Preparing for the 21st Century: Militarily and Industrially

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The Challenge

Adapting the Forces (people and equipment) for the 21st Century Security world in the presence of a likely declining national security budget

- Focus on new and expanded missions (including homeland)
- Create the capability to analyze the alternatives at the portfolio level
- Exploit new technologies and systems-of-systems
- Prepare for joint and coalition operations
- Reequip after Iraq (with 21st Century systems, in sufficient quantities)
- Recognize and integrate the role of contractors in expeditionary operations

Changes Driving Security Transformation

Holistic View of Security – World-wide terrorism; pandemics; weapons proliferation; rogue nuclear states; energy dependence; insurgencies; environment; mass migration; regional conflicts; transnational threats; resource access (i.e., water, critical materials); political/military (vs. military only)

New Missions – Homeland security; missile defense; counterinsurgency; stability and reconstruction; civilian cybersecurity; non-kinetic situational influence of operations

Unpredictability – Requiring agility, rapid responsiveness, broad-based capability

Defense Budget Changes – From Equipment to Personnel, O&M and Homeland Security; frequent changes cloud spending outlook and planning (e.g., 50% procurement drop in 1990s, then doubling in 2000s)

Technological Changes – Info. tech, biotech, nano-tech, robotics, high-energy lasers, etc. - - and every warfighter and platform a "node" in a system-of-systems

Warfighting Changes – Net-centric Warfare; Asymmetric warfare (bio, cyber, IEDs); Systems-of-Systems; Joint and coalition operations; evolving doctrine requiring frontline decision-making

Intelligence Changes – Integrated data; open-sources; Language and cultural understanding; real-time intel flow between soldier/sensors and command structure

Industrial Changes – Horizontal & vertical integration; commercial high-tech advances; open networked innovation; off-shore manufacturing; changing capital markets

Globalization – Technology and industry are globalized; geo-politics and scope of threats requires security coalitions; DoD no longer the leader in all military technologies; global financial markets enable borderless investing

Isolationist/Protectionist Constraints – "Buy-American"; Berry Amendment; ITAR, export controls; restrictions on foreign scholars, students, and S&T workers

China – Future adversary, Economic Competitor, or Global "Partner"

Russia – Resurgent (with oil and gas money)

Domestic Economics – Health care; demographics; budget and trade deficit

Government Workforce – Aging; wrong skill mix; rules vs. judgment; "managers" vs. "doers"; difficult to attract and retain top people

Industry Workforce – Aging, eroded systems engineering skills; difficult to attract and retain top S&T people

Recent Congressional Reaction to "Scandals" – Personal abuses (Druyun, Cunningham, Abramoff); sole-source "abuses" (leading to risk averse behavior); over 90 fraud cases in current conflict

Four Key Findings from a Recent Defense Science Board Report

DoD policies, processes, and management of the Defense Acquisition Enterprise (broadly defined) impede the transition to an effective, agile, and affordable overall, joint military force for the 21st Century.

U.S. Government policies, practices, and processes do not facilitate the development, deployment, and support of the innovative, affordable, and rapidly acquired weapons, systems, and services needed for the 21st Century forces.

The absence of many of the needed skills, (e.g., systems engineering, biotech, advanced IT) in DoD's acquisition workforce, combined with the retirement of a large share and significant overall acquisition workforce reductions, significantly impedes the development, production, support, and oversight of the military capabilities needed for the 21st Century.

Government acquisition policies and Industry trends (e.g., further horizontal and vertical consolidations) will not produce the required competitive, responsive, efficient and innovative National Security Industrial Base.

Assumptions for the 21st Century

1. Our Security needs will continue to change and be difficult to predict
2. Defense dollars will likely decline in real terms and significant supplementals will no longer be the norm
3. Technology will continue to change rapidly and will be increasingly global
4. There will be significant shifts in resource allocations (e.g., toward net-centric systems-of-systems, toward intel, and unmanned systems; toward homeland security, etc.)

This is a Critical Period

- Similar to the period following the launch of Sputnik or the fall of the Berlin Wall
- Today the security world is changing dramatically—especially since 9/11/01 (geopolitically, technologically, threats, missions, warfighting, commercially, etc.) – and a holistic perspective is required (including DHS and DNI, as well as coalition operations)
- Moreover, a decade of solid budget growth – which will almost certainly change – has deferred difficult choices (between more 20th Century equipment vs. 21st Century equipment)
- However, the controlling acquisition policies, practices, laws, etc. and the Services' budgets and "requirements" priorities have not been transformed sufficiently to match the needs of this new world (in fact, there is still an emphasis on "resetting" vs. "modernization")
- The last two decades have seen a consolidation of the Defense Industry around 20th Century needs - The next step is DoD leadership in transforming to a 21st Century National Security Industrial Structure.

FINDING 1: DoD Must Drive Transformation to a 21st Century Military

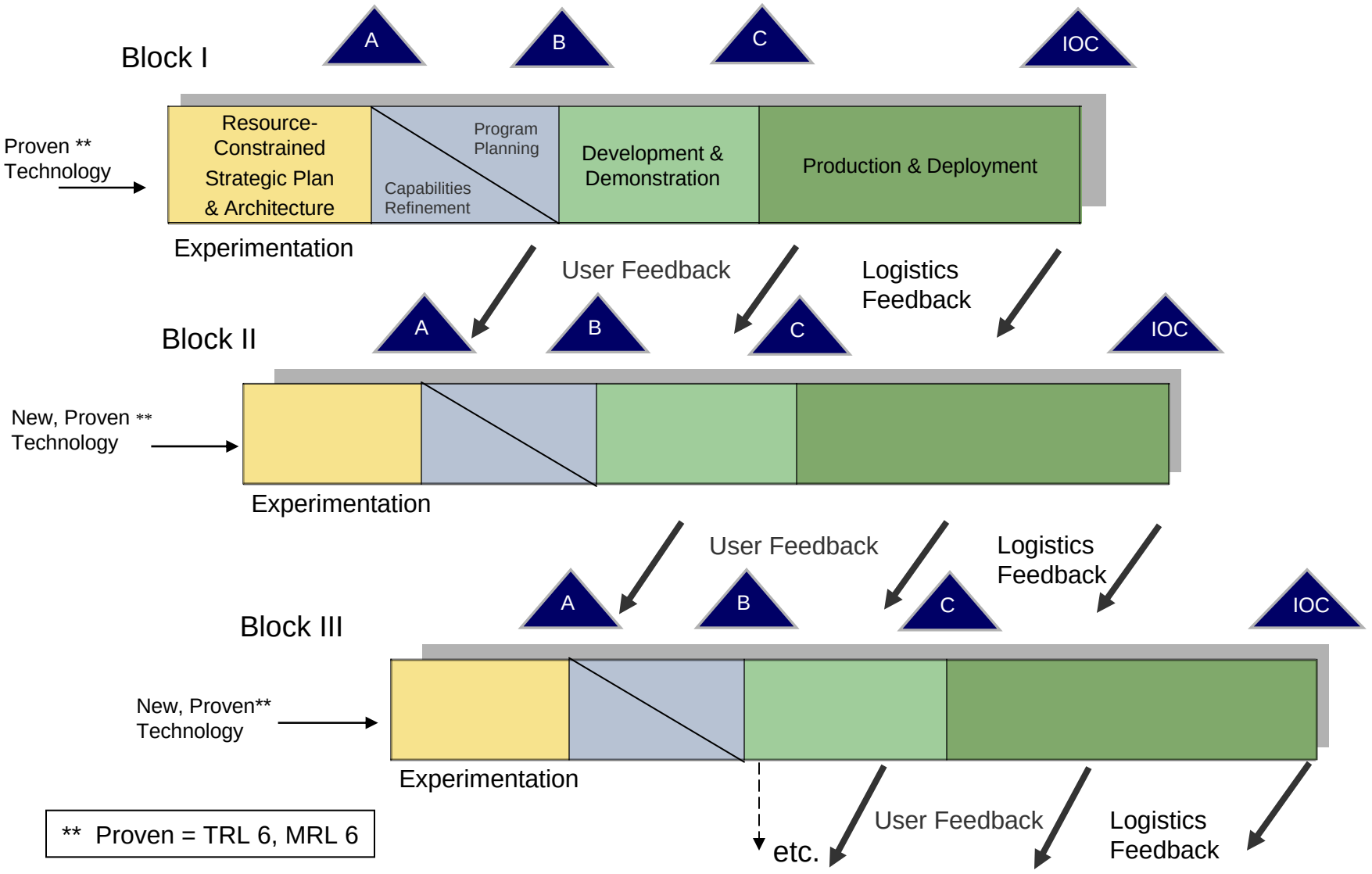
Recommendations: Responses to Findings

1. Focus ("requirements" and resources) on joint, interoperable, Net-Centric Systems-of-Systems (with independent "architects" and enhanced government management and engineering capability).

2. Train as we fight: Recognize the political-military nature of future conflicts (and the role of the State Dept.), and recognize the role of contractors on the "battlefield."

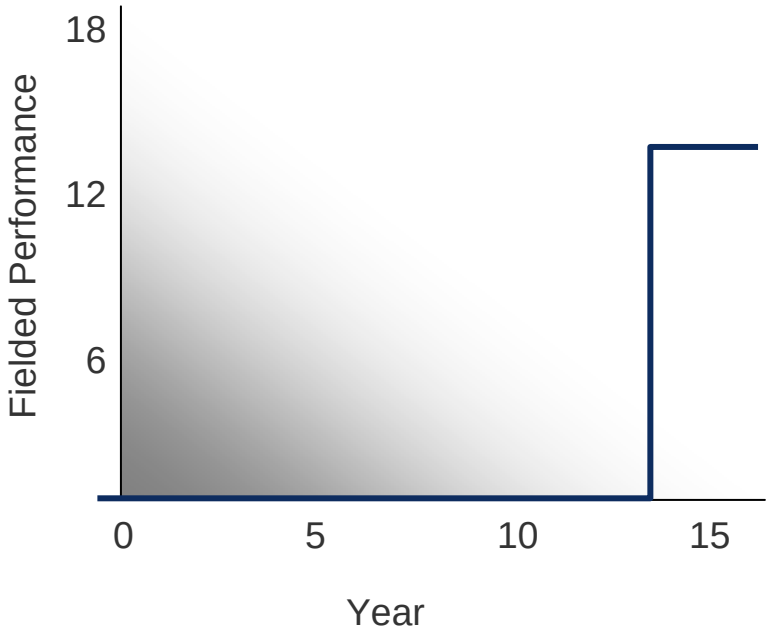
3. Achieve lower costs and faster-to-field capabilities, while still achieving better performance. (Make costs and schedules "requirements"; and fully utilize "spiral development.")

Spiral Development

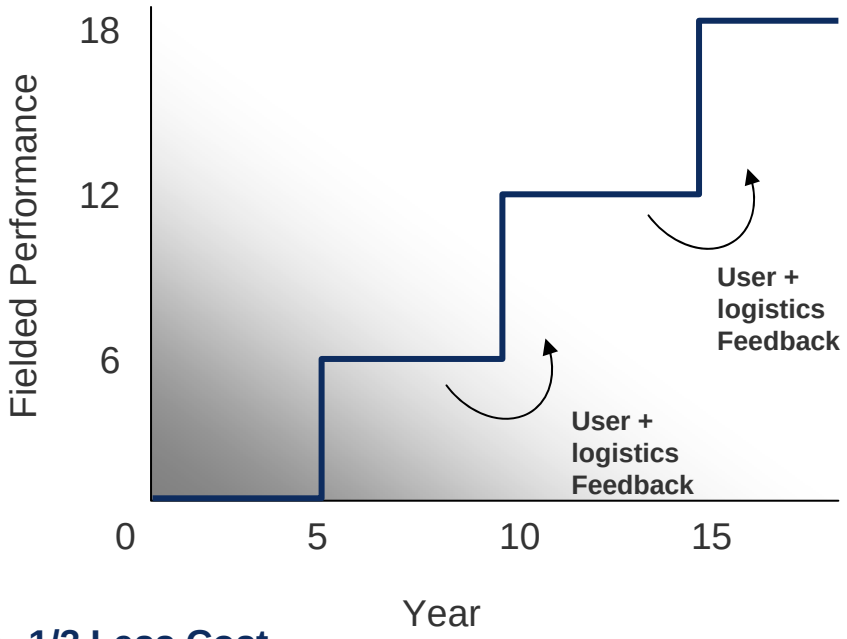


Near-Term Fielded Capability

CLASSICAL "BIG BANG" PROCESS



RECOMMENDED (SPIRAL) PROCESS



- **1/3 Less Cost**
- **Less Risk (technical, schedule, cost)**
- **Provide fielded capabilities earlier**
- **Greatly reduces technological obsolescence**
- **Allows for a more robust and competitive industrial structure**

FINDING 2: Government must change to facilitate the rapid and affordable acquisition of needed weapons, systems and services

Recommendations: Responses to Findings

4. Focus on "staying ahead", by adequately funding "Engines of Innovation."
5. Understand and realize the benefits of globalization. (Requires changes in ITAR, EAR, etc.)
6. Achieve far greater use of "best value" competitions and foster long-term competitive dynamics. (Reward industry for higher performance at lower costs)
7. Transform the DoD logistics system to a modern, world-class, Information-Based, Data-Centric Logistics System.

Examples of Performance Based Logistics Availability and Response Time

Navy Program	Material Availability* Pre-PBL	Material Availability* Post-PBL	Logistics Response Time** Pre-PBL	Logistics Response Time** Post-PBL
F-14 LANTIRN 	73%	90%	56.9 Days	5 Days
H-60 Avionics 	71%	85%	52.7 Days	8 Days
F/A-18 Stores Mgmt System 	65%	98%	42.6 Days	2 Days CONUS 7 Days OCONUS
 Tires	81%	98%	28.9 Days	2 Days CONUS 4 Days OCONUS
 APU	65%	90%	35 Days	6.5 Days

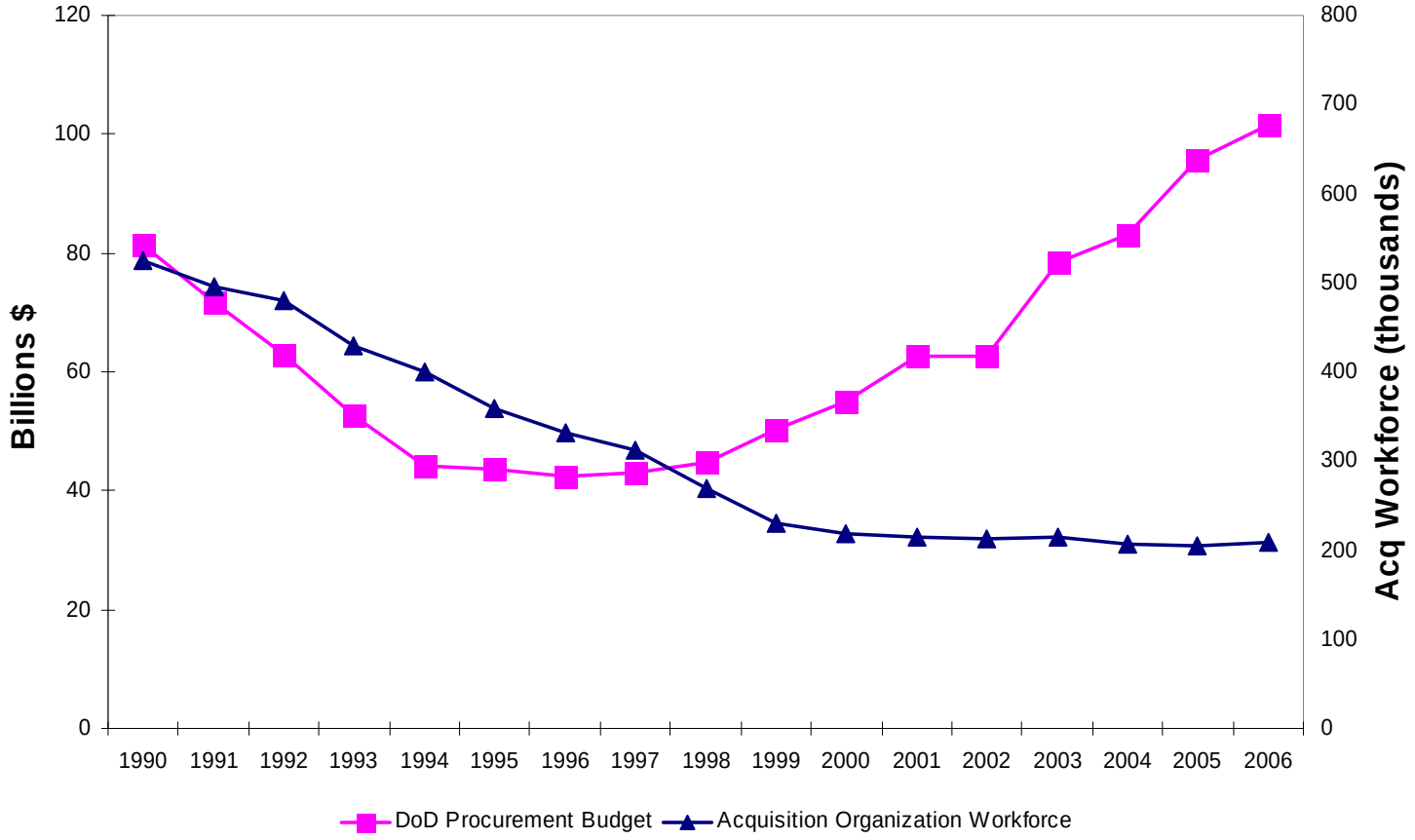
*Klevan, Paul, NAVICP, UID Program Manager Workshop Briefing, 5 May 2005
**Kratz, Lou, OSD, Status Report, NDIA Logistics Conference Briefing, 2 Mar 2004

FINDING 3: Weakened DoD workforce impedes the acquisition of military capability and government oversight

Recommendations: Responses to Findings

8. Move aggressively to strengthen the future high-quality, high skill, Government Acquisition Workforce. (Follow recommendations of Oct. 31, 2007 Commission Report)

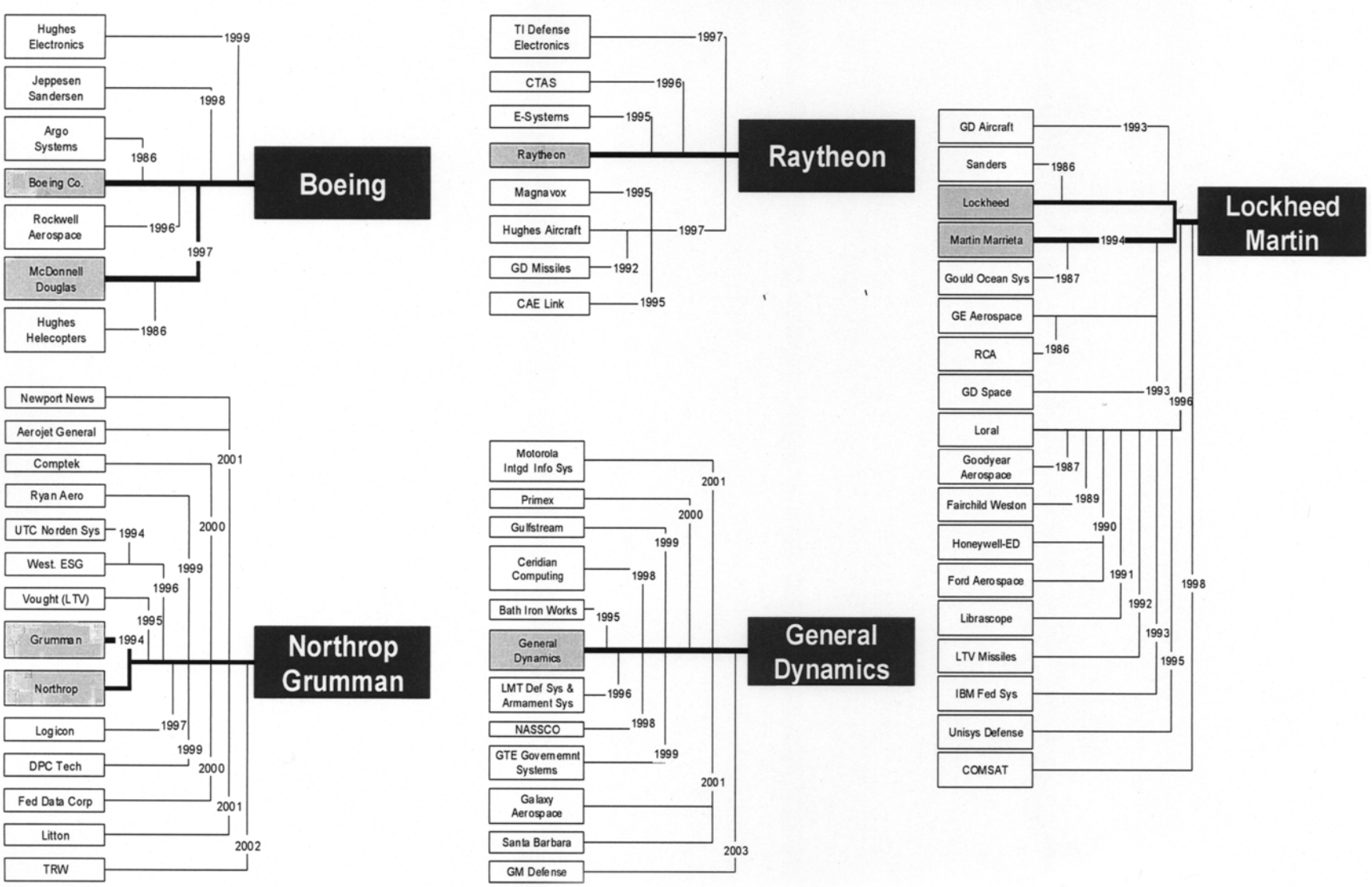
Overall Acquisition Workforce Declined Even as Procurement Budgets Increased



Source of workforce data: DoD IG Report D-2000-088 Feb 29, 2000 & DoD IG Report D-2006-073 April 17, 2006

Source of budget data: Annual Defense Reports, available at http://www.dod.mil/execsec/adr_intro.html. Procurement supplementals for FY2005 and FY2006 not yet reflected in Annual Defense Reports were obtained from Congressional Research Service Reports.

During Budget Decline (and subsequently): Defense Industry Consolidations



FINDING 4: Current trends/policies will not result in an effective industrial base

Recommendations: Responses to Findings

9. Articulate a National Security Industrial Vision; adopt government policies to implement the Vision; structure incentives for industry to achieve the Vision; and monitor ongoing industrial dynamics (from M&As through Program decisions) to ensure its realization.

10. Remove the barriers to commercial and global technologies and products. (e.g., Modernize ITAR, EAR, etc.)

Summary

- Future military operations are likely to be:
  - Expeditionary
  - Joint
  - Irregular
  - Coalition
  - Political/Military
- Future Defense Budgets are likely to be smaller (and without large supplementals).
- Significant changes in military and industry are required, but they can be expected to be fiercely resisted.

Strong leadership (military and political) is required to successfully achieve the needed changes.

This must be a high and continuing priority, or it will not happen!