Modernizing Defense Supply Chains

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The Security Challenges Facing the U.S.

- **Shrinking Appropriations**: Financial Crisis; – with adverse trends in costs (O&M, Fuel, Healthcare, Equipment, and Services); debt; demographics; etc.

- **Unstable/Insecure World Environment**: pirates; terrorists; cyber “attacks”; chemical/bio/nuclear; IEDs; regional instabilities (that draw us in); widespread proliferation; “loose nukes;” pandemics; natural disasters; struggles for scarce resources (energy, water, raw materials); violent religious extremism; and, on up to the threat of nuclear Armageddon -- with much uncertainty as to “what’s next.”

- And huge resistance to the changes required* for the 21st century security environment (e.g. “war among the people”; Cyber Security; coalition operations; etc.) - - and to the resource shifts required (e.g. base closures; research vs. more 20th century equipment; etc.)

* As Machiavelli warned (re: change in government)
Shrinking and Uncertain Defense Budgets and Declining Force Structures

- Post-Korea: -43%
- Post-Vietnam: -33%
- Post-Cold War: -36%
- Current: -31%

Source: Center for Strategic and International Studies (CSIS)
The Needs, Therefore, Are:

- **Do More With Less** - - and recognize that “even how much less” is uncertain

- **Respond Much Faster** - - to the rapidly-changing, and uncertain, threat environment

- **Maintain Technological Leadership** - - in all areas e.g. in cybersecurity, in intelligence, and in logistics (e.g. from “Big Data Analytics”); while recognizing that technology, industry, and labor today are **globalized** (and, in many areas, the technological leadership exists in commercial or foreign firms - - not in DoD)

- **Invest in Research** - -but; in the past, as the total budgets decline, the first things cut are: Travel, Training, and **Research**; and the U.S. has laws, policies, and practices that are **barriers** to DoD utilizing best-in-class commercial and global technologies.
Research Funding Trends* (Critical for Economic Competitiveness and Security “Technological Leadership”)

*Sources: Top Fig.: David Mowery “Military R&D and Innovation” (University of California Press, 2007); Lower Fig.: National Science Foundation, S&E Indicators 2006; OECD, Main S&T Indicators database, Nov. 2004
To Maintain Technological Leadership

Today, every U.S. weapon system contains foreign parts* - thus, complicating the supply chain (which is already very complex; very costly; and not world-class!)

* Per DoD report in 2013
<table>
<thead>
<tr>
<th>Material Availability</th>
<th>Logistics Response Time</th>
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<tbody>
<tr>
<td><strong>Navy Program</strong></td>
<td><strong>Pre-PBL</strong></td>
</tr>
<tr>
<td><strong>F-14 LANTIRN</strong></td>
<td>73%</td>
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<tr>
<td></td>
<td>56.9 Days</td>
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<tr>
<td><strong>H-60 Avionics</strong></td>
<td>71%</td>
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<tr>
<td></td>
<td>52.7 Days</td>
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<tr>
<td><strong>F/A-18 Stores SMS</strong></td>
<td>65%</td>
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<td></td>
<td>42.6 Days</td>
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<td></td>
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<tr>
<td><strong>Tires</strong></td>
<td>70%</td>
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<tr>
<td></td>
<td>28.9 Days</td>
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<td></td>
<td></td>
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<tr>
<td><strong>APU</strong></td>
<td>65%</td>
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<td></td>
<td>35 Days</td>
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* PBL is contractor-based [a recent AIA study said PBL could save $25-$30 billion per year but Congress (Depot Caucus) has legislated that 50% of all maintenance must be done sole-source (in gov.) w/o PBL*
DoD Logistics Today

- Spend over **$210 billion** annually (FY2012); employ approx. **1 Million** government people; have an inventory of approx. **$90 Billion** (much of which is obsolete)

- Although there has been a 37.5% decrease in average customer wait-time between FY2004 and FY2007 performance is still far from world class, by any measure (response time, flexibility, cost, etc.)

- The commercial world has **integrated** logistics data systems; DoD has over 2000 non-inoperable logistics systems (and few links to the rest of the enterprise)

- DoD Logistics has little cost visibility or performance accountability
  - Implementation of RFID program, mandated in 2002, has been excessively slow

- Supporting two major theaters of operation; averaged 48,000 requisitions/day from January-May 2007; but logistics has been a major problem in theater (Iraq/Afghanistan/Kuwait) and it is critical to 21st Century warfighting

The potential for **dramatic improvements in performance with tens of billions of dollars of annual savings** must be realized -- and soon.
Modern, Commercial Supply Chain

- UPS Worldport: sorts, routs, and tracks 300,000 packages every hour
- FedEx Global Hub: an aircraft lands every 90 seconds; then the packages move through 300 miles of conveyor sorting-belts
- Wal-Mart and Dell distinguish themselves based on their “sense and respond” (demand-based) supply chains -- which respond in hours -- with total asset visibility
- Dell makes a desk-top computer every 5 seconds; to rapidly respond to tailored, internet orders
- Wal-Mart keeps its 60,000 suppliers continuously informed about the variations in individual products within its $300 Billion annual sales
- Benetton dramatically revised its total production process to be able to rapidly respond to customer changing demands

Speed, Cost, Quality, Agility, Visibility and Responsiveness are Driving World-Class Performance
DoD Logistics (the Highest-Cost Acquisition Area) is Not “World Class”

- Not a single, integrated, secure I.T. System (current estimate is ≈ 2000 individual systems)
- Does not provide total asset visibility
- Does not provide Government/Industry links
- 50% of the maintenance is sole-source [depots]
- Does not provide adequate inventory visibility*
  - Over 1/3 of the stored munitions at Letterkenny are obsolete
  - Army lost track of $5.8 billion of supplies, between 2003 and 2011
  - “DLA has about $14 billion of inventory, and probably half of that is excess to what we need” (V. Adm. Harnitchek (2013))
- Air Force’s “Expeditionary Combat Support System” cost $1.03 Billion, between 2005 and 2012; but then was cancelled**
- A Law required the DoD to be audit-ready by 1996; current estimates are that it will not be audit-ready by 2015.*

* Source: Scott Paltrow “Unaccountable”: Reuters (November 18, 2013)
** The problems (according to an A.F. internal inquiry were “muddled governance, ineffective change management, and revolving door leadership” (Sean Reilly, Federal Times, December 2, 2013)
Weapon System Support Challenges

- Current structure does not support rapid force projection or the warfighters’ needs efficiently or effectively
- Requires large in-theater presence
- Complex, inefficient supply chains
- Limited in-transit and in-theater asset visibility
- Lacks modern, integrated I.T. system, utilizing “analytics”
- High turnover of maintenance personnel
- Contractors are often incentivized to sell parts, rather than improve system availability
Not What I Have in Mind
The Key to “Doing More With Less” is Innovation

“Innovation” is a drive of signification change for gains in effectiveness and/or efficiency - - could be in technology, or in process, but (most important) in thinking (i.e. a “culture change”)

For a “culture change” two things are required:
1. Widespread recognition of the need for change
2. Leadership - - with a vision, a strategy, and a set of actions - - as well as the ability to align and motivate all those who would normally resist the changes

For DoD logistics the recognition of the need for change is coming from the declining budget; the realization of the importance of logistics - - in both performance (e.g. readiness) and costs(e.g. the dominant “acquisition” cost - - over $200 Billion per year); and the realization that superior performance at lower cost is being demonstrated every day in the commercial world.
To Acquire More Capability with Less Resources Requires Addressing:

1. **What** is bought (the “requirements” and “budget” processes)

2. **How** goods and services are bought (the “acquisition process”)

3. **From whom** the goods and services are acquired (the “industrial base”)

4. **How and by whom** the goods and services are supported (the “logistics process”)

5. **Who** does the acquiring (the acquisition workforce)

**These Five Acquisition Issues are Interrelated; and all Five Must be Addressed to do More With Less***

*These are the areas of research that the “Center for Public Policy and Private Enterprise” at the University of Maryland are addressing; and the topics covered by a University graduate and “Executive Certificate” program in government acquisition.*
Current Acquisition Trends are in the Wrong Direction

- Greatly increased use of “Lowest Price, Technically Acceptable” (LPTA)

- Inappropriate use of competition:
  - Not utilizing continuous competition (e.g. on F-35 engine)
  - Frequent competitions on service contracts, even when costs decrease and performance improves

- Very large number of “winners” on IDIQs (and making them all bid on every task)

- Proposals to have the government as the System’s Integrator

- Putting ideas from unsolicited proposals up for bid

- Encouraging “vertical integration” (i.e. make vs buy - - with higher profits)

- Stopping public/private competitions (even though the results are savings of over 30% and improved performance).
Conclusion

- DoD must move to a world-class logistics system
  - Great increase in readiness
  - Great increase in responsiveness
  - Dramatic increase in dependability
  - Significant cost reductions
  - Significant error reductions

- This collaborative research effort (UMD and IBM) reinforces the need for the DoD’s logistics transformation and government/industry partnering necessary to achieve it
  - We, must make recommendations for continued improvement and transformation of DoD’s extended logistics enterprise

“Supply Chain Analytics” would appear to offer GREAT potential in improved performance at lower costs
More Regulations are Not the Solution

Total Number of Pages in the Code of Federal Regulations 1975-2011*

Note: The TASC/Coopers and Lybrand study of the 18% “regulatory cost impact on DoD purchases” was done in 1994.