



# Introduction to the CMMI<sup>®</sup> Acquisition Module (CMMI-AM)

## Module 6: Using CMMI-AM



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# Agenda

Process Models

Process Improvement

Using CMMI-AM

Summary





# History

**The theories of process management are a synthesis of the concepts of Deming, Crosby, Juran, and others.**

**Over the past 30 years, these theories have been used to address problems common to many organizations.**

**Solutions have been discovered, but a gap existed between the state of the practice and the state of the art.**

**Many of these concepts have been used to build process-improvement models.**



# What Is a Process Model?

**A model is a structured collection of elements that describes characteristics of effective processes.**

**Processes included are those proven by experience to be effective.**



# How Is a Model Used?

A model is used

- to help set process improvement objectives and priorities
- to help ensure stable, capable, and mature processes
- as a guide for improvement of project and organizational processes
- with an appraisal methodology to diagnose the state of improvement efforts



# All Models are Wrong; Some are Useful

A process model is a structured collection of elements that describe characteristics of effective processes. Models provide:

- A place to start
- The benefit of a community's prior experiences
- A common language and a shared vision
- A framework for prioritizing actions
- A “benchmark” for assessing different organizations for equivalent comparison
- A way to define and measure what “improvement” means for your organization

A model is NOT a process. The model shows **WHAT** to do, but neither **HOW** to do it nor **WHO** should do it.



# The Bottom Line <sub>1</sub>

Process improvement  
should be done to  
help the business—  
not for its  
own sake.



“In God we trust,  
all others bring data.”

- W. Edwards Deming



# The Bottom Line <sub>2</sub>

**Improvement means different things to different organizations.**

- **What are your business goals?**
- **How do you measure progress?**

**Improvement is a long-term, strategic effort.**

- **What is the expected impact on the bottom line?**
- **How will impact be measured?**





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# Simple Improvement Processes

1. Determine where you are.
2. Determine where you want to be.
3. Make a plan.
4. Execute the plan.
5. Learn lessons and do it again.

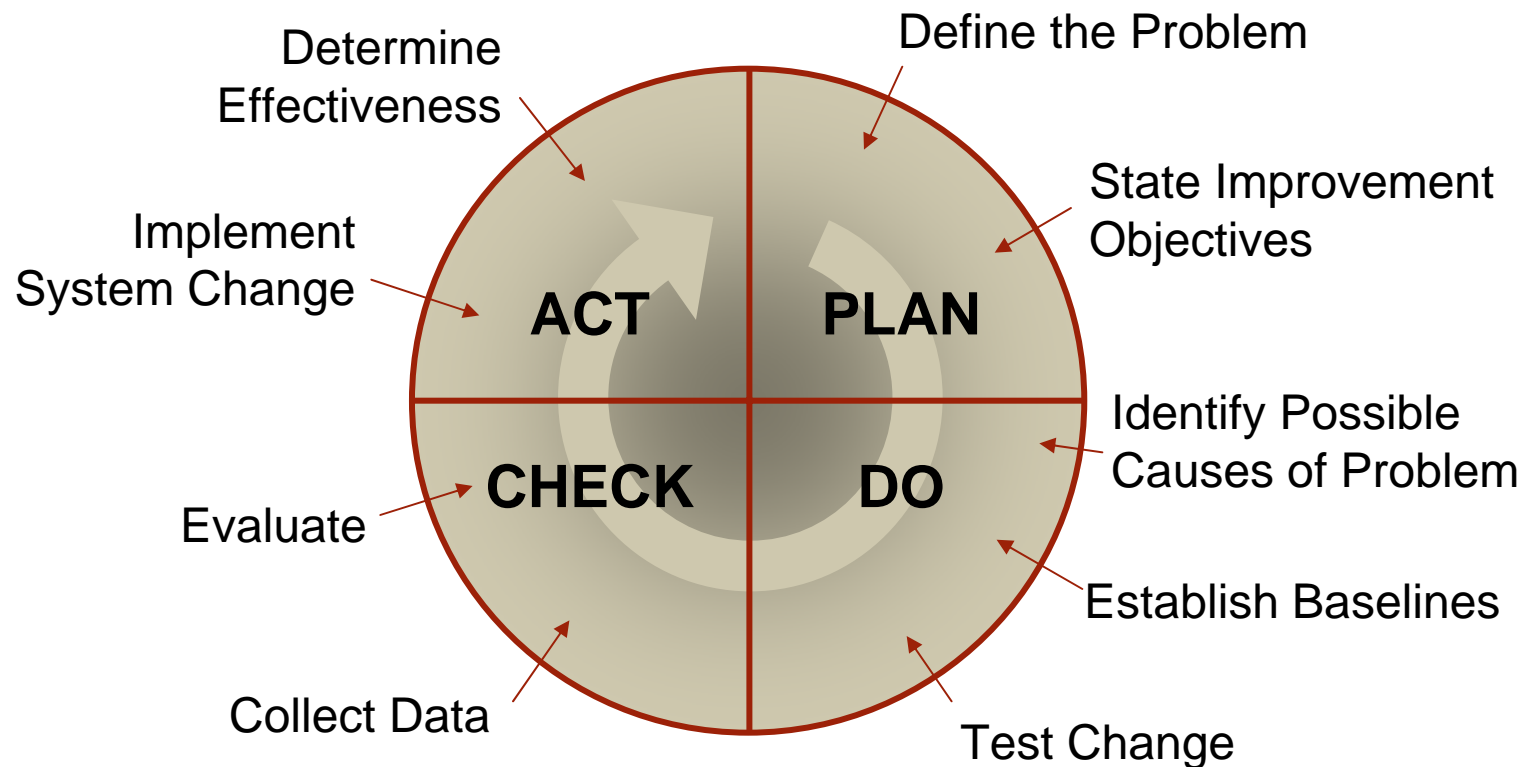
Familiar process improvement methods include

- Shewart Cycle (Plan Do Check Act)
- IDEAL<sup>SM</sup>



# Process Improvement Methods 2

## Plan – Do – Check – Act (Shewart) Cycle



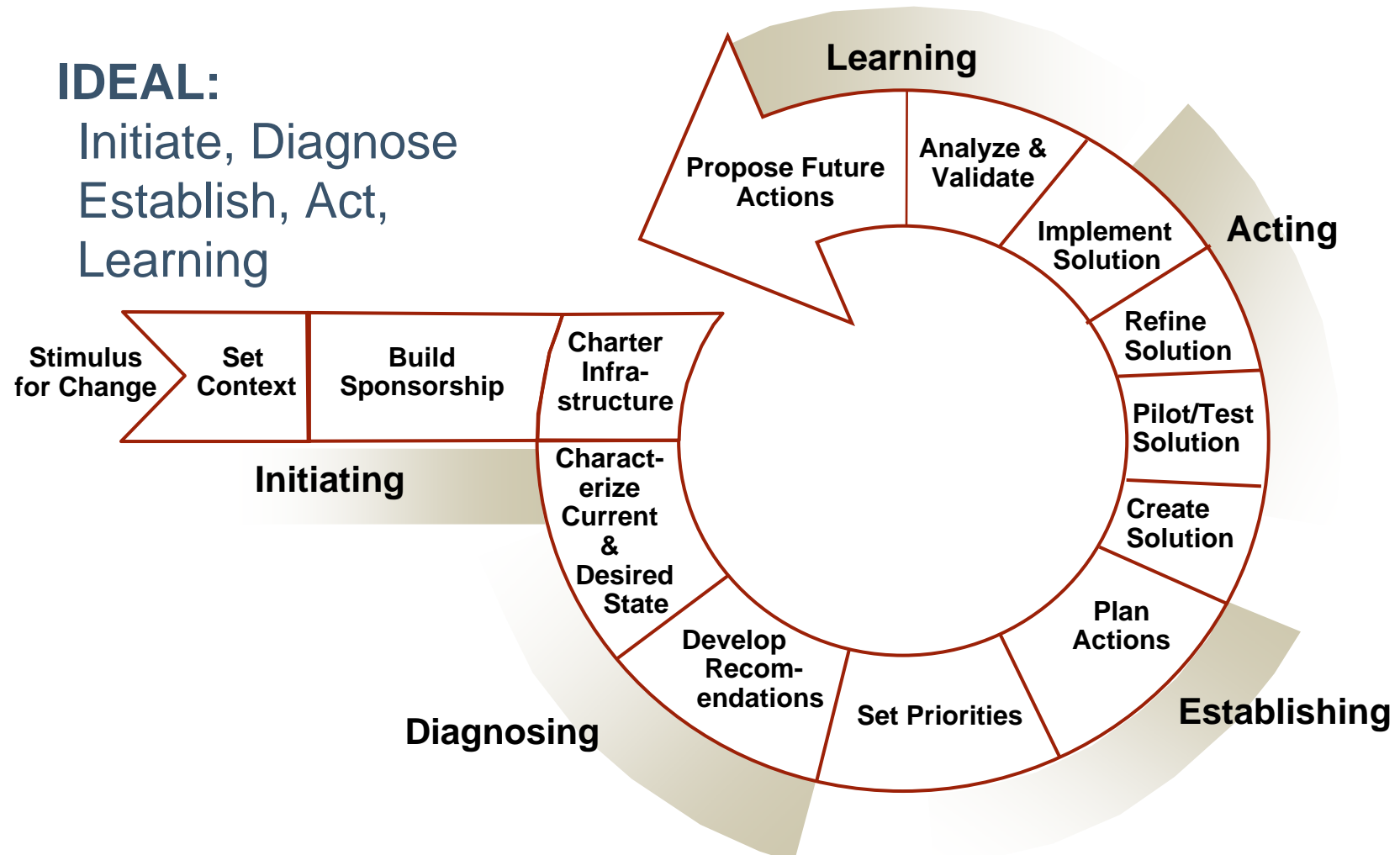
W. Edwards Deming; *Out of the Crisis*. MIT, 1986.



# Process Improvement Methods 1

## IDEAL:

Initiate, Diagnose  
Establish, Act,  
Learning



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## PROCESS IMPROVEMENT

# Critical Success Factors

Commitment to improve  
must start at the top

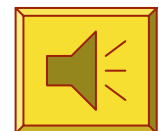
First understand the current  
process

Structured change must  
become a way of life

Improvement requires investment

When failure occurs, focus on the process, not the people

Institutionalizing improvements requires vigilance and  
periodic reinforcement





## If at First You Don't Succeed ...

It took John Vu 7 years to get Boeing to CMM Maturity Level 2. He started three separate improvement programs before one worked.



Don't expect your or your contractor to succeed on the first try.

On the other hand, don't declare defeat too quickly. Try again.



# Barriers to Process Adoption

## Common misconceptions

### I don't need process, I have ...

- Really good people
- Advanced technology
- An experienced manager

### Process ...

- Interferes with creativity
- = bureaucracy + regimentation
- Is only useful on large projects
- Hinders agility in fast-moving markets
- Costs too much





# Threats to Process Improvement

## Senior management problems

- Change or loss of sponsorship
- Inadequate support and resources
- Desire for quick fixes
- Unreasonable expectations
- Termination before institutionalization
- Inconsistent reinforcement

## Middle management resistance

- “If it ain’t broke don’t fix it”
- “Flavor of the day”
- “This is another management initiative I can outlast”

**Understanding the source of resistance is the first step in eliminating it.**





# PM Roles in Process Improvement 1

## In PMO Process Improvement

- Provide visible **leadership** - show that it is important by making time for it in your schedule
- Set a **vision** of the desired state - The vision may be **BIG**, but make the steps to achieve it small
- **Motivate** by rewarding good role models
  - Start with a receptive group within the PMO
  - Public recognition for REAL results goes a long way
- Create **communication** channels
  - Post status reports. Hold informational meetings
- **Monitor** progress
- Protect staff from other disruptions
- Encourage **teamwork**
- Don't choke off discussion



# PM Roles in Process Improvement 2

## In Supplier Process Improvement

- Clearly express **expectations**
  - Via RFP
  - Via Contract
  - Via on-going communications
- **Encourage** contractor process improvement actions
- **Monitor** progress
- Encourage PMO – contractor **teamwork**
- **Understand** your contractor's perspective



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# CMMI-AM Self-Assessment

To guide the PM in assessing the acquisition program, the CMMI-AM includes a series of questions focused on:

- Acquisition Strategy
- Acquisition Planning
- Cost Schedule and Performance Baselines
- User Requirements
- Product Engineering
- Acquisition Processes
- Risk Identification and Management

**Questions are linked to the CMMI-AM Process Areas**



## CMMI-AM Self-Assessment **Acquisition Strategy**

Method of Acquisition Strategy determination?

Risk Mitigation through Acquisition Strategy?

Stakeholder involvement in Acquisition Strategy?



## **CMMI-AM Self-Assessment**

# **Acquisition Planning**

Relationship to Acquisition Strategy?

Program Scope determination?

Determination of Development Effort size?

Determination of resource needs?

Determination of critical path?

Coordination of plans with relevant stakeholders?

Staffing with appropriate skills and experience?

Ensuring adequate supplier resources?

Ensuring adequate supplier experience and capability?



## **CMMI-AM Self-Assessment**

# **Cost, Schedule, and Performance Baselines**

Means of validating and integrating baselines?

Provisions for independent reviews?

Inclusion of all life cycle costs?

Plans to track cost, schedule, and performance?

Baseline change management?

Evaluation of change impact?



## **CMMI-AM Self-Assessment** **User Requirements**

Plans to manage user involvement?

Means of ensuring understanding of user needs?

PMO role in requirements generation?

Adaptation strategy for evolving operations environment?





## **CMMI-AM Self-Assessment** **Product Engineering**

Process to define, verify, and validate requirements and architectures?

Development status monitoring?

Means of incorporating non-developmental items (NDI)?

Satisfaction of NDI goals?

NDI interface definition and acceptance?

Effort to test and integrate NDI?

Supplier demonstration of performance and stability of development environment and tools?



## CMMI-AM Self-Assessment Acquisition Process

Existence, quality, and usage of acquisition processes?

Monitoring, control, and improvement of acquisition processes?

Project adherence to acquisition processes?



## **CMMI-AM Self-Assessment**

# **Risk Identification and Management**

Means of identifying program risk?

Risks related to acquisition strategy and plans?

Risks associated with cost and schedule?

Means of ensuring understand of cost risk?

Risks related to supplier execution?

Risks outside of your control?

Analysis (likelihood and impact) of program risks?

Mitigation effort monitoring?

Risk management tools?

Participants in risk assessment?

Reserves for risk mitigation and problem impact

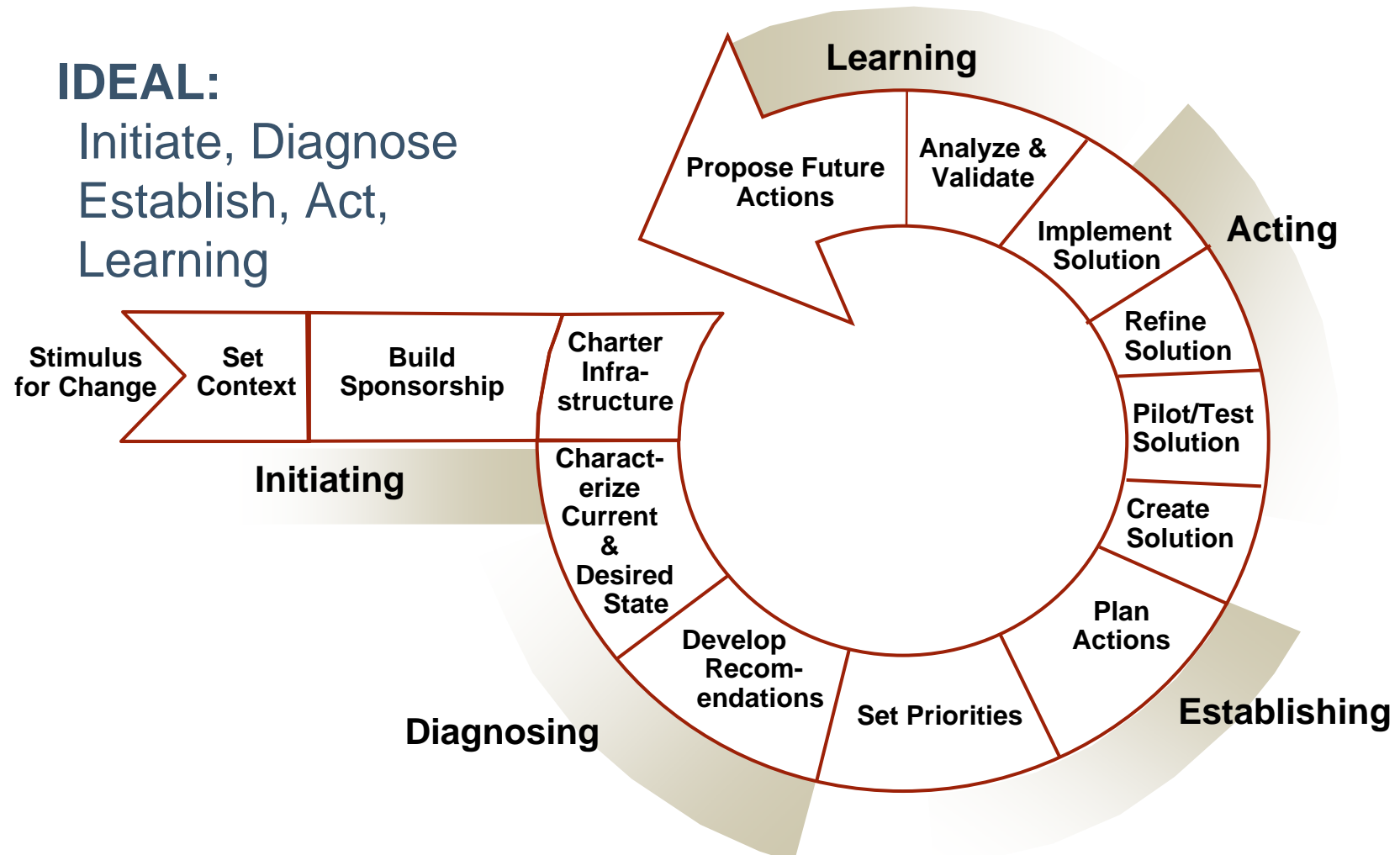
Assessment of supplier mechanisms for rapid process stand-up



# Using IDEAL to adopt CMMI-AM 1

## IDEAL:

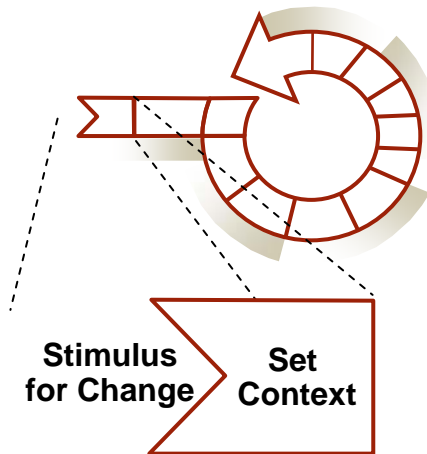
Initiate, Diagnose  
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# Using IDEAL to adopt CMMI-AM<sub>2</sub>



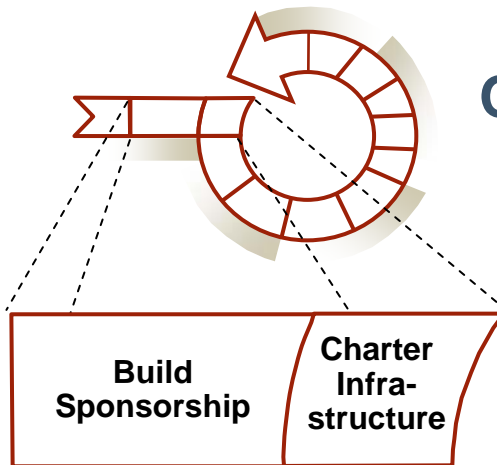
## Something prompts the use of IDEAL to adopt CMMI-AM

- Reaction to unanticipated events or circumstances
- Edict from above
- Recognition that process improvement is the route to program success

## Setting context – make sure there is consensus on

- The organization's core mission
- Business goals and strategies
- A coherent vision for the future
- A strategy to achieve that vision
- Models to be used

# Using IDEAL to adopt CMMI-AM 3



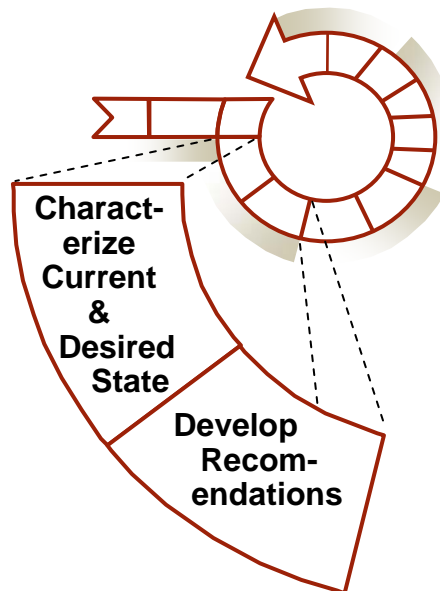
## Obtain senior level (PEO?) sponsorship to

- Provide personal commitment to project
- Provide needed resources
- Change their behavior, if necessary
- Provide appropriate rewards

## May need to establish

- An oversight group
- A change management group
- One or more Technical working groups

# Using IDEAL to adopt CMMI-AM 4



## Understand your current-state

- Start with the CMMI-AM questionnaire
- Consider an external assessment of your PMO
- Learn more about process improvement

## Define your end-state

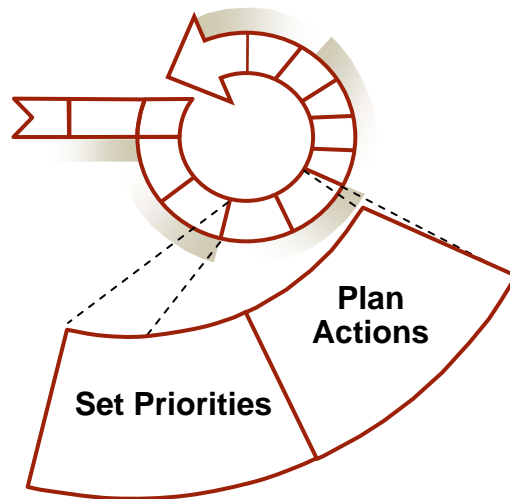
- Establish goals for process improvement
- Establish a time table

## Develop recommendations

- Gap analysis
- Define improvement projects
- Develop estimates for cost, schedule, and resources



# Using IDEAL to adopt CMMI-AM 5



## Set priorities

- Based on urgency of need
- Based on ROI
- A quick return bolsters support for process improvement

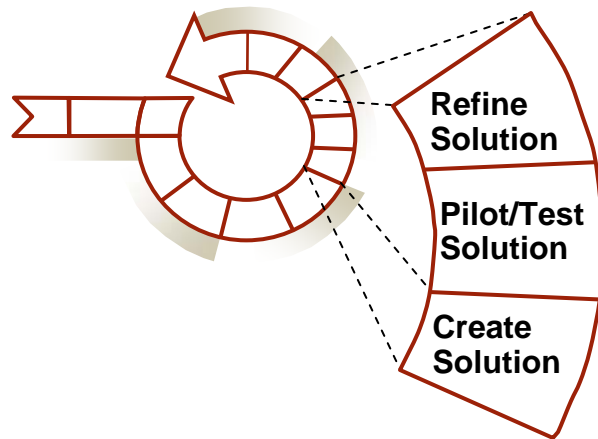
## Plan Actions

- Define deliverables, activities resources
- Identify decision points
- Identify risks and mitigations
- Define schedule and milestone
- Plan for monitoring and tracking





# Using IDEAL to adopt CMMI-AM 6



## Create solution

- Identify performance objectives
- Finalize plans for test/pilot group
- Construct the solution

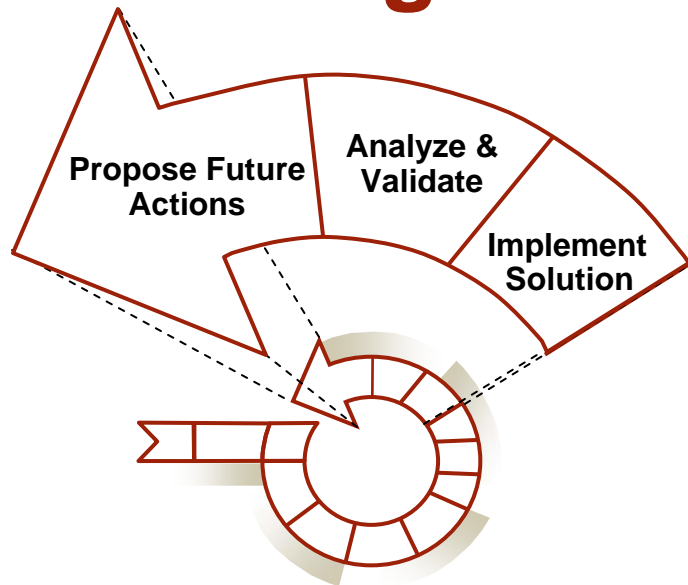
## Test the solution

- Train the pilot group
- Execute pilot
- Provide feedback

## Refine the solution

- Almost never works right the first time (keep you pilots small)
- Learn and repeat

# Using IDEAL to adopt CMMI-AM 7



## Implement solution

- Monitor during implementation, and adjust as needed

## Analyze and validate

- What went right? What went wrong?
- Were objectives met?

## Propose future actions

- Process improvement is never complete
- Past success enables more ambitious future projects



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# Summary

Process models provide a structured approach to process improvement

Process improvement demands patience, persistence, and management support

Assess your program using the questions of the CMMI-AM

Use IDEAL to implement CMMI-AM and process improvement within your PMO