NATO Future Weapons R&D

SCI-P130ET

Integration and Interoperability Issues for Dismounted Soldier System Weapon Systems
1. NATO – Big Organization, Many Structures

2. NATO Army Armaments Group – NAAG
   • Topical Group 1 (Soon to be called Land Group 1)
   • Weapons and Sensors Group

3. Research and Technology Agency
   • Panel on Systems, Concepts and Integration
   • SCI – P130 Exploratory Team on Future Weapons
NATO Soldier System Approach

• Topical Group 1 Soldier Systems Interoperability
  • Soldier System
    – Weapons Sub-System
    – C4I Sub-System
    – Headborne Sub-System
  • Soldier as a System / Soldier Modernization Programs:
    – Future Infantryman (Germany)
    – Land Warrior (US Army)
    – Future Integrated Soldier Technology (UK)
    – ISSP (Canada)
    – Advanced Integrated Fighting System (Slovak Republic)
    – MARKUS (Sweden)
    – NORMANS (Norway)
What is the Problem?

• Weapons:
  – Weapons manufacturers produce weapons – which met the requirements of the 20th century military. The Soldier System requires a new, innovated, integrated solution.

• Interfaces:
  – Traditional interfaces may not meet the needs of future Soldier Systems.

• Power:
  – No power management concept exists.
SCI-P130ET Technical Activity Proposal (TAP)

- **Focus:** The Weapons Sub-System of the Soldier System.

- **Objective:**
  - Conduct a scientific study on interoperability for future technical interfaces, human factors, and power management of weapon systems as they are developed and fielded.
  - Identify areas for NATO standardization.

- **Product:**
  - Possible symposiums & workshops.
• 1\textsuperscript{st} Meeting:
  – 24-25 Jan 2005
  – Paris, France
  – Defined & agreed on the TAP – Technical Activity Proposal

• 2\textsuperscript{nd} Meeting:
  – 11-13 May 2005
  – MCB Quantico, VA
  – 1 live fire day
  – 2 days drafting Program of Work

• Program Of Work: Begins 1 Jan 06
  – NO NEW GROUP MEMBERS AFTER 1 JAN 06
• Topics:
  – Technical Interfaces:
    • Mounting Architecture
    • Design Considerations
    • Weapons & Ammunition interface
  – Human Factors:
    • Design considerations, trade-offs, & limitations
    • Firing techniques
    • Weapon interfaces
  – Power
    • Providing, generating, & harvesting power.
    • Common connectors, cabling, & routing.
Technical Interfaces

• Mounting architecture for:
  - Optics
  - Data interfaces
  - Target ID
  - Target Location
  - C4I?
Technical Interfaces

• Design Considerations:
  – Physical – size & weight
  – Sighting & Fire control systems
  – Man Machine Interface
  – Data Interfaces
Technical Interfaces

- Weapon & Ammunition Interface:
  - Physical
  - Data – lethal, non-lethal, programmable
Human Factors

- Define the Human Systems Integration Principles
- Weapon / User interface
- Non-traditional designs
- Trade-offs:
  - Weight & size
  - Balance
  - Recoil
- Information distribution
  - From weapon system
  - To weapon system
- Effects based design:
  - Weapon system error budget should be reduced
  - ‘Traditional’ approach may not be the optimal
Power

• #1 requirement for the future Soldiers & Soldier Systems

• How do we:
  – Provide
  – Generate
  – Harvest
  – Distribute

• Centralized vs. Decentralized sources

• Storage
The Challenge

• What is the Team (NATO Military Customers) looking for?
  – An integrated Weapons Sub-System that is greater than the sum of it’s parts.
  – input, information, ideas…

• What does industry get in return?
  – Future requirements will DEMAND an integrated Weapons Sub System.
  – A focus for industrial R&D.
Participating Countries:
- Canada
- Germany
- Italy
- Netherlands
- Slovak Republic
- Sweden
- United Kingdom
- United States
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