

**NDIA
Joint Armament Conference, Exhibition & Firing
Demonstration
Tutorial Sessions
Industrial Base Readiness Issues Panel
Overview Briefing**

14 May 2012

**Prepared by:
Armament Division Chair
Dave Broden
Broden Resource Solutions LLC**

Industrial Base Panel Objectives

- Discuss US Defense Industrial Base Status, Transition Impact and Vision to Ensure Readiness to Support DOD Capability Requirements Today and In the Future
- Identify Key Topics Regarding Industrial Base Status, Transition and Future Capability Objectives
 - Capture Key Issues, Needs, and Challenges
- Identify Suggestions for Action by Industry, DOD, and Congress that Will Ensure Timely Readiness
- Provide Topical Input to NDIA Government Policy Advisory Division(GPAD) Top Defense Policy Issue Selection/Action for 2013
- Expand Industrial Base Status/Action Awareness
- Define Go-Forward Suggestions

Industrial Base Panel Format

- **Introduction and Opening Remarks—Panel Moderator—Dave Broden**
- **Panel Objectives and Overview- Dave Broden**
- **Individual Panelist Remarks—Comments—Issues—Topics—Challenges—Actions**
 - (Each panelist approx. 5 minutes)
- **Discussion Among Panelists—Question from Panel Moderator**
- **Questions from Attendees/Audience**
 - Written and Verbal)
- **Continued Discussion**
- **Identify Top Topics**
 - Overall Status
 - Issues
 - Challenges
 - Actions
- **Panel Member Closing Remarks (2 minutes each)**
- **Summary and Wrap Up– Panel Moderator**

Industrial Base Panel Participants

- **Kevin Brown** **Colt**
- **Dr. Tom Bussing** **Raytheon**
- **Reed Knight** **Knight Armament**
- **Jean Louis Vanderstraeten** **FN Manufacturing**
- **Karl Lewis** **Lewis Machine & Tool**
- **Steve Elgin** **GD-ATP**
- **Mark Schneider** **GD- OTS Seattle**
- **Charlie Zisette** **ATK Advanced Weapons**

Panel Participant Acknowledgement

- **Thank You and Appreciation to the Panel Members** For Their Interest in Discussions Related to Status and Issues Related to Maintaining the US Defense Industrial Base Capability to Ensure Readiness to Address Armament Capability for Today and the Future
- **Thank You to the Panel Attendees** Interest in Industrial Base Topics and Participation in the Panel Dialogue with Opinions, Comments, and Questions to the Panelists
- Through the Panel Discussion and Participant Dialogue **NDIA Is Seeking to Increase Awareness and Focus on the Transition of the Industrial Base Ensuring Strength Through Change and Adjustments—Providing Assurance of Readiness and Vision for the Future**

Industrial Base Information Sources and Resources

- **NDIA National Defense Magazine**
 - Editorials and Articles Focused to DOD Policy, Budget, and Industrial Base Impact
- **NDIA Top Issues—Annual Resource**
 - Opportunity for Input and Impact
- **NDIA Website**
- **NDIA Defense Watch—E-Newsletter for Industry and Government**
- **Armament Division and Committee Activity**
- **Related Defense Trade Journals**
- **DOD Industrial Base Office—Industry Interface**

Opportunity for Up To Date
Information and Dialogue

- Ask Questions
- Timely Response
- Follow-Up

Assisting “Change” Adjustment

Awareness and Dialogue
Enables Proactive Vision
and Action for Future
Capability

Industry Panelist Guidelines

- **Panelist May Present and Express Thoughts On Industry Base Topics As Each Considers Important to the Discussion**
- **Address Topics in Categories including:**
 - Status
 - Issues (Budgetary, Program, Acquisition, Industrial Base Guidelines etc.)
 - R&D, Production, Refurb, Spares, Training—What is the Focus or Balance
 - Transition from High Rate to Sustain and Maintain—”Soft Landing” etc.
 - Challenges
 - Priorities Forward
 - Action Suggestions
 - By Industry
 - By Government
- **Panelists May Use Power Point Slides if Desired**
- **Be Prepared to Suggest Go Forward Approach and Actions**

Industry Panel Guidelines

Desired Outcomes

- 1. Increased Industry and Government Awareness of Industrial Base Issues and Impact On Capability Readiness
- 2. Identify Top 3-5 Priority Topics or Issues Impacting Industrial Base
 - Panelists and Attendee Concurrence
- 3. Summary of Observations of Effect of Budget Impact On Industrial Base
 - Capability Lost
 - Consolidation
 - No Modernization
 - New Product Evolution Status
- 4. Identify Top Barriers to Industrial Base Adjustment without Capability Loss
- 5. How Can/Should Industry Adapt and Plan for Readiness Strength
- 5. Specific Industrial Base Go-Forward Actions

Industrial Base Definition

- Robust Diversity of Industrial Base Companies Enabling US Defense Superiority and Readiness

- Technology Base (Small Business, Academia, Large Companies)

- System and Prime Contractors

- System Integration
- Technology and System Development
- Production Base

- Small and Medium Size Businesses With Critical Products and Technology

- Subcontractor Base

- Subsystem Development and Production
- Component Manufacturing Sources

- Supply Chain Structure (Depth and Breadth)

Partnership with DOD GOCO and Related Facilities and Resources

 Recognizing the Expanded and Evolving Scope of the Industrial Base Is Key to Enabling Transition of the Base Capability/Readiness

Industrial Base "Soft Landing" Theme

• **Objective:** "Soft Landing" === Industrial Base Resource and Capability Adjustment Due to Transition From Conflict to Peacetime Focus on Readiness for Future Mobilization.

• **Situation: "Lessons Learned" Attention--Guides Planning/Needs**

Challenge:

- *How will Lessons Learned Ensure Industrial Base Focus in Current Cycle?*

- 1990's Downsize and Adjustments
- Mobilization "Stress" in 2001 to Current
- Changes to Industrial Base Companies, Structure, Organization
- Rapid Expansion and Insertion of "New Technologies"
- Supply Chain Changes
 - » Less Vertical Integration
 - » Broader Supply Resources—Horizontal Source Base
- Manpower Evolution and STEM Focus
- Rapid Technology Change--Requires More Flexibility
- "Soft Landing" Must Address Both R&D and Production
- International Focus is Greater and Different

Armament/Weapon Industrial Base "Soft Landing" Considerations

- Apply "Lessons Learned"--From 1990's and 2001-Present
- Maintain an Industrial Base Responsive to Future Conflicts---Resource "Balance"--Legacy--New--Emerging
- Address Full Supply Chain--"Avoid Industrial Base GAP's"
- Understand and Adapt the Existing Industrial Base
- Ensure Incentives/Opportunities
 - Change in Structure/Organization
 - New Capability and Technology
- Establish Understanding of Mobilization
 - What, Who, When etc.
- Include Human Resources etc.
- Include R&D
- Ensure "New" Systems and Technology
- Make Industrial Base a Factor In "New" Decisions--Earlier/Timely

Focus Objective Resulting:

- Assured Readiness
- Industrial Base Integrity
- Modernization
- Maintain Company Strength and Capability

Key Discussion Topics

- **Assess Structure, Characteristics, and Performance of Industries Essential to Meeting National Security Requirements**
 - Peacetime
 - Conflicts
- **Understand Complex Issues Related to an Economic Industrial Base Capability**
 - **With Ensured and Timely Adaptability to Emergencies**
 - **Adaptable to Evolving Technology and System Change**
- **Address US and International Economic Environment for Participating/Cooperating Industries**
 - **Achieve efficient Mobilization if needed**
- **Provide Basis for Recommendations to Ensure Effective Transition of Defense Industrial Base Readiness**

Industrial Base “Change” Factors

- **Budget Decrease Average of \$52 Billion/year—2013-2017**
- **Sequester Possibility –Another \$500B-\$600B Over 10 Years**
- **Shifting DOD Military Priorities and Focus**
- **R&D Decrease Approx. 11%**
- **Industrial Base Is More Complex**
 - **System Integrators plus Broad Horizontal Subcontractor Base**
 - **Small/Medium Size Companies with Specialized Products/Technology**
- **Speed of Technology Change**
- **Need to Maintain Defense Superiority and Readiness**
- **Minimize Mobilization Lead Time and Risk**

Industrial Base “Concerns” Factors

- **Industrial Base Address Impact with Vision to the Future**
 - **Prior Down Cycles Show Just Weathering the Time Is Often Not Successful**
 - **Need to Establish Focused Path Forward: Question on What Guidelines?**
- **DOD Budget May Not Support Needed Refurb and Replacement– Impact to Readiness?**
- **Is DOD Planning Considering all Levels of Industrial Base?**
- **System Integrators Consideration of Subcontractor Base Impact**
- **R&D Status and Industry Interface with Government –IP Factor, TDP Type**
- **Need to Maintain and Insert New Advanced Technology**
- **Acquisition Process and System Response “Tuned” to Needs of Constraint**

Industrial Base “Go-Forward” Factors

- **Companies Ensure Awareness and Adjust with Future Vision**
- **Industrial Base Consolidation**
 - **Integrators**
 - **Increase Vertical Integration—Restructured Subcontractor Base**
 - **Companies “Exit” Defense Business**
- **Companies Focus on Ensuring Successful Execution**
- **Meaningful Acquisition Reform Tailored to Business Environment**
- **Apply “Disruptive Technology” Approach**
 - **New Products**
 - **Advanced and Modernized Manufacturing Resources (Facilities, Tooling, Manpower)**
- **Strengthen Partnership of Industry and Government—Move Away from Adversarial Relations**

Key Focus Issues and Topics

- **Industrial Base Status and Transition Awareness**
- **Subcontractor and Source Capability and Structure**
- **DOD Policy and Budget Reduction**
- **Acquisition Policy Innovation**
- **Impact and Approach to Research and Development**
- **Intellectual Property Status and Innovation**
- **Matching Business Products/Technology to DOD Priorities**
- **Industry Investment Considerations and Return**
- **Maintaining and Modernizing Production Base**
- **Assuring Readiness**
- **Human Capital Availability and Capability**

Panel Input Topics Submitted by Steve Eglin GD-ATP

• Declining Demand:

- Decline in Domestic Market Results in Increased Focus on International
- Sustain Manufacturing By Increased Vertical In-Sourcing
- Addressing Expanded Manufacturing Base to Outside Core Products

• Increasing Competition Singular Focus on Cost:

- Customer Focus on Cost –Less on Delivery, Quality, and Risk. Is this Observed by Others?
- Demands Management Seek Cost Saving While Maintaining Quality and Delivery Performance

• Slow Velocity of Contracting:

- Increasingly an Issue
- Often Requires Company to Proceed at Industry Risk
 - Maintains Schedule for Warfighter
 - Avoids Costly Breaks in Production (Lead Time, Manpower, Cost, Schedule0
- Management Risk and Related Costs are In Conflict with Increased Customer Focus on Cost etc.

• Investment in an Uncertain Future:

- Uncertainty in Future Priorities, Requirements, and Acquisition Contracting Practice
- R&D and Capital Investment Decisions Increasingly Difficult and Risk Increased

R&D Opportunities and Approach

- **Understanding User Requirement Priorities**
- **Addressing Both:**
 - Requirements Pull----User Driven
 - Technology/Systems Push—Industry Driven
- **Industry Role vs. Government Lab Role**
- **Intellectual Property Ownership and Data Rights**
 - Linked to Industry Investment
 - Enabling Government Purpose Use
- **Industry Investment Incentives**
- **Linking New Technologies and Systems to Industrial Base Facilities and Tooling**
- **TDP and Specification Type and Ownership**

Industrial Base Panel Discussion Topics

- 1. Importance and Purpose of US DOD Industrial Base
- 2. Definition of US DOD Industrial Base
 - Industry (Company Type, Size, and Role)
 - Government/Industry—GOCO
 - Government Only
- 3. Industrial Base Status 2012
- 4. Industrial Base Transition Evolution In Process
- 5. DOD Policy and Considerations Re: Industrial Base
 - Industrial Base Planning/Coordination Functions/Office
- 6. Budget Changes/Adjustments Including Sequestering Impact
- 7. Industry Capability Evolution—Transition Vision
 - Prior to 2001
 - Capability Growth 2001-2011
 - Capability vs. Need Reduction Impact

Industrial Base Panel Discussion Topics

- **8. Facility and Manufacturing Tooling Capability Change Impact to Readiness**
- **9. Human Capital Resources Impact**
 - **Maintaining Skills and Eliminating Skills Gap**
- **10. Impact of Capability Transition to Readiness and Response**
- **11. Sustaining Production of Selected Products**
 - **Pros and Cons**
- **12. Maintaining Capability for Spares, Replacements, Maintenance etc.**
- **13. Subcontractor Supply Chain—Increasingly Horizontal and Specialized—What is Impact?**
- **14. What are Key Supply Chain Products, Materials, Sources that Are Critical Path to Ensure Readiness Response.**

Industrial Base Panel Discussion Topics

- **15. Are DOD Program Priorities Communicated Effectively to Enable Industrial Base Planning?**
- **16. What Innovations are Being Realized in the Industrial Base—are the Approaches Viewed as “Disruptive Technology”?**
 - **Manufacturing Processes**
 - **Flexible Manufacturing**
 - **Resource Planning**
 - **Subcontract Sources—Critical Item Management**
 - **Acquisition**
- **17. What are Industrial Base Issues and Challenges are Unique to Armament Division Topics**
 - **Small Arms Systems**
 - **Gun and Missile Systems**
 - **Unconventional and Emerging Technology**
- **18. Is the Armament Division Industrial Base Different From Other Segments due to Product Type and Volume**
 - **Moderate Volume –e.g. Weapons etc.**
 - **High Volume –Expendables/Ammo etc.**

Industrial Base Discussion Topics

1. Industrial Base Purpose and Definition
2. Industrial Base Status, Evolution, and Needs
3. Human Capital Status, Development and Utilization
4. DOD Budget and Priorities—Congressional Impact
5. DOD Program Definition and Implementation
6. Evolving New Technology and Program Transition to Production
7. Government and Industry "Joint" Partnership
 - Government Base Elements (GOCO's, Depot vs. Industry etc.)
8. International Cooperation (including ITAR) and Impact
9. Intellectual Property Considerations
10. Addressing Industrial Base Innovation—Applying “Disruptive Technology”
10. Relationship to NDIA Top Issues
11. Other Topics

Industrial Base Issues and Concerns

- 1. Address Status in 2012 vs. During 2002 to 2011
- 2. Have Procurement Trends and Requirements been Effectively Communicated to Industry?
- 3. Impact of Budgetary Down Turn in 2012, 2013 etc.
- 4. Impact of Sequester Budget if it Occurs?
- 5. Has Industry Effectively Communicated Topics of Readiness Risk to Government DOD?
- 6. How is Industry Communicating Industrial Base Issues to DOD?
- 7. Is the Concept of “Soft Landing” Valid and Being Implemented
- 8. Vision of Transition from “High Production Status” to Readiness and Sustainment Level Status

Industrial Base Issues and Concerns

- **9. Subcontractor/Supply Chain Impact Considerations**
 - **Horizontal vs. Vertical Contractor Operations—What is Impact?**
- **10. Industrial Base Integration of Evolving New Advanced Technology**
 - **Linking Manufacturing Capability to Future Systems**
 - **New Materials**
 - **New Products**
- **11. Manufacturing Manpower Expertise Availability**
 - **Technical Engineers etc.—Manufacturing and Technicians**
 - **Availability—Training—Updating**
- **12. Manufacturing Facilities and Tooling Status and Updates**
 - **What Transition Must Occur in Manufacturing Capability**
- **13. Government and Industry Partnership Approach to Industrial Base Planning and Implementation**

Industrial Base Issues and Concerns

- **14. Is the DOD Industrial Base Office Providing Useful Guidance and Support?**
- **15. What Role Should Government Agencies and DOD provide for Industrial Base Planning?**
- **16. Discuss Role of Manufacturing Technology or Related Funded Contracts in Industrial Base Transition etc.**
- **17. What Incentives Are Desired for Industry Investment to Ensure Industrial Base Modernization and Readiness**
- **18. What are the Barriers/Challenges to Transition from Volume Production to Sustainment and Readiness Status?**
- **19. What are Critical Path Factors to Restart if a New Conflict Occurs?**
 - **How can these be Overcome?**

Industrial Base Issues and Concerns

- **20. Development Contract Importance Relative to Production Contracts – with Consideration for Future Warfighter Capability**
 - **Industrial Base Readiness vs. Transition to New Capability**
- **21. What are the Critical Material, Component, or Subsystem Items relevant to Contactor Industrial Base Capability Readiness?**
- **22. Relative Role and Relationship of Government Facilities vs. Industry to Provide an Integrated US DOD Capability Focused to Readiness, Adaptability, and Affordability**
- **23. Ensure Industry Can Protect Intellectual Property while also Enabling Government Purpose Use of TDP's when Needed**
 - **Focus on Innovation in Intellectual Property**
- **24. Is there a Need to Re-Instate the Industrial Base Mobilization Plan Requirement of Key Programs?**
- **25. Comment on the Role of ICAP, MIBTF, Other NDIA activities, and Other Industry Groups in Addressing and Communicating Industrial Base Issues, DOD Actions, and Focus on Recommendations.**

Industrial Base Structure Considerations

- **Current Companies vs. Mergers/Acquisitions—Benefits—Risks-Need?**
 - **Among Largest**
 - **At any Level**
- **Is Merger/Acquisition Beneficial to Readiness**
 - **If so How?**
 - **Will Budgetary Factors Drive Merger/Acquisition?**
- **Supply Chain Considerations**
 - **In Prior Industrial Base Transitions Number of Subcontractors was Relatively Small—Now Very Large Supply Chain**
 - **Industrial Base Contractor Base have Transitioned from Vertical Integration to System Integrators-with large Horizontal Supply Chain**
 - **How Will Supply Chain be Maintained with Specialty Components etc.?**

- **1. Budget and Program Uncertainty**
- **2. Industry Planning and Investment Strategy Development/Implementation**
- **3. Product Mix (New, Evolving, Legacy)**
- **4. Human Capital Resources (Availability, Training etc.)**
- **5. Introduction of New Evolving Technologies**
- **6. Facility and Tooling Modernization (Approach, Funding, Timing)**
- **7. Establishing a Sustaining Production Level**
- **8. Maintaining Critical Subcontractor Sources or Establishing Alternates**
 - **Open Architecture Application**
- **9. Evolving Through the Down Transition to Emerge Stronger—Ensuring Readiness**
- **9. Innovation (Products, Manufacturing, Management)**
- **10. Other TBD by Industry Panel**

Industrial Base Opportunities

- 1. Integrate and Common Message Across Industry Segments Regarding Industrial Base Readiness Vision Forward
- 2. Evolve Through Attention to “Lessons Learned” form Previous Cycles
- 3. Modernize Facilities, Tooling, Processes to State of Art where Investment and Funding is Available— “Innovation”—Disruptive Technology
- 4. Attention to Introduction and Application of Advanced Technologies and Systems
- 5. Strengthen the Capability for Legacy Systems/Items and Related Spares, Maintenance, Training, etc.
- 6. Coordinate Human Capital Resource Training with Education Sources to Ensure Workforce Readiness
- 7. Acquisition Innovation
- 8. Intellectual Property Considerations Enabling Investment Incentives

Opportunities (partial list for discussion)

- **1. Establish Industrial Base Capability Guidelines Ensuring a Balanced--Legacy--"New"--"Emerging" Resource (No new restrictions or conditions impacting industry)**
- **2. Innovation in Contracting Methods--Acquisition Reform**
- **3. Include Attention to Program Execution in Key Acquisition Reform Considerations**
- **4. Expanded Applications of Consortium or Similar Structures**
- **5. Establish "Open Yet Secure" Approach to International Cooperation and Dialogue—Partnerships**
- **6. Establish Incentives for Manufacturing Innovation and Modernization**
- **7. Encourage Innovation and Readiness for New Technology/Systems**
- **8. Update and Evolve All Intellectual Property Criteria with Focus on Benefits to Government and Industry**
- **9. Address JCIDS Process to Improve Requirement Definition, Timeliness, and Incremental Performance Growth**

Barriers to Industrial Base Strength and Preparedness

- 1. Protection of the Status Quo vs. Introduction of Superior Systems Capability
- 2. Limited Vision of What Conflict the Industrial Base Must Respond to if Conflict Arises
 - Guidelines and Priorities Encouraged
- 3. Risk of Focus on Top Systems Industry without Supply Chain and Tech Base Consideration
- 4. Planning for Mobilization Lead Times
- 5. Need Mechanism for Ensuring New Technology is Integrated into Industrial Base
- 6. IP Protection Incentives to Industry and Government

Industrial Base Transition Risks

- **1. Armament Systems and Related Segments Are Lower Priority in DOD Planning than Required for Industrial Base Integrity, Assured Sustaining Rates, etc.**
- **2. Subcontractors and Component Sources are at Risk – Readiness Impacted by Not Being Available or Extensive Lead Time**
- **3. Budgetary Reductions Requires Significant Industrial Base Reduction, Evolving Resulting Consolidation may Disruptive Capability and Impact Readiness**
- **4. Contract Budgets Limit Production and Indirectly Limit Company Modernization Investments**
- **5. Intellectual Property Limits Company Investment Incentives**
- **6. Other Factors--TBD**

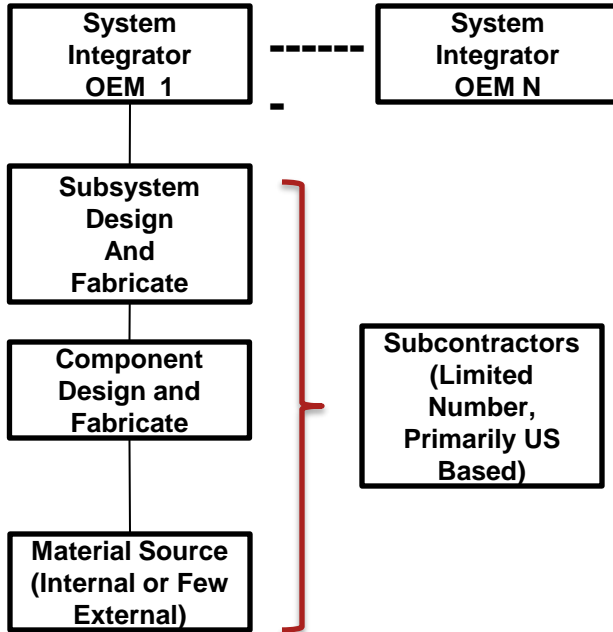
Industrial Base Evolution

Industrial Base Element	Prior Structure	Current and Future
• Government	• Government Owned and Operated Resources	• Minimal Government Resources • Company Operation of Government Facilities
• Industry within Each Country	• Primary Industry Focus • Multiple Companies	• Expanded Number of Companies and Technologies
• Industry International	• Very Limited	• Expanding Multi-national corporations
• Industry Structure	• Each Company had Vertical Supply Capability	• Focus on Horizontal Supply Chain
• Component Supply Chain	• Vertical Supply Provides Internal Focus	• Horizontal Supply Chain Requires Expanded Preparedness Plans
• Technology Evolution	• Base not Planned for Technology Change	• Base Must Address New and Evolving Technology
• Defense International Market Impact	• Limited International Procurement	• International Procurements

Evolving Structure, and Operation of Industrial Base Requires International Vision
Enabling Assured Preparedness

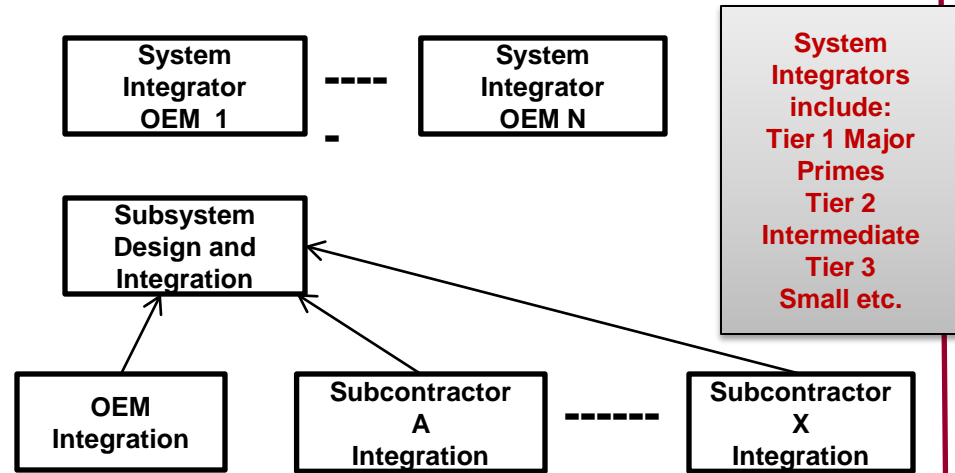
Industrial Base Structural Changes Past, Current, Future

Vertical Source Integration Past Prior to 1950-1960



Note: Number and Type of OEM's was small compared to Evolution of Systems and Technology Post Approx. 1960

Horizontal Source Integration Current and Future



Expanding and Specialized Subcontractor Network

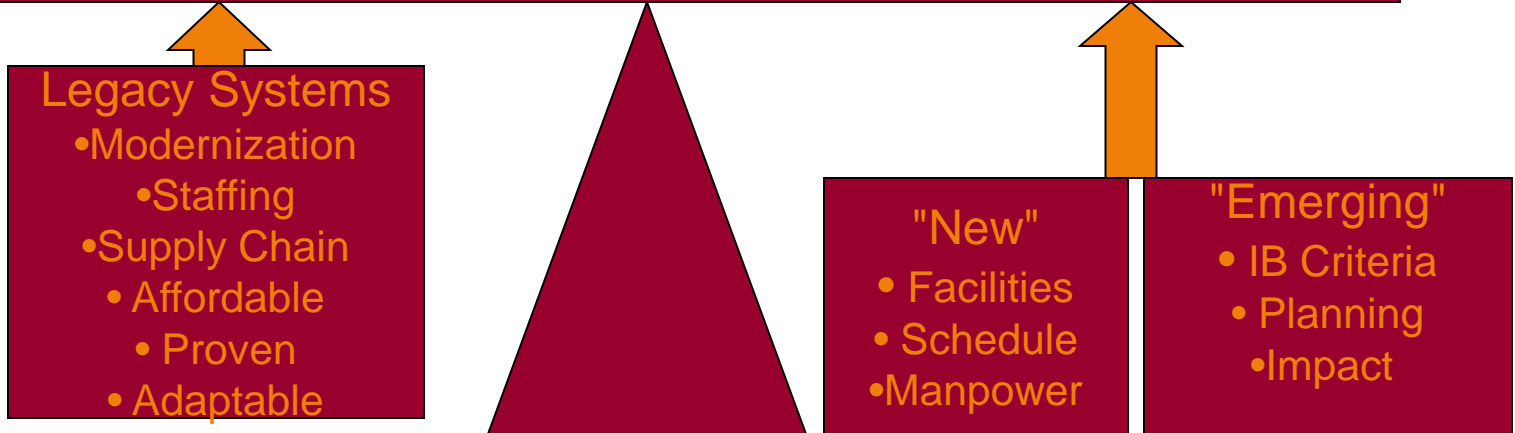


Component Sources Expanding, Unique and Critical Path
US and International Based



Material Sources Support Component Manufacturers—
Sources are US and International—Commodity Price and
Availability Driven

Evolving Industrial Base Vision



New and Emerging Technology and Systems Capability
Must be Coordinated and Integrated with Legacy Resources
Where Appropriate

Summary-Wrap Up

- *Armament/Weapons Industrial Base* has an Strong, Responsive and Proven Structure and Capability
- *"New" and "Emerging" Technologies and Systems* Must be Integrated into Industrial Base on Timely and Effective Basis
- Industrial *"Soft Landing"* Focus is Critical to Maintaining Readiness for a *"Balanced"* Capability of Legacy and "New"
- *International Cooperation* has been a key element of Industrial Base Capability--Cooperation and International Sales Opportunities must be Maintained.-- *Industry Supports and Encourages Trade.*
- Acquisition and Program Management Topics Must Continue to be a Focus--*Contract Reform, JCIDS, Execution, Collaboration etc.*
- *Manpower Resources* for Must Evolve to Support Industrial Base—*STEM and Training Focused to Skills Gap Due to Process Modernization*
- *Innovation* Must be a Central Theme in Industrial Base and Government Activities.
- *Economic Conditions* must not divert National Security Preparedness--
Enabler for Economic Recovery

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Enabler for Economic Recovery