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FY 2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 2004

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604703N PROJECT NUMBER: 1822
 PROGRAM ELEMENT TITLE: Manpower, Personnel, Training, Simulation, and Human Factors PROJECT TITLE: Manpower, Personnel, Training, Simulation, and Human Factors

COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total PE	1,383	1,919	3,005	3,109	4,046	2,883	2,886
1822 Manpower, Personnel, Training, Simulation, and Human Factors	1,383	1,046	1,993	2,012	2,887	2,883	2,886
3089 Training and Educational R&D Transition	0	843	1,012	1,097	1,159	0	0

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(U) COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	FY 2008 ESTIMATE	FY 2009 ESTIMATE	TOTAL PROGRAM
1822 Manpower, Personnel, Training, Simulation, and Human Factors	1,383	1,046	1,993	2,012	2,887	2,883	2,886	CONT.

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 2003 PLAN:

- (U) (\$187K) 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) (\$212K) 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) (\$246K) 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 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) (\$161K) 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.

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- (U) (\$198K) 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) (\$163K) 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.
- (U) (\$216K) Begin 6.5 R&D transitioning to operational use of FLEET RIDE for by Career Counselors in the Fleet during conversion or reclassification process to increase manning in critical skills and to improve Fleet Readiness.

2. (U) FY 2004 PLAN:

- (U) (\$160K) Complete STEAR (Skill Assessment, Training, Evaluation, and Assistance for Recruiters) project. Produce guidelines to the sponsor for instituting final version of RAB.
- (U) (\$247K) Complete 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) (\$176K) 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 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).

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- (U) (\$473K) 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.
- (U) (\$150K) Begin transition of FLEET ARGUS / ARGUS Quesry System.
- (U) (\$181K) Begin transition of CNP Quick Polling System.
- (U) (\$200K) Begin transition of JOIN / FLEET JOIN System.

3. (U) FY 2005 PLAN:

- (U) (\$250K) Complete prototype development of FLEET ARGUS / ARGUS Quesry System.
- (U) (\$187K) Complete prototype development of CNP Quick Polling System.
- (U) (\$186K) Continue 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) Continue 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) Continue prototype development of the Models of Navy Compensation and Personnel Behavior (MODCOMP).
- (U) (\$305K) 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) (\$400K) Continue 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) (\$300K) Begin transition of Enterprise Management System.
- (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 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.

B. (U) PROGRAM CHANGE SUMMARY:

FY 2003

FY 2004

FY 2005

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(U) FY 2004 President's Budget:	1,303	1,058	1,166
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(U) Adjustments to FY2004 President's Budget:			
Misc. Adjustments	80	-12	827

(U) FY 2005/2006 President's Budget:	1,383	1,046	1,993
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(U) Schedule: Not applicable.
(U) Technical: Not applicable.

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.

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COST: (Dollars in Thousands)

Project Number & Title	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
3089--Training and Education R&D Transition		873	1,012	1,097	1,159		

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Every major study on Navy Training (e.g. Zero-based Review (ZBT), Navy Research Advisory Committee (NRAC), Naval Studies Board, Executive Review of Navy Training (ERNT), Strategic Studies Group, Revolution in Training (SSG RIT)) conducted over the past decade has indicated the need for a Development, Test and Evaluation (D, T&E) program for emerging training technologies. This non-acquisition category program provides funds for continued R&D for broader application of advanced training technologies and the science of learning to transition successful 6.3 research proof of concept demonstrations and rapid prototyping of COTS/GOTS technologies into operational use. Development of prototype systems to support and/or improve operational requirements of training sponsors is the primary goal of this Engineering Development Program. Demonstrations of the 6.3 R&D training technologies have significantly reduced knowledge acquisition times and cost to the Navy. For example, intelligent tutoring has been shown to significantly reduce time (up to 30%) to acquire complex knowledge and skills, and accelerate knowledge acquisition (by 1-2 standard deviation) over traditional training methods. Team dimensional training has demonstrated up to a 60% improvement in tactical teamwork skills. 6.3 programs like Interactive Multisensor Analysis Training (IMAT), and visualization technologies have decreased time to qualify and have been documented and endorsed as a fleet requirement. Reduced manning initiatives require training solutions that will accomplish the training in less time and with fewer instructors. Current acquisition initiatives are unable to incorporate many of the technology developments that would reduce training time and trainers due to the lack of funds to support prototype development on specific platforms or at schoolhouses. This 6.3 program features the use of a broad range of maturing technologies from the science of learning and cognitive science, learning object design and development, learning delivery technologies, and human performance technologies and also push the envelope on new technologies. Further Engineering Development and Test/Evaluation is needed in support of the Capable Manpower Future Naval Capability investment strategy to prepare technologies for Fleet/School implementation.

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B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0	0.173	0.254
RDT&E Articles Quantity				
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 teams while deployed. The measurement of human performance is a cornerstone capability to achieve a revolution in training.				

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0	0.182	0.259
RDT&E Articles Quantity				
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, 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. The tradeoffs between physical, functional and environmental fidelity of low-cost systems 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 reconfigurable 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.				

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0	0.518	0.499
RDT&E Articles Quantity				
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, learning content 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.				

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C. PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
Funding:			
Previous President's Budget:	.000	.883	1.017
Current President's Budget:	.000	.873	1.012
Total Adjustments	.000	- .010	- .005
Summary of Adjustments			
Economic Assumptions			- .004
Reprioritization		- .010	- .001
Subtotal	.000	- .010	- .005

Schedule:
Not Applicable

Technical:
Not Applicable

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
BLI 070500 Common Ground Equipment	164.490	165.609	174.886	184.741	139.058	135.109	143.443

E. ACQUISITION STRATEGY:

(U) Acquisition strategy will rely on extensive market surveillance and market research and include a combination of competitive commercial and non-developmental item procurements with competitive integration and support contracts. Most hardware/software system contracts will be firm-fixed price. Integration and support contracts will be a combination of firm-fixed price and cost type contracts. Project will use an integrated project team approach to manage the requirements, development, integration, testing and support of fielded prototypes.

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Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NAWCTSD, Orlando, FL				0.172	4-Apr	0.221	5-Jan	0.542	0.935	
Ancillary Hardware Development	WR	NAWCTSD, Orlando, FL				0.02	4-Apr	0.021	5-Jan	0.047	0.088	
Aircraft Integration											0	
Ship Integration											0	
Ship Suitability											0	
Systems Engineering	WR	NAWCTSD, Orlando, FL				0.087	4-Apr	0.051	5-Jan	0.106	0.244	
Training Development	WR	NAWCTSD, Orlando, FL				0.069	4-Apr	0.081	5-Jan	0.177	0.327	
Licenses	WR	NAWCTSD, Orlando, FL				0.025	4-Apr	0.027	5-Jan	0.057	0.109	
Tooling											0	
GFE	WR	NAWCTSD, Orlando, FL				0.02	4-Apr	0.021	5-Jan	0.047	0.088	
Award Fees											0	
Subtotal Product Development			0	0		0.393		0.422		0.976	1.791	

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCTSD, Orlando, FL				0.05	4-Jan	0.056	5-Jan	0.13	0.236	
Operational Test & Evaluation	C/FFP	TBD						0.051	5-Apr	0.13	0.181	0.181
Live Fire Test & Evaluation											0	
Test Assets											0	
Tooling											0	
GFE											0	
Award Fees											0	
Subtotal T&E			0	0		0.05		0.107		0.26	0.417	

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Fiscal Year	2002				2003				2004				2005				2006				2007			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Milestones																								
Prototype Development																								
Learning Content Mgt architecture and guidance									△				△											
COTS / GOTS simulation Systems Prototypes									△				△				△				△			
Prototype authoring tools for scenario development and human performance measurement											△	△												
Test & Evaluation Milestones											DT				DT				DT					
Development Test																								
Operational Test																								
Production Milestones																								
Deliveries																								