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DoN FY 2004/2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604703N PROJECT NUMBER: L1822
PROGRAM ELEMENT TITLE: Manpower, Personnel, PROJECT TITLE: Manpower, Personnel,
Training, Simulation, and Training, Simulation, and
Item No. 127 Human Factors Human Factors

(U) COST: (Dollars in Thousands)

Project Number & Title	FY 2002 ACTUAL	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	FY 2008 ESTIMATE	FY 2009 ESTIMATE	TOTAL PROGRAM
L1822 Manpower, Personnel, Training, Simulation, and Human Factors	1,257	1,303	1,058	1,166	1,200	1,448	1,475	1,503	CONT.
W3089 Science and Technology Training Transition			883	1,017	1,100	1,161			
TOTAL	1,257	1,303	1,941	2,183	2,300	2,609	1,475	1,503	

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This non-acquisition category program provides funds for continued (but less risky) R&D for broader application of advanced technologies to transition successful 6.3 research proof-of-concept demonstrations into operational use. Development of prototype systems to support and/or improve operational requirements of manpower and personnel sponsors is the primary goal of this Engineering Development Program. The 6.5 R&D Program features the use of a broad range of technologies from cognitive science and ability testing techniques, mathematical modeling and optimization, statistical and econometric forecasting, intelligent systems, data visualization, data mining, simulation, decision support systems, and new database and communications configuration.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RDT&E operational systems development because it encompasses engineering and development of new end-items prior to production approval decision.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2002 ACCOMPLISHMENTS - L1822

- (U) (\$280K) Completed prototype development of the Retention Monitoring System (RMS) in a web-based application and transitioned RMS to full operation at the end of FY 2002.
- (U) (\$205K) Completed development of ARGUS Sailor Surveillance System at the end of FY 2002.

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- (U) (\$100K) Completed refinements of the Assignment Policy Management System (APMS) prototype model, which ensured transition of the model to an operational decision support tool, by the end of FY 2002.
- (U) (\$339K) Continued development of the Distribution 2000 (D2K) prototype system. Designed interactive web pages to access/update user's input to D2K model. Developed D2K interface with the Job Advertisement and Selection System (JASS). Began design of Distribution Monitoring System and Decision Support System. Completed D2K system documentation requirements. Began testing of D2K software.
- (U) (\$183K) Began 6.5 R&D transitioning of the results of a 6.3 R&D project entitled STEAR - Skill Assessment, Training, Evaluation, and Assistance for Recruiters. The 6.5 project will assess skill requirements of recruiters and available recruiter training to improve overall effectiveness of the field recruiter force. The project will determine how the use of technology can enhance recruiter productivity and improve the recruiter's quality of life. Assembled and validated Recruiter Assessment Battery (RAB).
- (U) (\$150K) Began 6.5 R&D transitioning and prototype development of an integrated system of models from a proof of concept demonstrated under the previously successful 6.3 R&D Strength Planning and Budget System Integration (STP/BSI) projects. The new system will address problems in managing enlisted strength planning and budget development and execution, as an integrated system for long and short term.

2. (U) FY 2003 PLAN - L1822

- (U) (\$326K) Complete testing and development of D2K database, the web application, D2K model refinements, as well as prototype development of the Decision Support System (DSS). A report that documents final D2K DSS test results will be written for the distribution community, as well as senior managers/executives.
- (U) (\$225K) Continue the STEAR (Skill Assessment, Training, Evaluation, and Assistance for Recruiters) project. Revise the Recruiter Assessment Battery (RAB) based on the results of data validation analyses. Begin pilot testing of web-based RAB by administering the assessment battery to field recruiters.
- (U) (\$250K) Continue 6.5 R&D transitioning of the Strength Planning and Budget System Integration (STP/BSI) project. Modify model reports to reflect strength and forecast loss and gain rates by gender. Develop data and forecasts for members of the Individuals Account (IA). Develop strength modeling for a

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generalized network approach. Develop business objects to provide more intelligent and sophisticated tools for strength planning. Develop computer based training for enlisted strength planners.

- (U) (\$150K) Begin development of URL Officer Career Path Simulation prototype model by leveraging the SWO Career Path Simulation Prototype model, which serves as a proof of concept. This effort will result in a URL career path simulation tool that will provide a definitive view of the billet structure in the URL communities so planning and guidance for healthy community management purposes can be attained.
- (U) (\$200K) Begin 6.5 R&D transitioning to operational use of Comprehensive Officer Force Management Environment models/system (CHROME) by developing a prototype that supports officer force management decision-making in N13/N1. CHROME will include an automated decision support model that identifies leading indicators of retention and develops a tracking mechanism to predict potential manpower trends. The decision support model will allow manual updates of leading indicators and provides a then current trend analysis for effectively monitoring and managing the well-being of the Officer Force.
- (U) (\$152K) Begin 6.5 R&D transitioning to operational use of Models of Navy Compensation and Personnel Behavior (ModCOMP) by developing a prototype that supports N13 Military Compensation decision-making. Develop a number of basic and fundamental models and elements of compensation; models and elements of compensation that consider the behavioral relationship between compensation and retention and attrition.

3. (U) FY 2004 PLAN - L1822

- (U) (\$218K) Complete STEAR (Skill Assessment, Training, Evaluation, and Assistance for Recruiters) project. Produce guidelines to the sponsor for instituting final version of RAB.
- (U) (\$200K) Continue 6.5 R&D transitioning of the Strength Planning and Budget System Integration (STP/BSI) project. Complete strength modeling and computer based training for enlisted strength planners. Develop ability to retrieve data from PERSMART.
- (U) (\$150K) Continue development of URL Officer Career Path Simulation prototype model. Implement Data Collection Plan for model use. Extend application of the model to Aviator Community. Develop input and

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output reporting requirements and analyze data for full implementation. Map Submarine and Fleet Support Officer Career Milestones in preparation of extending model application to these communities in FY 2005.

- (U) (\$190K) Continue 6.5 R&D transitioning to operational use of Comprehensive Officer Force Management Environment models/system (CHROME). Compare Strength Planner and Officer Community Manager forecasts and actual data. Develop capability to allocate officer accessions within the model platform. Develop capability to plan officer promotions within model platform. Develop capability to predict out-year officer strength losses. Develop capability to account for external variables that influence changes to the officer force. Incorporate pay-grade changes that occur with actual losses and add graphical output.
- (U) (\$150K) Continue 6.5 R&D transitioning to operational use of Models of Navy Compensation and Personnel Behavior (ModCOMP).
- (U) (\$ 50K) Begin 6.5 R&D transitioning of Training Continuum and Readiness Modeling (TCARM) system to operational use by developing a prototype that supports N13, NPC-4, and NETC training quota control and personnel management of assignment/reassignment actions involving en-route training. Capitalize on prior 6.3 R&D proof of concept modeling efforts.
- (U) (\$100K) Begin 6.5 R&D transitioning to operational use of Rating Identification Engine (RIDE). Demonstrate Skill-Job Matching Algorithm known as RIDE; a broad spectrum assignment algorithm that optimally assigns individuals to jobs, increasing job options for recruits while reducing training attrition, increasing first-pass A-school success, and maximizing average school and job performance.

3. (U) FY 2004 PLAN - W3089:

- (U) (\$200K) Develop prototype tools and technologies for real-time performance assessment and scenario redesign. The purpose of this program is to leverage work done on intelligent agents and authoring tool projects to produce prototype products that will support a Battle Group or Joint training staff and training audience with electronic performance support for human performance assessment and scenario redesign in the Battle Group or Joint training environment. Prototype capability would support the Fleet in the rapid authoring of various types of human performance metrics to be used in training individuals and

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teams while deployed. The measurement of human performance is a cornerstone capability to achieve a revolution in training.

- (U) (\$215K) Develop prototype low-cost COTS/GOTS simulation systems to improved, collective/team training, mission planning and mission rehearsal. The program would leverage work done on micro-simulator systems, interoperability using the high level architecture (HLA), team dimensional training, to increase participant access to and training capacity of existing distributed simulation networks. The tradeoffs between physical, functional and environmental fidelity of low-cost and training capability have not been well defined although evidence clearly suggests positive transfer of training from use of low-cost simulation systems for individuals and teams. With reconfiguration low-cost "microsimulator" devices costing less than 5% of a medium fidelity device, many individual and team tasks can be trained earlier, more frequently, and with less skill perishability.
- (U) (\$468K) Develop prototype E-learning mentoring, tutoring and performance support design strategies and tools and develop prototype model and capability in E-learning environments. The strategies used for authoring content for reuse are markedly different than traditional methods for authoring and deploying content. This prototype effort would integrate current E-learning technologies including content packaging best practices for reusable learning content, learning management systems, authoring tools, knowledge management tools, synchronous and asynchronous communications technology and provide a capability to test alternative curriculum design, development and deployment strategies. The result of this effort would be used to develop future development guidelines and standards so that publications, technical data, training data, and learning assets could be authored once and reused in a variety of delivery modes (hand-held computer, web-based, CD-ROM, print, job performance aids, etc) to support instructor led training in both classroom and web environments, stand alone web-based or CD-ROM based training, performance support for the Sailor at the deckplate, and integration of mentoring tools and techniques for career development. The program would leverage work done on microsimulator systems, interoperability using the high level architecture (HLA), team dimensional training, and human performance measurement to provide very low-cost (<\$100K per unit) part task devices to increase participant access to and training capacity of existing distributed simulation networks.

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4. (U) FY 2005 PLAN - L1822

- (U) (\$ 80K) Complete prototype development of the models for the Strength Planning and Budget System Integration (STP/BSI) project and implement system enhancements, as required.
- (U) (\$186K) Complete prototype development of URL Officer Career Path Simulation model. Finalize input and output reporting requirements and prepare for full implementation. Extend application of the model to Submarine and Fleet Support Officer Communities. Validate the model across all URL communities.
- (U) (\$215K) Complete prototype development of Comprehensive Officer Force Management Environment models/system (CHROME) that supports N13 officer force management decision-making. Support model implementation and training. Finalize and standardize programs and data generation processes. Develop a Technical Report to report findings and transition into full operation.
- (U) (\$200K) Complete prototype development of the Models of Navy Compensation and Personnel Behavior (ModCOMP).
- (U) (\$75K) Continue 6.5 R&D transition of Training Continuum and Readiness Modeling (TCARM) system to operational use by developing a prototype that supports N13, NPC-4, and CNET training quota control and personnel management of assignment/reassignment actions involving en-route training.
- (U) (\$260K) Continue 6.5 R&D transitioning to operational use of Rating Identification Engine (RIDE). Demonstrate Skill-Job Matching Algorithm known as RIDE; a broad spectrum assignment algorithm that optimally assigns individuals to jobs, increasing job options for recruits while reducing training attrition, increasing first-pass A-school success, and maximizing average school and job performance.
- (U) (\$150K) Begin transition of Enlisted Manpower and Personnel Integrated Planning System (EMPIPS) to operational use by developing a prototype that supports N13 Officer and Enlisted Strength Planners. Demonstrate the feasibility of a personnel decision support system that exploits advanced technology for intelligent monitoring of personnel data and cross-functional evaluation of alternative policy scenarios. Integrate disparate data into an information conduit that provides timely and accurate officer and

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enlisted personnel information to populate current and future manpower and personnel decision support systems. Demonstrate accurate retrieval and integration of data into standardized information windows.

(U) FY 2005 PLAN - W3089:

(U) (\$265K) Continue develop prototype tools and technologies for real-time performance assessment and scenario redesign.

(U) (\$275K) Continue prototype low-cost COTS/GOTS simulation systems to improved, collective/team training, mission planning and mission rehearsal.

(U) (\$477K) Continue prototype E-learning mentoring, tutoring and performance support design strategies and tools and develop prototype model and capability in E-learning environments.

B. (U) PROGRAM CHANGE SUMMARY:	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) FY 2004/2005 DoN/OSD Budget:	1,300	1,331	1,376	1,421
(U) Adjustments from DoN/OSD Budget:	-43	-28	+565	+762
(U) FY 2004/2005 President's Budget:	1,257	1,303	1,941	2,183

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 2002 funding adjustment of -43K consists of -26K BTR and miscellaneous cuts totaling -17K. FY 2003 adjustment of -28K consists of mostly cuts for Inflation Savings (-14K), Economic Savings (-7K), and Business Process Reform (-5K). Another -2K cut is for a reduction in IT Cost Growth. FY 2004 program adjustments +1,015; programmatic adjustments of -369K; inflation adjustment - - \$81K. FY 2005 program adjustments; +\$1,060; programmatic adjustments of -298K consists of funding realignment of (-251K) and inflation adjustment of -\$47K.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

- (U) PE 0601152N, In-House Independent Lab Research
- (U) PE 0601153N, Defense Research Sciences
- (U) PE 0602233N, Mission Support Technology
- (U) PE 0602722A, Personnel and Training
- (U) PE 0603707N, Manpower, Personnel and Training Advanced Technology Development
- (U) PE 0603731A, Manpower and Personnel
- (U) PE 0603704F, Manpower and Personnel Systems Technology

(U) SCHEDULE PROFILE: Not applicable.