The Supplier Excellence Alliance

Accelerating supply chain performance
SEA is a non-profit alliance of aerospace and defense prime and tier-one contractors and leading sub-tier suppliers dedicated to transforming the aerospace and defense supply chain.

Prime-empowered and supplier-led, SEA helps develop a special breed of small and mid-sized production suppliers that perform at the highest levels and collaborate to produce integrated supply chain solutions. SEA suppliers are investing in building process management skills and mature processes. SEA suppliers are agile, adaptive, and aligned. These characteristics promote greater value for the end user – and result in improved bottom-line results and greatly expanded opportunities for new top-line business for suppliers.

Champion Responsibilities
1. Lead the improvement efforts for one of the SEA “Tracks” or for an operational value stream.
2. Select the right metrics to measure improvement.
3. Provide support and resources for process owners; review progress.
4. Set the pace of improvement projects, i.e., one per month, two per month, etc.
5. Remove organizational barriers to improvement.
6. Create and implement a change management plan (i.e., reward, recognition, communication, involvement, planning).

Process Owner Responsibilities
1. Define the process: value-stream map the process; ensure that everyone knows who owns the process and who should receive feedback.
2. Document the process: develop job aids and work instructions.
3. Standardize the process: train those who work in the process; audit adherence to the standard work instructions.
4. Establish a control plan; establish the use of statistical tools to manage and improve the process; establish corrective action triggers.
5. Establish benchmarks for world-class performance; coach team to report out progress.

Master Trainer Responsibilities
1. Develop and maintain work instructions; job aids
2. Develop and maintain training materials
3. Provide training, cross-training and certification
4. Support kaizen events
5. Audits and performs quality checks

Process Architecture

Champion Responsibilities
- Leadership & Culture
- Workforce Development
- Operational Excellence
- Value Stream

Processes & Owners

Standard Work Definition, Master Trainers & SMEs

Members
- BAE Systems
- The Boeing Company
- Bodycise Thermal Processing
- Bombardier
- Cessna Aircraft Company
- Cristek Interconnects
- Dreszer Rand
- DRS Technologies
- Hamilton Sundstrand
- Hitco Carbon Composites
- Honeywell Aerospace
- Lockheed Martin Corporation
- Northrop Grumman Corporation
- Parker Aerospace
- Photo Etch Company
- Pratt & Whitney
- Roberts Tool Company
- Rockwell Collins
- Sikorsky
- Smiths Aerospace
- Teledyne
- United Technologies Corporation

Supplier Advisory Council
- Cristek Interconnects
- Hitco Carbon Composites
- Roberts Tool Company
- HITEM
- Cape Industries
- Esterline Kirkhill Elastomers
- Orcon Corporation
- Crown Precision
- Capewell Components
- Photo Etch Company
- Perfeka
- Trace Products
# Roadmap to Process Maturity

**How we implement the SEA Lean Enterprise System**

## Process Maturity Levels

1. **The process is poorly defined, and has no owner.**
2. **The process has been documented to the work instruction level.**
3. **The process has been identified, defined, and has an owner.**
4. **The process is under process control, is analyzed, and improved using data.**
5. **The process shows continuous positive trends and benchmarks world-class performance.**

### Stages of the Roadmap

**Stage One - Stabilization**

Suppliers implementing the Roadmap will establish senior Champions for each of the three “trials” and Process Owners for each of the eleven Stage One processes. They will achieve Level Three Process Maturity in order to pass the SEA Stage One Audit.

Master Plan - is the first few weeks of SEA engagement, the management team performs an assessment with the assistance of SEA consultants to determine the current performance level of each process. From that assessment, a customized plan is created to address where to begin in the three-stage model for implementation.

**Exit Criteria** - This band describes the outputs produced from the work in each stage.

### Stage Two - Supply Chain Integration

Suppliers operating in this stage are working with the assistance of SEA consultants to develop advanced supply chain alliances that reduce lead time and cost while improving quality.

**Stage Three - Sustainability**

Suppliers operating in this range have very mature processes with high-value-added content and very little waste. This phase concentrates on establishing higher levels of process control, implementing Six Sigma where appropriate, and establishing review cycles to ensure continuous improvement.

### Exit Criteria - This band describes the outputs produced from the work in each stage.

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**Transforming an Industry**

Inventory turns have long been viewed as the indicator of how “lean” an industry has become. Our industry shows very little improvement over the last ten years. Although productivity has increased during the same period, we have failed to build a highly responsive, competitive U.S. supply chain.

Large primes/OEMs have articulated strategies to speed up production and outsource more of the production and design of new programs. This shortens development time and lowers the cost of production. To be effective, this strategy requires that suppliers at sub-tier 2-4 rapidly invest in the capability to increase performance and integrate operations.

These integrated supply chains must achieve world class competitive performance to survive.

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The key elements of the Lean Enterprise System

Focus on job skills certification and cross-training to promote standard work and workforce flexibility.

Focus on operational improvement priorities set by leadership and the voice of the customer.

Focus on strategy and leadership of the change efforts.

The Lean Enterprise System (LES) combines operational, workforce, and leadership initiatives into a comprehensive approach that embodies lessons learned and best practices based on the experience gained by small and mid-size suppliers. The LES addresses the key practices for low-volume high-mix production.

The LES also addresses the greatest problem encountered in building effective small and growing business enterprises—sustainability. Through a strong focus on process management and building an effective process management system within each company no matter how small, SEA aims to solve the underlying industry problem of low process maturity and low sustainability of critical supply chains.

Suppliers engaged in implementing the LES using the Roadmap are of primary interest to SEA. These suppliers are investing in their future and building a company to last, perform, and exceed customer expectations.
**SEA Lean Enterprise System**

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The key elements of the Lean Enterprise System:

- **Workforce Development**
  - Focus on job skills certification and cross-training to promote standard work and workforce flexibility

- **Leadership & Culture**
  - Focus on strategy and leadership of the change efforts

- **Operational Excellence**
  - Focus on operational improvement priorities set by leadership and the voice of the customer

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**Conversion Model**

- **Stability**
  - Select and stabilize 1-3 value streams
  - Establish Stage One Process Architecture
  - Achieve Stage One Certification
  - Draw SEA metric improvement
  - Minimum Commitment Results
    - 18 leadership days % on-time
    - 12 workforce days % inventory turns
    - 20 operational days % sales/employee

- **Supply Chain Integration**
  - Select and integrate 1-3 value streams
  - Establish Stage Two Process Architecture
  - Prepare for Stage Two Certification
  - Draw SEA metric improvement
  - Minimum Commitment Results
    - 6 leadership days Defects per Million
    - 10 workforce days Opportunities
    - 20 operational days

- **Sustainability**
  - Select and sustain 1-3 value streams
  - Establish Stage Three Process Architecture
  - Achieve Stage Two Certification
  - Draw SEA metric improvement
  - Minimum Commitment Results
    - 6 leadership days Rolled Yield
    - 10 workforce days Cpk
    - 20 operational days

This Model guides suppliers through the three stages of the Conversion: Stability, Supply Chain Integration, and Sustainability. Suppliers may elect to use the services of a SEA Authorized Service Provider to accelerate the process, develop internal experts for organic implementation, or use a combination of both approaches. The Conversion process described above may take three to five years or more to implement. Each supplier retains control over its rate of investment, its method of implementation, and the speed of their journey.
Roadmap to Process Maturity
How we implement the SEA Lean Enterprise System

- Process Maturity Levels
  1. Stabilization
  2. Supply Chain Integration
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Stage One - Stabilization
Suppliers operating in this range need to focus on building a sustainable foundation for continuous improvement. When this stage is ignored, improvements are difficult to sustain.

Stage Two - Supply Chain Integration
In this stage, focus is placed on developing advanced supply chain alliances that reduce lead time and cost while improving quality.

Stage Three - Sustainability
Suppliers operating in this range have very mature processes with high-value-added content and very little waste. This phase concentrates on establishing higher levels of process control, implementing Six Sigma where appropriate, and establishing review cycles to ensure continuous improvement.

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