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ADP013519

TITLE: MEADS - A New Way of Doing International Development

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TITLE: AIAA 2002 Missile Sciences Conference [Classified and
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MEADS – A New Way of Doing International Development



MEADS – A New Way of Doing International Development

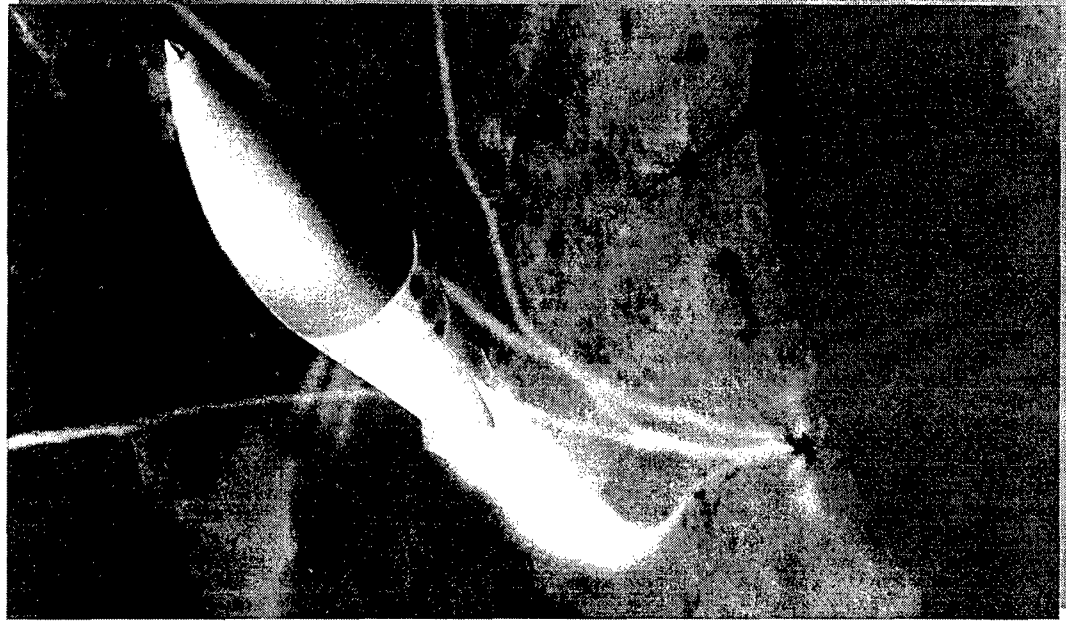
November 2002

World Class
Air and Missile Defense
for the 21st Century

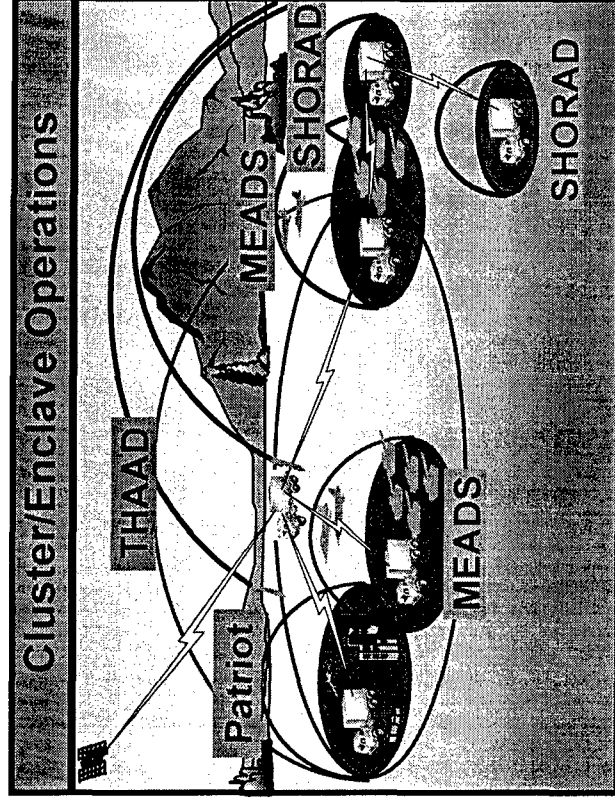
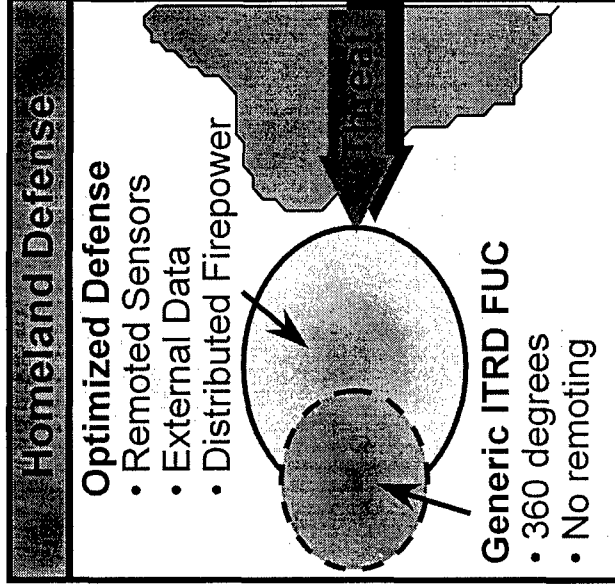
Medium Extended Air Defense System

Outline

- Roles & Missions
- Performance Challenges
- Participating Companies & Countries
- Program History
- System Operation
- Radar Sensors
- Certified Missile Round (CMR)
- Simulations
- Current Status
- Summary



Combat Operations **Homeland/Cluster Defense**



Tailored Defense Achieves Extended Coverage

- A priori knowledge of threat attack azimuth
- MEADS integrated with other defense assets
- Integrated approach allows acceptable risk while extending coverage

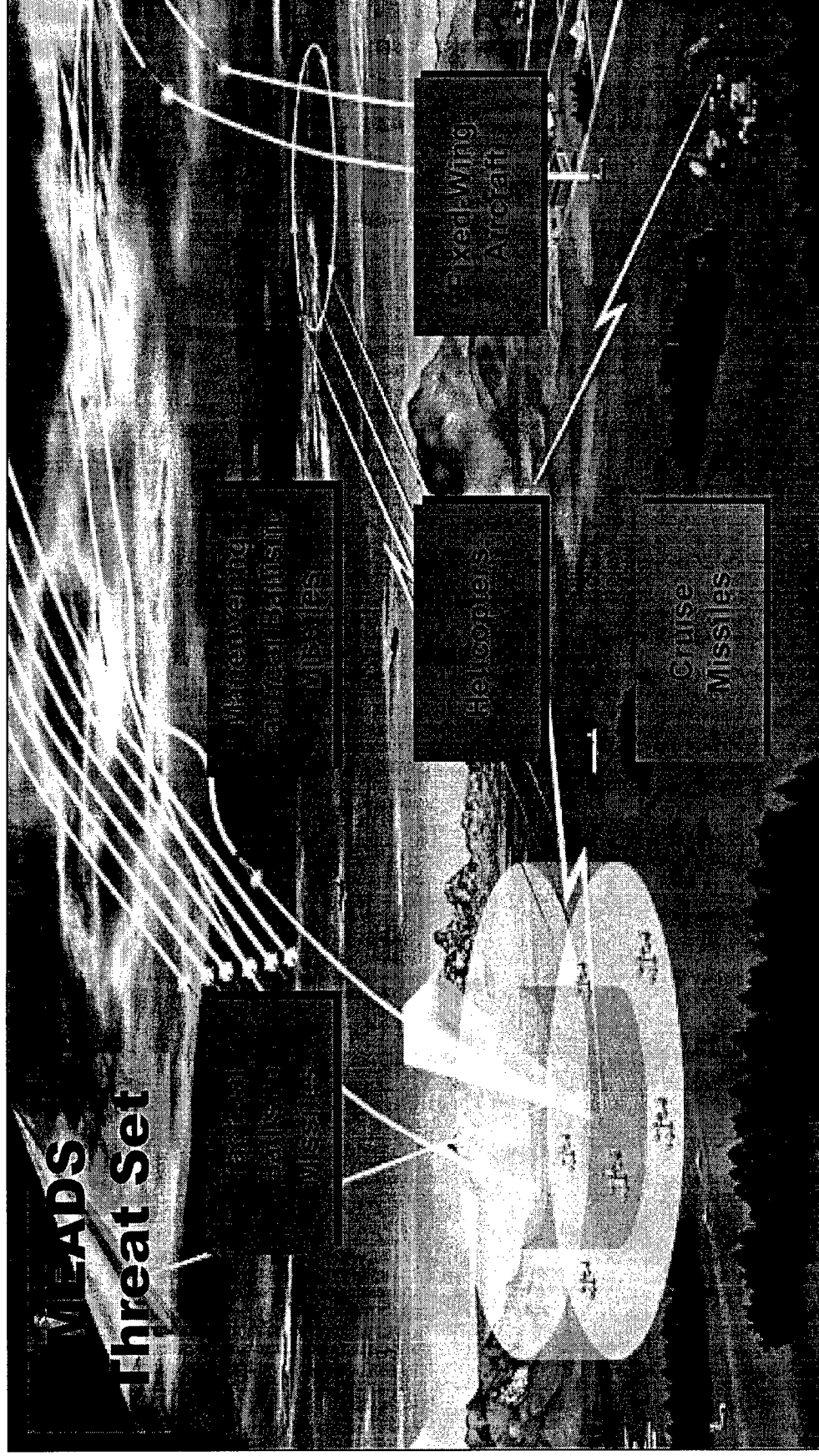
MEADS BMC4I Enables Seamless Integration

- FO planning capable of including complementary system contributions
- Common protocols, communications, and battle management rules facilitate operations



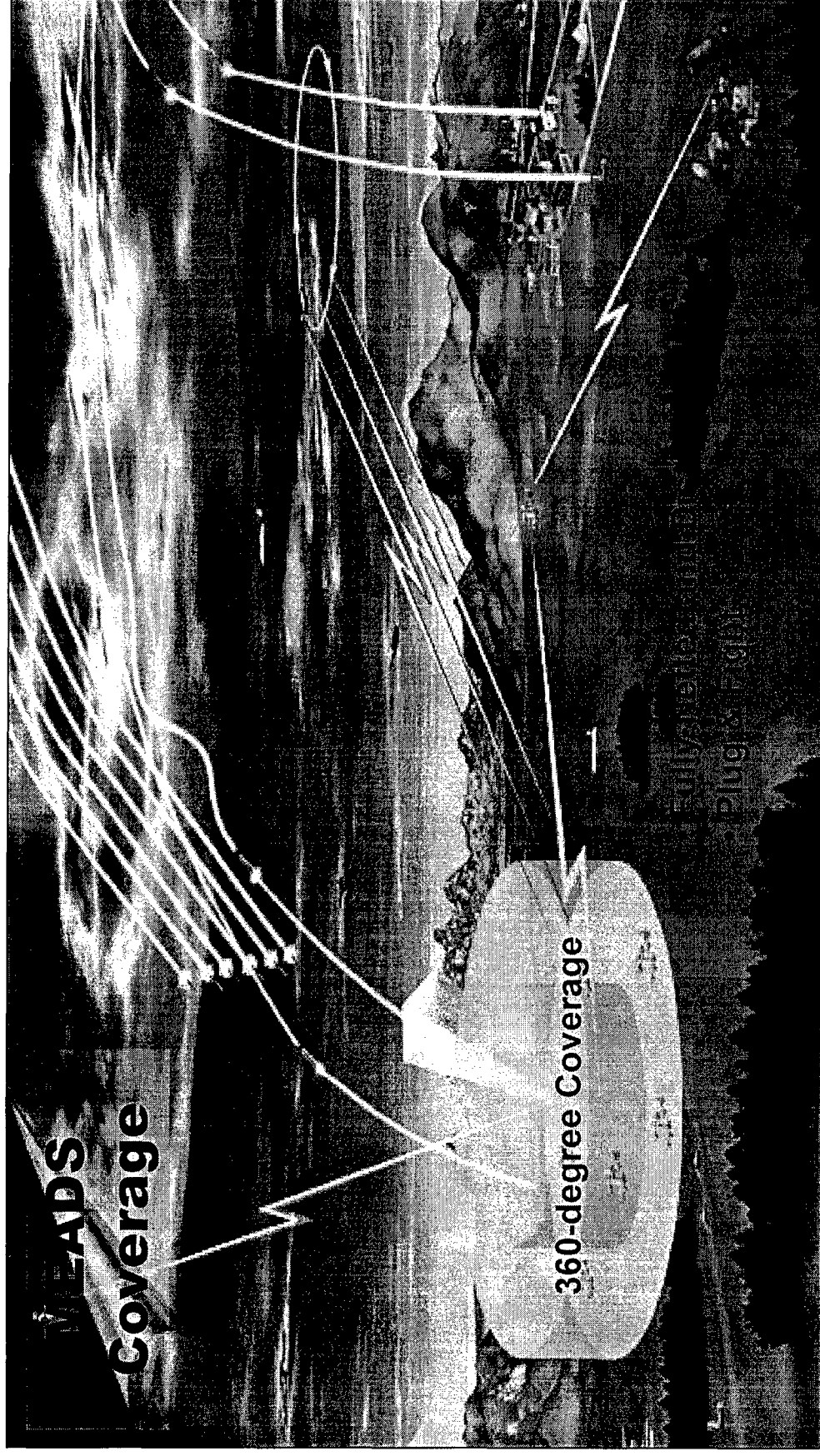
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MEADS Performance Requirements



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MEADS Performance Requirements



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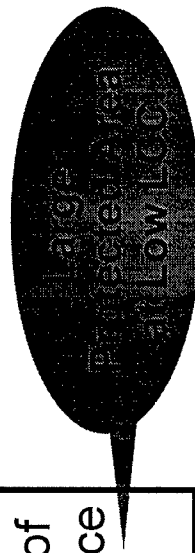
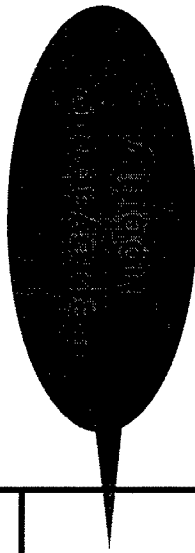
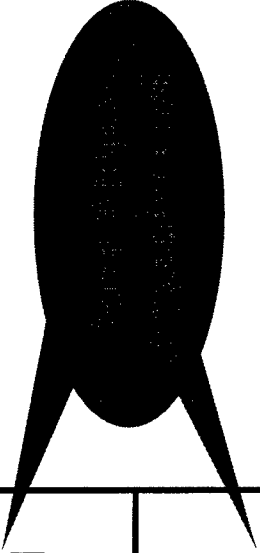
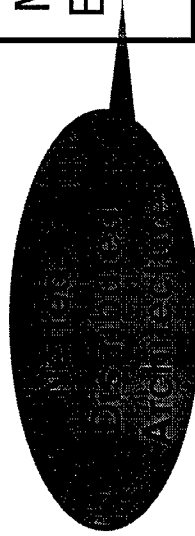
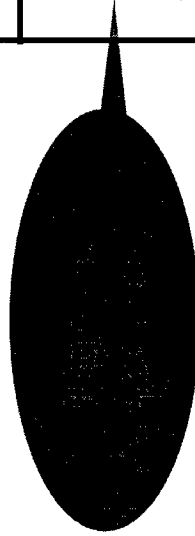
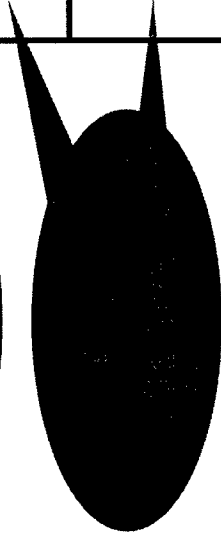
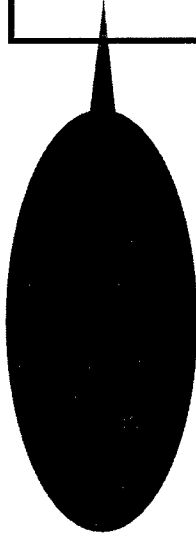
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So Many Threats, So Little Time



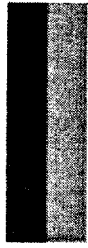
Powerful Ground Sensors and Seeker	Autonomous Missiles and Flexible Ground Sensors
Fast Missile	High Fire Power Launchers
Accurate Seeker and Agile Missile	Weight/Size Limitations
Multiple Major End Items and Comm Net	Small Number of High Performance End-Items



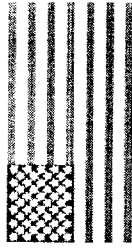
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MEADS Program Structure



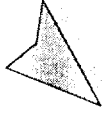
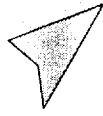
Germany



United States



Italy



NAMEADSMA

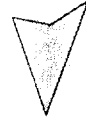
General Manager – General Franco Parisi (Italy)

Deputy General Manager – Chester Domaracki (US)

Lockheed
Martin



MEADS
International



euroMEADS

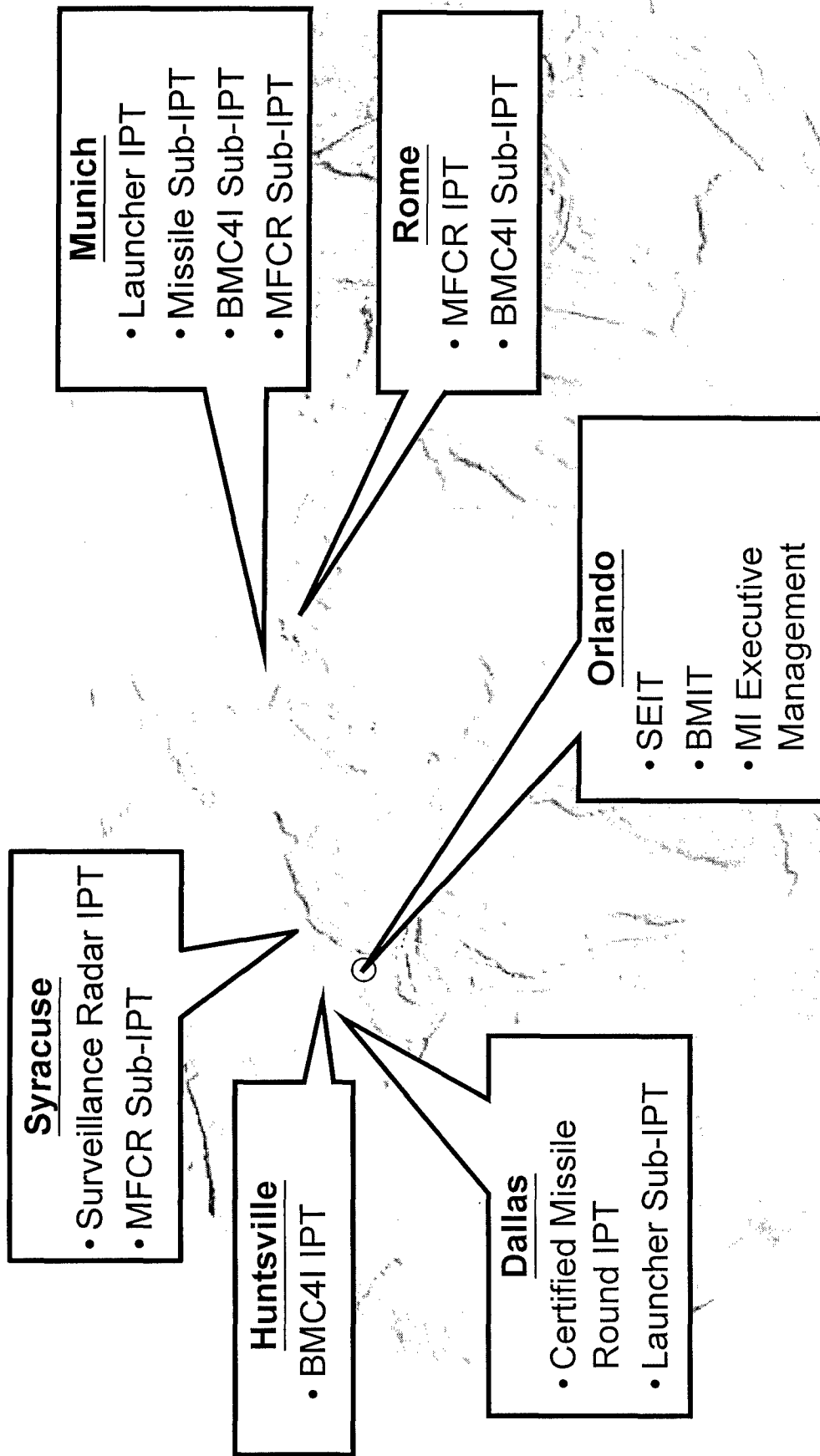
Formed by

- EADS
- EADS/ILFK
- MBDA Italia

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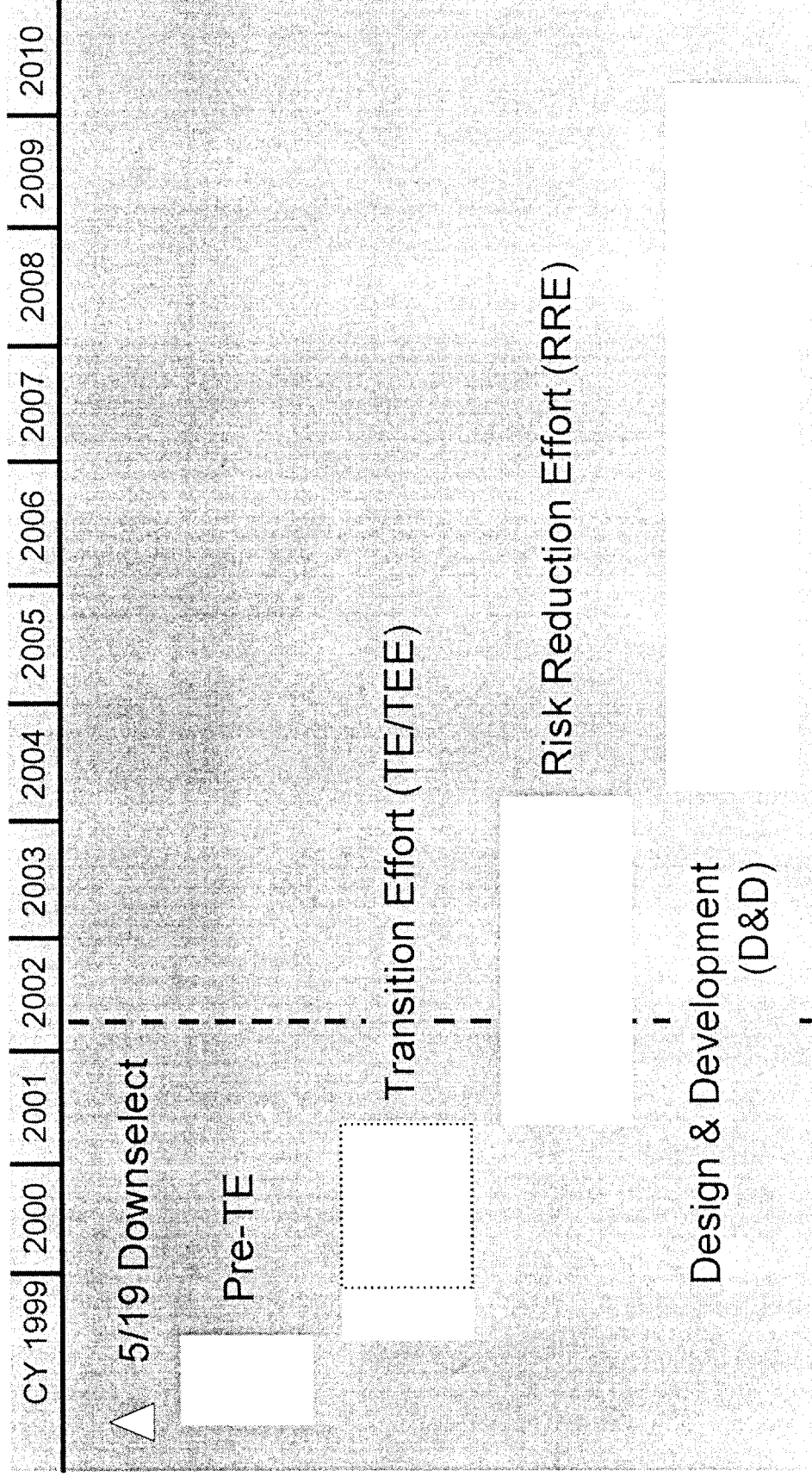
MI International Cooperation



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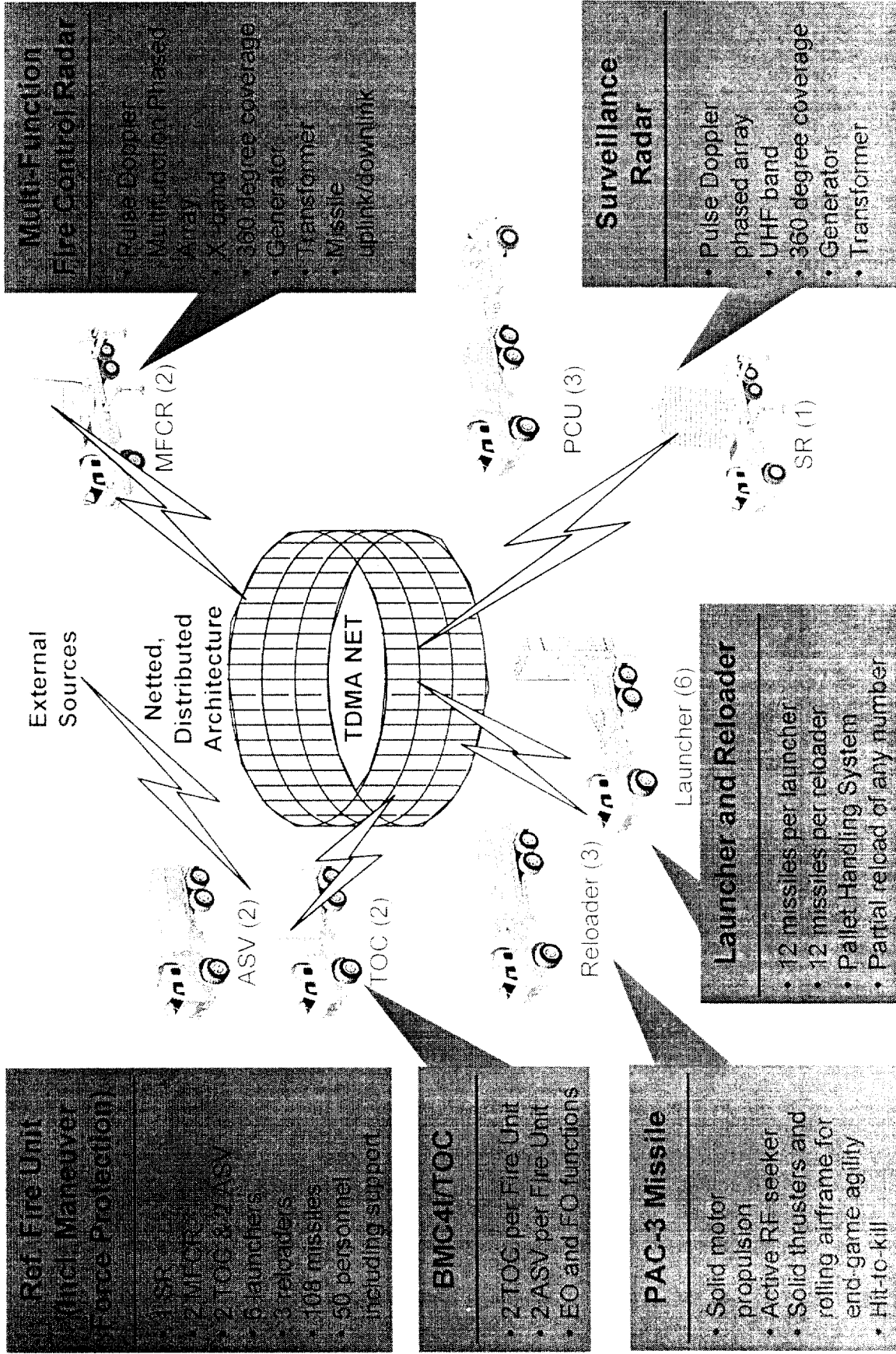
MEADS Program Plan (Notional)



RRE provides key data for decision on full-scale development

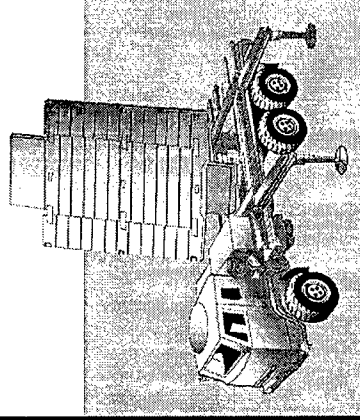
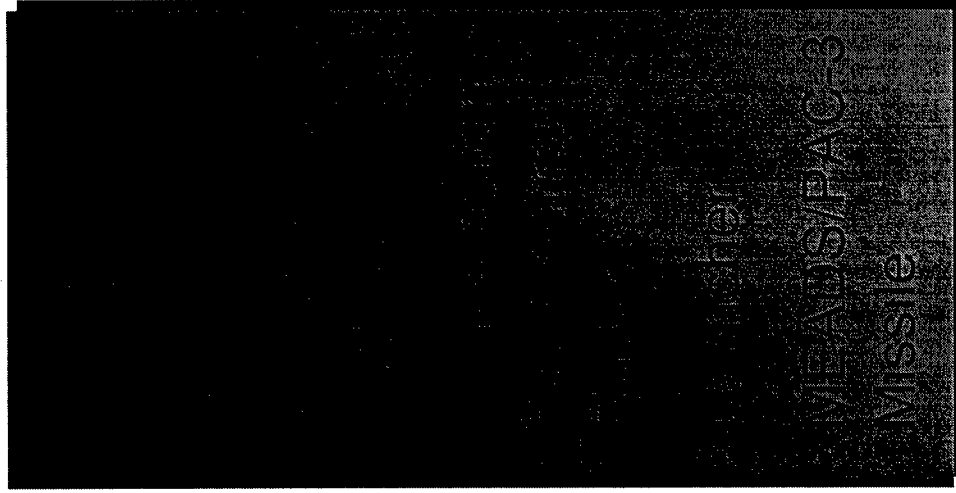
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MEADS System Concept



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MEADS Physical Architecture



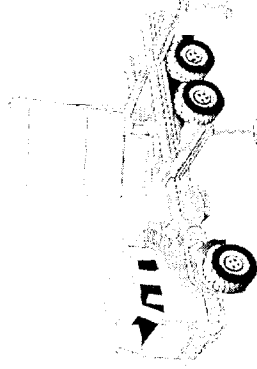
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MEADS Physical Architecture



- Tactical Operations Center
- Surveillance Radar
- Multi-function Fire Control Radar
- Launcher
- MEADS/PAC-3 Missile



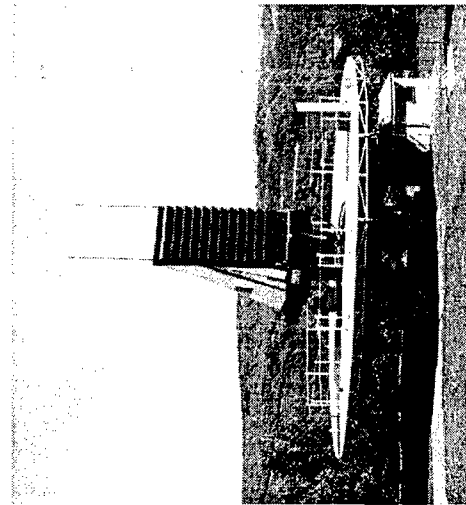
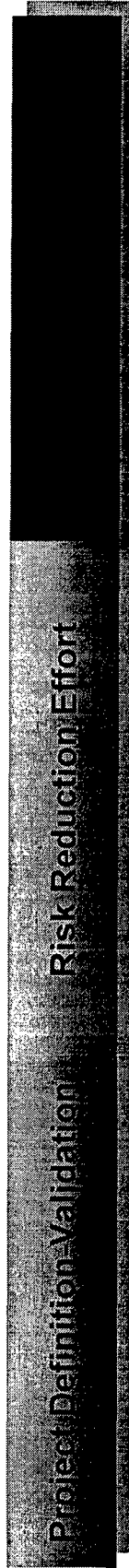
- X-band radar
- High-power 360-degree engagement capability
- Fixed 90-degree sector capability
- Surveillance and fire control capabilities for early entry scenarios
- Pulse-Doppler multi-function phased array with IFF
- ESM sensors

- *Nation-specific chassis*
- *C-130 roll-on/roll-off transportable*
- *2 per fire unit*

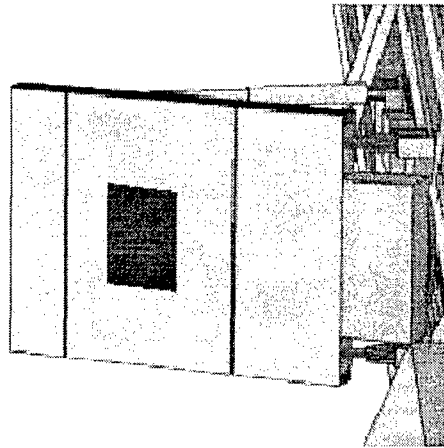
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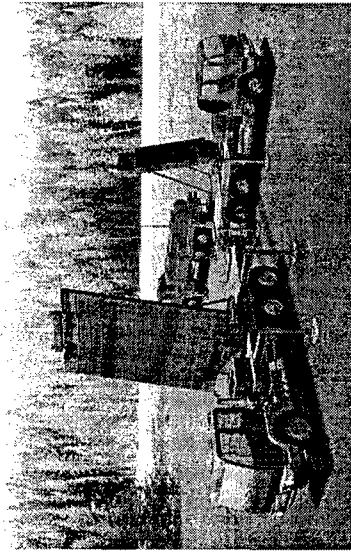
Sensor Risk Reduction



UHF Digital Radar ⁽¹⁾



MFCR Prototype



MEADS Sensor Suite



(1) Developed on LMCO IR&D

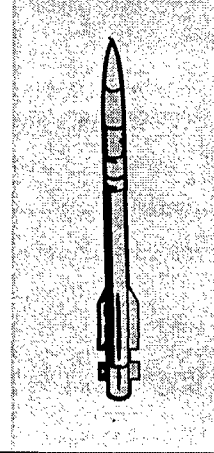
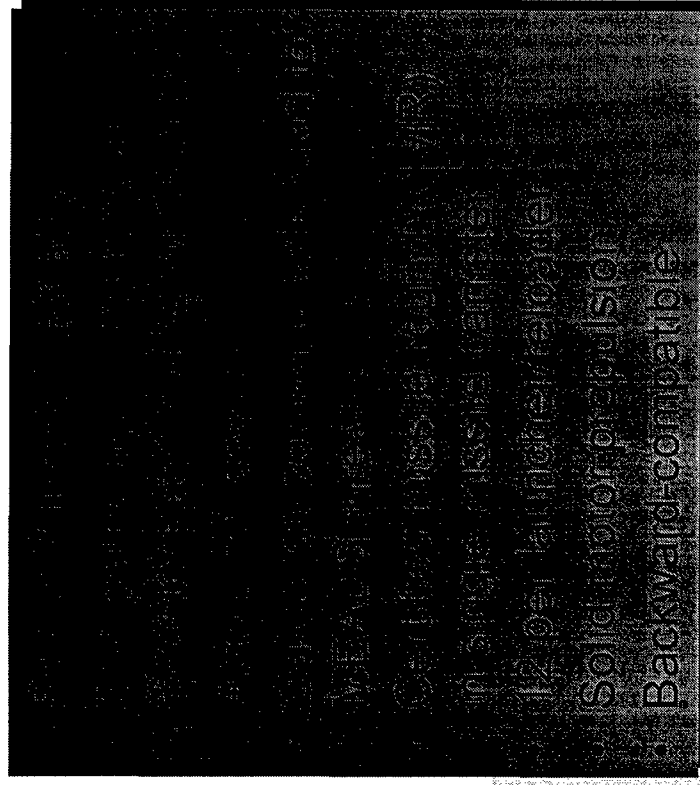
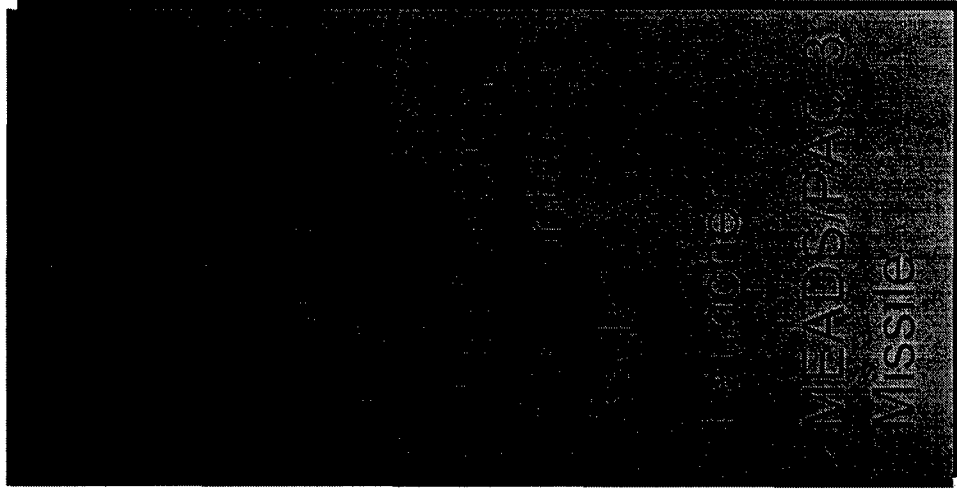
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Per CO-32-10426-OL, 17 July 2001

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MEADS Physical Architecture



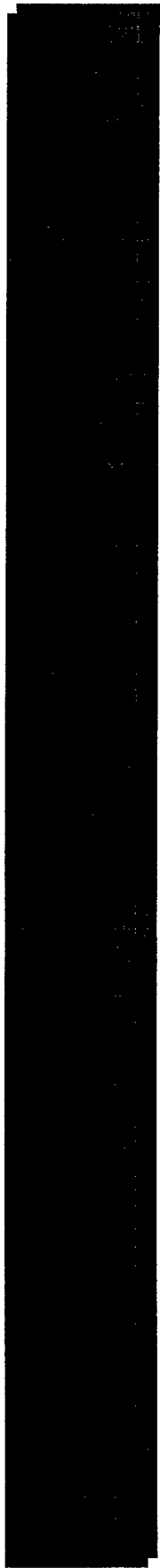
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PAC-3 Missile Validation



- Successful flight test program
 - 2 *Control Test Flights* – DT-1 and DT-2
 - 5 *TBM Intercepts* – SCF, DT-3, DT-5, DT-6 and DT-8
 - 1 *Attack Aircraft Kill* – DT-9
- Low Rate Initial Production (LRIP) go-ahead December 1999
- Full Rate Production (FRP) September 2002
- Lockheed Martin Missiles and Fire Control is the only contractor with a legacy of successful endo-atmospheric hit-to-kill interceptor programs
- The PAC-3 missile defeats the entire Patriot threat set
 - Tactical ballistic missiles, advanced cruise missiles, and air-breathing threats



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Model & Simulation Development



Syracuse

- Radar (SR+MFCR) Model
- RADPERF

Munich

- PDV One-on-One Mods for Upgrade Studies
- RRE One-on-One FSC Mods for BMC4I
- Launcher model Changes
- BMC4I Pilot Models

Huntsville

- BMC4I Model

Dallas

- PAC-3 Missile Segment Model
- RRE One-on-One
- Initial Launcher Model
- PEELS

Orlando

- ETE and ETE/DEMO Mode
- PDV One-on-One
- RRE One-on-One (usage)
- EADSIM
- MTOS
- PEGEM/HEAT/PEELS

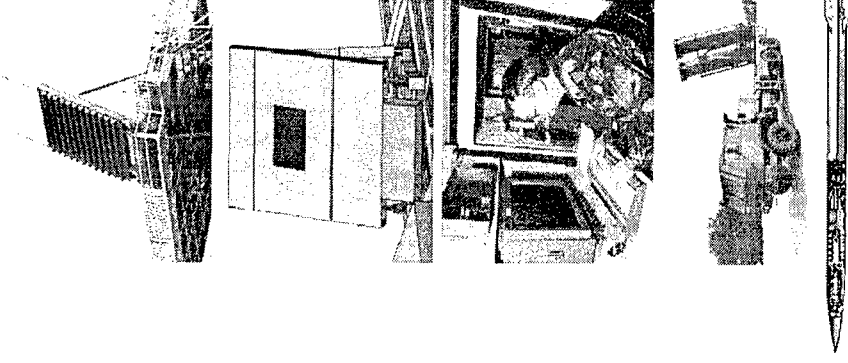
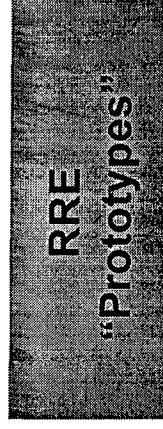
Rome

- RRE 1-on-1 FSC Mods for Radar
- BMC4I Pilot Models

Risk Reduction Effort Progress



- Incorporate and integrate PAC-3 missile into MEADS architecture
- Develop tailored fidelity system prototype
- Balance prototype hardware and software with simulation
- Develop RRE prototypes that are upgradeable to full fidelity Design & development (D&D) major end items (MEIs)
- Prove out system functionality in demonstrations
- Increase fidelity of program cost and schedule



portability
ability

at suite countered

cycle costs

ted flexibility

distributed BMC4I

ight capability

scalable battle elements

inf

