

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

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|-------------------------------------------------|----------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| BUDGET ACTIVITY | PE NUMBER AND TITLE | | | | | PROJECT | |
| 2 - Applied Research | 0602785A - Manpower/Personnel/Training Technology | | | | | 790 | |
| COST (In Thousands) | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate |
| 790 Personnel Performance & Training Technology | 15705 | 16102 | 16412 | 16539 | 16694 | 17055 | 17428 |

A. Mission Description and Budget Item Justification: The objective of this program element (PE) is to conduct the behavioral and social science applied research that will provide the non-materiel solutions to ensure that Soldiers can adapt and excel and improve the Army's capability to fully leverage advances in networks, systems, and technologies as they evolve. This research provides the scientific basis to recruit, select, assign, promote, educate, train, and retain Soldiers and leaders to comprise a ready and relevant Landpower. This research, where feasible, exploits opportunities to enhance Current Force capabilities. The human science applied research conducted in this program element provides knowledge-products, methods, techniques, and tools that will enable the Army to: select Soldiers who are predicted to perform well in future jobs; assign Soldiers to Military Occupational Specialties (MOS) and jobs that better match their skills and abilities; retain an effective career force through improved strategies and incentives to influence Soldiers to stay in the Army for longer periods of time; accelerate the development of leader critical thinking and interpersonal skills through virtual practice so that junior leaders are more adaptable and prepared for uncertain, rapidly changing missions; develop innovative training strategies for complex battle command skills in network-enabled environments; and design training tools for dismounted squad leadership and team maneuver with ground Soldier systems technologies. Additional research is focused on the training techniques and procedures that will make it easier for trainers and training developers to rapidly respond to changes in mission or operational requirements and provide a more synergistic training and education process (e.g., automated and improved diagnostics, coaching and mentoring, performance measures, and feedback methods). This program leverages efforts and coordinates research with a number of other Laboratories and Research, Development, and Engineering Centers including, the Simulation and Training Technology Center (STTC), Natick Soldier Research, Development, and Engineering Center, Army Research Laboratory (ARL), and the Communications-Electronics Research, Development, and Engineering Center (CERDEC). This project is managed by the US Army Research Institute for the Behavioral and Social Sciences (ARI); research in this PE is related to and fully coordinated with efforts funded in PE 0601102-74F and PE 0603007-792. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement.

| <u>Accomplishments/Planned Program:</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> |
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| Personnel: In FY07, designed more precise interactive model of retention and, using model and multivariate analyses, identified strategies emphasizing non-financial behavioral interventions that could potentially improve retention; collected data from operational Soldiers in selected MOS using knowledge, skills and abilities (KSA) assessment measures and evaluated potential to predict preliminary performance data from supervisors; investigated KSA clusters to determine if clustering improves prediction of performance. FY08, conduct experiments to assess effectiveness of potential intervention strategies by field testing with Soldiers in operational settings; based on findings from the field tests and extent the strategies actually relate to retention decisions, revise model and establish empirical strength of strategies to impact Soldier and Officer behavior; develop improved job performance measures as criteria for the KSA measures and clusters using subject matter experts and Soldiers in operational units within selected MOS. FY09, will further validate strategies and develop guidelines to implement strategies and track effects on retention; and collect job performance data and supervisor's performance assessments to empirically test KSA measures/clusters for strength in predicting actual job performance and longer-term Soldier success. | 4882 | 6060 | 6747 |
| Training: In FY07, developed exemplar training methods, and procedures for commanders and staffs performing battle command in networked-enabled environments; in laboratory experiments, assessed the impact of automated feedback alerts on the After Action Review (AAR) process; and identified the collaboration/communication requirements needed between dismounted Soldiers and robotic | 3987 | 3152 | |

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| operators for effective employment of robotic platforms. FY08, develop tools and techniques to support rapid training development for network-enabled battle command; develop and validate procedures designed to enhance battle command and dismounted Soldier digital skills; develop preliminary skill retention curves for establishing refresher training schedules to retain critical digital skills and improve skill retention; and develop methods and procedures to assess the value of a network-enabled alternative to the traditional AAR process. | | | |
| Training: In FY07, conducted lab experiments of training effectiveness of massively multiplayer persistent simulations (MMPS); and identified blended learning approaches and technologies (e.g., mixes of on-site learning, distance learning, web-based instruction, classroom instruction, etc.) that have potential application to Army training. FY08, conduct assessment of MMPS training effectiveness in multi-national coalition warfare experiment; develop alternative blended training approaches and techniques for selected Soldier skills for experimental comparison; and develop preliminary models for alternative collective training systems incorporating various mixes of training aids, devices, simulators, and simulations (TADSS). FY09, will assess methods, techniques, and tools for training battle command skills at multiple echelons; leverage basic and applied research on intelligent agents and integrate into MMPS environment to use for command post and tactical scenarios; begin experiments to assess the effectiveness of alternative blended training approaches for teaching selected basic Soldier skills and improving retention of those skills; will determine differences in AAR requirements across simulation domains; and will evaluate alternative models for effectively training collective aviation tasks in laboratory or simulated exercises. | 4626 | 2952 | 5431 |
| Leader Development: In FY07, developed protocols and metrics for assessing effectiveness of leader development vignettes in operational tests; designed instruments for assessing leader skills and attributes needed for effective performance in high-stress, multi-team, networked systems; and developed prototype training modules for rapid team building. FY08, collect and analyze data to assess the impact of leader skills and knowledge on performance in joint, interagency, and multinational (JIM) environments; design training tools to enhance leader effectiveness in multi-team systems; design prototype training methods to enhance capability of leaders to take a multicultural perspective for mission success; and identify potential influence techniques leaders can use to be more effective in fighting Global War on Terrorism (GWOT). FY09, will further investigate methods and tools designed to improve leader performance in multi-team systems in complex and networked environments; design and test new influence techniques that will be most effective in GWOT scenarios, and improve leader capability for rapid team building. | 2210 | 3669 | 4234 |
| Small Business Innovation Research/Small Business Technology Transfer Programs | | 269 | |
| Total | 15705 | 16102 | 16412 |
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| <u>B. Program Change Summary</u> | FY 2007 | FY 2008 | FY 2009 | |
| Previous President's Budget (FY 2008/2009) | 16021 | 16208 | 16458 | |
| Current BES/President's Budget (FY 2009) | 15705 | 16102 | 16412 | |
| Total Adjustments | -316 | -106 | -46 | |
| Congressional Program Reductions | | -106 | | |
| Congressional Rescissions | | | | |
| Congressional Increases | | | | |
| Reprogrammings | -45 | | | |
| SBIR/STTR Transfer | -271 | | | |
| Adjustments to Budget Years | | | -46 | |