ERT Program Emergency Response Technology Program

Robert C. Byrd National Technology Transfer Center

Michael Lucey

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Emergency Response Technology (ERT) Program

National Technology Transfer Center

'putting new health and safety related products in the hands of america's emergency responders'

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Robert C. Byrd
National Technology Transfer Center

Founded in 1989, the Robert C. Byrd National Technology Transfer Center (NTTC) is tasked with helping to commercialize technologies developed by the federal laboratories for use by the private and public sectors.

Major Clients:

DHS EPA NASA VA

MDA (BMDO) SBA

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The ERT Program….

was established in 1998 through a cooperative agreement with the Federal Emergency Management Agency (FEMA) to develop technological solutions to need areas identified by the first responder community.

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ERT Program Transition

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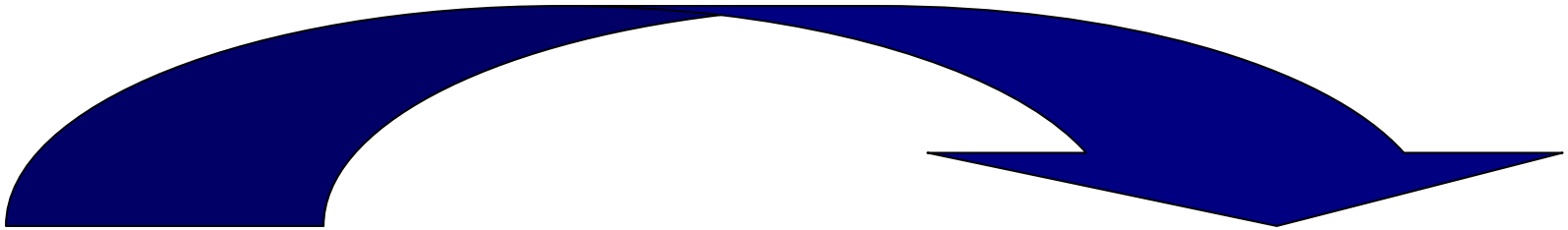

FEMA/USFA

$1.5 Million/Year
DHS/FEMA

$125,000/Year
NASA

Science & Technology

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Emergency Response Technology Group (ERTG)

- *Senior Emergency Responders from across US*
- *Official representation from seven major fire service associations*
- *Strong bias toward fire*
- *Other first responder organizations*
- *Fire, EMS, Law Enforcement, Haz Mat, Bomb, USAR, MMST*

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Emergency Response Technology Group

Official Fire Service Organization Representatives

Co-Chair – Chief Michael Neuhard, *Fairfax County (VA) Fire Rescue*

Co-Chair – Bob Royall*, Harris County (TX) Public Health & Env. Services*

Official Major Fire Service Organization Representatives

IAFF – Mr. Richard Duffy

IAFC – Chief Jay Reardon

IAAI – Mr. Ben Cypher

NASFM - Mr. George Chavez

ISFSI - Dr. Robert Fleming

NVFC – Mr. Bryant Styles

NVFC - Mr. Jack Johnson

NFPA – Mr. Gary Tokle

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Other Emergency Response Groups/Organizations

International Association of Chiefs of Police

Fire and Rescue Training Institute

FEMA USAR Team - TX Task Force #1

FEMA USAR-Team - VA Task Force #1

FEMA USAR Team – FL Task Force #1

Arizona Department of Public Safety

University of Connecticut

National Protection Center - US Army, Natick Soldier Center

National Association of EMTs

National Association of EMS Educators

InterAgency Board (IAB) on Standardization and Interoperability

ERT Program Mission

Focus: First Responder H & S

"Get operationally suitable technologies into the hands of first responders as soon as possible"

The "Problem"

(Needs Identification)

40 Need Areas Identified To Date

- *Public Safety*
- *Fire*
- *Haz Mat*
- *Homeland Security*

Top "10" List (Endorsed by 7 Fire Orgs)

7 of 10 in development by DHS/TSWG efforts

5-Step Technology Assessment Process

Step 1: Need Area Identification

Areas of need are identified *by the ERT Program's Emergency Response Technology Group, which is made up of senior emergency managers from the seven major fire service organizations and other emergency response stakeholder groups.*

Step 2: Technology Identification

*Extensive **database and Internet searches** are conducted to identify **commercial-off-the-shelf** solutions. Over 30 individual reference sources are used during this process (i.e. Dun & Bradstreet, Delphion, Intelliscope, Research Center Directory, etc). **Human intelligence** sources are also utilized given our daily contact with the various Federal Agencies, NASA-field centers and Federal Labs for current products being spun-out of those R&D communities.*

Step 3: Technical Assessment

Once a promising solution has been identified through artificial and/or human intelligence sources, a ***technical assessment*** *is conducted to determine:*

- *"novelty" and applicability of the technology*
- *barriers to commercialization*
- *potential competition*
- *examination of trends*
- *market structure & overall market size*
- *identification of strategic partners*

Step 4: Determination of Commercialization "Path"

Path #1 - Early Stage R&D

Technology Assessment** is then **converted** into a **Technology Commercialization Plan

- *management of intellectual property*
- *licensing negotiations*
- *applicability of regulations and standards*
- *turning a prototype into a product*
- *operational suitability requirements gathered from the end-user community*

Step 4: Determination of Commercialization "Path"

- Continued

Path #2 - Late stage R&D Testing

For products ***ready for the market***

ERT Program develops an ***operational test plan*** *in coordination with an emergency response organization or ERT Program "test-bed" to conduct the actual test and evaluation.*

Step 4: Determination of Commercialization "Path"

- Continued

Path #3 (Commercial-off-the-shelf solutions)

*For product solutions **currently on the market***

- *Prepare technical briefs that summarize the capabilities of the product*
- *Conduct Operational Testing and Evaluation*
- *Generate Test Reports*
- *Customer Contact Info/Product References*

Step 5: Community Outreach and Product Awareness

Assist the developer/manufacturer in creating ***community awareness of the product****. This is achieved through:*

- *ERT Program Website*
- *ERT Program ALERT Newsletter*
- *Promotion at trade shows*
- *Product press releases*
- *Program success stories*
- *Demonstration projects at test-beds throughout the United States*

The Haz Mat Smart-Strip: *A Success Story*

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Haz Mat Smart-Strip

Developed by Safety Solutions, Inc., in concert with the NTTC

From napkin to commercialized product in less than 8 months

Assisted in prototype development, supplier identification, intellectual property management, marketing, outreach

Being sold in over 65 Countries

Spin-Off Products :

- *M-8 Version for Military*
- *Spanish Version*
- *German Version*
- *Greek Version*
- *Chinese Version*
- *Japanese Version*
- *Potuguese Version*
- *Italian Version*

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Haz Mat Smart Strip Customers include:

F.D.N.Y. • Greek Olympic Committee • Miami Dade Fire Rescue • VA Hospitals • FBI • Manassas Police Department • Department of Energy • Civil Support Teams Florida DEP • United States Marines • Homeowners • SBCCOM • Federal Aviation Administration • US Customs • South African Airlines The White House • US Treasury Department • US Army

Federal Partnerships

Department of Defense

***OSD** Cites ERT Program as primary partner*

***Natick Soldier Center** (PPE, Textiles, etc)*

Air Force Research Laboratory

- *Remote Casualty Location and Assessment*
- *Fire Research Laboratory*

Office of Naval Research

***Technical Support Working Group** (85 Federal Agencies)*

Inter Agency Board

Cross Fertilization of Effort

Memorial Institute for the Prevention of Terrorism (MIPT)

Responder Knowledge Base

- *Needs*
- *Standards*
- *Procurement*
- *Available Grants*
- *COTS*
- *Test Info/Reports*
- *User Contact*

Lessons Learned Database

- *Best Practices*

National Corrections and Law Enforcement Training and Technology Center

(NCLETTC)

Mock Disaster Training Exercises

- *Task Response Capabilities (WV, OH, PA)*
- *Enhance Preparedness of Responders*
- *Showcase Novel Technologies in "Real World" Environments*

MOCK DISASTER

#1 Bio Agent Detectors

- ***Area Biological monitoring and detection for incident scenes.***
- ***First Responder Individual Personal Alarm Monitor (Chemical and/or Bio-Agent Detector)***

These requirements now being addressed by several SBCCOM, DHS, and TSWG efforts.

#2 Integrated Spatial Recognition, Tracking

(3-D), Health Monitoring, and Alerting System

This requirement is now being addressed by three projects sponsored by DHS via TSWG. Additional R&D to be sponsored by ONR and DHS HSARPA. Six additional commercial firms have technology in development to address portions of this requirement.

Technical Issues

Location and Tracking in GPS denied environment

Communications in and through structures

#3 Casualty Location and Assessment System

The U.S. Air Force Remote Casualty Location and Assessment Device –RCLAD – program, under development by the Air Force Human Systems Program Office, are addressing this requirement.

A commercial-off the-shelf (COTS) system and a prototype system, both derived from ground penetrating radar, were tested by the ERT Program but found not operationally suitable. These systems have potential for meeting the requirement with additional development effort, and several other commercial systems are in development that may meet this requirement.

#4 Extended Mission or Reduced Weight Mission Air Supply Respirators - Longer duration mission capability

This requirement is being partially addressed by TSWG Project: Expedient Tactical Self Contained Breathing Apparatus – ET SCBA

#5 Non-toxic Decontamination Agent – personnel and casualties

This requirement is being addressed by two DHS-TSWG projects:

Low Cost Personal Decontamination System – Chemical

and

Low Cost Personal Decontamination System – Biological

#6 First Responder Work Uniform

This requirement is being addressed by two TSWG projects:

Next Generation Fire Fighter Turnout Gear and Improved Chemical Protective Ensemble

And by work under way at the Army National Protection Center, Natick, MA.

#7 Casualty/Patient Care Data and Monitoring System

Partial Solutions Exist

Physiology Monitoring System - BodyMedia

Lifeguard-Wireless Vital Signs Monitoring System – NASA

Telemetric Triage Technology (T^3) – Ciberbiota

Several others under investigation.

#8 Building and Facility Emergency Response Information/Survey Tool - a data and decision support system

This requirement is being partially addressed by:

Looking Glass Pre-Planning System – Camber Corp

Wearable Critical Incident Response Project - Xybernaut

(NIJ Sponsored)

#9 Reinforced Concrete Breaching/Cutting Tool

A promising NASA technology was investigated for this purpose, but no satisfactory solution to this requirement has been found to date.

#10 Approaching Traffic Warning Device for Emergency Response Vehicles

A commercial system, E-Views, was spun off from NASA Jet Propulsion Laboratory that meets this requirement.

Several other Commercial Systems are now available.

Development Projects

3-D Tracking

- ***6 proposals received by ERT** – Awaiting Permission to use ERT Program Funds for Development*
- ***40 rec'd** through BAA **by TSWG** – 3 selected*
- ***ONR** to sponsor R&D in this area*
- ***New Solicitation anticipated from DHS HS-ARPA** (Homeland Security Advanced Research Projects Agency)*
- ***Plans to conduct test, evaluations and demonstrations** of technologies that meet this need at **Mock Disaster 2005** (Report to DHS)*

Physiological Monitoring

Smart Wear *- CyberBiotica*

Smart Shirt *– Sensatex*

Life Shirt *– VivoMetrics*

Vital Signs Monitor *- Lifewave*

Minimitter Monitor *- Lifesafety*

Casualty Location

Acoustic Human Presence Detector *- Geovox*

Casualty Detection Project - *Lifewave*

TerraSIRch SIR® 3000 Barrier Penetrating Radar System *(Tested – TOP OFF II Chicago and Fairfax Co, VA)*

Planned Operational Test & Evaluations

Thermal Imaging"Shootoff"

- *Comparative evaluation*
- *Seeking partner locations to conduct evaluations*
- *Coordinate T&E plan and conduct testing*

Physiology Monitors

- *Comparative evaluation*

Additional Decision Support Systems

- *Comparative evaluation*

Trace Decon Training System

DoD Training & Simulation Systems

DoD Invests ~2 Billion $/year on T&S Development in Orlando Area

May 2004 DHS Tasked ERT Program to Assess and Identify DoD T&S Systems Appropriate for Transfer w/in DHS Mission Space

DoD T&S Assessment Update

90 Day Study

Target "Team Orlando Complex" on Campus of UCF

Focus Areas

1) Tactical Level Systems -

IC Multi-Hazard Table Top Exercises

2) Operations/Strategic Systems -

Decision Makers & Elected Officials

3) Hands-On Systems -

Individual & Team VR Simulators – WMD Scenario Based

DoD T&S Assessment Update

36 Potential Systems Reviewed – 16 Identified for Further Assessment

Of the 16 - 7 Systems Currently Being Recommended for Transfer to DHS Mission Space

Anticipated Department-Wide DoD/DHS T&S Transfer Effort

Defense Modeling & Simulation Office (DMSO) Partnership

QUESTIONS?

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