

USAF Career Field Manager and Training Developer Continuous Process Improvement and Innovation

# CPI<sup>2</sup> Simulation

## Experiencing an Environment of CPI<sup>2</sup> Support

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Eagle Harbor Solutions  
Total Systems Development

4th Cohort  
September 2020



# Table of Contents

## [Introduction](#)

[Culture of CI Control Tower](#)

[Vision of CPI2](#)

[Pre-Course A](#)

[Pre-Course B](#)

[Pre-Course C](#)

[Pre-Course D](#)

## [Chapter One: CAPDCA](#)

[Instruction](#)

[Case Study](#)

[Dialogue](#)

[Application - WBY](#)

[Discussion - WBY](#)

[Application - AF](#)

[Discussion - AF](#)

[Group Discussion](#)

[Challenge \(Takeaways\)](#)

[Confirm Objectives & Quiz](#)

[Chapter 1 Reference Material](#)

## [Glossary of Terms](#)

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**U.S. AIR FORCE**



# **CPI<sup>2</sup> Simulation Instruction**

## **An Environment of CPI<sup>2</sup> Support & Leadership**

USAF Career Field Manager and Training Developer  
Continuous Process Improvement and Innovation Training

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# Introduction

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2

# Introduction

This workbook is designed to be used alongside the simulation for training on AF Continuous Process Improvement & Innovation (CPI<sup>2</sup>). Students should use the Participant workbook during the class to follow the instruction and simulation, perform the activities, participate in the dialogues, and to capture their notes and learning. Where appropriate, links have been provided to external resources used during the class.

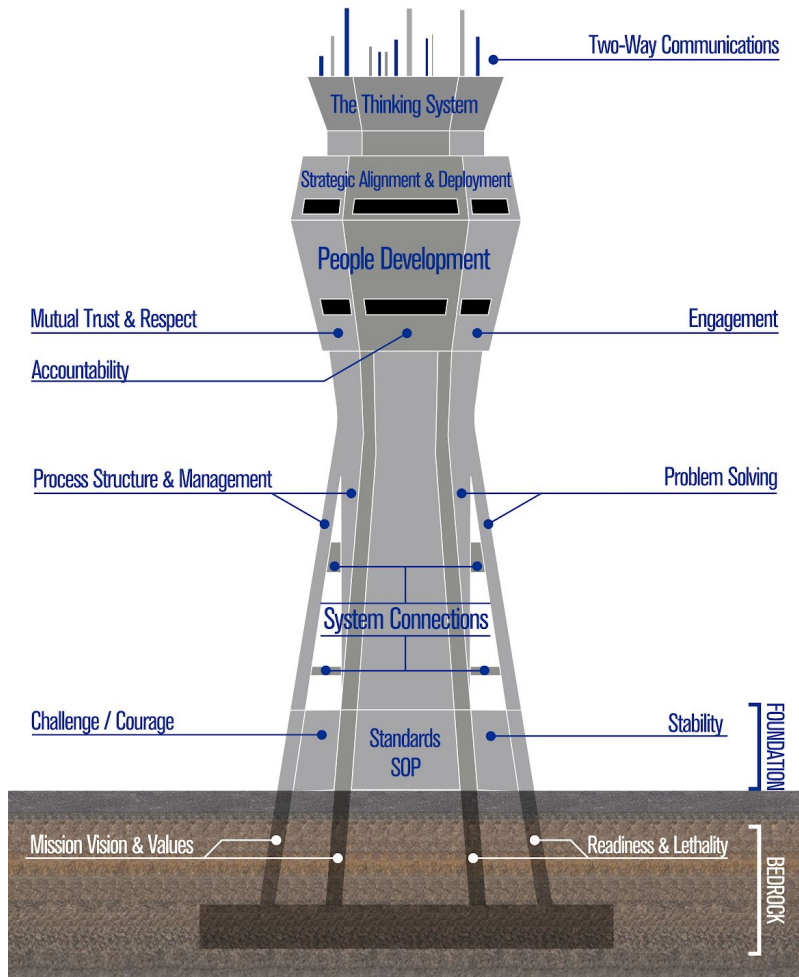
## Six Box Exercise

This exercise is designed to get a realistic and candid response to who you are.

Events that Shaped you As a Person	#1	#2
Past		
Present		
Future		

# Culture of CI Control Tower

## Culture of CI Tower



### Notes:

## Vision of CPI<sup>2</sup>

**U.S. AIR FORCE** **Vision of CPI<sup>2</sup>** **TSD**

- CPI<sup>2</sup> is a *Thinking System* concept
- CPI<sup>2</sup> is Mutual Trust and Respect
- CPI<sup>2</sup> is vital to the interests of the Air Force
- CPI<sup>2</sup> is part of the everyday job
- CPI<sup>2</sup> is logical and rational approach
- CPI<sup>2</sup> is growth with individual career progression
- CPI<sup>2</sup> is a part of Career Field Management

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Notes:



# Simple Principles for CPI<sup>2</sup>



- Everyone can contribute
- Constant pursuit for perfection
- Building process for culture

Notes:



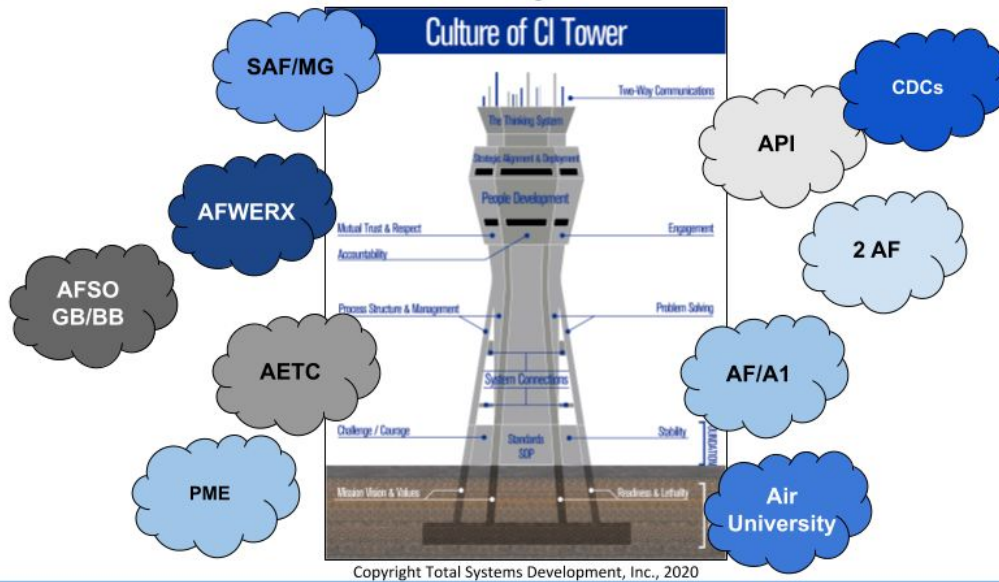
# Innovation and CI Together



- Innovation is perceived as big ideas, big risks, and big gains
- CI is consistent accomplishment of small ideas accessible to the individual, and easy to implement
- This fertile ground is about organization success not competition of ideas

Notes:





Notes:



# Thinking in Systems



- Understand inputs and outputs
- Follow the logic of the system
- Look for deviations
- Look for omissions
- Validate the system as fit for purpose
- Understand how it is to be taught and performed
- Review the application of the system after a defined period to understand its efficacy

Notes:



# Micro Activity



## Discussion:

- What is it that makes a Thinking System work?
- How have you seen elements of this Thinking System show up in your AF career?
- Which elements do you think are currently lacking?

## Notes:

## Pre-Course A

### Bottom Line

At the bedrock are those statements and commitments that form the purpose of the organization: its Mission, Vision, and Values. They are, by their nature, permanent and stable. They define the basis for the culture. The strength of the control tower lies in its foundation. The purpose of the foundation is to hold the structure above it upright. There are three critical components of the Foundation: Standard work/SOPs, Challenge & Courage, and Stability.

### Key Points

- Mission: To Fly, Fight and Win in Air, Space and Cyberspace
- Vision: The World's Greatest Air Force--Powered by Airmen, Fueled by Innovation
- Values: Integrity, Service, Excellence
- Readiness: perform in many situations effectively & on-demand
- Lethality: performance is timely, accurate and effective
- Standard work: setting, communicating, following, and improving the work to be done

- Challenge the status quo, break the mold
- Courage to see the possibility of improving their work
- Stability is achieving consistency in doing a job or process

### Why it is important (So What?)

- Continuous Improvement and Standard Work require Courage to Challenge the status quo and to achieve Stability before making sustainable improvement
- Everyone is responsible to follow Standard Work and to think about Continuous Improvement in a methodical way
- Leadership must be trusted in their Challenge TO ALL and must have the Courage to allow the organization to learn, accepting the fact that people will make mistakes
- Always have a Stable process (not best practice) before attempting Continuous Improvement. First, eliminate the major sources of instability so waste can be easily seen and eliminated

### Notes:

## Pre-Course B

### Bottom Line

The Thinking System is designed to challenge people to think critically. Its purpose is to develop people who can produce innovative solutions to problems and create a culture of CI at every level of an organization. The Thinking System is grounded in SQDCM as improvement categories.

SA&D is the Standard Work of leaders and the communication tool used to cascade their expectations to the rest of the organization. Once cascaded, these expectations are planned and implemented in the Business Plan and Operations Plan and monitored through metrics. Policy Deployment aligns the organization to what's important and gets the personnel to commit to the goals through accountability to their Annual Plan.

### Notes:

### Key Points

- Thinking Systems challenge people to think critically
- SQDCM is the framework
- The alignment of the strategy to the annual goals focuses the organization
- Performance to personal annual plans accomplishes the organization's strategic goals
- All strategy, planning and implementation requires thinking

### Why it is important (So What?)

- The Thinking System is critical to a culture of CI
- Thinking supports focus
- Focusing the organization on a critical few goals maximizes the outcome potential and minimizes waste

## Pre-Course C

### Bottom Line

The process management structure follows the accomplishment of standard work and focuses on the problems as they arise. When problems are solved the solution may point to a better standard. This requires that everyone performs to the standard as the best way known to us. OMDS is a daily management process set up to lift up problems. It is anchored by problem solving. The entire process is focused on success which causes problems to be thought of as opportunities.

### Key Points

- Problems are opportunities
- Problem solving is aimed at success not blame
- Everyone participates in problem solving.
- Standards allow deviations to be seen.

### Why it is important (So What?)

- Everyone solves problems
- Problems allow standards to improve
- Processes are setup to monitor problems
- Problems are the way we get better

### Notes:

## Pre-Course D

### Bottom Line:

There are three main components to People Development: Mutual Trust and Respect, Accountability and Engagement. Mutual Trust & Respect allows Airmen to grow by performing and improving their job. Accountability creates Airmen that understand and contribute to the goals of the AF. Engagement creates a learning culture and develops thinking. System Connectors hold the CI Tower together and range from leadership presence and belief in Airmen's capability, to clear roles, to standards for all processes, to Practical Problem Solving, to a no-blame culture, to participation by all.

### Key Points

- Treat people with trust and respect
- Hold everyone accountable
- All elements of the system must work together
- Engagement is a test of Leadership

### Why it is important (So What?)

- Accountability for standard work
- Leadership for true commitment
- Engagement for everyone to be a part of CI
- Use of tools and routines to connect the CI system to everyday work

### Notes:

# Chapter One: CAPDCA

## Understanding the Situation & Setting a Sense of Direction

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### **In this Chapter**

The most important element of this chapter is the determination of the way forward by grasping the current situation and from this set the direction for the organization to engage in the new annual plan. It is important that grasping the situation is a complex endeavor of gathering information, analyzing the information and determining what is significant for the next annual plan. In many cases the analysis involves breaking down the data into smaller pieces to be able to see cause and effect. The result of this action is to create a set of goals that are deployed throughout the organization.

At the top level these goals are very general to allow the organization to tell their superiors how it will get done.

### **Activities**

- WBY Case Study for CA
- WBY priorities exercise
- Air Force application discussion

### **Why it is important (So What?)**

- It is the responsibility of leaders to set the direction
- Setting the direction requires understanding where the organization is or “Grasping the Situation”
- Setting the Direction engages the whole organization in accomplishing its strategic goals and demonstrates trust and respect

## Introduction to Setting Direction

The purpose of CA is to grasp all information and use it to determine our future. Setting direction is an activity for those who are expected to implement the goals set by the leader. Direction creates action that is focused correctly. There are several sources of information that are vital to the direction setting. The current year's performance to the annual plan. The analysis of problems encountered, the observations of the workplace, the status of the culture and the driving forces for change including competitive organizations. They all should be considered by leaders. The direction must be the result of the analysis of these



factors and put into actionable terms to be deployed in actionable tasks for all to act and understand.

All these pieces allow the leader to grasp the situation which is the vital piece for setting direction. It should always be in the context of the organization's strategic priorities.

## The Mindset for Grasping the situation

- Gathering information and facts from the entire year
- Sort as you go
- Don't let your bias decide what information to attain
- Find various points of view
- Always put the information into context

## The Mindset for Setting Direction

The mindset for the General Manager at WBY or in a real organization is the same.

- Be complete in the analysis
- Decide what competitive advantage needs to be emphasized
- Distill this into a statement that all can understand
- Share the results with others before publishing
- Spend the entire year gathering information

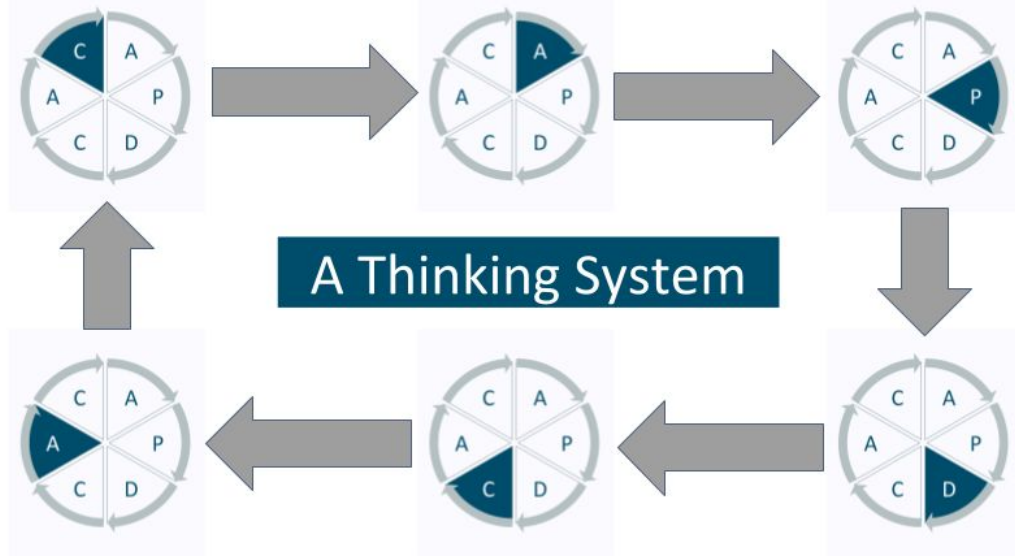
## Keys

- Be constantly reaching out to understand the changes that affect strategy
- Purposely look at your organization and understand its true capability
- Define what needs to develop
- Keep the direction set simple and for everyone to understand
- Recognize that the organization will develop as the people develop

# Instruction



## CAPDCA: The role of the Manager

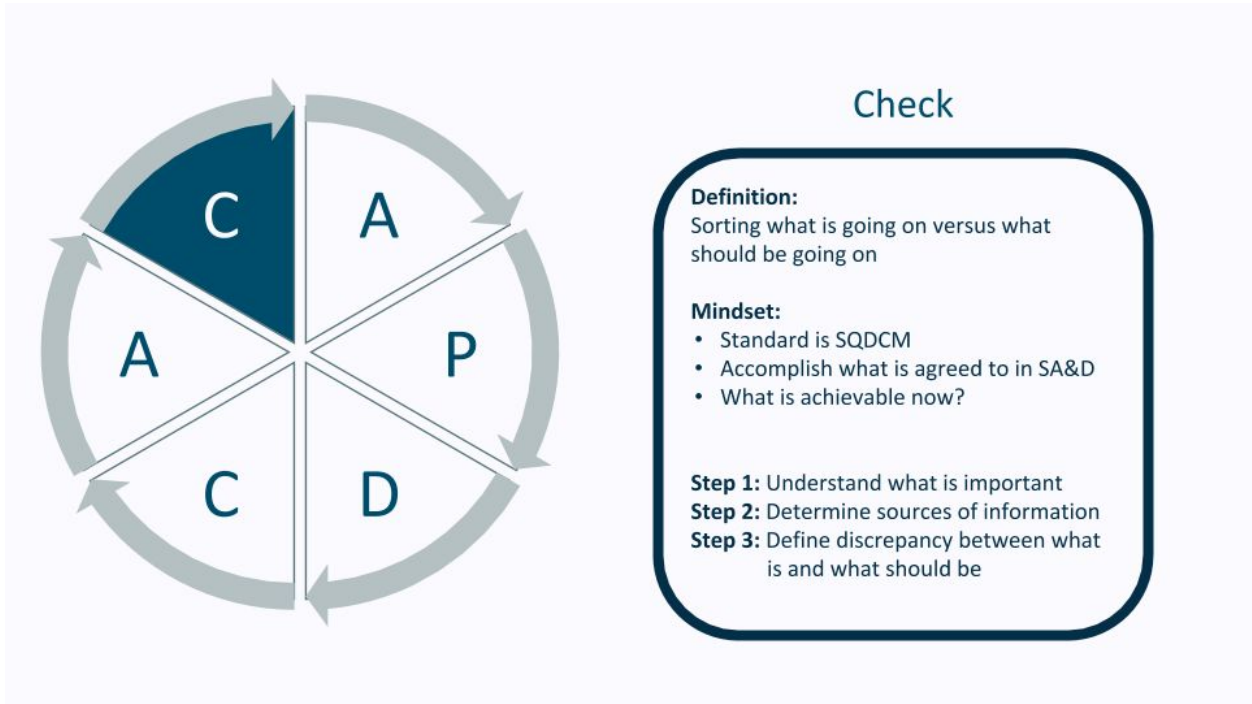


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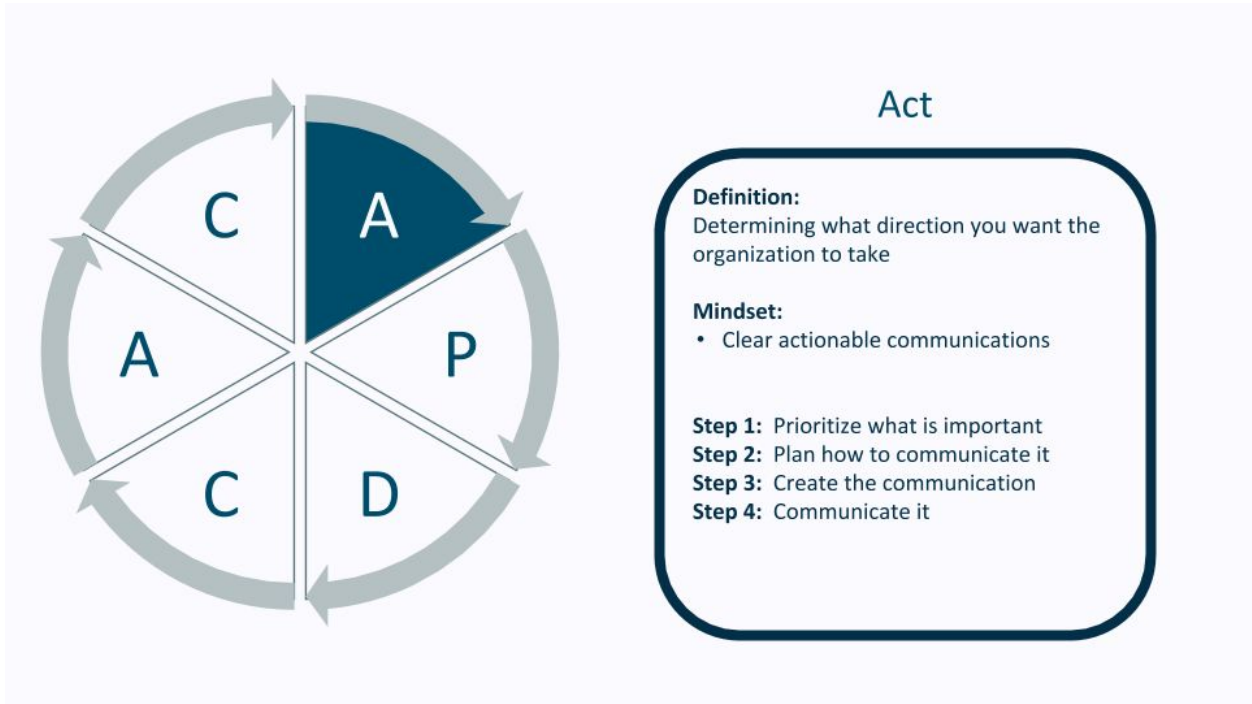
17

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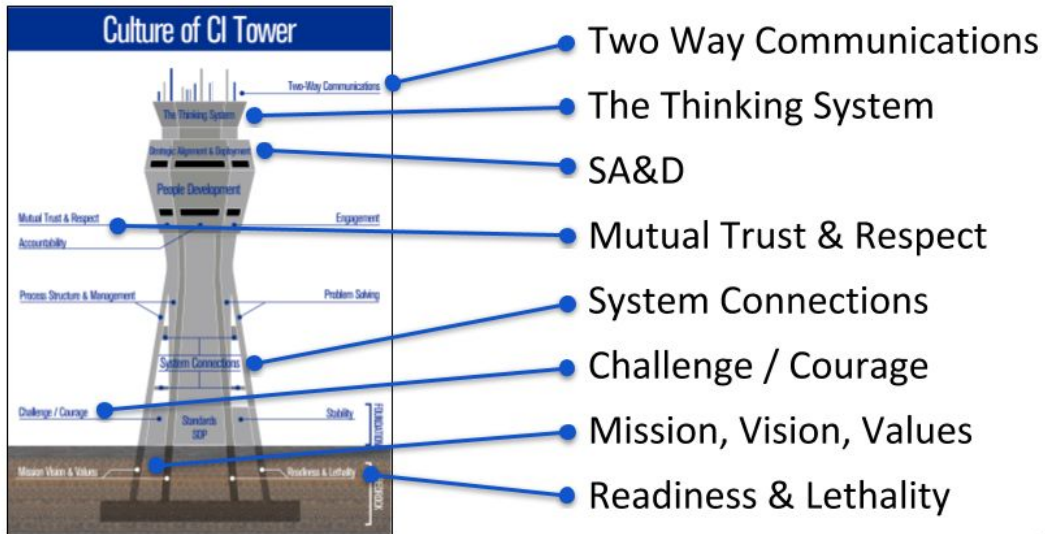
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# 'CA' Connections to CI Control Tower



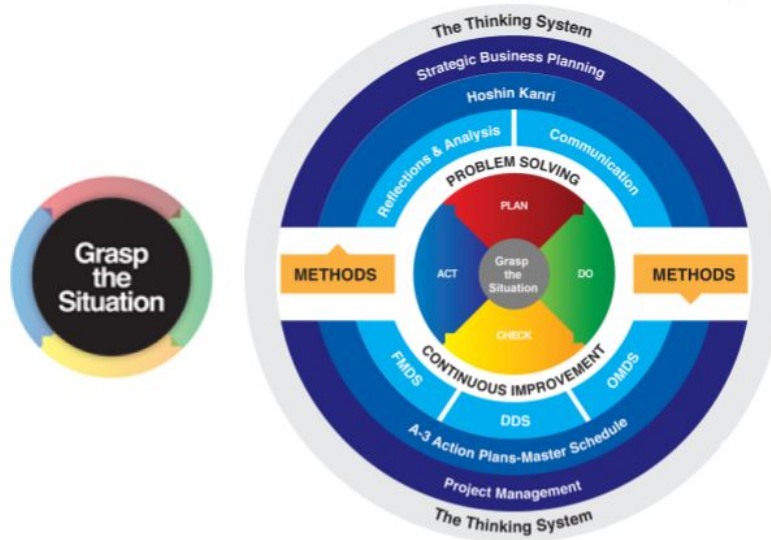
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20

Notes:



# CAPDCA -- Check & Act (Adjust)



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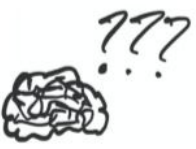
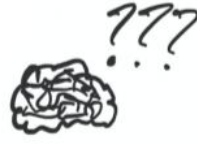




21

Notes:



# Check & Act (Adjust)



Team Lead Team Members: Facilitator(s)	Approval Information/Signatures: Objective Champions: Start Date: _____ End Date: _____	PERIOD: _____ 1 per strategic objective ... minimum Strategic Map Placeholder: AF _____ Objective: _____
1. Clarify & Validate the Problem: 	4. Determine Root Cause(s): 	6. Implement Countermeasures (use the Action Path (AP) for project mgmt)
2. Break the Problem Down (Identify Performance Goals): 	5. Develop Countermeasures and/or Tacts:	7. Confirm Results & Process (desired change in Step 1 done): 
3. Set Improvement Targets (1-3 appropriate reduction steps) Clear the entire performance gap Severity: Milestones:  Vector (x/y) _____ scheduled _____	 Vector (x/y) _____ scheduled _____	8. Sustain Improvements, Standardize Locally, Deviate (check the PDCA)

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22

Notes:



# SA&D



- Strategic Alignment & Deployment results from the current year informing next year's alignment in Check/Act
- SA&D commits the organization to a plan of action to which they agree to be held accountable for outcomes
- The Operations Plan: to satisfy customer requirements (80 - 90% of the effort)
- The Improvement Plan: to improve how work is done (10 - 20% of the effort)

Notes:



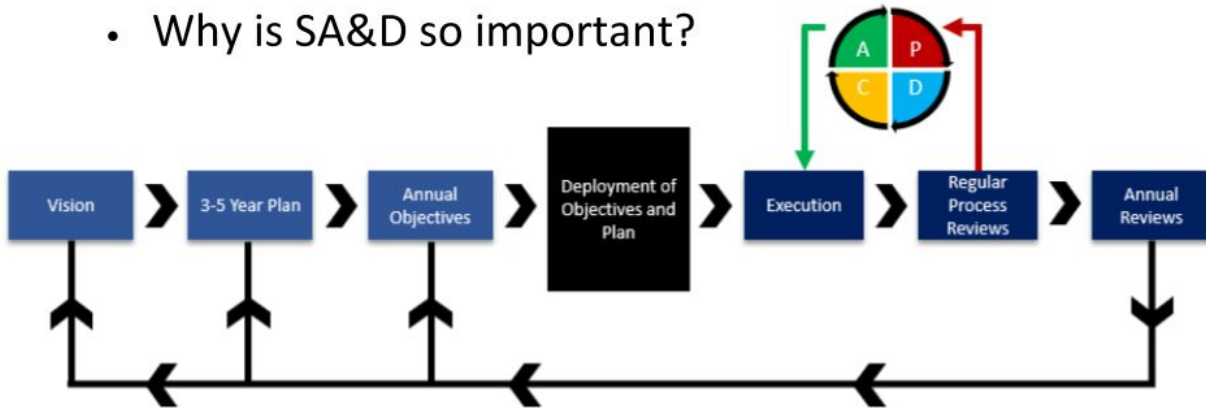


# Micro Activity



## Discussion

- Why is SA&D so important?



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24

Notes:



# OMDS Board



Notes:

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# OMDS

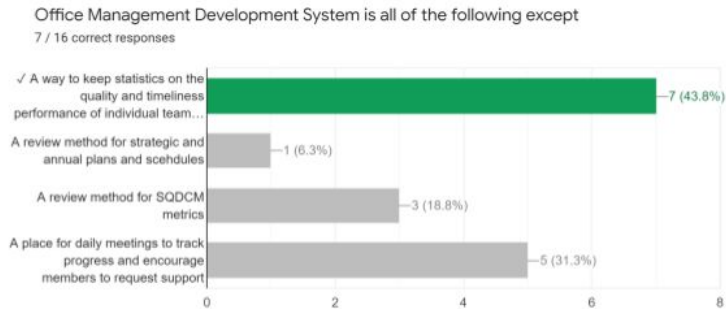


- The Office Management Development System (OMDS) Board is a communications and commitment board based on keeping focus on what is important to the organization
  - It is kept for public viewing
- How the manager would use it in CA
  - Review status of current year SA&D to inform next year
  - Review SQDCM performance metrics and problem solving
  - Review the work area leadership team's use of the board for people development
- There will be more on OMDS in later chapters

Notes:



# Pre-Course Review



- This question was frequently missed in the pre-course exam
- The distinction in the answer is in keeping statistics on individual team members
- Overall performance and status of the team is the focus

Notes:



# Micro Activity



## Discussion

- What are the logical steps for doing “Grasp the situation”?

Notes:



# Strategy for Grasping the Situation

1. **Anticipate** by reaching out to others for information, investigating potential scenarios, looking at rivals and attending conferences and events
2. **Challenge** your own assumptions, focus on root cause, and encourage debate
3. **Interpret** by looking at possible explanations, zooming in on details, looking for missing information and stepping away from the subject to let it accumulate
4. **Decide** by looking for options, dividing the issue into parts, looking at long and short term initiatives, and letting others know your thinking

Notes:



## Good Sources for Information Gathering

- Observations throughout the year (Gemba)
- Critical incidents (Individuals or Processes)
- OMDS board review of the year
- Shift x shift logs
- Performance reviews
- New business or special operations

Notes:



## Six Bad Ideas for Grasping the Situation

- #1 – A KNOW IT ALL ATTITUDE – You are sure you know the answer to any given problem
- #2 – BLIND SPOTS – You missed something that was right in front of you
- #3 – LACK OF INFORMATION – You missed some information you needed
- #4 – A GET-IT-DONE ATTITUDE – You are too focused on solving the issue quickly rather than effectively
- #5 – BEEN THERE, DONE THAT – You have been in this situation or a similar situation before, so you are overly confident in your abilities to solve it
- #6 – OLD SOLUTIONS WORK – You keep reusing old solutions to problems

Notes:





# Setting Direction



- Ask yourself when you are finished grasping the situation what would be success
- Test assumptions put into the goals against the direction desired
- Define the Direction in terms that are understood
- Prepare additional information that explains the direction chosen
- Test proposed goals given by your subordinates against the defined direction

Notes:

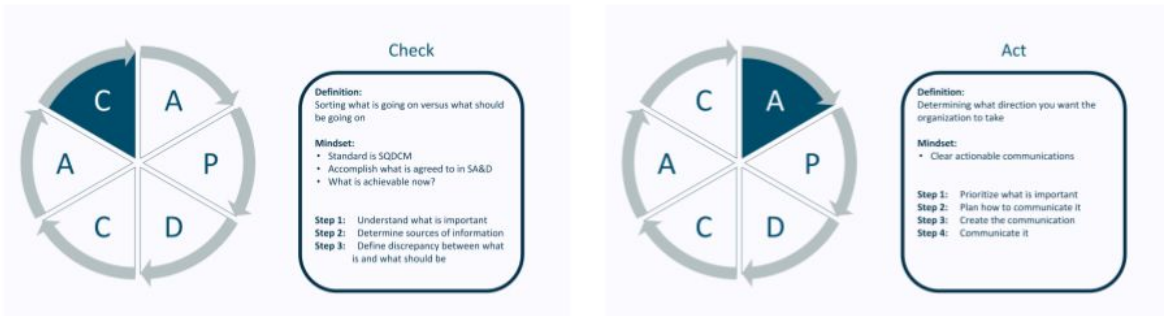
# Case Study



# Case Study



- The case study is based on the Check / Act (Adjust) phase of CAPDCA cycle
- The case study uses a fictitious aerospace company and AF supplier called Wild Blue Yonder Inc. (WBY)



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34

Notes:



## Case Study - WBY Background (cont.)



- WBY is a developer and manufacturer of precision aircraft components
- Known for robust reliable designs integrating new technology
- Favored source for aircraft components because of our high quality, low cost and on-time delivery
- Steady growth in sales and personnel
  - Over 5,000 employees and the lowest turnover and absenteeism in the industry
  - “Great place to work” and top ratings on Glass Door and “best employer” ratings from Forbes

Notes:



**Mission**

Enrich society through serving our customers in providing great, reliable, precision aircraft components for our national defense

**Vision**

Be the preferred aerospace parts supplier to the United States Air Force

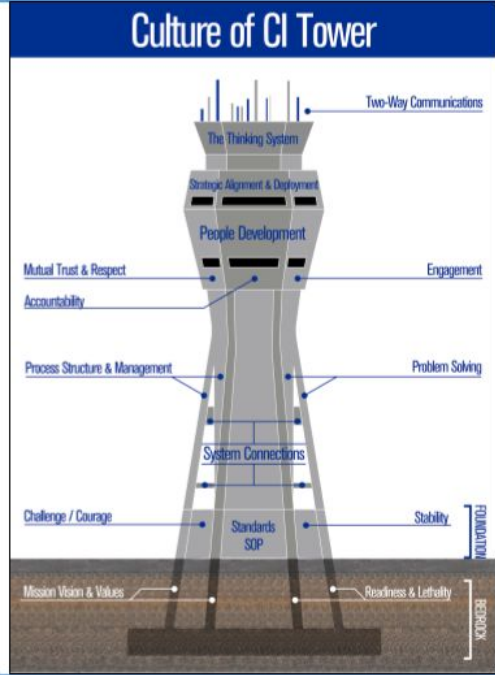
**Values**

- Customer first
- Promote challenge and courage
- Competition and cooperation within the aerospace industry
- Mutual trust between employees and management
- Applied innovation
- Cost consciousness
- Respect for the value of people

**Operating Principles**

- Seek the most rational way
- Strive for cost effectiveness
- See and experience what is actually occurring firsthand
- Promote teamwork for the best results
- Consider mid-term and long-term needs
- Develop subordinates for Company growth

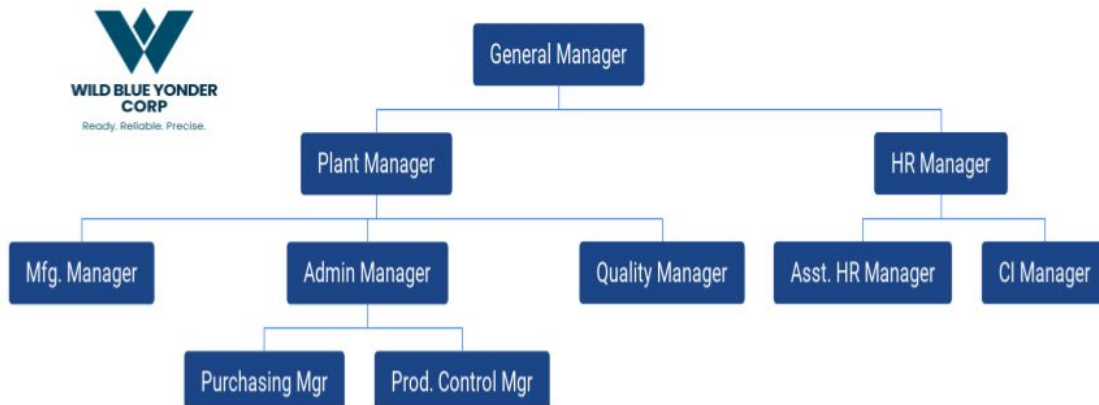
**WBY Culture**



Notes:



# Case Study - WBY Organization



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37

Notes:



## Check

**Definition:**

Sorting what is going on versus what should be going on

**Mindset:**

- Standard is SQDCM
- Accomplish what is agreed to in SA&D
- What is achievable now?

**Step 1:** Understand what is important

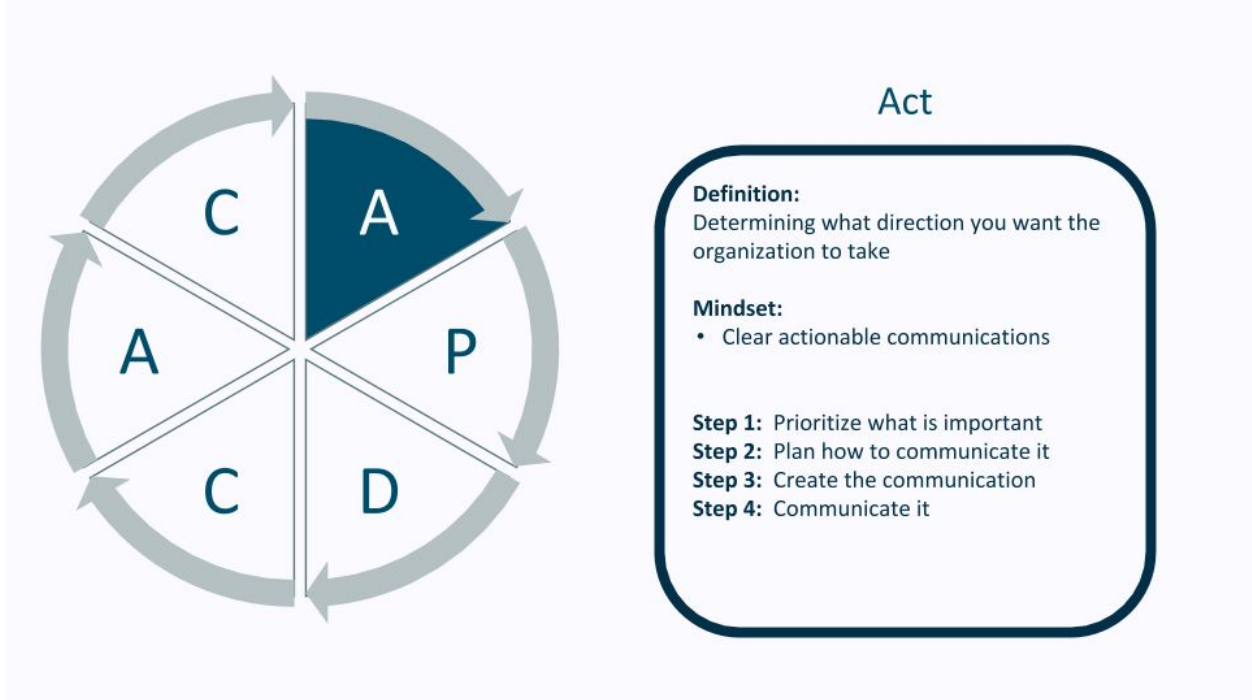
**Step 2:** Determine sources of information

**Step 3:** Define discrepancy between what is and what should be

Notes:

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Notes:



# Case Study - WBY Strategy Map & OMDS Board



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40

Notes:





## Case Study - Assignment



- Your assignment is to assess the situation based on the information you have about WBY and to set the direction for the company in the role of the General Manager
- Use the application to document your observations and direction
- These will be put into Block One of the 8-Step problem solving form (A3)

Notes:



# Case Study - General Manager Priorities



## General Manager's Priorities, 2021

1. **Priority 1: Reduce total cost of operations to generate capital for expansion & sustain our competitive advantage**
2. **Priority 2: Develop all team members to be ready for the challenges of the next 5 years, including expansion to new plant**
3. **Priority 3: Integrate CPI<sup>2</sup> into the way we do business**

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42

Notes:

## Dialogue

Question: For the General Manager as he contemplates planning. Is my analysis complete?

How will I delegate these issues to optimize the accomplishment?

How can I develop the organization through the challenges?

How can I protect the culture?

Notes:



## Application - WBY

Acting as the Wild Blue Yonder General Manager, grasp the situation from the information given and set the direction for the upcoming year. Use the application to document your findings and thoughts.

## Discussion - WBY

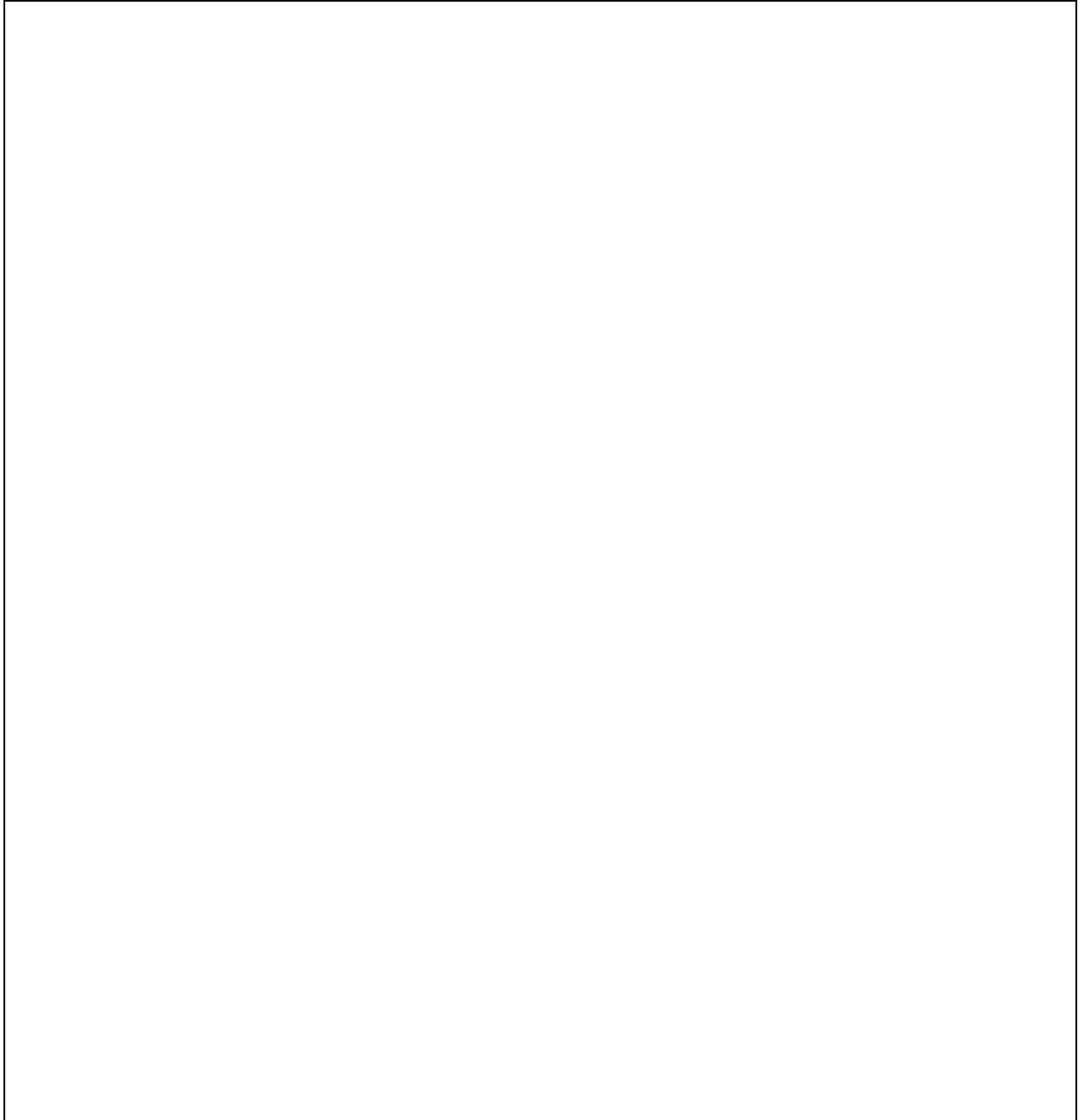
Notes:

## **Application - AF**

In the Air Force what do you see that is needed to enable a way forward for CFMs to participate in Grasping the Situation and Setting Direction?

## **Discussion - AF**

Notes:



# Group Discussion

Notes:

## Challenge (Takeaways)

Accept that now you are ready for planning. Keep in mind that the data is never complete but with the prioritization from the General Manager a direction is becoming clear. Your ability to accurately grasp the situation creates the possibility to align the entire organization to what is important. The challenge is to find a balance between too much information that confuses and finding the real information that correctly points you toward a future of improvement.

**The following page shows competencies and behaviors that are necessary to Check / Act (Adjust).** The complete table of competencies and behaviors for CI can be found here <https://leanmpi.com/af-cpi2/cpi2-class-20-04/#reference-material> (scroll down to "AF Competencies & Behaviors for Continuous Improvement").

Reflection Homework: Write 3 reflections on the Check and Act (Adjust) Competencies provided to you below and in the table and their implications for AF career field education.

1.

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2.

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3.

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# Chapter 1 Homework



- Review the competencies related to 'CA' below and be prepared to discuss them during the next class session (ref: [AF Competencies for CI](#))
  - Competency - Ability to identify issues; Behavior - Innovative ideas
  - Competency - Ability to identify issues; Behavior - Planning from a mid and long term viewpoint
  - Competency - Ability to manage an organization; Behavior - Delegation
  - Competency - Ability to manage human resources; Behavior - Planned development
  - Competency - Leadership; Behavior - Communication

Notes:



## Confirm Objectives & Quiz

Quiz: <https://forms.gle/fMNPuQVkvvgrTeNx5>

Objective	Met?
Able to describe how the Culture of CI provides a systems approach to a thinking CI system	
Understand how the role of a leader ( <b>CAPDCA</b> ) using reflection initiates the structure for accomplishing annual goals and strategic objectives	
Understand the strategy for grasping the situation	
Understand the process and sources a leader uses to set the direction	
Able to discuss how competencies are critical to grasping the situation and setting direction	

## Chapter 1 Reference Material

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### Discipline is a Necessary Condition

- To see continuous improvement you must have a basis to compare the current situation to the desired situation
- Finding the deviations creates the necessity for problem solving
- Stability of the situation creates the potential for improvement
- The discipline of supporting efforts to improve creates CI
- The discipline of maintaining the standard allows problems to be seen
- Improving the standard everyday is also the discipline of CI

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51



### Case Study - Reflections from OMDS Board

#### SA&D

- Succession and Development System - Scheduled to start planning in July 2020
  - Succession planning process not responsive to potential promotions
    - Succession planning must be revamped to achieve target flexibility for new opportunities
  - Development Planning process outdated and slow
    - Training potential candidates for Team Leader and Supervisory positions (even more critical with new business)
    - Problem solving training completed for all Team Leaders and Supervisors
    - New education curriculum on track for completion by March of next year
    - Continuous Improvement - Back to Basics Training - On-going
      - Teach Team leaders how to encourage suggestions and experimentation
  - Culture as indicated by Opinion Survey levels being improved - On Target but trending down due to Leadership not being responsive
    - Leadership Development course did not assist in improving Opinion Survey scores
    - Mutual trust and respect is variable

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52



## Case Study - Reflections from OMDS Board

### Daily Management

- (S) Safety
  - On Target
- (Q) Quality
  - **Not Meeting Target**
- (D) Delivery
  - On Target
    - Capacity - Process true capacity is accurate but will have to be assessed frequently
    - First year of productivity increase of 3% - **Not Meeting Target**
- (C) Cost
  - On Target
  - **Continuous improvement suggestions (30%) off**

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53



## Case Study - Reflections from OMDS Board

### Daily Management (cont.)

- (M) Morale
  - Absenteeism and Turnover below (better) targets - On Target
  - Manpower plan on-going with target missed
    - Recruitment - Recruiting and hiring - **Not Meeting Target**
  - Training
    - 40 hours development target for all members completed (includes OJT for Team Members)
      - Standard Work
      - Process accountability to standard work variable
      - Job Instruction Process installed and successful
      - **Team Leaders were not proactive in solving quality problems**
      - **Response to Andon pulls not meeting standard of 20 seconds to the problem**
      - **Accountability of the Team Member for a continuous process improvement**
  - Opinion Surveys
    - **Show a need for improvement in communications, people development and engagement**

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54



# Case Study - Summary: General Manager Thinking




- Culture is in place and doing its job but may need a refresher
- A management that is reliable and predictable allows others to commit support more quickly
- The management system must align to the purpose or mission
- The execution must be a part of a logic chain from idea to realization of the objectives
- The most current indicators provide the best information of the current situation
- Output from planning by managers and supervisors not complete
- Quality targets missed requiring rework
- Last year's productivity improvement is less than expectation of 3%
- Too many failures to follow standard work
- Team Leaders not proactive in problem avoidance
- Success for T/L and Supervisor not achieved
- Suggestions down 30% from expectations
- New curriculum for training not proven effective yet
- Not generating enough interest in moving from Team Member to Team Leader
- Recruitment is not fast enough
- Opinion survey results not improving
- Perfection is a lifetime pursuit



# Case Study - WBY Manpower Changes



- Plant 1 will provide Plant 2 with manpower to start operations in July, '21
- Remaining vacant positions in both plants will be filled through outside hires for T/M, and promotions
- Administration will get no additional positions and will support both plants

 WILD BLUE YONDER CORP <small>Ready. Reliable. Precise.</small>		Plant 1 ('20)	Transfers Plant 1 to 2 ('21)	Plant 2 ('21)
Total	400	39	200	
Team Members	267	27	152	
Team Leaders	44	4	28	
Group Leaders	13	1	10	
Pilot Line	8	3	6	
Continuous Improvement	8	4	4	
Administration	60	60*		

\*supports both plants, must achieve 33% pro rata reduction to 10% of manpower

## Glossary of Terms

Term	Definition
5 S (6 S)	A visible way to clean & organize the work area and identify items not needed or are in the wrong place: Sort (organization), Stabilize (orderliness), Shine (cleanliness), Standardize (adherence), and Sustain (self-discipline). A sixth item, Safety is often added.
A3	A single page report, typically on "A3" size paper (297 x 420mm or approx. 11" x 17"), for problem solving and status reporting. It forces the person preparing the report to eliminate non-essential information and stick to essential facts only.
A3 Thinking	Forces consensus building; unifies culture around a simple, systematic methodology; also becomes a communication tool that follows a logical narrative and builds over years as organization learning.
Alignment	The process of bringing the whole organization in agreement on strategy, goals, and objectives and assigning responsibility for component tasks necessary for achieving business objectives. Uses the process of Hoshin Kanri (or policy deployment) to drive accountability and traceability of goals and objectives across the organization.
Andon	A device that calls attention to defects, equipment abnormalities, other problems, or reports the status and needs of a system typically by means of lights – red light for failure mode, amber light to show marginal performance, and a green light

CAPDCA	Leaders process for improvement which precedes the PDCA cycle with another Check and Adjust. In this CA, the leader grasps the strategic situation and determines the changes needed to adjust to it before they initiate the PDCA cycle.
Catchball	This refers to a participative approach to decision-making, used in policy deployment to describe communication across management levels when setting annual business objectives. Information and ideas are “thrown and caught” back and forth, up and down throughout the organization, describing the interactive nature of policy deployment. The process of selecting strategies to meet an objective at any level then getting managers and their teams to engage in dialogue to reach agreement on strategies to achieve their goals.
Champion	The individual within an organization with the authority to commit and dedicate resources, assets, and people, and to charter new initiatives. Charged with primary responsibility for creating the vision and leading an organization based on their strategic view of his/her organization. Champions guide CPI initiatives through critical understanding of how the organization fits into the enterprise at large.
Change Management	Change that is planned, predictable, focused and aligned with the wants and needs of the organization’s leadership.
Coaching	The process of mentoring leadership and management in the implementation of continuous process improvement and Lean systems and processes. Reinforces the importance of leadership commitment

	to continuous process improvement and the changes in leadership behavior that are required for a sustained culture of process improvement.
Commitment	The condition of being held accountable to the plan and outcomes of an activity, either operational or continuous improvement.
Control Tower of CPI <sup>2</sup>	A visual depiction of the system for the Air Force's CPI <sup>2</sup> implementation and culture model.
Counter-measures	Immediate actions to bring performance that is tracking below expectations back into the proper trend. Requires root cause analysis
CPI <sup>2</sup>	Continuous Process Improvement and Innovation. A system of action and a culture that works to improve work processes every day and/or innovate new processes; focused on achieving the organization's strategic goals through the everyday, disciplined application of critical thinking about waste removal and the application of standards. Innovation differs from CPI only in the scale of the improvement -- innovations are step changes that result from many incremental changes or are single changes with profound impact.
Culture Change	A major shift in attitudes, norms, sentiments, beliefs, values, operating procedures, and behavior of a group or organization.
Current State Map (CSM)	In value stream mapping, the map (using standard icons and graphic depictions) that depicts the current steps, delays and information flows (the "current state") required to deliver the product or service.
Customer	The end user, which pays for the completed product or service. See External Customer and Internal Customer.

Event	A short-term, high intensity effort to address a specific problem. The focus is typically a week, though the preparation normally begins several weeks in front and follow-up continues after. Also called by other names, including Rapid Improvement Event, Rapid Improvement Workshop, Kaizen Event, Kaizen Blitz, or Improvement Event/Workshop.
External Customer	An entity, which actually pays for the product or service being provided, as distinguished from an “internal” customer, who does not pay for goods or services, so anything they request in addition to value-added tasks is waste.
Facilitator	Consultant, advisor, or subject matter expert that leads or drives the pace and direction of a group participation event.
Future State Map (FSM)	In value stream mapping, the map (using standard icons and graphic depictions) that depicts those feasible proposed future steps, delays and information flows resulting in an improved delivery of the product or service. (Distinguished from an Ideal State Map.)
Gap Analysis	An analysis that compares current performance to desired performance so that solutions can be found to reduce the difference (close the gap).
Gemba	Japanese for “the real place”, or the place where the work is done. In lean, “gemba walk” refers to the need for management to go to the site where activities occur (e.g., shop floor, sales floor, or where the service provider interacts with the customer), so they can personally observe the problem or state of affairs, connect with facts, and look for waste.



Hoshin or Hoshin Kanri or Hoshin Planning	This is a strategic planning-management methodology used in lean environments. It relies upon a process of cascading or communicating a policy from top to middle management, and throughout the rest of the organization using a give-and-take process called “catchball.” Linking local action plans to the overall goals of the organization provides a means for everyone to become involved in realizing the organizational vision. Managing this process year to year ensures that the organization continues to grow and evolve with its customers. In Japanese, hoshin means “compass needle” or “direction.” Kanri means “management” or “control.” The name suggests how hoshin planning aligns an organization toward accomplishing a single goal. See also, SA&D.
Ideal State Map	A graphic depiction of a vision of the “future state” that reflects what the system should look like if there were no constraints. Based on the “King or Queen for a Day” mentality.
Internal Customer	This is a downstream process, or an individual requesting work (tasks, information) in addition to value-added tasks. Since internal customers don’t pay for goods or services, anything they request in addition to value-added tasks is waste.
Job Instruction	A consistently used process for teaching an individual the steps and reason for their job. Performed by the Team Leader for purposes of job rotation and introduction of standard work to a new member
Kaizen	A Japanese term that means “continuous, incremental improvement.” In a lean context, kaizen means everyone applying small

	(low impact & low cost) improvements each and every day. Applied in this manner, kaizen can have the same effect as large, costly, infrequent changes. A “kaizen event” commonly refers to a combination of classroom and shop floor learning and activities over a fixed period of time (often a week), within a defined area, resulting in actual improvements to designated processes.
KBI	Key Behavioral Indicator, a metric which shows the health of a key behavior critical to the culture of CPI <sup>2</sup>
KPI	Key Process Indicator, a metric which shows the health of a key process or business activity. A method of tracking or monitoring the progress of existing daily management systems.
Lean	A systems approach for continuously improving processes and work through improving its flow or smoothness and eliminating waste.
Lean Metrics	Series of measurements essential to implementation of lean. See the following subject categories of lean metrics: Safety, Quality (Quality Rate, First Time Through FTT), Productivity (Overall Equipment Effectiveness OEE, Dock-to-Dock DTD, Days of Supply DOS, Build-to-Schedule BTS, Labor Productivity) Cost (Total Cost), Human Resources (Absentee Rate, Injury Incidence Rate), and Customer Satisfaction (Surveys, Warranty Claims).
Mistake proofing	The process of eliminating human error in a process. It is based on the belief that humans will make mistakes and they need to be understood and a device or signal put in place to eliminate the possibility of the mistake

	being made.
Nemawashi	The act of pre-coordinating decisions across all stakeholders to reach a committed consensus from which to proceed.
Non-Value-Added	Any activity that takes time, material or space, but does not add value to the product or service from the customer's perspective. For example, inspections or reviews normally are non-value-added because they are checking to see whether the work was done right in the first place. A non-value added process step violates at least one of the following criteria: <ul style="list-style-type: none"> <li>· The customer is willing to pay for this activity.</li> <li>· It must be done right the first time.</li> <li>· The action must somehow change the product or service in some manner.</li> </ul>
Office Management Development System (OMDS)	A visual management system aimed at ensuring all key commitments are met. It is used in the conduct of routine (typically daily) Team Leader- or Supervisor-led meetings or huddles to find and alleviate issues or problems from creating waste. It has as its purpose ensuring a common understanding at all levels of the organization about structure of key goals, the actions taking place to address the goals, linkages to other goals, and the benefit of accomplishing the goals.
PDCA	The 4-step continuing cycle of Plan-Do-Check-Act & Adjust. Based on the scientific method of "hypothesize, experiment, evaluate/plan, do and check" and popularized by W.E. Deming, it is a foundational element of lean – continuous process improvement and problem solving Plan – Set targets & plan how to get there.

	<p>Do – Train, lean and implement solutions.</p> <p>Check – Check the effects of what you’ve done.</p> <p>Act &amp; Adjust – Act on what you’ve found, adjusting for earlier results, and begin again.</p>
Policy Deployment	See SA&D, Hoshin Kanri and Hoshin Planning.
Problem	The discrepancy (a quantifiable difference) between the current situation and the standard for that situation.
Problem Solving	A structured means of critical thinking designed to define, analyze, determine the root cause of, develop countermeasures for, verify the effectiveness of, and standardize the solutions to problems. Related to A3 problem solving, 8-step problem solving, PDCA, DMAIC.
Problem Solving	A PDCA-based problem-solving process used in CPI <sup>2</sup> , comprised of 5 steps: 1. Initial problem identification, 2. Grasping the current situation & defining the real problem, 3. Conducting a cause investigation, 4. Implementing countermeasures, and 5. Following up. The focus is on determining the root cause of a problem so long-term countermeasures can be implemented.
Process	A series of individual operations required creating a design, completed order, product or service.
Reflection	Time taken to deeply understand a situation or potential change.
Return-on-Investment (ROI)	The ratio between the predicted or computed savings or cost avoidance (the return) that will result from some action and the cost of completing the action (the investment). Should take the time value of money into account.

SA&D	Strategic Alignment and Deployment. See Hoshin and Alignment
Safety	Injury Incident Rate is a lean metric for safety and employee satisfaction. K Factor = Average work hours per 50 people for one year.
Stability	The first of the 5 Phases in the Toyota implementation model, defined as developing the skills to recognize instability, and react appropriately to eliminate it. Tools for this phase include value stream mapping, 5 S, visual factory, constraint analysis, equipment repair, and standardized work (without Takt time analysis).
Stakeholder	Person internal or external to an organization who has a stake in the outcomes of a process.
Standard	A specific, established and known expectation of what should be for a given situation. It should be shared and agreed to by everyone, and serves as the basis for further improvement.
Steering Committee	The steering committee comprises senior-level stakeholders who carry out CPI-related planning, identify key metrics, establish CPI infrastructure, monitor performance, and facilitate process improvement when necessary.
Strategic Plan	The process an organization uses to achieve and document long-term goals and objectives.
Value	From a lean perspective, value is anything a paying customer is willing to pay for. Anything a paying customer is not willing to pay for is considered waste, and should be designed out of the processes.

Value Stream	These are specific activities required to design, order and provide a specific product, service or piece of information, from concept to launch, order to delivery, into the hands of the customer. It encompasses all the planning, execution, products, and services that go into an organization-wide process to create value for the customer.
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