Office of the Chief Information Officer/G6

U.S. Army Aviation and Missile Command (AMCOM)
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Lean Drivers that Stimulate Continuous Process Improvement

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Agenda

- Organizational Background
- Lean Improvement Benefits
- What is Lean and why implement?
- Lean Drives Improvement
- Introduction to Shingo Model
- Cultural Changes
- Sustainment of Lean through CMMI Process
- Lean CMMI Benefits

Organization Background

- Small, Federal organization (140 civilian/contractor)
- Achieved SW-CMM Level 2, August 2002
- Lean approach implemented, Feb 2005
- Achieved CMMI Maturity Level 2 and Capability Level 3 in 9 Process Areas rated, May 2007
- Achieved CMMI Maturity Level 3, May 2008 (w/IPPD)

What is Lean?

- Focus on CUSTOMER VALUE
  - Next customer
  - Cost, Schedule, Quality
- Increase System FLOW
- Reduce LEAD-TIME
- Remove DEFECTS at point of origin
- Develop METRICS and VISUAL controls
- Work toward an IDEAL STATE
- Improve something DAILY
- Be Relentless and Continuous!

Lean Thinking

Value Added Activities:

Activities that add features, attributes or benefits the customer perceives as valued (worth paying for).

Non-Value Added Activities:

Activities/delays customers do not want to pay for.

Traditional Focus
- **Work longer-harder-faster**
- **Add people or equipment**

Lean Focus
- **Eliminate waste to improve workflow**
- **Reduce burdens**

Our Lean Implementation

- Conducted VSM in February 2005 which completely changed our direction
- Focused on Lean initiatives
- Needed to position our organization to deliver more with fewer resources
- Streamlined from the “big honking binder”
- Allowed CMMI to earn it’s way back via Kaizen events
- Investigated application of the Shingo Model
- Continued process improvement through integration of Lean, Six Sigma, Shingo, and CMMI

Lean Improvement Benefits

- VSM Conducted Feb 2005 resulting in 14 Kaizen events and many tasks
- Kaizen improvements yielded new Software Engineering Process (SEP) iterations
- Improved metrics – data driven management
- Eliminated unnecessary steps identified as wastes
- Provided customer's first critical needs faster with incremental deliveries
- Test driven approach focused on FTQ
- Improved workload/workflow management/staffing
- Better communication through teaming
- Reduced backload
- SEPG migrated to PCCB

Lean Drives Improvement

- Continuous learning…strive for perfection
  - Investigation of the Shingo Model
- Promotes a culture of learning within all levels
- Encourages buy-in and ownership
- “What’s in it for me?”

The Shingo Model

- www.shingoprize.org
- Established in 1988 to promote awareness of Lean manufacturing concepts
- Recognizes companies and Government organizations in the U.S., Canada, and Mexico that achieve world-class status
- In 2008, Shingo Prize was extended outside manufacturing to include software development and other white collar organizations
- Administered by Utah State University
- Businesses may challenge in small, medium, or large categories
- Expect 3 years of metrics
- Achievement Report and Site Visit

Shingo Prize

DR. SHIGEO SHINGO

The Prize is named for Japanese industrial engineer Shigeo Shingo who distinguished himself as one of the world's leading experts in improving manufacturing processes. Dr. Shingo has been described as an "engineering genius" who helped create and write about many aspects of the revolutionary manufacturing practices which comprise the renowned Toyota Production System.

Dr. Shingo is the author of numerous books including A Study of the Toyota Production System; Revolution in Manufacturing: The SMED System; Zero Quality Control: Source Inspection and the Poka-yoke System; The Sayings of Shigeo Shingo: Key Strategies for Plant Improvement; Non-Stock Production: The Shingo System for Continuous Improvement; and The Shingo Production Management System: Improving Process Functions. He was a genius at understanding exactly why products are manufactured the way they are, and then transforming that understanding into a workable system for low-cost, high-quality production.

In 1988, Utah State University recognized Dr. Shingo for his lifetime accomplishments with an Honorary Doctorate in Business. The Shingo Prize Model was developed as a world-class manufacturing model that incorporates many of Dr. Shingo's practices as well as exemplary practices from other sources. The Shingo Prize Model, however, is not just a production model. It is an overall systems model that incorporates all aspects of business operations and processes. The model was developed to promote Lean/worldclass business practices that result in world-class performance and the ability to compete globally.

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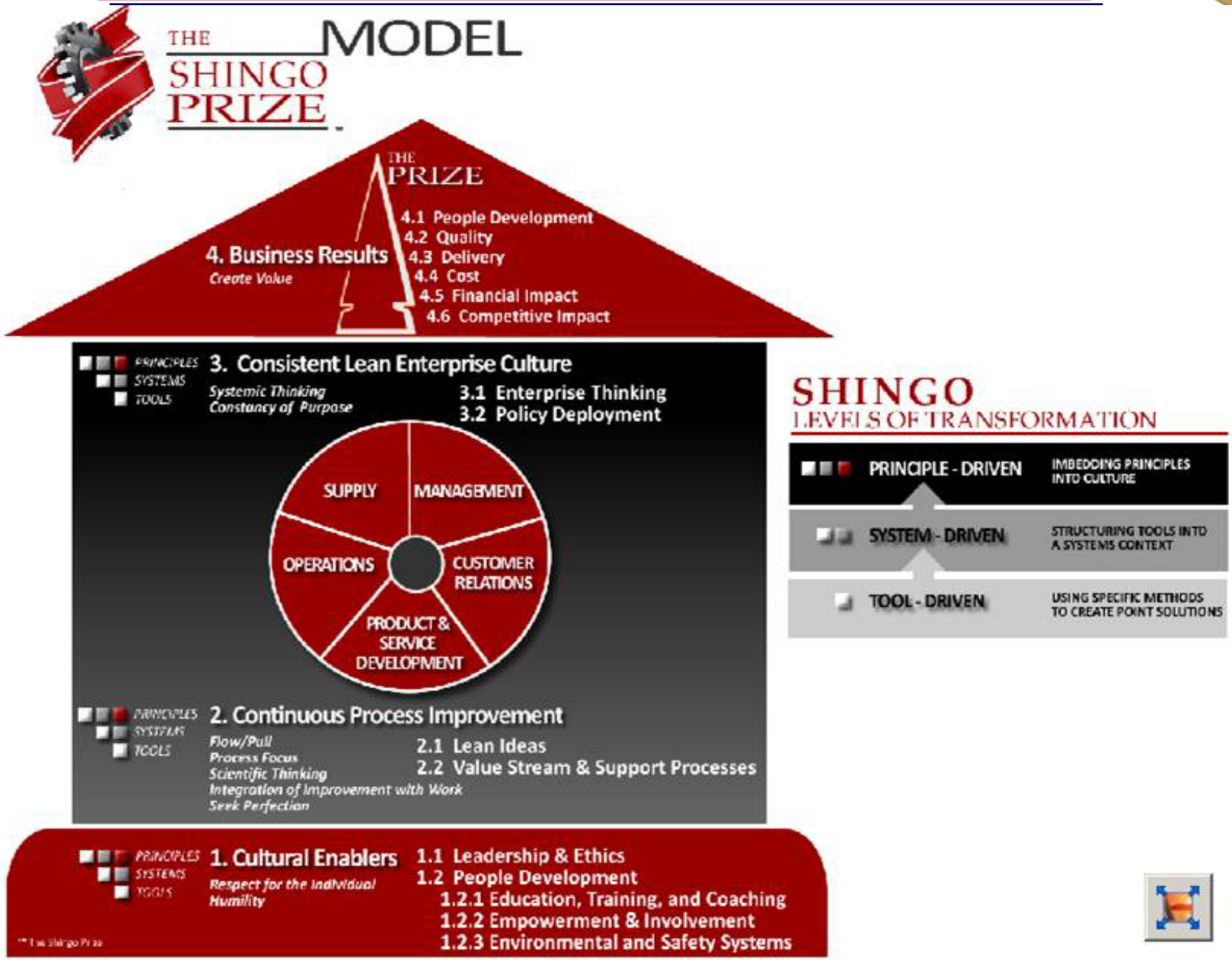

Shingo Expectations

1. **Cultural Enablers**
   - Leadership is involved and engaged
   - Focus on developing people
     - Education, Training, Coaching
     - Empowerment and Involvement
     - Environmental and Safety
2. **Continuous Process Improvement**
   - Lean Principles
   - Value Streams
   - Customer Relations
   - Product/Service Development
   - Operations
   - Supply
   - Administration

Shingo Expectations (continued)

3. **Consistent Lean Enterprise Culture**
   - Enterprise Thinking
   - Policy Deployment
4. **Business Results**
   - People Development
   - Quality
   - Delivery
   - Costs
   - Financial Impact
   - Competitive Impact

Cultural Changes

- **Software Process Improvement Program (SPIP)**
  - Change Requests come from all levels of the workforce
  - Reviewed by PCCB and implemented in SEP Releases
- **Visual Metrics**
  - MAGIC Dashboard
  - Purchased Smart Board to push data to the workforce
  - Employees know how their work impacts metrics
- **Improved Performance Standards**
  - Standardized to include Organization Goals and Objectives
  - Tie expectations and performance to business goals
  - Employees know how their performance supports overall mission and goals

How do you sustain Lean improvements?

- We can make LOTS of changes…but how do we ensure they are maintained?
- The CMMI provides an excellent framework for sustaining improvements
  - Generic Goals
  - Generic Practices
- Capitalize on the Process Areas for Lean Activities
  - PPQA
  - VER/VAL
- Robust appraisal method
  - Standard CMMI Appraisal Method for Process Improvement (SCAMPI)
  - Other performance attributes may be added (i.e., Lean)

Lean CMMI Benefits

- Repeatable, standard process for the organization
- Reduction of defects through Peer Reviews
- Improved planning activities
- Improved testing activities
- Better management insight into products
- Improved communication through Process Configuration Control Board – Peer Groups
- Adherence to process with improved PPQA process
- Improved metrics – data driven decision making
- Visual Dashboard

Questions?