PMA-282 Roadmap & Technology Needs

Lindel Holden, NSWCDD
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TWCS Improvement Concepts

- Support of Time Critical Strike
- Human Centered System Design
- Land Attack Warfare Integration
- Open, Maintainable Computing Architecture
TTWCS Evolution Roadmap

**TTWCS Builds**

**v5**
- SSGN Seawolf/VA Class
- Torpedo Tube Launch (TTL)
- TTWCS+NFCS
- Integrated Training Architecture Level 1-3
- Common Build
- Task Manager
- Tactical Decision Aids: Post Launch Control, Cell Preselect, Improved Automated Engagement, semi auto operation

**v6**
- Fully implement Task Centered HCI Design
- Presentation Layer
- Strike Planning and Coordination Upgrades
- Common Digit
- Integrated Land Attack Weapons System
- Tactical Decision Aids
- Integrated Training Architecture Level 4 & 5
- Strike Planning and Coordination Upgrades
- SAASM/P
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**v7**
- Dynamics Optimized Team Performance SBIR
- Intelligent Advisor for HCI Design SBIR
- Computing Architecture Studies Required
- Multi-Level Security Development Initiative

**v8 and Beyond**
- Global Information Grid Enterprise Services
- Optimization of Loitering Weapons SBIR
- Visualization and Predictions of Ground Vehicle Movements SBIR
- 4-D Battlespace Visualization Required

**FY03**
**FY04**
**FY05**
**FY06**
**FY07**
**FY08**
**FY09**

* POM-06 funding issue
Complementary Initiatives

• Small Business Innovative Research (SBIR):
  • Current Projects:
    • Intelligent Advisor for HCI Design:
      • Phase II began August 2003
    • Multimodal Interface Design Advisor
      • Phase II began December 2003
    • Automated Transition from Usability Prototype to Tactical Software
      • Phase II began March 2003
    • Intelligent Test Data Analysis Technology
      • Phase II award in near future
    • Optimizing Planning & Decision Support for Loitering Weapons
      • Downselect for Phase II in progress
  • Topics in pre-solicitation: (1 May)
    • Display & Visualization of Ground Vehicle Movement Predictions
    • Automated Software Analysis of Large, Mixed-Programming Language Systems
PMA 282 Technology Needs

• Operator/Team Support
• C4I Support
• Weapon Employment
• Computing
• Lifecycle Support
• Development Tools
PMA 282 Technology Needs

Operator/Team Support
• Operator & Team Workload Management
• Task Automation
• Doctrinal Control of Tasks
• Advanced Human Systems Integration
• Tactical Decision Support
• State-of-the-Art Training

C4I Support
• Assured, Timely Delivery of Tactically Relevant Data
• Robust Weapon Data Links
• Distributed Database Technologies
PMA 282 Technology Needs

Weapon Employment

- Expanded In-Flight Missile Monitoring & Control
- Dynamic Loiter Planning
- Battlespace Deconfliction
- Battle Damage Assessment
- Advanced Land & Maritime Tracking Algorithms

Computing

- Advanced Computing Architectures
- Dynamic Fault Tolerance
- Dynamic Load Balancing (Processing)
PMA 282 Technology Needs

**Lifecycle Support**
- Remote Software Upgrade
- Remote Support
- Simplified/Automated System Administration & Maintenance

**Development Tools**
- Tools to Support Simulation-Based Acquisition
- Improved Software Portability Tools
- User-Centered Design Tools
- Manpower Analysis
- Software Development Tools
- Test and Evaluation Support
- Human/Team Performance Assessment
PMA-282 Point of Contacts for Weapons ATRB

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