

# The SEA Lean Enterprise System

## Understanding and Using The SEA Roadmap



### **Cristi Cristich**

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Vice-Chair, Supplier Excellence Alliance  
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Ms. Cristich founded her company, Cristek, in 1985, at the age of 23. Cristek, which now employs over 100, has been honored to receive many awards for its performance and ability to creatively partner with customers.

Cristek is a HUB Zone Certified, Woman Owned, AS9100 registered business and was one of the first companies to earn SEA Certification.

# Certification Background

- ✈ Created by the SEA board in 2007
- ✈ Pilot in late 2007-2008
- ✈ Five Stage One Certifications from pilot
- ✈ Roadmap and Criteria updated end of 2007 to “2008 Roadmap and Criteria”
- ✈ Guided On-Line Self-Assessments offered at no charge

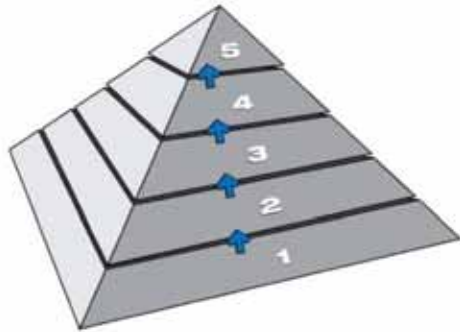
# Certification

- ✈ Three stages of certification are available – Stage 1 through 3
- ✈ Certification requires a full audit once every two years with a surveillance audit once per year
- ✈ Certification full audit consists of three onsite days

# Roadmap

	<b>Stage One</b>	<b>Stage Two</b>	<b>Stage Three</b>
	<b>Stabilization</b>	<b>Supply Chain Integration</b>	<b>Sustainability</b>
<b>Leadership &amp; Culture</b>	1.1.1 Strategic Planning Process 1.1.2 Leadership Communication Process 1.1.3 Organizational Performance Review Process 1.1.4 Continuous Improvement Management Process 1.1.5 Workforce Development Integration Process	1.2.1 Goals Deployment & Review Process 1.2.2 Values Deployment Process 1.2.3 Supply Chain Integration Process	1.3.1 Organizational Learning Process 1.3.2 Organizational Assessment Process
<b>Workforce Development</b>	2.1.1 Job Skills & Cross-Training Certification Process	2.2.1 Continuous Improvement Process 2.2.2 Statistical Methods Process	2.3.1 Team Control Process
<b>Operational Excellence</b>	3.1.1 Kaizen Process 3.1.2 6S Visual Workplace Process 3.1.3 Quick Changeover/SMED Process 3.1.4 Material Management Process 3.1.5 Production Planning Process	3.2.1 Flow-Based Material Process 3.2.2 Mixed Model Cell/Line Design Process 3.2.3 Lean Suggestion Process 3.2.4 Total Productive Maintenance Process	3.3.1 Design of Experiments Process 3.3.2 Design to Cost Process 3.3.3 Six Sigma Projects Process 3.3.4 Six Sigma Design Process 3.3.5 Design for Manufacturability Process
<b>Business Results</b>	4.1.1 Inventory Turns 4.1.2 Sales/Employee 4.1.3 On-Time Delivery 4.1.4 Parts per Million 4.1.5 Process Maturity 3 and above	4.2.1 Defects Per Million Opportunities	4.3.1 Rolled Yield 4.3.2 Cpk

# The Process Maturity Model



## ▼ Process Maturity Levels

**5** The process shows continuous positive trends and benchmarks world-class

**4** The process is under process control, is analyzed, and improved using data

**3** The process has certified trainers and is standardized

**2** The process has been documented to the work instruction level

**1** The process has been identified, defined, and has an owner

# Criteria for Stage One Audit

- ✈ Eleven Roadmap Processes for Stage One must meet PMM Level 3
- ✈ Five Roadmap Business Results must show 15 months of data with the first three months as baseline and 7 out of 12 months exceeding the baseline

# Certification Benefits

- ✈ Industry-recognized and accepted framework
- ✈ Recognition of excellence beyond AS9100
- ✈ Recognition based on the SEA Supplier brand
- ✈ Visibility leading to increased opportunities for top-line business growth

# ***Cristek & SEA Certification***

The WHY

The HOW

The Lessons Learned



# Cristek Background

- ✈ Established in 1985
- ✈ Approximately 120 employees
- ✈ 50K square feet in Anaheim
- ✈ Focused 95% on Military and Aerospace
- ✈ Not traditionally vertically integrated
- ✈ Value proposition of customer intimacy
- ✈ Slow but steady growth
- ✈ Products
  - ✈ High density and high performance interconnect products for a wide range of high reliability and harsh environments
  - ✈ Micro, Nano, Filter, Microwave, Circular Connectors and Harnesses

# Lean & Six Sigma delivers to the bottom line building in...

- ✈ 35% increase sales per employee
- ✈ 450% reduction in scrap
  - ✈ More than \$1 million over 3 years
- ✈ Internal DPMO from 6200 to 937 in three years and 620 in most recent month
- ✈ Gross Margin increase 19%
- ✈ EBIDTA up 33% thru 2006 and doubled in 2007!

# WHY We Did It...

- ✈ Accelerate improvement and ensure sustainability of improvements
- ✈ Provide long term context and framework for improvement
- ✈ Secure a place on the SEA National Registry for visibility

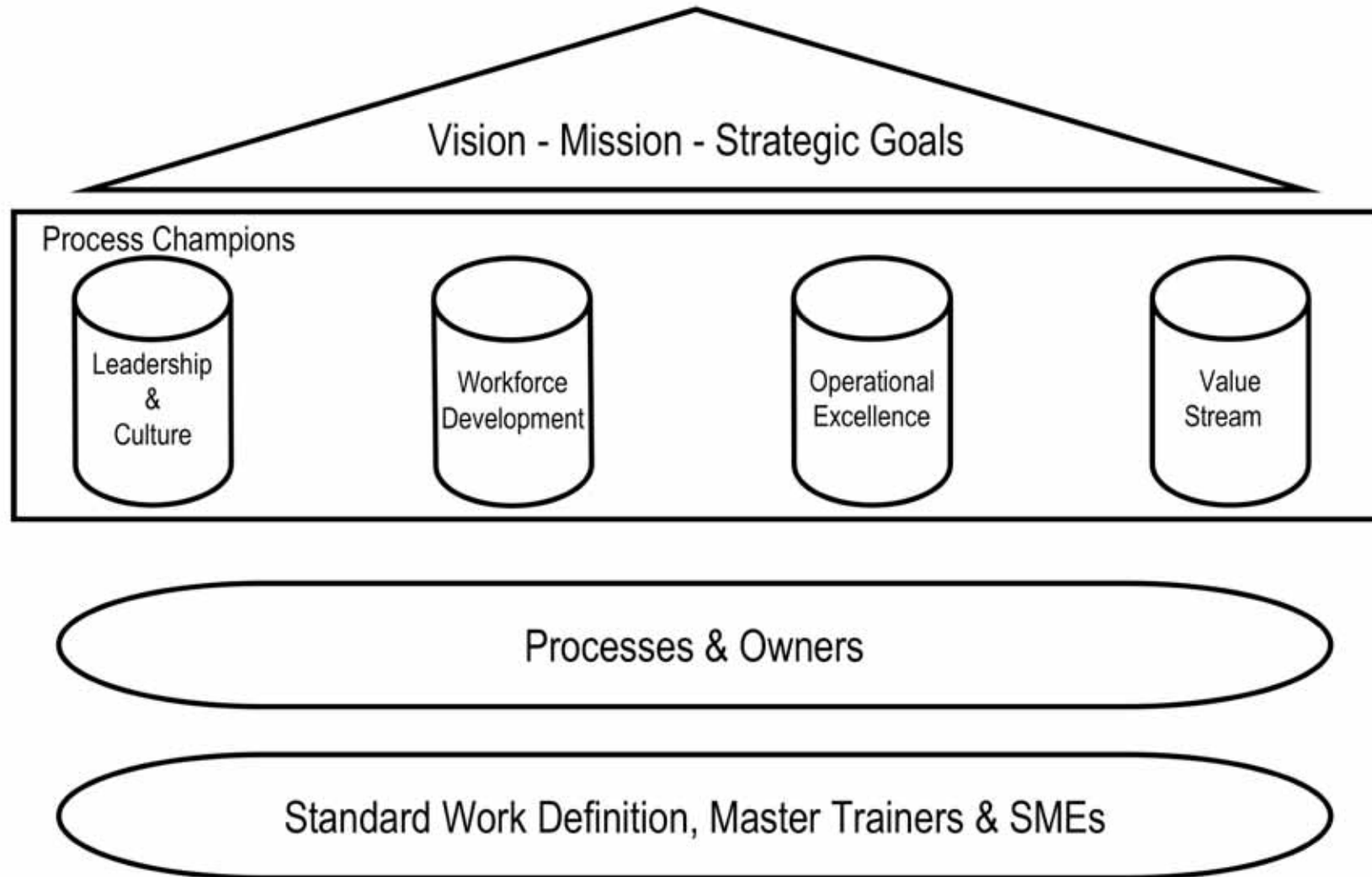
# Our Initial Challenges with Roadmap & Certification

- ✈ The roadmap overlaps with current systems & adds process documents....how is that lean?
- ✈ Paradigm shift required to consider these roadmap elements as processes and not events or tactics
- ✈ Why spend all this time on non value stream processes when I have a factory to run?
- ✈ Why do I want to “standardize” a process that is not adequate for business needs?

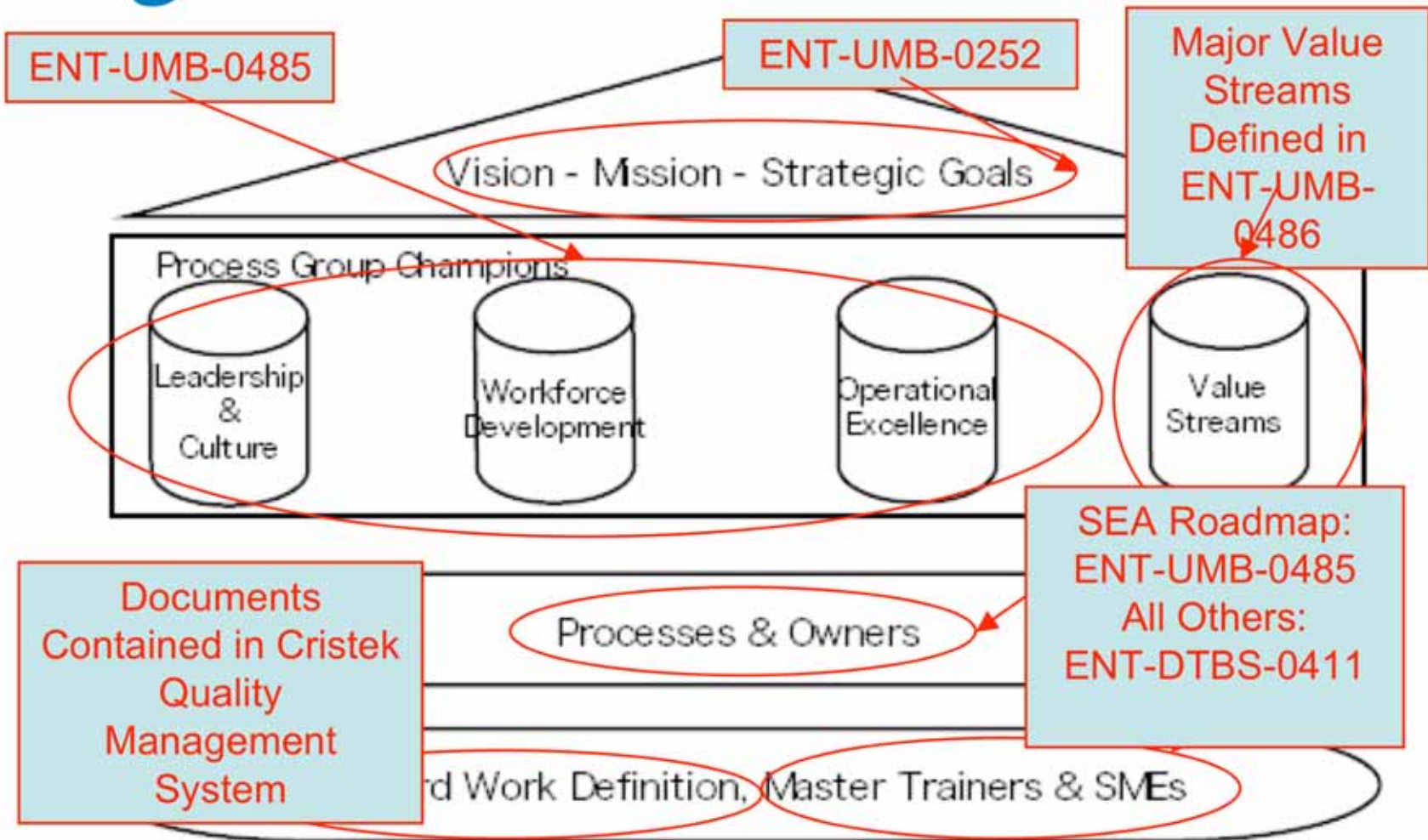
# The roadmap overlaps with current systems & adds process documents...how is that lean?

- ✈ Map to the process architecture
- ✈ Into the DNA
  - ✈ Integrate with best of existing initiatives, strategies & best practices
  - ✈ Don't have a separate "change" plan
  - ✈ Consider if you really need a stand alone "lean" guy or lean initiative
- ✈ Take the opportunity to challenge your current processes
- ✈ First come up with the best integration ideas & then check for compliance

# SEA Process Architecture



# SEA Process Architecture as Integrated with Cristek



# Paradigm shift required to consider roadmap elements as processes and not events or tactics

- ✈ Leadership & Culture
- ✈ Workforce Development & Cross Training Certification Process
- ✈ Kaizen
- ✈ 6S
- ✈ Material Management
- ✈ Production Planning



# Why spend all this time on non value stream processes when I have a factory to run?

- ✈ Faster integration of new employees into culture
- ✈ Sustain, improve and accelerate the way the business works on the business
- ✈ Facilitates the comprehension of and enthusiasm of “complex” concepts throughout the workforce

***Why do I want to “standardize”  
a process that is not adequate  
for business needs?***

# VARIATION...is our enemy!

- ✈ Variation of some type is responsible for all non conformances
- ✈ Achieving PML 3 – standard work reduces many potential sources of variation so the process can then be improved & measured
- ✈ Minimizing variation minimizes doubt

# *Is 99.9% Good Enough?*

Excerpted in part from IAQG presentation on variation management

***In a Country Like the  
United States 99.9%  
Equates to....***

## *In the United States 99.9% Equates to....*

- ✈ 2 unsafe plane landings at O Hare each day
- ✈ 22,000 checks deducted from the wrong bank account each day
- ✈ 76 newborn babies being given to the wrong parents each month

# According to John Kotter.....

## *“Our Iceberg is Melting”*

- ✈ Create a sense of urgency
- ✈ Pull together the guiding team
- ✈ Develop the change vision & strategy
- ✈ Communicate for understanding & buy in
- ✈ Empower others to act
- ✈ Produce short term wins
- ✈ Don't let up