

Introduction to Title III



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2006 Annual Peer Review

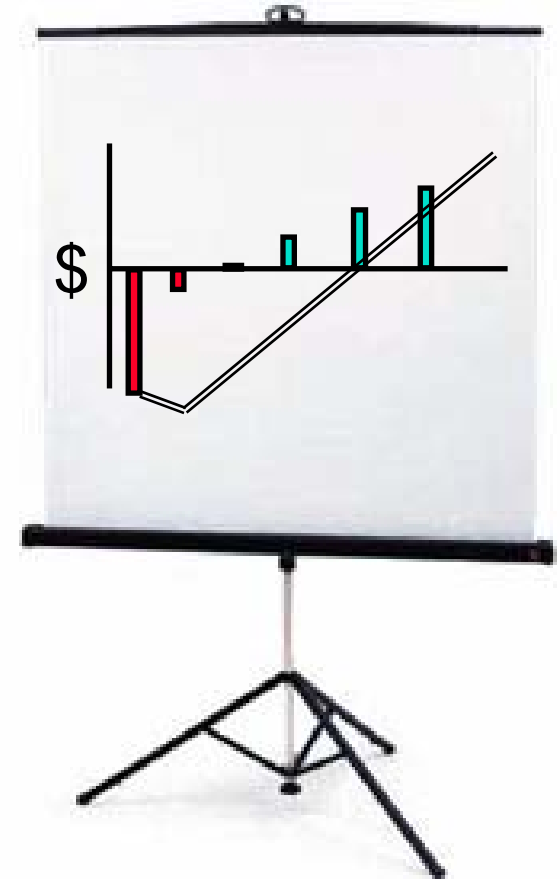
27 July 2006



Overview



- DPA / Title III Overview
 - Title III History
- Goals of Title III
 - Business and Technical Analysis
 - How is Title III Different
- Metrics
- Dual Use Approaches / Impacts
- 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.



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

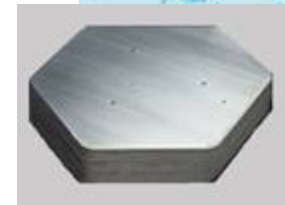


Title III History

Through 1980s



- The Defense Production Act (DPA) of 1950 was enacted to support mobilization of economic resources in response to:
 - The Korean conflict
 - Industrial need for materials and machine tools
 - Threat of a third world war
- Original \$600M authority increased to \$2.1B in 1951 amendment
 - Used extensively throughout 1950s and 1960s (retired 1974)
- Reenacted as part of the 1980 Energy Security Act
 - Congress appropriated new funds for Title III activities beginning in FY1985



Results

- US aluminum production was doubled
- US titanium industry was created from scratch to meet the evolving material requirements of military aircraft
- Mining and processing of copper, nickel, tungsten, columbium, and tantalum were initiated or expanded significantly in response to Title III financial incentives

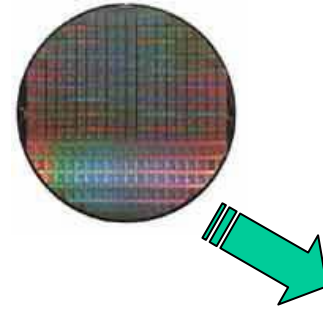


Title III History

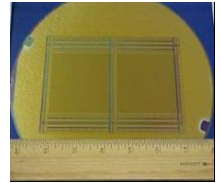
1980s to Today



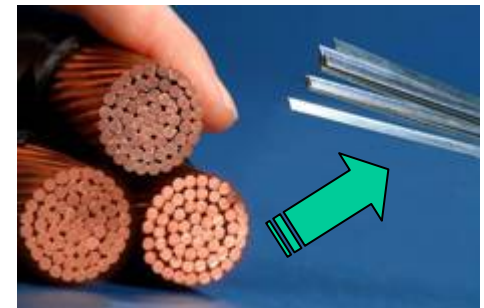
- Title III authorities annual spending for Title III projects average \$20-\$25 million and 31 projects are currently active
- Projects focused on accelerating transition of new technologies from R&D to efficient and affordable production and on inserting these technologies into defense systems
- The President is now required to certify to Congress that:
 - Proposed Title III project is essential to national defense
 - Industry is unlikely to provide a needed capability in a timely manner
 - Title III incentives are the most cost-effective, expedient, and practical means of meeting the need
 - Title III action will not create excess capacity for the targeted material.



ROIC



CO2



YBCO



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

How Title III is Different

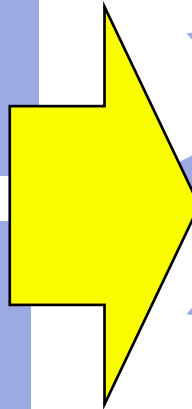


Integrated Business & Technology Analysis



- 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)**

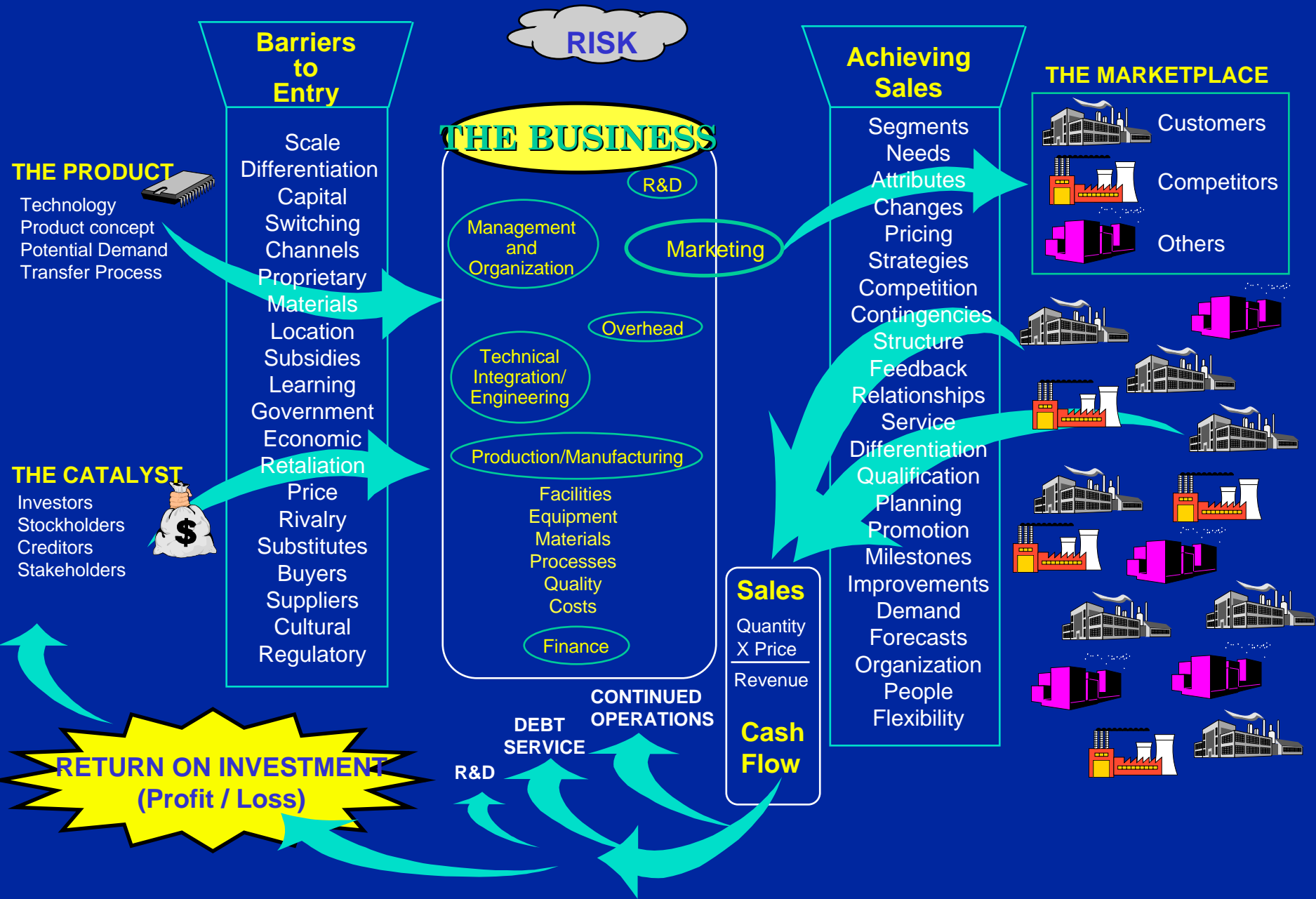


- Management Depth and Preparedness
 - **Quality of Senior Management Team**
 - **Organizational Structure**
 - **Roles and Responsibilities**



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

ESTABLISHING A VIABLE BUSINESS





Significant Benefits of Infusing Business Analysis into Title III Projects



- Increases viability of new production operations
- Fosters technology transfer to enhance competitiveness
- 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



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





Metrics

Technical, Business & Marketing



Sample Metrics

YBCO Key Objectives



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

Technical

Business

Parameter	Threshold	Target	How to Demonstrate
Conductor Length	>100m	>1000m	Demonstrate Current Capacity End to End
Critical Current	$\geq 300\text{A/cm}$ 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 ² at 65K, 3 Tesla	15,000 A/cm ² 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	$\geq 200,000$ kA-m (2008)	$\geq 400,000$ kA-m (2008)	Capacity Demonstration
Number of Sources	1	2	Actual Sources



Marketing Indicators



Title III looks beyond technical metrics to measure project performance and success. Corporate activities and strategies can make a difference.

- Industrial partnerships/CRADAs
 - National Labs
 - SPI Cable projects
- Mergers and acquisitions
 - IGC/SuperPower – Philips
- Marketing Growth
 - New Product Development
 - Increased Sales
 - Product Focus
- Improved corporate governance
- Corporate reorganizations
- Product / Industry recognition
 - Superconductivity Person(s) of the Year 2004
 - R&D 100 awards in 2004/2005 from R&D Magazine for SuperVAR (AMSC) and QCS (SuperPower)

PHILIPS

Superconductor Week



SuperPower

A Subsidiary of Intermagnetics General Corporation





Unique Title III Contract Objectives

How Project Success is Measured



- 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



Summary



- Title III has a long history of influencing the industrial for national / military needs
- Synergy of technical, business, and marketing objectives focused on long-term economic viability and technology insertion
 - Title III is different
- Title III Program has proven performance and innovative execution