

# The Story on Title III



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Wire Development Workshop  
Session IV – The Road to Commercialization

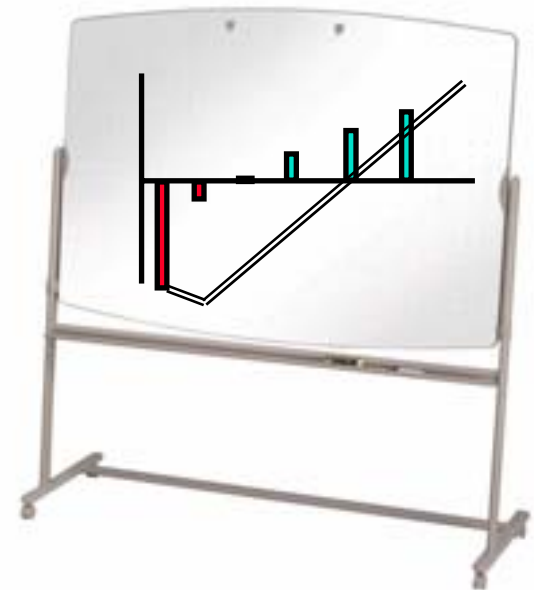
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# Overview



- DPA / Title III Overview
- Goals of Title III
  - Business and Technical Analysis
- Metrics
- Dual Use Approaches / Impacts
- Title III New Starts
- Summary





# Defense Production Act (DPA) Title III (50 U.S.C. App. § 2061 *et seq.* )



Title III authorizes the Federal Government to provide appropriate incentives to develop, maintain, modernize, and expand the productive capacities of domestic sources for critical components, critical technology items, and industrial resources essential for the execution of the national security strategy of the United States.

These authorities enable Title III to **CHANGE** the domestic industrial base.



# Title III Authorities



- **Purchases (Sec. 303a)**
  - Engineering support to improve quality and yield
  - Test quantities for process validation and qualification testing
  - Costs to develop business and marketing plans
  - Purchases and installation of production equipment
- **Purchase Commitments (Sec. 303a)**
  - Guaranteed market to incentivize companies to establish production capability
- **Lease of Production Equipment (Sec. 303e)**
- **Development of Substitutes (Sec. 303g)**
- **Loans/Loan Guarantees (Sec. 301; Sec. 302)**
- **DPA Fund (Sec. 304)**
  - Non-expiring funds
  - Authority to recoup contract funds for reuse



# Title III Organization



OSD  
Provides top-level management, direction, and oversight for the Title III program



Air Force  
Manages technical efforts and contracts, assisted by project technical sponsors from the Services and DLA



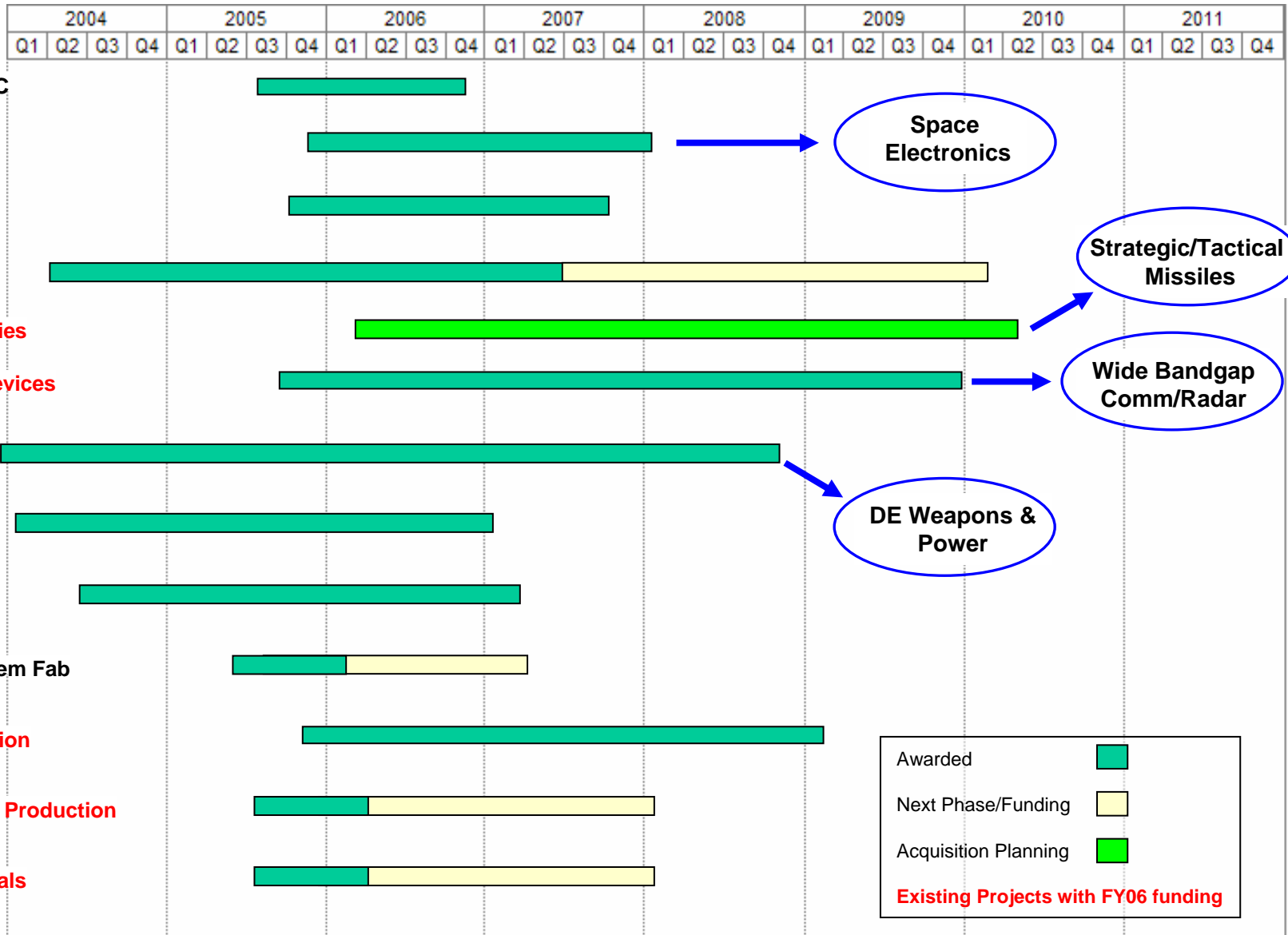
# DPA Details



- DPA must be periodically reauthorized by Congress
- Appropriations for the DPA Fund
  - Usually made in DoD Appropriations
  - Could be included in other Appropriations bills
  - Funds in the DPA Fund are non-expiring, available for re-use
- Significant interest in DPA authorities beyond DoD
  - Homeland Security
  - “Critical Infrastructure”
  - Any guaranteeing agency



# Title III Projects





# Out-Year Project Development



- Future program funding being developed through leveraging with ACTDs & Service acquisition programs
  - Flexibility of Title III authorities attractive for solving real world production capacity issues
  - Production issues shared by multiple programs best addressed by coordinated Title III efforts
  - Individual programs cannot afford to address alone
- Title III funding flexibility enables responsive action when programs do not have available funding
  - Recent programs have seen 2 year acceleration in problem solution
  - “Reuse of funds” can result in >100% obligations relative to budgeted authority
- Program Office broadening contacts among ACTD Managers & PEOs/PMs
  - Success in previous years suggests opportunities will be found
  - Title III will be seeking pervasive technologies with significant at-risk production capabilities



# The Long Term Program Goal



The “completion” of a Title III project leaves in place a commercially viable industry producing affordable, high quality, high performance products that are essential to national defense. It is competitive in the global market and will remain a reliable supplier for DoD and its industry partners.

The success of Title III’s high risk investments can be measured by its enduring impact on the nation’s industrial base.



# Business and Technical Analysis

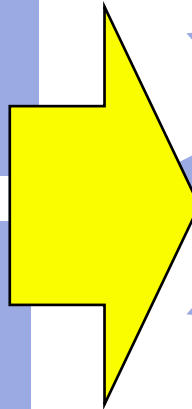


# Integrated Business & Technology Analysis



- Research and Development
- Future Customer Needs
- Projected Applications
- Manufacturing Processes

- Industry Dynamics
- Investments & Profits
- Finance & Costs
- Market Analysis & Planning
- Barriers to Entry
- Competitive Factors



## *Economic Viability & Sustainable Competitive Advantage*

- Development
- Defense Utilization
- Tech Transfer & Commercialization



# Key Elements of a Business Viability Assessment



- Credible Business Strategies to Achieve Viability
  - **Business Mission, Values, and Goals**
  - **Product Value & Differentiation**
  - **Marketing Strategy**
  - **Pricing Strategy**



- Financial Position and Access to Capital
  - **Corporate Commitment**
  - **Capital Structure (debt/equity)**
  - **Discounted Cash Flow Analysis (ROI)**

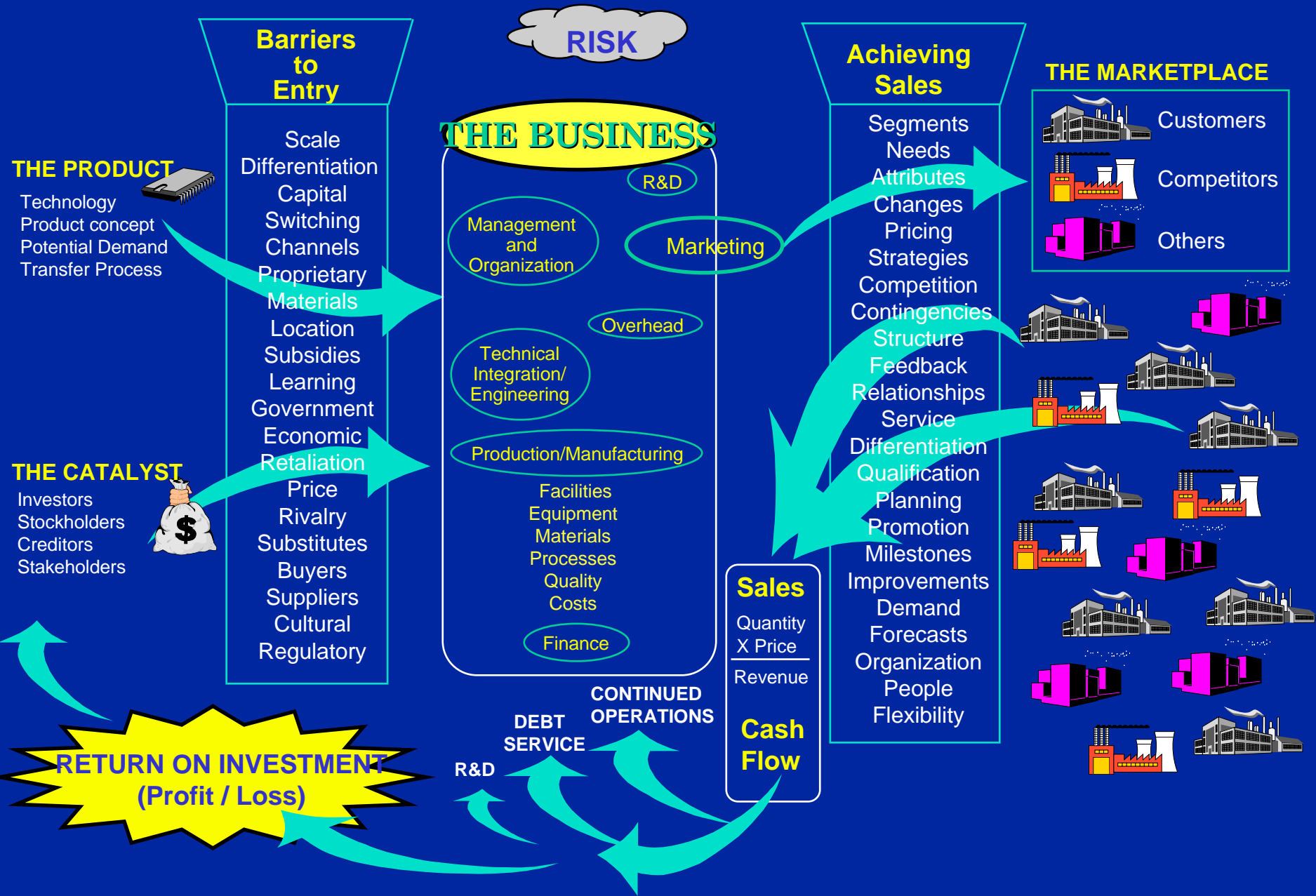


- Management Depth and Preparedness
  - **Quality of Senior Management Team**
  - **Organizational Structure**
  - **Roles and Responsibilities**



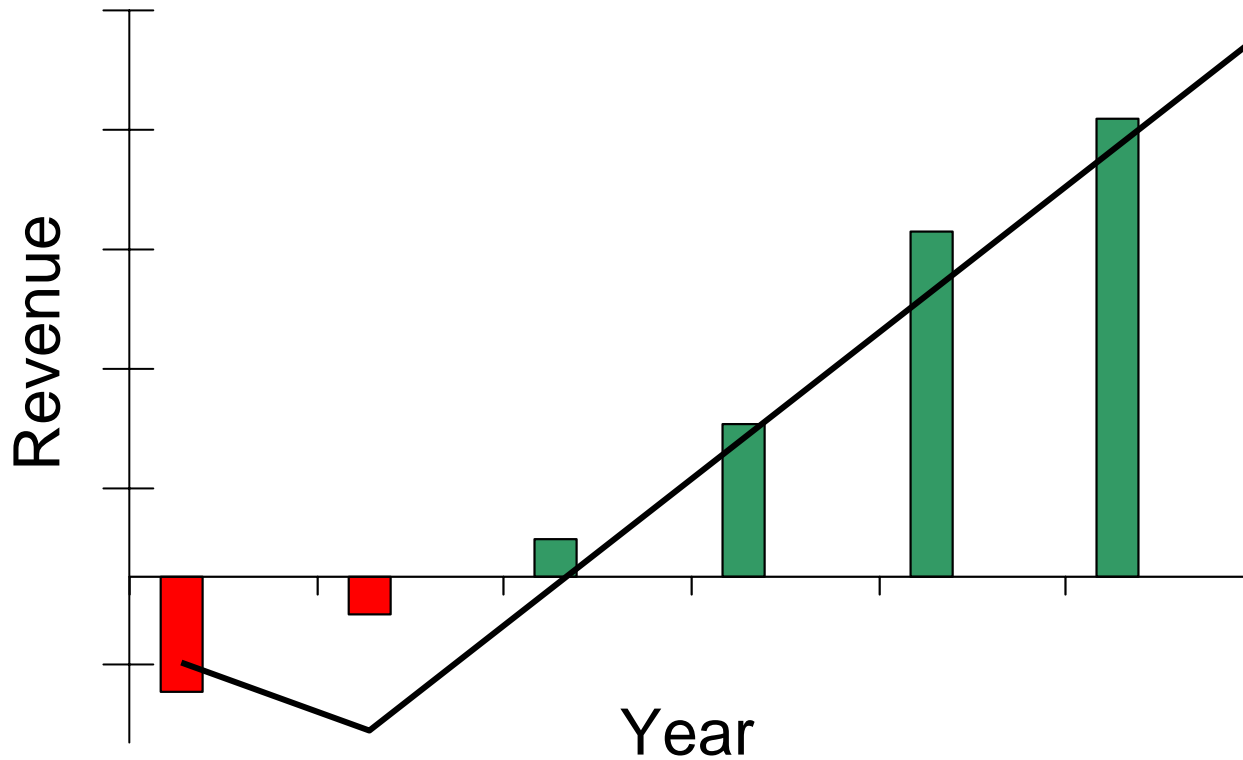
- Technology Factors
  - **Current/future stage of product development**
  - **Market readiness**
- Acknowledging, Addressing, and Managing Risks

# ESTABLISHING A VIABLE BUSINESS





# Commercial Financial Perspective



- Work with companies to achieve production scale-up / product introduction
- Seek return on investment (ROI)
- Obtain viable domestic source



# Significant Benefits of Infusing Business Analysis into Title III Projects



- Increases viability of new production operations
- Fosters technology transfer to enhance competitiveness
- Saves tens of millions in program funds
- Embraces Dual-Use / Defense Conversion applications
- Creates domestic and second sources
- Integrates strategic planning and intensified marketing into everyday operations
- Dramatically increases customer focus
- Enhances cost/price competitiveness
- Conducts competitive analyses for continuous improvement



# Metrics



# Sample Metrics

## YBCO Phase II/IIA/III Key Objectives



*Title III requires specific and measurable metrics for both Technical and Business parameters that can be demonstrated by project completion*

Parameter	Interim Threshold (through CY05)	Threshold	Target	How to Demonstrate
Conductor Length	>100m	>100m	>1000m	Demonstrate Current Capacity End to End
Critical Current	$\geq 200\text{A/cm}$ width at 77K, self field	$\geq 300\text{A/cm}$ width at 77K, self field	$\geq 500\text{A/cm}$ width at 77K, self field	Critical Current Conduction Test, End to End
Eng. Current Density ( $J_e$ )	10,000 A/cm <sup>2</sup> at 65K, 2 Tesla	10,000 A/cm <sup>2</sup> at 65K, 3 Tesla	15,000 A/cm <sup>2</sup> at 65K, 3 Tesla	Conduction Test, End to End
Annual Sales (2008)		$\geq \$10\text{M}$	$\geq \$20\text{M}$	Actual Sales
Cost		$\leq \$50/\text{kA-m}$	$\leq \$25/\text{kA-m}$	Actual Cost
Annual Production Capacity per Supplier	$\geq 20,000$ kA-m (2005)	$\geq 200,000$ kA-m (2008)	$\geq 400,000$ kA-m (2008)	Capacity Demonstration
Number of Sources	2	1	2	Actual Sources



# Unique Title III Contract Objectives



- Install, commission, and qualify production equipment
- Implement strategic business and marketing plans
- Improve & optimize processes
  - Yield, cycle time, Lean processes
- Deliver samples to customers for evaluation & qualification testing
- Market and sell to new customers
- Implement purchase commitments if appropriate
- Usual period of performance: 3-4 years



# Title III: Before / During / After



## Example Title III Project: Gallium Arsenide (GaAs) Wafer Project

### GaAs Before Title III

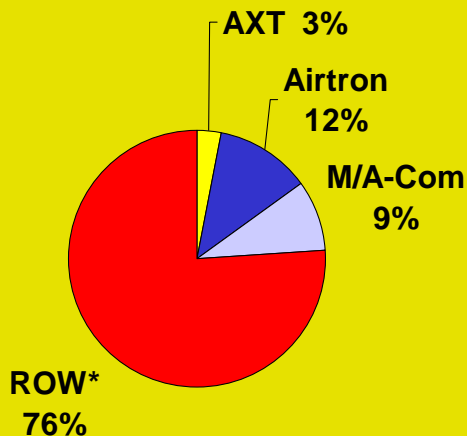
- Inconsistent Quality and No Technical Support
- Weak Marketing and Minimal Foreign Market Presence
- Restricted Access to Capital
- Limited Profitability and Solvency
- Domestic Suppliers Exiting the Business

### Title III GaAs Project

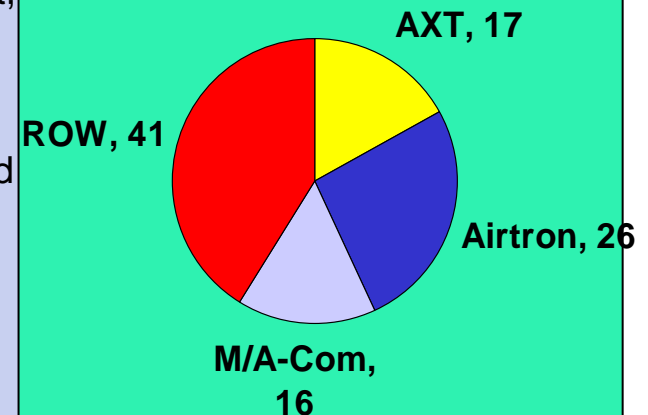
- **Objective:** Establish Domestic, Economically-Viable, World Class Manufacturing Capabilities
- Awarded 3 companies, Phases I focused Process/Quality Improvement, Wafer Capacity Expansion, Wafer Development, Production Cost Reduction, Vertical Partner/Technical Support, Improved Business Planning / Practices
- Phase II focused on marketing and customer support. Title III funding incentivized each contractor to improve their processes and quality, reduce costs and expand their capacity to better compete in a global marketplace

### Results of Title III for GaAs

- Increased domestic market share by 2X (>59% of World market)
- Created 225 new domestic jobs
- Leveraged Title III funds >2:1 profit growth and capital investment
- Expanded production capacity by 3X
- All companies ISO 9002 certified



\*ROW-Rest of World



\*ROW-Rest of World



# Dual Use Approaches / Impacts



# Dual Use Applications

## Military Applications

Partnering with industry to jointly fund the development of dual use technologies needed to maintain our technological superiority on the battlefield



*Win-Win  
for both Military  
and Commercial  
Customers*



## Commercial Applications

Huge commercial market exists for dual use application of technology. Increases the potential for transition of technologies into defense systems which can lead to increased commercial market products and for industry to remain competitive in the marketplace

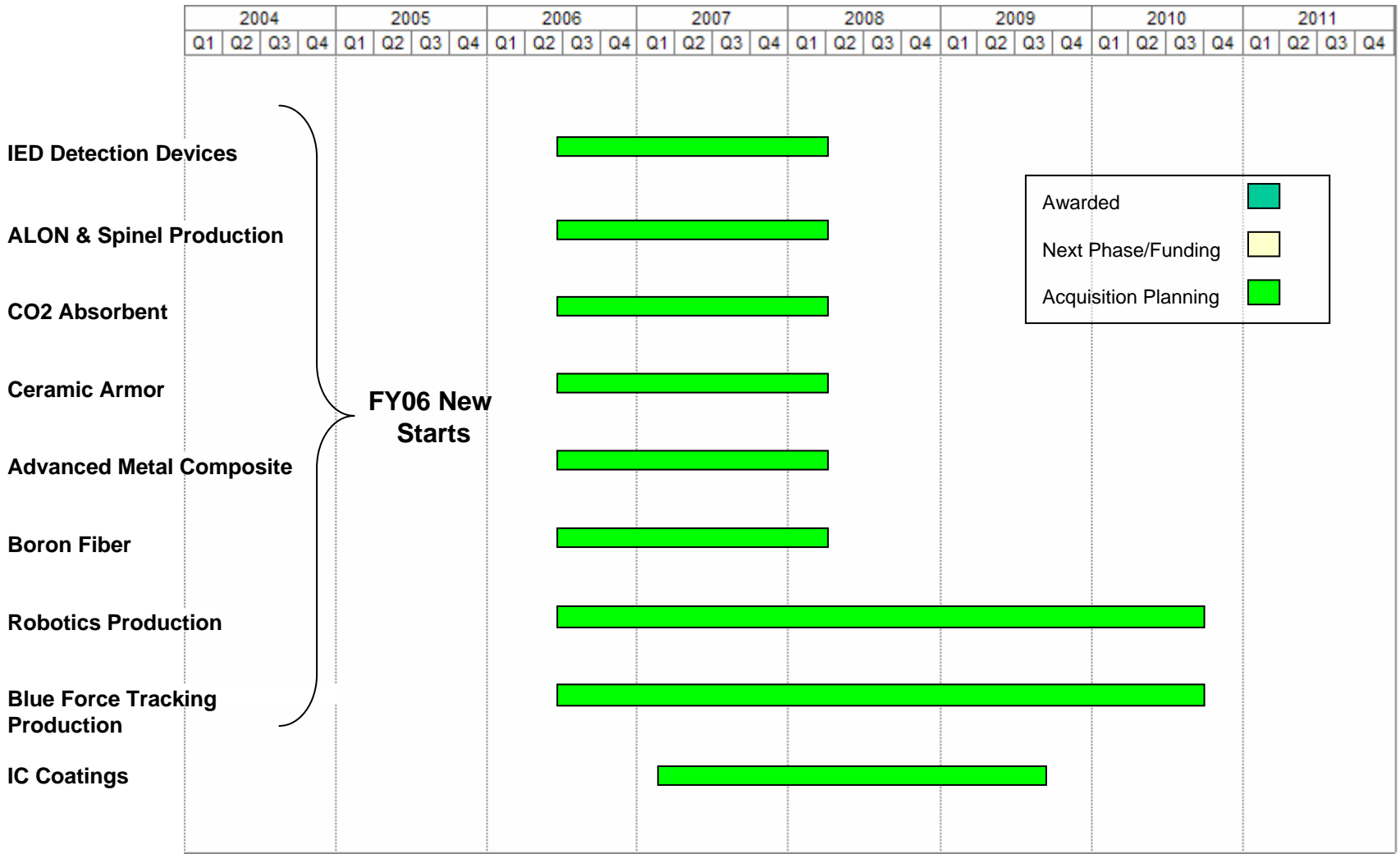




# Title III New Starts



# Title III New Projects





# Summary



- Title III authorities enable government to address the industrial base
- Synergy of technical and business objectives focused on long-term economic viability and technology insertion
- Broad participation enhances leverage
- Clear Dual-Use applications
- Title III Program has proven performance and innovative execution