



Program Review

Major US Weapons Systems: Potential Winners and Losers

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Agenda

- I. Introduction**
- II. Potential Winners**
- III. Potential Losers**

I. Introduction

Introduction

- Programs of interest; does not include all programs
- Platforms, Systems and Major Upgrades only
 - Excludes routine O&M expenditures
- Visible programs only
 - Excludes Secret and Top Secret programs
- Multi-year programs
- High dollar programs

II. Potential Winners

Potential Winners

What is a “winner”?

- A system viewed as a high priority by war fighters (and their leadership) for current and future defense of the United States
- A system with few visible road blocks
 - Technology
 - Development
 - Integration
 - Implementation
 - Production Quality
 - Proven ability to deliver on schedule
 - Cost
 - Program is on and expected to stay on budget

Winning Is: Continued Funding Beyond 2008

Potential Winners

CH-47 “Sea Knight”

CH: Cargo Helicopter

- Army medium lift helicopter intended to provide transportation for tactical vehicles, artillery, engineer equipment, personnel, and logistical support equipment.
- Program goal is to enhance performance and extend the useful life as well as produce new helicopters. This effort includes installing a digitized cockpit, rebuilding the airframe, and reducing aircraft vibration.
- The Army has asked for \$1.2 billion for 16 new and 23 remanufactured F-model CH-47 Sea Knights.
- LSI: Boeing Vertol (Philadelphia)



Outlook: **Positive**

Due to operational demand, age of fleet, and limited alternatives.

Potential Winners

C-130J “Hercules”

C: Transport aircraft

- The newest variant of the venerable C-130 Hercules. Includes modern glass cockpit, NVIS compatibility, and more efficient and more powerful Rolls-Royce AE 2100D3 engines.
- Budget increased in 2008 by \$3.96 billion (49%) to \$12 billion, as DOD increased current order by 52 additional units.
- LSI: Lockheed



Outlook: **Positive**

DOD just ordered another 52 units. Operational demand is very high and successes are many for this updated inter- and intra-theater workhorse.

Potential Winners

C-130 AMP

C: Transport aircraft

- The Air Force C-130 Avionics Modernization Program (AMP) standardizes the cockpit configurations and avionics for 14 different mission designs of the C-130 fleet.
- Also incorporates reliability maintainability, and sustainability upgrades and provides increased situational awareness capabilities and reduces susceptibility of Special Operations aircraft to detection/interception.
- LSI: Boeing



Outlook: **Positive**

Official recertification in February 2008. Program has been cutback to 222 units (from entire fleet of 519) due to budget constraints. Additional funding for balance of fleet is likely in the future, given operational demand and success.

Potential Winners

E-2D AHE “Advanced Hawkeye”

E: Electronic mission aircraft

- E-2D AHE is an all-weather, twin engine, carrier-based, aircraft designed to extend early warning surveillance capabilities. The E-2D is a new built aircraft intended to replace the aging E-2 fleet over time.
- Fiscal year 2009 budget includes request for \$1 billion for program development and 3 initial aircraft, scheduled to enter service in 2011.
- Navy hopes to procure up to 75 aircraft to replace the existing aging E-2 fleet.
- LSI: Northrop Grumman



Outlook: **Positive**

Due to increasing demand for more and better “nodes on the network” and age of the existing E-2 fleet. Given proven platform, production problems should be limited and funding for full rate production is likely in the years ahead.

Potential Winners

RQ-4 “Global Hawk”

RQ: Reconnaissance, UAV

- Global Hawk is a high altitude, long endurance unmanned aerial vehicle with integrated sensors and ground stations providing intelligence, surveillance, and reconnaissance capabilities. It flies missions comparable to those flown by the 1960's built U-2 manned reconnaissance aircraft.
- The Global Hawk entered development and limited production in 2001. Considered a transformational system, the program was restructured twice in 2002 to acquire additional and more capable aircraft.
- LSI: Northrop Grumman



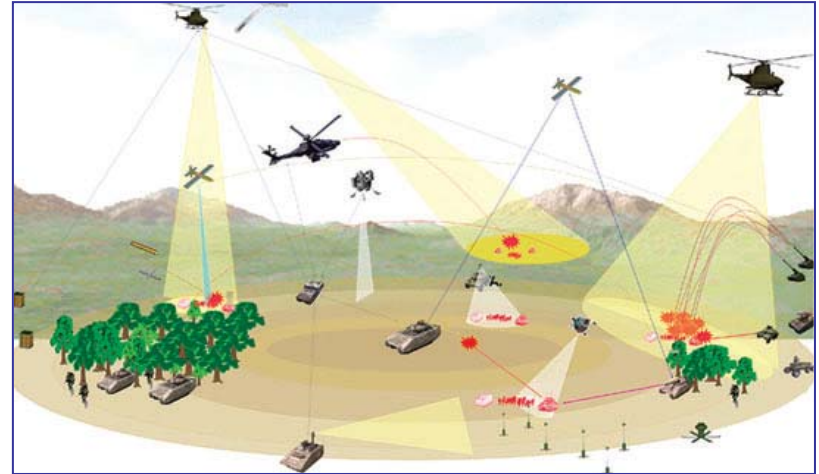
Outlook: **Positive**

Recent Navy award of \$1.2 billion for maritime patrol variant (BAMS) is just another good sign for the Global Hawk. Aircraft is truly transformational and additional operational benefits continue to be realized. Expect continued growth and evolution of this platform.

Potential Winners

Future Combat Systems

- FCS consists of a system of systems designed to provide advanced networked combat intelligence and information to war fighters and their commanders. Nodes on the system will include manned and unmanned ground, air and sea vehicles, unattended sensors and munitions.
- The first increment of the FCS features 18 major systems along with an overarching network.
- Estimated program cost: \$160 billion.
- Army has requested \$3+ billion for FY2009.
- LSI: Boeing



Outlook: **Positive with Caveats**

Because of the proven operational benefits of improved situational awareness and the role of the “network” and “nodes” in Iraq and Afghanistan. Caveats, because of the cost of the system, the immediate need, and the long-lead time to develop and deploy this highly complex system of systems.

Potential Winners

AH-64D “Longbow Apache”

AH: Attack helicopter

- The Longbow is an upgraded and remanufactured variant of the Apache. Operating envelope includes day or night, adverse weather and obscurants, Primary targets are mobile armor and air defense units. Transportable via C-17.
- The US Army has more than 800 Apaches in service, and more than 1,000 have been exported.
- Latest enhancements ensure the Longbow Apache is compatible with the FSC architecture.
- In January 2007, the US Army ordered 96 additional remanufactured helicopters and, in April 2007, 18 new-build helicopters.
- LSI: Boeing



Outlook: **Positive**

Due to proven platform, linkage to FCS, good operational demand, and successes in Iraq and Afghanistan.

Potential Winners

Land Warrior

- Integrated soldier-worn system intended to enhance the lethality, situational awareness, and survivability of dismounted combat and support soldiers.
- Intended to be a system within the system under FCS.
- An integrated ensemble worn by dismounted soldiers that greatly enhances their war fighting combat efficiency and reduces risk of fratricide. Consists of a helmet mounted display, a small computer for situational awareness and navigation and a headset with radio connectivity.
- LSI: General Dynamics



Outlook: **Positive**

Had been cutback \$300 million last year. But talks are underway to allocate \$100 million to immediately outfit an entire brigade combat team in Iraq. If delivered and material operational benefits result, expect to see rapid acceleration in budget and deployment.

Potential Winners

V-22 “Osprey”

V: VTOL/STOL aircraft

- A tilt rotor, short/vertical takeoff and landing aircraft being developed by the Navy for Joint Service applications. Variants designed to meet the amphibious/vertical assault needs of the Marine Corps, the strike rescue needs of the Navy, special operations of the Air Force and the U.S. Special Operations Command.
- The marine variant, the MV-22, will replace the CH-46E (Sea Knight, Model E) and CH-53D (Sea Stallion, Model D) medium lift helicopters of the Marine Corps.
- 167 units to be delivered over 5-years at a cost of \$10.4 billion.
- LSI: Joint venture - Bell Boeing



Outlook: **Positive**

167 unit order confirmed March 2008. Despite a rocky start, this transformational aircraft has proven itself in operations and the outlook is excellent. Only risks now appears to be in regard to production (schedule and quality).

Potential Winners

F35 “Lightening”

F: Fighter aircraft

- The Lightening, formerly known as the Joint strike Fighter (JSF) is a single platform designed (with limited modifications) for the Navy, Air Force, Marine Corps, and U.S. allies. Maximum commonality designed to minimize costs.
- Designed to replace the F-16, which had more than 4,400 airplanes delivered over 35 years to 24 countries.
- LSI: Lockheed



Outlook: **Positive**

Very positive on a long term basis, given that the Air Force continues to plan on taking delivery of 1,700+ aircraft, the Navy and Marine Corps 650+ the 8 international aircraft partners 700+.

Potential Winners

KC-45A “Tanker”

KC: Tanker aircraft

- Contract potentially worth \$100 billion as the Air Force replaces its fleet of roughly 530 mostly Eisenhower-era KC-135 aerial tankers.
- Boeing 767 variant won initial competition but award was rescinded due to federal procurement rule violations.
- LSI: EADS



Outlook: **Positive but....**

The US needs new tankers. But.....this one appears to have a life of its own. Nothing seems to be impossible when it comes to this program.

III. Potential Losers

Potential Losers

What is a “loser”?

- A system viewed as a low priority by war fighters (and their leadership) for current and future defense of the United States
- A system with many visible road blocks
 - Technology
 - Development
 - Integration
 - Implementation
 - Production Quality
 - Proven ability to deliver on schedule
 - Cost
 - Program is on and expected to stay on budget

Losing Is: Reduced Funding Beyond 2008

Potential Losers

AAV “Expeditionary Fighting Vehicle”

AAV: Amphibious assault vehicle

- The Marine Corps Expeditionary Fighting Vehicle (“EFV”) is designed to transport troops from ships offshore to their inland destinations. Designed to replace the AAV-7A1, which is old technology and the fleet is aging.
- Intended for deployment in 201, was renamed from the Advanced Amphibious Assault Vehicle in late 2003. The USMC has reduced the number to be purchased from 1,013 to 573 due to escalations in unit cost and waning support.
- LSI: General Dynamics



Outlook: **Negative**

Cost overruns, design changes and a lack of current operational demand has put tremendous pressure on this program. Unless a specific high risk threat becomes visible in the near term, expect further delays and cut backs to this program.

Potential Losers

F-22A “Raptor”

F: Fighter aircraft

- Originally planned to be the USAF air superiority fighter. Now seeking to also have air-to-ground attack capability. Advanced features include stealth characteristics high speed for long ranges (supersonic without augmenter). Designed to replace the USAF F-15 Eagle.
- Nationwide, more than 900 suppliers contribute to the F-22.
- Initial expected run was 300+ units. Now down to less than 200 – due to costs and budget.
- Current plan is for 184 aircraft at a cost of \$65.3 billion (\$355 million per unit).
- LSI: Lockheed



Outlook: **Negative**

It's a very expensive platform (more than the list price of an A380) and operational demand can be questioned (mission creep: air to ground).

Potential Losers

C-5 “Galaxy” Modernization

C: Transport aircraft

- Two phase program intended to enable the C-5 to fly to 2040.
- Phase 1: Reliability Enhancement and Re-Engining Program (RERP): to enhance the reliability, maintainability, and availability through engine replacement and modifications to major subsystems
- Phase 2: Advanced Modernization program (AMP): designed to enhance avionics.
- Program budget had been as high as \$17.5 billion
- LSI: Lockheed



Outlook: **Negative**

Recent \$6.3 billion cut-back, to \$11.1 from \$17.5 billion. Cut-back included reduction in number of aircraft receiving new engines. Given limited roles in Iraq and Afghanistan, support for this platform may be limited and competing requirements may cause further reductions in investment in the C-5 at this time.

Potential Winners

CVN-78 “The Gerald Ford”

CVN: Nuclear powered aircraft carrier

- Successor to the Nimitz-class. Includes advanced technologies in propulsion, aircraft launch and recovery, weapons handling, and survivability.
- CVN-78 in process. Funding for sister ship, CVN79, has been requested.
- Estimated cost is \$7.5 billion (per ship).
- LSI: Northrop Grumman



Outlook: **Neutral to Negative**

Navy is moving into production of its next-generation aircraft carrier. But the carrier fleet may decline from current level of 12. Expected is 11. But 9 has been talked about.

Potential Losers

Littoral Combat Ship (LCS)

LCS: New Designation

- The Littoral Combat Ship (LCS) is the U.S. Navy's newest surface combatant class. Optimized for shallow seas and operations within 100 miles of shore.
- Navy wants 55 LCSs. Congress originally funded 6.
- Program restructured in 2007 due to significant cost overruns, technical problems, and schedule delays.
- In FY2008, funded provided for just one LCS.
- LSI: Lockheed and General Dynamics



Outlook: **Negative but**

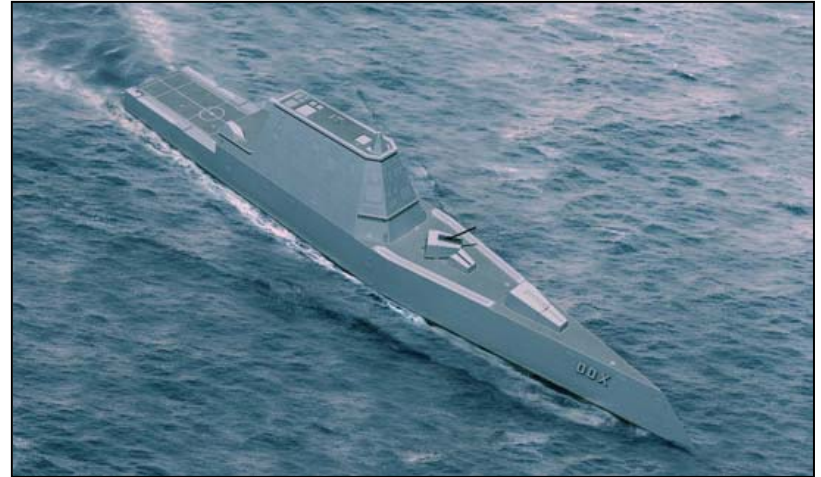
Due to program (mis) management issues, including, but not limited, to substantial cost overruns, quality problems, and schedule delays, this program has been at risk for a while. However, there is a good operational case for the LCS fleet. If LMT and GD can make it (right) on time and on budget, expect increased build rates.

Potential Losers

DDG-1000 “Zumwalt”

DDG: Guided missile destroyer

- Previously known as the DD(X), the Zumwalt is a next generation surface ship designed to provide advanced land attack capability in support of forces ashore. Effectively a replacement for land attack capability the Navy lost in 1990s (when the last of the battleships were decommissioned).
- Navy requesting \$449 million in FY2009 for program development. Estimated total acquisition (development plus procurement) cost for 7 ships is roughly \$30 billion (about \$4 billion per ship).
- LSI: Northrop Grumman and General Dynamics



Outlook: **Negative**

Funding problems likely due to cost (\$4 billion per ship) and limited apparent operational requirement.

Potential Losers

YAL1-A “Airborne Laser”

YAL: Prototype Attack Laser

- The Airborne Laser (ABL) is a key component of the US plans for Missile Defense, which is being developed in incremental, capability-based blocks to destroy enemy missiles during the boost phase of their flight.
- Carried aboard a highly modified Boeing 747 aircraft, ABL employs a beam control/fire control subsystem to focus a high energy chemical laser to rupture the fuel tanks of enemy missiles.
- LSI: Boeing



Outlook: **Negative**

While nation states and non-nation states present a near-term ballistic missile threat, technological risks and budget constraints might cause this program to “shift to the right”.

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