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Exhibit R-2a, RDT&E Project Justification							Date: February 2003		
Appropriation/Budget Activity RDT&E, Defense Wide/BA 7				Project Name and Number Commercial O&S Savings Initiative Project 805					
Cost (\$ in millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Commercial Operations & Support Savings Initiative (COSSI)	22.735	15.504	0	0	0	0	0	0	
RDT&E Articles Quantity * (as applicable)									
<b>A. Mission Description and Budget Item Justification:</b>									
<p>The purpose of the Commercial Operations and Support Savings Initiative (COSSI) is to modernize legacy systems with the spiral insertion of new technology. COSSI is also a crucial element in DoD's strategy to reduce the operations and support (O&amp;S) costs of legacy systems. As systems age, O&amp;S costs increase. COSSI uses technology insertions to lower these costs, typically by increasing reliability. Adapting commercial technologies for use in military equipment requires non-recurring engineering, testing and qualification. COSSI provides the funds for this engineering and testing. If the testing is successful and the cost savings validated, the items are purchased as retrofits. All COSSI projects must have an endorsement from a Military Service customer and be linked to an existing military program of record. The benefits include: increased reliability, improved logistics support by reducing parts obsolescence, reduced software reprogramming time and costs, improved performance, and open system designs making future upgrades easier and less costly.</p>									
<b>B. Accomplishments/Planned Program</b>									
C130 Electronic Propeller Control System Upgrade		FY 2002		FY 2003		FY 2004		FY 2005	
Accomplishment/ Effort/Subtotal Cost		0		2.232		0		0	
RDT&E Articles Quantity *(as applicable)									
<p>The electronic propeller control system (EPCS) for the C-130 is a spin-off of a similar COSSI project for the P-3 started in FY 2000. The project will modify the propeller control system currently used on ATR 42 and ATR 72 regional civil aircraft for use on the C-130. An electronic propeller control and electronic valve housing will replace the mechanical valve housing and synchrophaser. A Maintenance/Balance Panel will be added for maintainability improvements. The new EPCS will increase reliability by a factor of seven from about 1,000 hours to over 7,000 hours.</p> <p>CONTRACTOR: Hamilton Sundstrand Corp., Windsor Locks, CT</p>									
Integrated Malaria Augmentation Package		FY 2002		FY 2003		FY 2004		FY 2005	
Accomplishment/ Effort/Subtotal Cost		0.250		0		0		0	
RDT&E Articles Quantity *(as applicable)									
<p>Malaria constitutes a serious infectious disease threat in many parts of the world. Some U.S. forces contracted malaria during Operation Restore Hope (Somalia) and Operation Uphold Democracy (Haiti). The current method for diagnosing malaria involves microscopic examination of a blood sample and does not lend itself to rapid in-theater diagnosis. This project will modify an existing commercial malaria test and treatment kit for field use and perform the testing needed for Food and Drug Administration (FDA) approval. Although the kit is currently available outside the U.S., FDA approval for sales within the U.S. is required before it can be used by our military personnel. The kit uses test strips instead of microscopic examination and can be deployed in the field. The project started in FY 2001. FY 2002 is allowing the project to be completed.</p> <p>CONTRACTOR: Binax Inc., Portland, ME</p>									
APG Flight Test		FY 2002		FY 2003		FY 2004		FY 2005	
Accomplishment/ Effort/Subtotal Cost		0.750		0		0		0	
RDT&E Articles Quantity *(as applicable)									

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The APG-68 Array Processor (AP) used in the radar of the F-16 will be modernized to increase reliability, reduce operating and support costs, and improve overall performance. The project supports the Falcon Flex flexible sustainment program of the F-16 Logistics Management Directorate. The F-16 will continue to be the backbone of the USAF and NATO forces through at least 2010. The AN/APG-68 radar is the fire-control radar system for most F-16s. This effort will flight test the AP developed under the COSSI program.

CONTRACTOR: CPU Technology Inc., Pleasonton, CA

Enhanced Electronic Characterization and Diagnostics Test System (ECAD)	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost	3.000	0	0	0
RDT&E Articles Quantity *(as applicable)				

NAVAIR and NAVSEA are spending a considerable amount of time and money maintaining the wiring and cables installed on their aircraft and submarines. This proposal describes a commercial technology, originally developed for characterizing the condition of wiring installed in nuclear power plants and commercial aircraft, and how it could be modified to reduce the operations and support (O&S) costs on selected platforms in the Navy - specifically the EA-6B Prowler and the SSN 688 CLASS submarine. This technology, known commercially as the Electronic Characterization and Diagnostic (ECAD) will reduce the O&S costs associated with these two Navy platforms by a conservatively estimated average of \$3.6 million a year.

CONTRACTOR: CM Technologies Inc., Coraopolis, PA

Maintenance Analysis, Safety and Training Program MAST-P for U.S. Army Special Operations MH-47 Chinook Aircraft	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost	1.300	1.970	0	0
RDT&E Articles Quantity *(as applicable)				

This project will install a Health and Usage Monitoring System Processor Module on the U.S. Army Special Forces fleet of MH-47D and MH 47E helicopters. The module will provide the capability to perform embedded diagnostics including rotor track and balance, performance monitoring, exceedance detection, and vibration monitoring. This on board capability will significantly reduce the labor and test flight hours needed for rotor track and balance. Other benefits include a reduction in scheduled and unscheduled maintenance actions, an expected reduction in accidents, and accurate tracking of aircraft usage of flight hours from aircraft data instead of pilot logs.

CONTRACTOR: Smith's Aerospace Inc., Grand Rapids, MI

Synthetic Instrumentation for DoD Automated Test Systems	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost	3.320	0	0	0
RDT&E Articles Quantity *(as applicable)				

The Consolidated Automated Support System (CASS) performs automated testing for all Navy avionics and electronic systems. CASS is based on 1980s technology and is comprised of a collection of individual instruments with unique interfaces. Because it was developed in the 1980s, CASS is experiencing obsolescence problems. Recent commercial technology allows for the development of synthetic instruments that can be configured in real time to perform various test functions. Signals are converted into digital representations which are then analyzed using high speed digital signal processing techniques. As a result, a single "synthetic" instrument can replace numerous single function instruments thereby reducing the logistics footprint and solving obsolescence problems.

CONTRACTOR: Boeing, St. Louis, MO

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F-22 Digital Electronic Warfare Improvement Program	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost	13.740	5.534	0	0
RDT&E Articles Quantity *(as applicable)				
<p>EW receivers are currently based on analog technology dating back to the 1970s. Analog to digital signal conversion technology has progressed far enough to permit the analog receiver to be replaced with a digital one. This project will exploit available commercial technology to develop a new receiver that digitizes incoming signals. A digital receiver will be lighter, more reliable, require less power and be less expensive than the analog receiver it replaces.</p> <p>CONTRACTOR: BAE Systems, Nashua, NH</p>				
T55 Magnetoelastic Torque Sensor	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost		2.434		
RDT&E Articles Quantity *(as applicable)				
<p>Torque measurement system problems result from obsolete electrical components, errors due to temperature changes, low mean time between failures (MTBF), and frequent time-consuming calibrations with unique test equipment. The COSSI effort will demonstrate a form, fit, and function replacement torque measurement system for Chinook Turbine engines. The replacement system will be based on a magneto elastic concept with commercial-off-the-shelf integrated electronics that will provide a simpler and more robust system. Operation and support savings of over \$21 million are expected from this effort as a result of fewer failures, faster torque calibrations, elimination of support equipment and lower demand for spares.</p> <p>CONTRACTOR: Honeywell Engine Systems and Services, Phoenix, AZ</p>				
Nexus Intravenous Delivery System (NIVDS)	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost		3.334		
RDT&E Articles Quantity *(as applicable)				
<p>NIVDS will replace current intravenous (IV) pumps and consumable supplies which are major cost drivers within the military healthcare industry. The disposable NIVDS will reduce the need for 33% of the electronic IV pumps currently used in DoD hospitals today. With over 2,701 census beds in the DOD TRICARE system this translates to a savings of approximately \$1.8 million dollars per year. In addition, NIVDS supports three goals to improve Joint Readiness: 1) reduce weight, 2) reduce cubic feet of supplies and 3) reduce power consumption.</p> <p>CONTRACTOR: Nexus Medical LLC, Lenexa, KS</p>				
Intellectual Property Management Information System	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost	0.375	0	0	0
RDT&E Articles Quantity *(as applicable)				
<p>IPMIS (Intellectual Property Management Information System) is an MIS being developed for all elements of the Department of Defense. The purpose of IPMIS is to track, manage, and report on DoD-wide intellectual property (inventions, patents, licenses, other IP, and related matters). P.L. 106-404 requires annual reporting on patenting and licensing activities; Senate Report 107-151 directs DoD to more aggressively market its IP. This system is being developed to allow us to respond to these congressional directions, but more importantly to identify what DoD owns so we can better manage it for the benefit of the Department.</p> <p>CONTRACTORS: RS Information Systems, McLean, VA BIN Tech Inc, Arlington, VA</p>				

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- C. Other Program Funding Summary:** N/A
- D. Acquisition Strategy:** N/A
- E. Major Performers:** Contractors listed with Project description