negative impact at the highest levels



Root Cause Analysis Examples





5: DEVELOP COUNTERMEASURES



Countermeasures are ideas that directly relate to each of the identified root causes.

- These are the high level changes that will need to occur for this problem to be addressed appropriately
- Tools to use for step 5 would include
 - Lean, TOC, 6 Sigma, BPR
- The best thing about these 8 Steps is that you are not tied into one set of tools but can pull and create to fit your problem or area
 - This is where innovation will come in
 - Everyone's ideas for improvement get heard



Example of Countermeasures



1. Update guidance
2. Create lower-level guide
3. Identify procedures clearly
4. Reengineer process for publications
coordination using project management tools
5. Reengineer SharePoint site
6. Create/update training



6: SEE COUNTERMEASURES THROUGH



This is the implementation step, communication will be key to ensuring that the innovative ideas your team has envisioned become reality. Ensure that each action is assigned to an individual or work area. This will help in tracking which actions have taken place and where others may be in need of help.



6: SEE COUNTERMEASURES THROUGH



- Tools to keep in mind
 - Visual Management
 - Standard Work
 - Variation reduction
 - Error proofing
 - 5S (sort, straighten, shine, standardize and sustain)
- Action plan should be the detailed steps to making countermeasures happen
- This is where some projects can fail or get off track
 - Lack of follow up
 - No attention to detail
 - Management interest falls off



Example of an Action Plan



ACTION ITEM	POC	ESTIMATED START DATE	ESTIMATED COMPLETION DATE
<i>Create/update training</i>			
Subject Matter Expert Training	Mrs. Smith	April 2016	Complete
Publication Manager Training	Mrs. Smith	April 2016	June 2016 In progress
Commander Training	John Friend	May 2016	August 2016- Created training scheduled
<i>Reengineer process for publications coordination</i>			
Setting timelines for each step in process	Lt. Col Sergent	February 2016	April 2016- Completed
Identify personnel for each step in process	John Friend	May 2016	Ongoing
Ensure that process meets overall timeline set by Edwards AFB for new and revised publications	PUBLICATION OFFICE while Teaming with TMG	April 2016	April 2016 Product created and ready to be tested
<i>Reengineer SharePoint/Concerto site</i>			
Create/update continuity libraries	Communications Director	February 2016	March 2016- Completed



7: Confirm Results & New Process



Use this step to identify what countermeasures have worked or failed, then build on that knowledge with new improvements

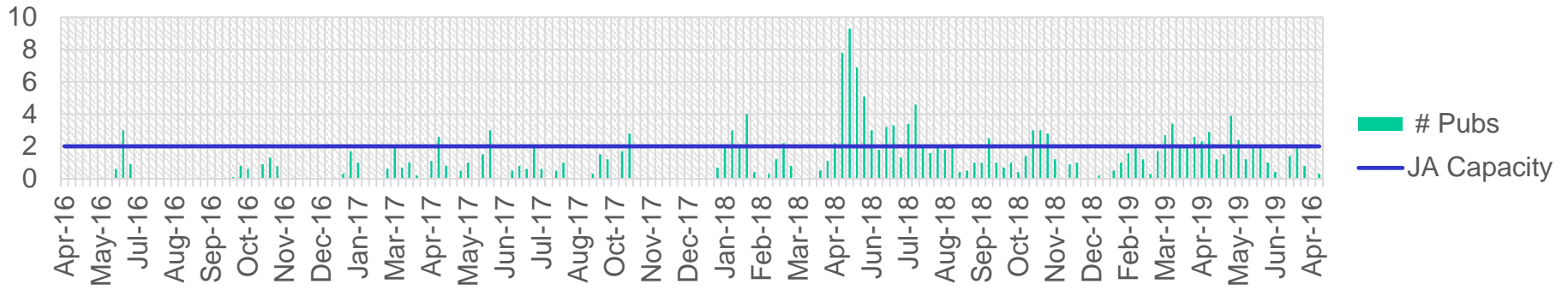
- Tools for this step
 - Audits
 - KPI/Metrics updated
 - Standard work
- Performance Metrics
 - Tie this back to the Problem, Root Cause and Gap Analysis
 - This should be updated over time
 - Shows if the countermeasures are working or if you need to readdress
- Have you met or exceeded your target?
 - If yes, are there more improvements you can make?
 - If no, where are things not working?



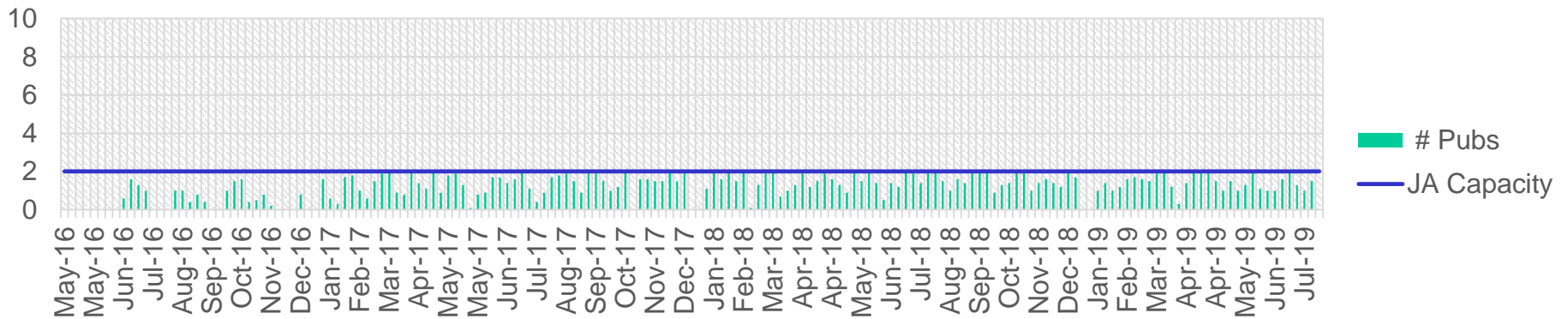
Example of Results Confirmation



JA Load for Pub Review - Unsynchronized



JA Load for Pub Review - Synchronized





8: Standardize Successful Processes



Now that you have succeeded with problem solving, take the time to create the new standard and make it possible to share

- At this point take what has worked, the new process and put it in writing. Create a standard way that this process will now be accomplished.
- Tools
 - Checklist
 - Instructions
 - Standard operating procedures
 - Business Rules



412 TW Full Process Improvement Events



- CCAR Buy IT Project
- CE Work Order
- Publications and Forms
- Cost and Resource Estimating
- Occupational Safety Event
- MXG Acquisition and Unfunded Requirements Project
- MXG Ground Instructional Training Aircraft Project
- Outbound Assignment Process/MPS
- AFTC Workflow Project



Conclusion



- **412 TW has used the 8 Step Problem Solving Method over 300 times in the past 18 months on both small and large problems.**
- **Only 5 of the problems have reoccurred and the reasons for these have been much easier to determine**
- **Using a proven and consistent method for Process Improvement will help to create a more innovative and inspiring workplace**