

# The Economic Crisis and Its Impact on the DIB: Defense Industrial Base Forecasts 2010-2020

**Presented By:** 

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# Agenda

- BLUF
- Economic crisis history
- Current situation for DIB
  - Military Spending
  - NASA
  - Healthcare
- Economic forecasts and trends
- Additional DIB issues
- Final thoughts





# **Bottom Line Up Front**

### Demand

- Recession likely ended Summer 2009
- \$1T stimulus for infrastructure, tax cuts, and healthcare reform
- \$1.5T budget deficit for FY2010
- US reducing military effort in Iraq
- US surge in Afghanistan
- Healthcare reform
- Decline in Defense budget and contracting until 2020
- Investment and readiness compete for very scarce dollars against healthcare, entitlements, and economic recovery
- Aging DoD procurement workforce
- Aging and worn-out equipment

### Supply

- Recession hit the Defense and Aerospace industries in 2010
- Defense industry growth will be modest at best for next decade
- Defense industry likely to divest manufacturing capabilities
- Rising energy and raw material prices
- Labor Markets are contracting with a premium on skilled labor
- New round of Defense consolidation possible
- Increasing concentration of the DIB
- Increasing foreign ownership and dependency in lower tier industries
- Increasing spin-offs of manufacturing divisions





## **The Great Economic Crisis**

50 additional bank failures.

#### Year **Events Key Statistics** •Estimated loses in real estate \$150-\$400B in the US •US and other housing market crash 2007 Declining value of the U.S. dollar U.S. Gov't deficit \$162B (1% of GDP) •Rising energy and materials costs •Fed funds at 4.5% •US economy falls into recession Manufacturing Capacity Utilization: 79% •Credit markets begin to freeze •Oil Peaks at \$150/Barrel •Oil and Materials markets peak then crash 2008 •Major banks in the U.S. and Europe collapse •S&P falls 45% between Jun-Nov •Global stock markets fall by 20-60% •U.S. Gov't deficit \$455B (3.6% of GDP) •Global coordinated reduction in interest rates •U.S. GDP falls 6.2% in real terms in 4<sup>th</sup> Qtr •Fed Funds rate falls to 0.25% •U.S./Fed implements \$750 TARP and other bailouts Manufacturing Capacity Utilization: 76% •DJIA closes at 6594;12yr low 2/2009 Stock markets continue to decline 2009 •US Gov't deficit: \$1.8T (13% of GDP) •\$787B American Reinvestment and Recovery Act (ARRA) Consumers reducing debt and consumption spending •CPI declines first time since the 1950s •GM & Chrysler go bankrupt - \$100B+ Bailout •Unemployment hits 9.5% •Japanese, UK, & European economies in deep recession Manufacturing Capacity Utilization at 65% •Propose overhaul of financial regulation & U.S. healthcare •140 bank failures; highest since 1992 Weak Recovery begins 2010 through stimulus spending •US Govt Deficit \$1.5T (9.8% of GDP) 2010 •Big Banks have recovered; smaller banks still struggling •Unemployment hits 10% •Sovereign Debt Crisis: •Manufacturing Capacity Utilization at 69.2%

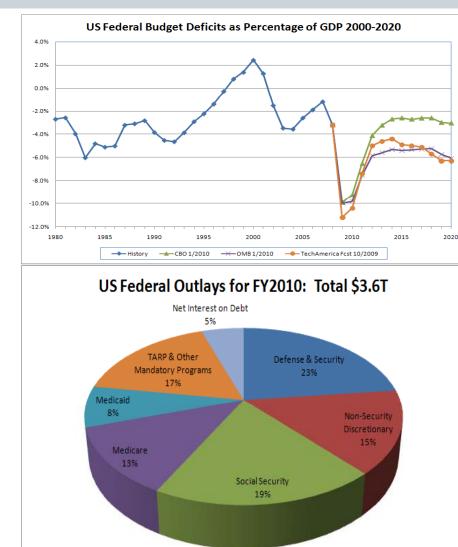
Source: WSJ, BLS, OMB, CBO, Federal Reserve, & Value Line – 03/2010



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## **U.S. Federal Budget**



### **Rising Tide Deficits and Debt**

- Deficit around \$1.4T for 2010 (10% of GDP)
- U.S. publicly held debt is projected to grow from 62% of GDP to 65%-82% range by 2020
- Rising government financing costs
- Falling tax revenue, rising unemployment, and healthcare costs
- Entitlement spending is projected to explode after 2018
- Growing global concerns on U.S. spending
- Healthcare reform: Historic Budget Buster?
- Bush Tax Cuts expire at the end of 2010: What tax cuts will be extended, if any?
- Japan now our largest creditor
- The \$64 Trillion Question: How long are investors willing prop up the U.S. by buying U.S. Treasury Securities?

Source: Congressional Budget Office (CBO) 1/2010, WSJ, OMB, NDIA 3/2010, Tech America, & DCMA Analysis



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## **Healthcare Reform: Hope and Change**

### Necessity

- Cost rising far faster than general inflation
- Rising amounts of chronic disease requiring continuing care
- Lack of IT penetration in this industry
- 45+ Million uninsured or under insured Americans
- Health issues leading cause of personal bankruptcy in the U.S.
- Reduces labor market efficiency and mobility
- US manufacturers are constrained by high health insurance costs
- Major factor in GM & Chryslers' bankruptcies
- American manufacturers must compete against foreign companies that do not have to provide health insurance
- Forces more Automation Substitution of Labor with Capital

### **Costs and Provisions**

- Affordability
- Cuts to Medicare by \$500B
- Entitlement budget train wreck in 2018-2025
- Rising Medicare & other taxes
- No U.S. Tort Law reform
- Major provisions to date:
  - Full implementation in 2018
  - Requires most Americans and businesses to buy health insurance
  - Subsidizes for small business to provide health insurance to employees
  - Sets up Insurance exchanges
  - Heavily regulates health insurance providers
  - Taxes high end health insurance plans
  - Raise capital gains and taxes on incomes over 250K
  - Covers about 32M uninsured people



Source: TechAmerica10/2008 & 10/2009, CBO 3/2010, WSJ, & DCMA Analysis



# **Health Care: DIB Impact**

### Impact on DoD & DIB

- Potential squeeze on DoD spending after 2013
- Health reform could slow the growth of DoD healthcare programs (TRI-Care)
- Could keeps manufacturers in business reduces cost burden
- Could reduce overhead costs for major prime contractors
- Allows for more responsive labor markets
- Improved healthcare access may keep aging population in the workforce longer
- Higher taxation levels could discourage economic growth
- Possible increase in administrative costs impacting overhead
- Large company write-downs impacting profitability





# **Sovereign Debt Crisis: Is US Next?**

#### DEFENSE CONTRACT MANAGEMENT AGENCY

### Sovereign Debt's Hot Spots

In light of the recent focus on sovereign risk and difficulties in the periphery of Europe, economists at RBC Capital Markets assembled a snapshot of economies to distinguish those that appear to be under the most duress. Among the several measures it examined were fiscal deficits, debt loans, growth rates and inflation. The 'sovereign risk' index includes those and others. The higher the number the riskier the country. Click on column headers to sort the table.

Average	Standard deviation from z-score less than 0
Worse than average	Standard deviation between 0 and 1
Much worse than average	Standard deviation between 1 and 2
Worst compared with average	Standard deviation greater than 2

Developed Countries	Fiscal Balance (% of GDP)	Gross Public Debt (% of GDP)	Real GDP Growth %	Inflation	Sovereign Risk Inde
Ireland	Much worse than average	Worse than average	Worst compared with average	Worst compared with average	0.98
Greece	Worse than average	Much worse than average	Much worse than average	Average	0.90
Portugal	Worse than average	Worse than average	Worse than average	Worse than average	0.59
United Kingdom	Much worse than average	Worse than average	Average	Average	0.52
Italy	Average	Much worse than average	Average	Average	0.43
France	Worse than average	Worse than average	Average	Average	0.37
Spain	Worse than average	Average	Much worse than average	Average	0.33
Japan	Worse than average	Worst compared with average	Average	Worst compared with average	0.28
United States	Much worse than average	Worse than average	Average	Average	0.21
Belgium	Average	Worse than average	Worse than average	Average	0.15
Austria	Average	Average	Worse than average	Worse than average	0.14
Netherlands	Worse than average	Average	Worse than average	Worse than average	0.08
Germany	Average	Worse than average	Average	Average	-0.06
Canada	Average	Worse than average	Average	Average	-0.19
Finland	Average	Average	Worse than average	Average	-0.30
Denmark	Average	Average	Average	Average	-0.45
New Zealand	Average	Average	Average	Average	-0.49
Australia	Average	Average	Average	Average	-0.52
Sweden	Average	Average	Average	Average	-0.59
Switzerland	Average	Average	Worse than average	Worse than average	-1.06
Norway	Average	Average	Average	Average	-1.32

### **Potential Next Steps**

- Greece and European Nations are or near default on debt
- Currently the crisis is helping the US Dollar at the expense of the Euro
- Potential for new conflicts
- European Union debating a rescue package for Greece and other nations

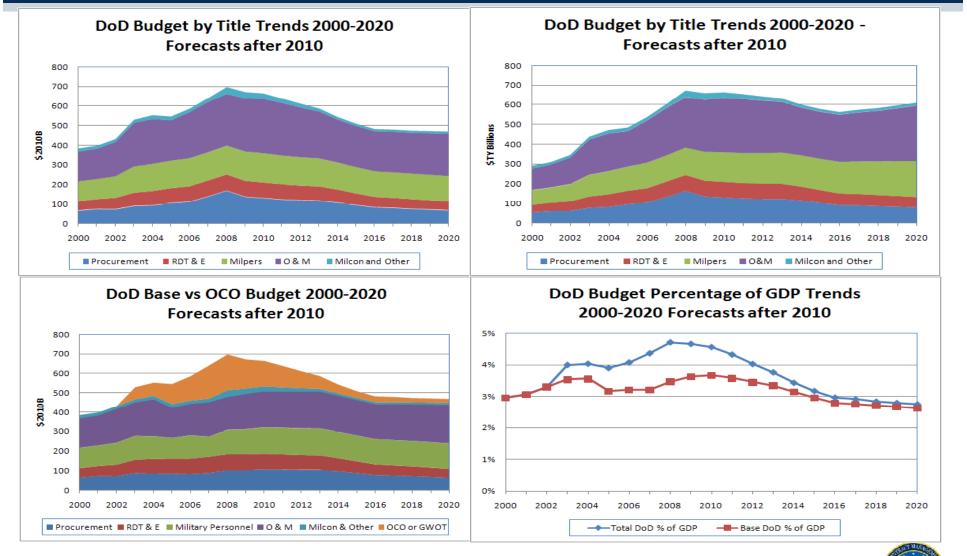


Source: Royal Bank of Canada Capital Markets



### DoD Top Line Budget: 2000-2020

#### DEFENSE CONTRACT MANAGEMENT AGENCY



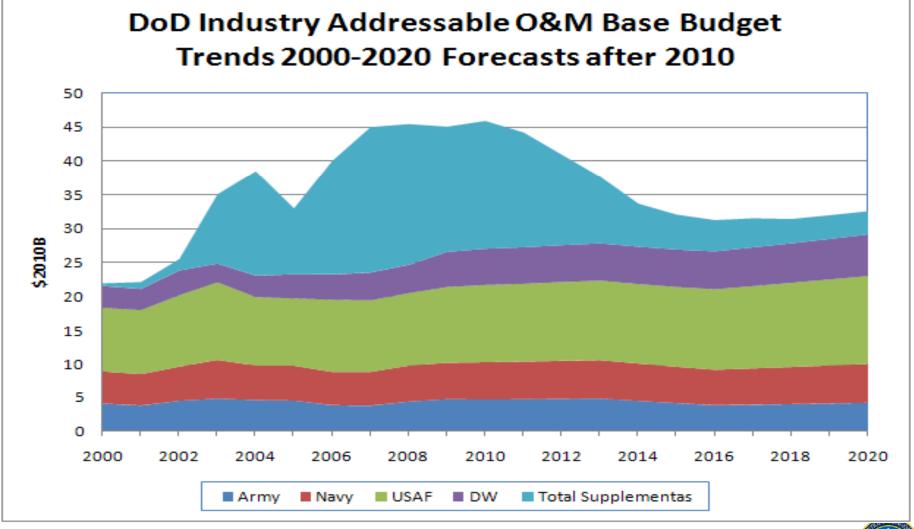
#### Source: TechAmerica10/2009 & CBO 1/2010

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### **Operations & Maintenance Budget**

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Source: TechAmerica10/2009 & CBO 1/2010

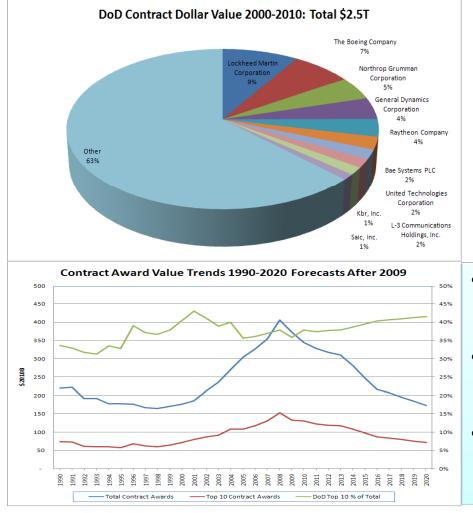


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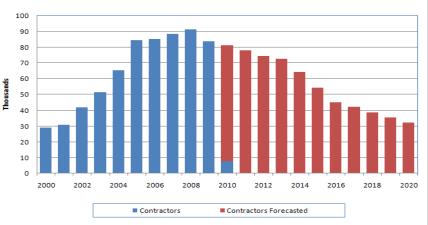


# **DoD Contracting Trends**





Number of DoD Contractor Trends 2000-2020



Note: Contractors defined as entities winning a contract.

- Defense Industrial Base expands in terms of contracts and contractors because of the Global War on Terror
- As the wars wind down and the budget declines, the DIB will likely contract as contract awards fall
- The DIB expansion keyed by construction, consulting, and contracting out govt. functions





## The QDR and Defense Budget Issues

#### DEFENSE CONTRACT MANAGEMENT AGENCY

#### Quadrennial Defense Review

- First QDR to fully address wartime priorities
- Hybrid Warfare: prepare for conventional and unconventional war
- Need to take care of "Our People"
- Cyberspace domination
- Improve long range strike
- Shift to "Unmanned Systems and Capabilities" especially in aircraft
- New emphasis on cost and schedule over performance

#### Aging and Recapitalization Impacts

- Aging and war damaged platforms
- Many systems are at the end of design lifetimes
- Many vehicles are obsolete and worn out
- Can only reset and reman a vehicle so many times
- High costs and delays in acquiring new systems
- About 85% of all Military vehicles need to be recapitalized or replaced

### **Defense Budget Cut?**

- High deficits and domestic priorities
- Decline in perceived threat
- Many high-tech systems are behind schedule and over budget
- Shifting emphasis from high-tech to proven low tech systems
- Potential Congressional push back
- On-going wars?
- Last War vs. the Next War?

#### Perceived Weaknesses in Acquisition Workforce

- Too many cost overruns
- Hollowed out procurement DoD agencies:
  - Increase of 20,000
    acquisition workers
  - DCMA declines from 30,000 in 1990 to under 10,000 in 2008
  - DCMA to Hire 3,000?
- Reliance on contractor personnel
- Aging workforce in the Federal Government – average age is over 50 for most agencies





# **DoD Budget for 2020's**

### New Defense Build-up

- 20 Year Cycle going back to 1840s
- Entitlement issues will determined DoD's budget
- New Technologies will require new systems
- 2020's budget increases not likely to match 2000's or the 1980's
- Greater emphasis on investment accounts
- Unmanned Systems (Robotics) could reduce personnel requirements and costs
- Need to maintain near-term Science & Technology (S&T) investment to reduce longterm program risk

### **Priority Programs**

- Aging Inventories of aircraft, ships, and vehicles
- Aircraft: F-35, UAVs, Strategic Bomber, JTR, and Tankers/Air-lift
- Operationally Responsive Space (ORS) Systems
- Shipbuilding: CGX, DDGX, LCS, SSBNs, & Auxillarily Ships
- Combat Vehicles: JLTV, UGVs, Abrams, and Bradley replacements
- Missiles: Joint Common Missiles, Hypersonics, and Strategic Missiles
- Ammo & Weapons: New Infantry Rifle, Ammo, & Directed Energy
- Other: Chem/Bio Defense, Communications Gear & IT

### Questions

- Are we still in Iraq and Afghanistan?
- How will long-term budget issues be resolved?
- How well will current procurement programs for the 2010's be funded?
- Peer Competitor vs. Irregular Warfare/Hybrid Warfare
- Can and will the US maintain global military capabilities?
- Will S&T investment be maintained?
- Controlling O&M costs





# **Military Technology Trends**

### New Technologies: 2010-2015

- IT & Digitalization
  - Mult-Core Processing
  - Terrahertz Computing
  - Cloud Computing
  - IT Security
- Nanotechnology
  - Carbon Nanotube Electronics
  - Photon Electronics
  - Motion Sensing & Simulation
  - Hull Coatings
- Sensors LADAR/LIDAR

### New Technologies: 2015-2030

- Non-lethal Weapons
- Directed Energy Weapons
- Robotics
  - Unmanned Vehicles
  - Loitering Munitions
- Alternative Power Systems
  - Fuel Cell and Batteries
  - Solar Cells
- Hypersonics
  - Kinetic Munitions
  - Advanced Propulsion Scram Jet
- Biotechnology

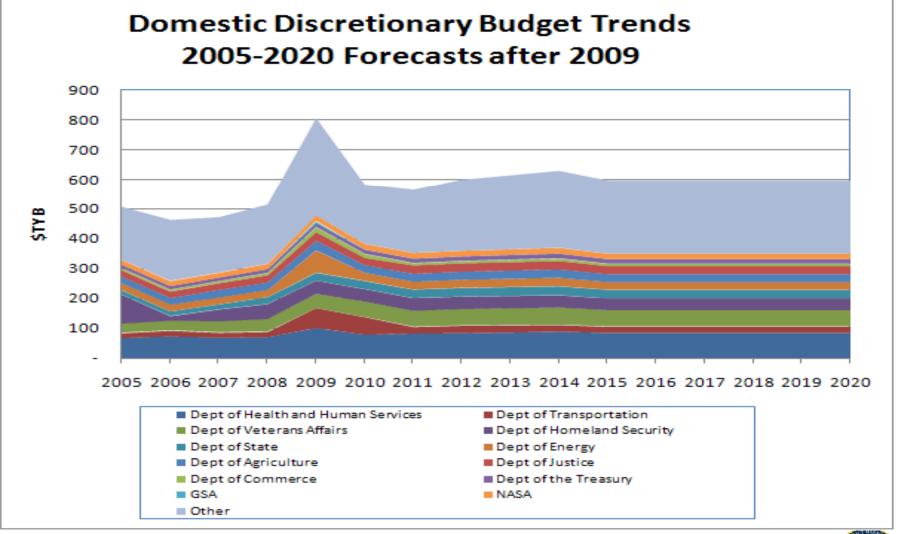




Source: TechAmerica10/2009

## **Non-Defense Discretionary Budget**

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# **Information Technology Budget Trends**

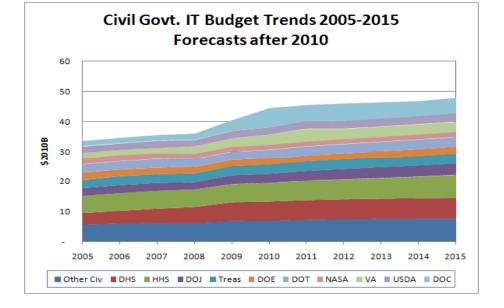
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### **Civil Government rise driven by:**

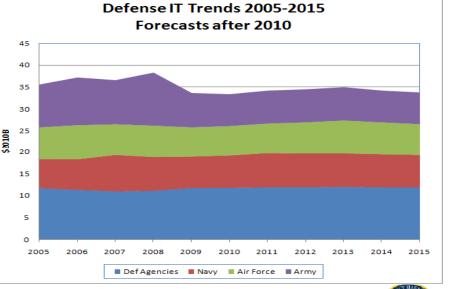
- ARRA investment
- Healthcare reform
- Replacement of retiring workers and automation of services
- IT Security is a top priority

#### **Defense IT is basically stable**

- Army IT declined in 2009 & 2010 as IT investment in support of Overseas Contingencies.
- IT investment need matches inflation over the next five years
- Continuing need to invest in the latest technology



#### Source: TechAmerica10/2009 - Forecasts after 2008



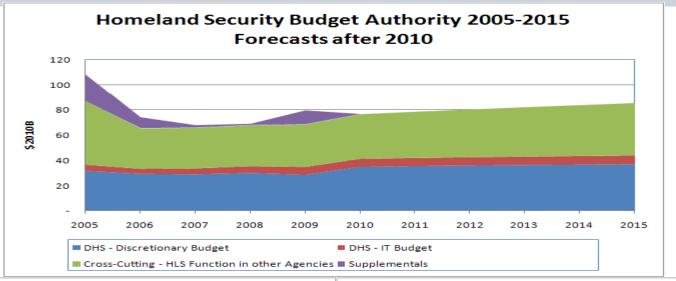


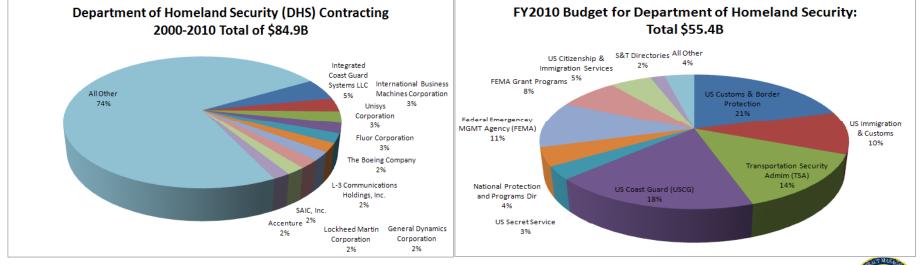
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# **Homeland Security Mission**

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Source: DHS TechAmerica10/2009 & OMB - http://www.usaspending.gov/index.php - 2010 is partial year for actual as of 3/2010

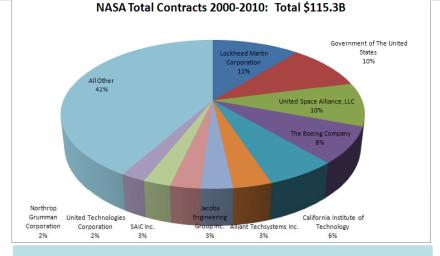


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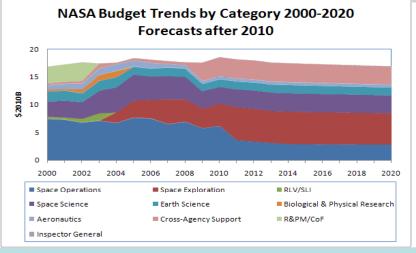
# NASA: Is it Change or the End?

#### DEFENSE CONTRACT MANAGEMENT AGENCY



#### **Obama's Space Policy**

- International Space Station (ISS) operates to 2020 and beyond
- Constellation cancelled as recommended by the Augustine Commission
- Focus on new technology development and launch facilities
- Shift in focus from established contractors to new start-ups
- Space contractors are assume greater amounts of program development and operational risk
- Obama's budget adds \$6B over the next 5 years
- Robust Planetary and Earth Observation program



#### Looming Gap with no U.S. Manned Space Vehicle available for 5+ years:

- NASA to retire the Shuttle in 2010/11
- No true Shuttle replacement vehicle possible before
  2020
- Shift ISS supply and personnel ferrying missions to private sector contractors.
  - Space Ex Falcon LV and Dragon Capsule are leading candidates
- Orion continues as a lifeboat for the ISS
- NASA's Man Rating requirements presents significant technical and cost challenges in developing manned space systems

Source: TechAmerica10/2009 - OMB - http://www.usaspending.gov/index.php - 2010 is partial year for actual as of 2/2010

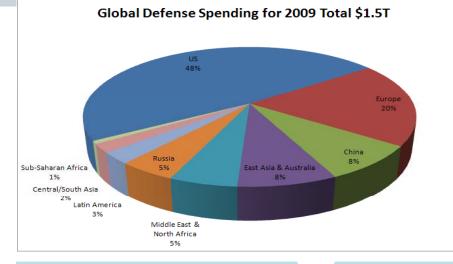


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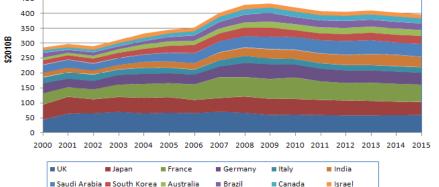


## **International Defense Budgets**

#### DEFENSE CONTRACT MANAGEMENT AGENCY



### Defense Budgets of Large Non-US Defense Defense Markets 2000-2015 - Forecasts After 2009



### Defense Budgets Peaked in 2008

- Aging equipment
- Interoperability with the U.S.
- Increasing international cooperation on defense programs: F-35 & MEADS
- Global Economic Crisis is reversing the trend

### Defense spending is shifting from Europe to Asia

- Asian economies will have the money, population, and requirements
- Increasing security risks and threat perceptions in Asia

# U.S. Exports are hampered because of the following:

- U.S. Systems are often too complex and costly
- Cheaper foreign alternatives
- Offset requirements
- U.S. Export controls are outdated



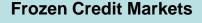
Source: TechAmerica10/2002 & 10/2005, CIA, Forecast Int 3/2010, & DCMA Analysis



# **Crisis Impact on the DIB**

#### Falling Output & Rates of Capacity Utilization

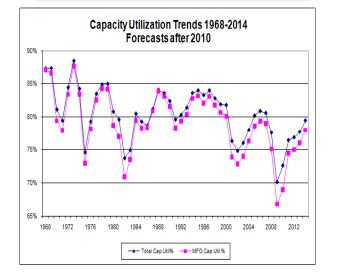
- Total manufacturing rate reached post WWII lows
- Hollowing out of US Industrial Base
- DIB utilization starting to decline
- China could overtake the U.S. in manufacturing by 2020

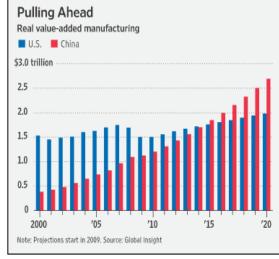


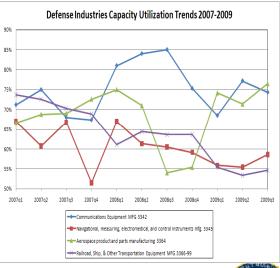
- Small companies having difficulties securing financing for contracts
- Larger companies paying more for financing operations
- Little M&A activity except for small cash deals
- Increases in bankruptcies and liquidations

### **High Unemployment**

- 10M+ jobs lost since Dec 2007
- Migration concerns
- Major Defense firms have started cutting jobs
- Delaying retirements and early retirement
- Rising unemployment and under-employment
- High cost of health insurance





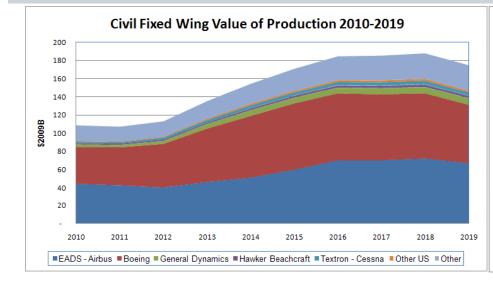


Source: WSJ, Value Line, DCMA, Industrial Analysis Center, Federal Reserve, Census, & DCMA Financial Analysis Group

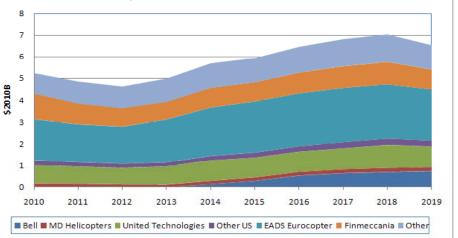
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## **Commercial Aircraft Production Trends**

#### DEFENSE CONTRACT MANAGEMENT AGENCY



#### **Civil Helicopter Value of Production 2010-2019**



#### Boom times are at an end

- Global Financial Market Meltdown in 2008
- Delays in deliveries
- Record low order intake in 2009
- Falling demand for business jets and general aviation aircraft
- Significant Supply Chain and Material Cost issues

#### Shallower down-turn

- Market expansion in the Middle East and Asia
- Aging aircraft, high fuel costs, and environmental concerns
- New models (787 & A350) from Boeing and Airbus to address above issues
- After declines in 2009, backlog still provides cushion

#### **Defense Industrial Base Impact**

- Workload stable for now but will likely decline in 2010
- Employment is likely to fall in 2010 but stable through 2016
- Concerns over sub-tier producers
- Rising overhead cost in the future



Source: Forecasts International 03/2010 & DCMA Analysis



## **Defense & Aerospace Market Forecasts**

#### DEFENSE CONTRACT MANAGEMENT AGENCY

Forecast International Defined	Units				Value of Production in \$2009M							
Aerospace and Defense Systems												
Markets	2010	2019	Total	% Change	CAGR*	US%**	2010	2019	Total	% Change	CAGR*	US%**
Military Markets												
Fixed Wing Military Aircraft	647	644	6,380	-0.5%	-0.1%	42%	29,588.1	34,777.4	320,252.6	17.5%	1.9%	53.1%
Military Helicopters	584	558	6,114	-4.5%	-0.5%	44%	10,213.1	9,478.3	111,036.6	-7.2%	-0.8%	62.0%
Launch Vehicles	40	22	300	-45.0%	-5.0%	36%	2,575.7	1,262.1	18,577.4	-51.0%	-5.7%	61.9%
Satellites	15	5	90	-66.7%	-7.4%	61%	2,820.5	440.0	21,968.1	-84.4%	-9.4%	72.2%
Unmanned Systems	9,943	8,255	85,028	-17.0%	-1.9%	39%	3,247.3	3,530.9	34,532.9	8.7%	1.0%	51.2%
Aircraft Engines - Gas Turbines	3,052	1,650	26,263	-45.9%	-5.1%	59%	5,570.7	5,282.6	56,027.3	-5.2%	-0.6%	56.0%
Military Vehicles	31,395	9,565	127,413	-69.5%	-7.7%	71%	15,725.5	8,067.2	102,247.5	-48.7%	-5.4%	37.8%
Warships	24	27	340	12.5%	1.4%	34%	17,146.0	17,530.0	243,526.9	2.2%	0.2%	46.9%
Missiles	47,328	32,447	368,788	-31.4%	-3.5%	25%	9,092.5	10,673.8	99,615.0	17.4%	1.9%	23.7%
Munitions & Weapons	662,100	457,461	5,227,804	-30.9%	-3.4%	71%	2,668.4	1,496.9	18,200.4	-43.9%	-4.9%	70.4%
Naval Systems	65,241	3,113	116,275	-95.2%	-10.6%	79%	1,457.1	782.1	10,454.2	-46.3%	-5.1%	36.4%
Civil Markets												
Fixed Wing Aircraft	3,520	5,794	49,930	61.0%	6.8%	50%	108,892.7	174,551.5	1,520,339.7	60.3%	6.7%	48%
Civil Helicopters	1,559	1,858	16,641	19.2%	2.1%	50%	5,237.8	6,537.2	58,171.7	24.8%	2.8%	27%
Aircraft Engines - Gas Turbines	8,024	10,555	97,915	31.5%	3.5%	57%	21,110.2	30,050.7	279,728.1	42.4%	4.7%	72%
Launch Vehicles	54	52	489	-3.7%	-0.4%	18%	3,229.7	4,213.4	47,645.3	30.5%	3.4%	40%
Satellites	66	18	589	-72.7%	-8.1%	23%	5,997.0	2,242.0	72,296.6	-62.6%	-7.0%	35%
Combine Markets - Civil + Military												
Fixed Wing Aircraft	4,167	6,438	56,310	54.5%	6.1%	49%	138,480.8	209,328.9	1,840,592.2	51.2%	5.7%	49%
Helicopters	2,143	2,416	22,755	12.7%	1.4%	48%	15,450.9	16,015.5	169,208.3	3.7%	0.4%	50%
Aircraft Engines - Gas Turbines	8,064	10,577	98,215	31.2%	3.5%	57%	28,059.7	35,179.4	318,393.0	25.4%	2.8%	69%
Launch Vehicles	94	74	789	-21.3%	-2.4%	24%	5,805	5,476	66,223	-5.7%	-0.6%	46%
Satellites	81	23	679	-71.6%	-8.0%	28%	8,818	2,682	94,265	-69.6%	-7.7%	44%
Source: Forecast International 2/2010 - www.forecast1.com Note: * CAGR - Compound Annual Growth Rate, ** US% - US Based Producers Market Share												



## **Other Industrial Base Issues**

### **Aging Workforce**

- Crisis has delayed retirements and brought people back to the workforce
- Highly skilled workers will be in short supply, especially, engineers, scientists, and computer personnel
- Traditional "Defined Benefit" retirement programs are being replaced by 401K
   "Defined Contribution" programs

### **Labor Migration**

- To contain costs, manufacturing work is shifting out of the Midwest, Northeast, and Pacific States to interior South and Southwestern states
- Many Aircraft and Spacecraft production facilities are over 50 years old
- Differences in cost of living and taxation driving worker and company migration trends.

### Foreign Sourcing and Ownership

- Falling dollar encourages foreign sourcing and mergers with foreign partners
- US DIB is being hollowed out by foreign dependencies for key components
- Industrial "Know How" is moving overseas
- Infrastructure, healthcare issues, lack of skills, tax climate, and regulations hinder competitiveness

#### Energy & Material Costs and Availability

- Plunge in oil prices
- Inflation could return
- Reduction in mining capacity and slowing of the growth of energy production
- China and India are still growing
- Current recession slowing the growth of energy & mining productive capacity
- ARRA has money for Alternative Energy development





## **U.S. Defense Consolidation Outlook**

# Thawing merger & acquisition market

- Frozen credit markets in 2008 are now beginning to thaw
- Budget uncertainty created by QDR and lack of guidance from DoD
- Budget cuts could spur a new round of consolidation in the next decade
- Private Equity Investment companies could dump defense companies

### Technology & Policy Change Creates Growth

- Growth of UAV's will bring Aircraft players into the market
- Operationally Responsive Space (ORS) allows for Small Satellites and Launch Vehicle use by DoD
- Foreign competition and penetration in US DIB is possible

# Manufacturing facility consolidation

- Prime contractors focusing on design, integration, and service providing at the expense of manufacturing
- Aging facilities with aging workforces in high cost geographical areas
- Need to maximize shareholder value
- Supply chain issues could mitigate this trend





# **Final Thoughts**

### Points to Ponder

- Recession is likely over but the recovery is weak
- Administration fiscal policy along with monetary policy is extremely expansive and will have significant long-term impact on the economy
  - Stimulus in 2009
  - Healthcare Reform
- Defense top line is going to take cuts: How Much and When?
- The QDR repeats many policies and goals expressed over the past 20 years
  - New Urgency on cost containment and schedule
  - Preparation for a multiple types of warfare
  - Emphasis on IT and Cyberwarfare
- DIB is in good shape to weather this down-turn

