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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY 2 - Applied Research			PE NUMBER AND TITLE 0602783A Information and Communication Technology				PROJECT DY10		
COST (<i>In Thousands</i>)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DY10 Computer and Information Science Technology	3777	5173	3987	4141	4258	4354	4369	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project enables the Army to conduct applied research in information and communication technology to enhance situational awareness and speed the decision cycle for commanders of the Future Combat Systems (FCS). Efforts capitalize on computationally intensive approaches that exploit the rapidly evolving capabilities of emerging information technology. Focus is on providing general solutions that can be applied to a wide variety of command and control (C2) problems. Work in this project is consistent with the updated version of the Army Science and Technology Master Plan (ASTMP) and the Army Modernization Plan. Research is concentrated in information technologies that support C2 in a distributed environment and analysis tools that support the C2 process.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 2077 - Completed techniques for distributed and collaborative group support environment that enable geographically separated commanders to collaborate in real-time and conduct battle planning, rehearsal and management tasks. <ul style="list-style-type: none"> - Evaluated collaborative tool set capabilities. - Established metrics to assess effectiveness of collaboration tools and environment. - Provided network monitoring capability with commercial tools (e.g. Operations Network (OPNET)) and built evaluation capability for tactical internet protocol. - Investigated interfaces between information management and network management systems to support intelligent tuning of information distribution process. • 1700 Conducted quantitative and qualitative analyses and evaluations of Y2K data on DoD computer systems by applying mathematical, statistical, and knowledge based formal methods. Provided assurance metric on Y2K compliance. <p>Total 3777</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 3726 - Conduct experiments on distributed and collaborative group support environment in concert with Army Battle Labs. <ul style="list-style-type: none"> - Modify collaborative tool set capabilities based on evaluations. - Incorporate multimodal interfaces into collaboration tools to facilitate operations on the move (from Displays Fed Lab Program). - Incorporate course of action development and analysis tools (from Displays Federated Laboratory Program) into collaboration tools. - Incorporate low bandwidth technology for Video Teleconferencing (VTC) from Displays Fed Lab into collaboration tools to bring capability down to dismounted commander. 									
Project DY10	Page 1 of 3 Pages				Exhibit R-2 (PE 0602783A)				

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<p>FY 2000 Planned Program: (continued)</p> <ul style="list-style-type: none"> - Describe techniques that will allow the Army user to access internet protocol network management information on tactical wireless networks to determine the availability of bandwidth at any given time. Based on this data, generate active database triggering mechanisms that prioritize data packages to be sent. - Provide alternative approaches to Tactical Internet / Intranet routing protocol layer. - Integrate collaboration technologies and transition to CECOM. • 1316 -Evaluate performance of mobile ad hoc network algorithms and self-configuring mobility protocols that support secure multicast streaming for mobile wireless nodes. -Evaluate performance of energy-efficient, self-configuring, ad hoc routing and medium access control algorithms that support unattended ground sensors. -Evaluate performance of automated vulnerability assessment tools that perform continuous assessments of bandwidth-constrained mobile wireless networks and identifies a set of known configuration errors and susceptibilities. • 131 - Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) Total 5173 <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 2625 - Conduct Battle Lab experiments with second generation collaborative technologies and identify technology gaps. - Integrate intelligent agent technologies into collaboration tools. - Utilize planning metrics for display design (developed in Display Fed Lab) to enhance assimilation of information by commanders. - Measure and evaluate performance improvement of information management algorithms responding to network delay feedback. - Conduct experiment to empirically measure overhead due to intranet routing protocols and compare to simulation results. - Provide upgraded collaboration technology modules to CECOM's Command Post XXI Advanced Technology Demonstration (ATD). • 1362 -Evaluate mobile ad hoc network algorithms and protocols integrated with self-configuring mobility protocols that support secure multicast streaming for mobile wireless nodes. -Enhance energy-efficient, self-configuring, ad hoc routing and medium access control algorithms integrated with localization algorithms that support unattended ground sensors. -Enhance automated vulnerability assessment tools with the capability to perform directed assessments of bandwidth-constrained wireless networks to confirm the existence of a set of known configuration errors and susceptibilities. - Transition communications technology to CERDEC in support of FCS ATDs. Total 3987 		
Project DY10	Page 2 of 3 Pages	Exhibit R-2 (PE 0602783A)

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B. Program Change Summary	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (FY 2000/2001 PB)	2170	5210	4012
Appropriated Value	2185	5210	
Adjustments to Appropriated Value			
a. Congressional General Reductions	-15		
b. SBIR / STTR	-49		
c. Omnibus or Other Above Threshold Reprogramming	+1700	-20	
d. Below Threshold Reprogramming	-36		
e. Rescissions	-8	-17	
Adjustments to Budget Years Since (FY 2000/2001 PB)			-25
Current Budget Submit (FY 2001 PB)	3777	5173	3987

Change Summary Explanation: Funding – FY 1999: Emergency Supplemental increase (+1700) for Y2K compliance.