



**Homeland
Security**

S&T Stakeholders Conference

T&E and Standards for First Responder Equipment

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PARTNERING FOR A SAFER NATION



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FROM SCIENCE...SECURITY

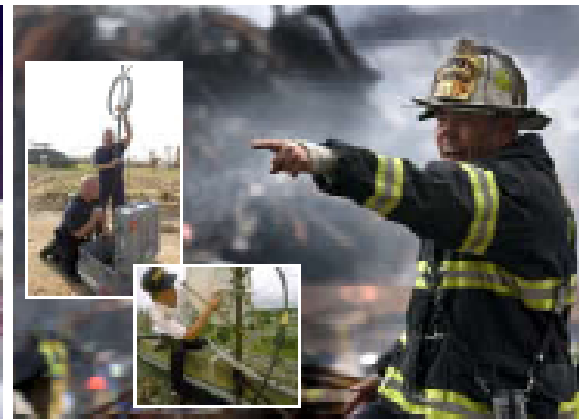
Explosives



Chemical/Biological



Command, Control, & Interoperability



Borders/Maritime



Human Factors

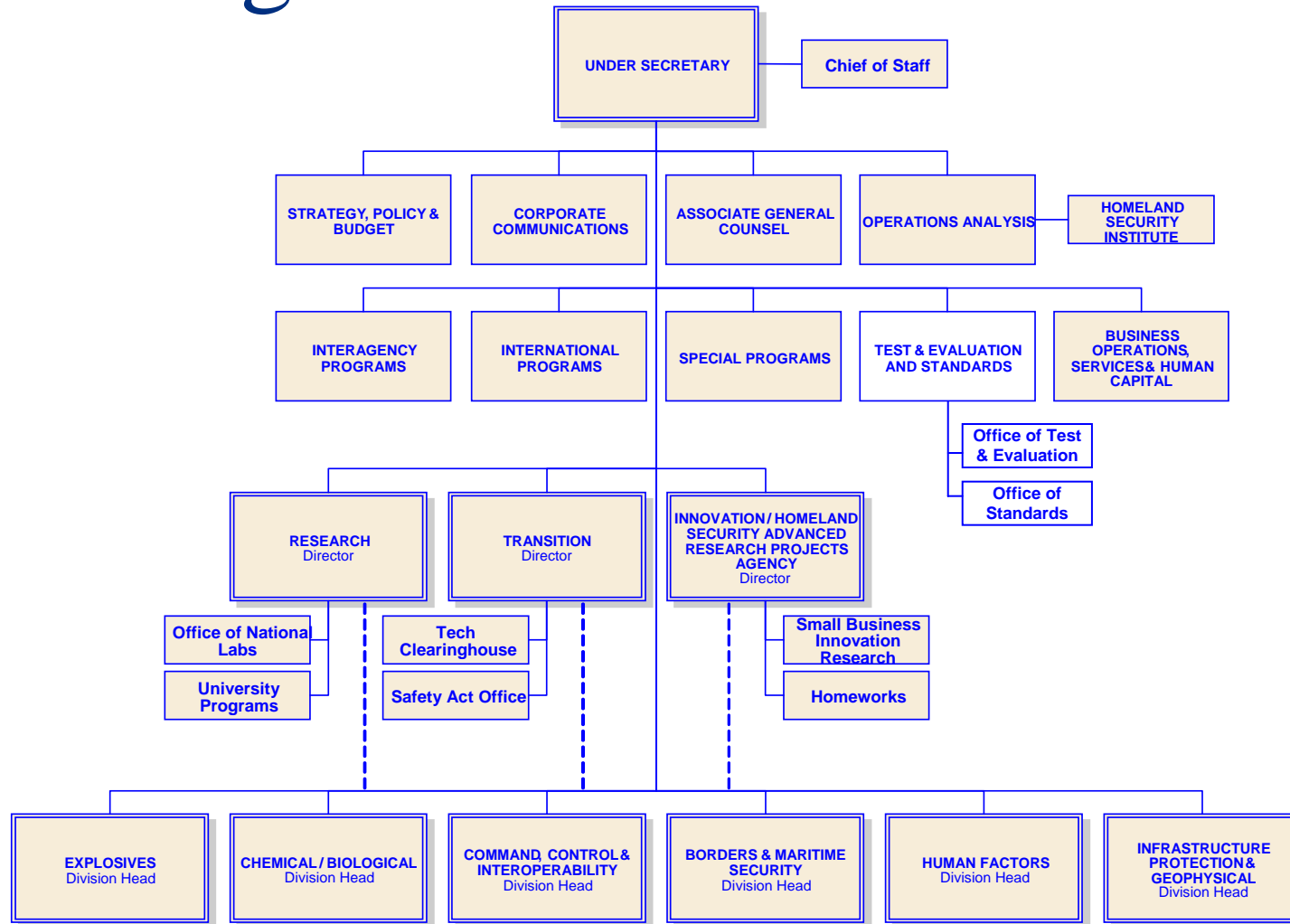


Infrastructure/Geophysical



FROM TECHNOLOGY...TRUST

S&T Organization



Homeland Security

DHS T&E Goals

Consistent with the Homeland Security Act of 2002 and HSPD 8

- Develop and institute T&E policy that is centrally managed and is uniformly implemented across DHS.
- Integrate, coordinate, and optimize public and private sector T&E infrastructure to meet current and future technology development thrusts areas.
- Establish and implement streamlined procedures and infrastructures for the ongoing development and adoption of appropriate standards and evaluation methods for homeland security technologies.
- Develop and implement an overarching strategy for the qualification and certification of technologies and accreditation of facilities and programs.



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DHS Standards

- DHS lacks statutory authority to issue standards except in limited legacy programs – Coast Guard marine safety equipment
- Public Law 104-113 (1995) - National Technology Transfer and Advancement Act (NTTAA) directs that agencies will use *voluntary consensus standards*
- DHS will leverage expertise and resources of our partners at NIST and in the private sector standards communities to develop voluntary consensus standards
 - Private Sector Standards Development (ANSI)
 - Interagency Standards Coordination (ICSP)
 - Intra-agency Standards Coordination (DHS Standards Council)

DHS Office of Standards Scope

What we do...

- Lead the adoption of national Standards for homeland security technologies
- Support DHS components in developing procurement guidelines for first responder technologies
- Develop and manage policies, procedures and infrastructures for Standards development and adoption activities
- Create and manage programs to accelerate and foster standards development activities

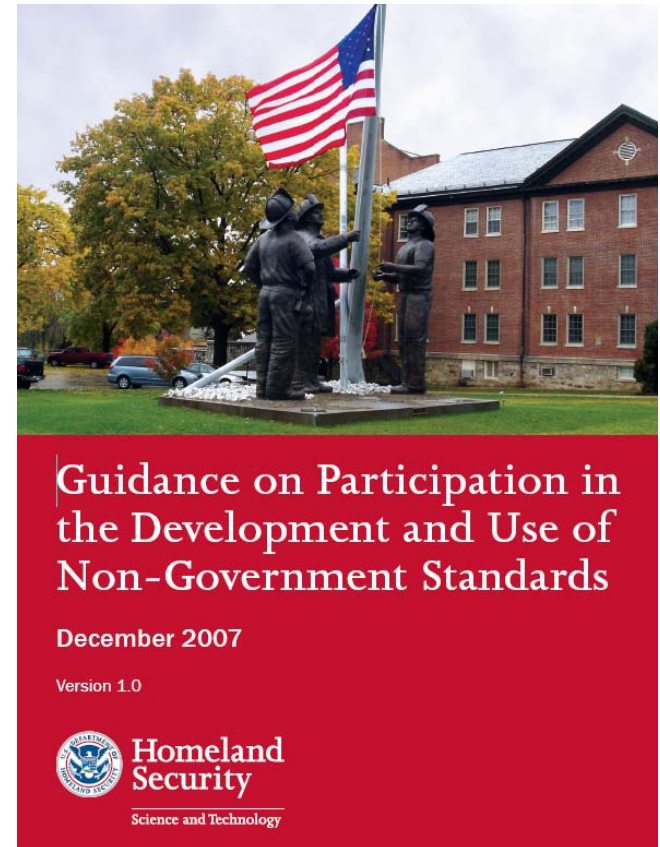
What we don't do....

- Promulgate standards
- Regulate compliance
- Certify products
- Maintain Qualified Product Lists



Voluntary Consensus Standards (VCS)

- Use of VCS directed for all Federal Agencies
- Federal requirements for products generally much smaller than commercial marketplace
- Participation in VCS development ideal way to influence product performance



American National Standards Institute
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- Identifies existing consensus standards, or, if none exist, assists DHS and those sectors requesting assistance to accelerate development and adoption of consensus standards critical to homeland security.
- ANSI-HSSP promotes a positive, cooperative partnership between the public and private sectors in order to meet the needs of the nation in this critical area.
- www.hssd.us – A database for homeland security standards



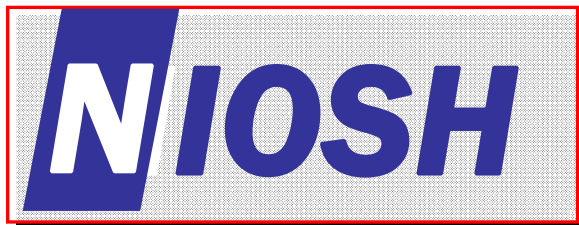
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American National Standards Institute

American National Standards Institute
HOMELAND SECURITY
STANDARDS PANEL



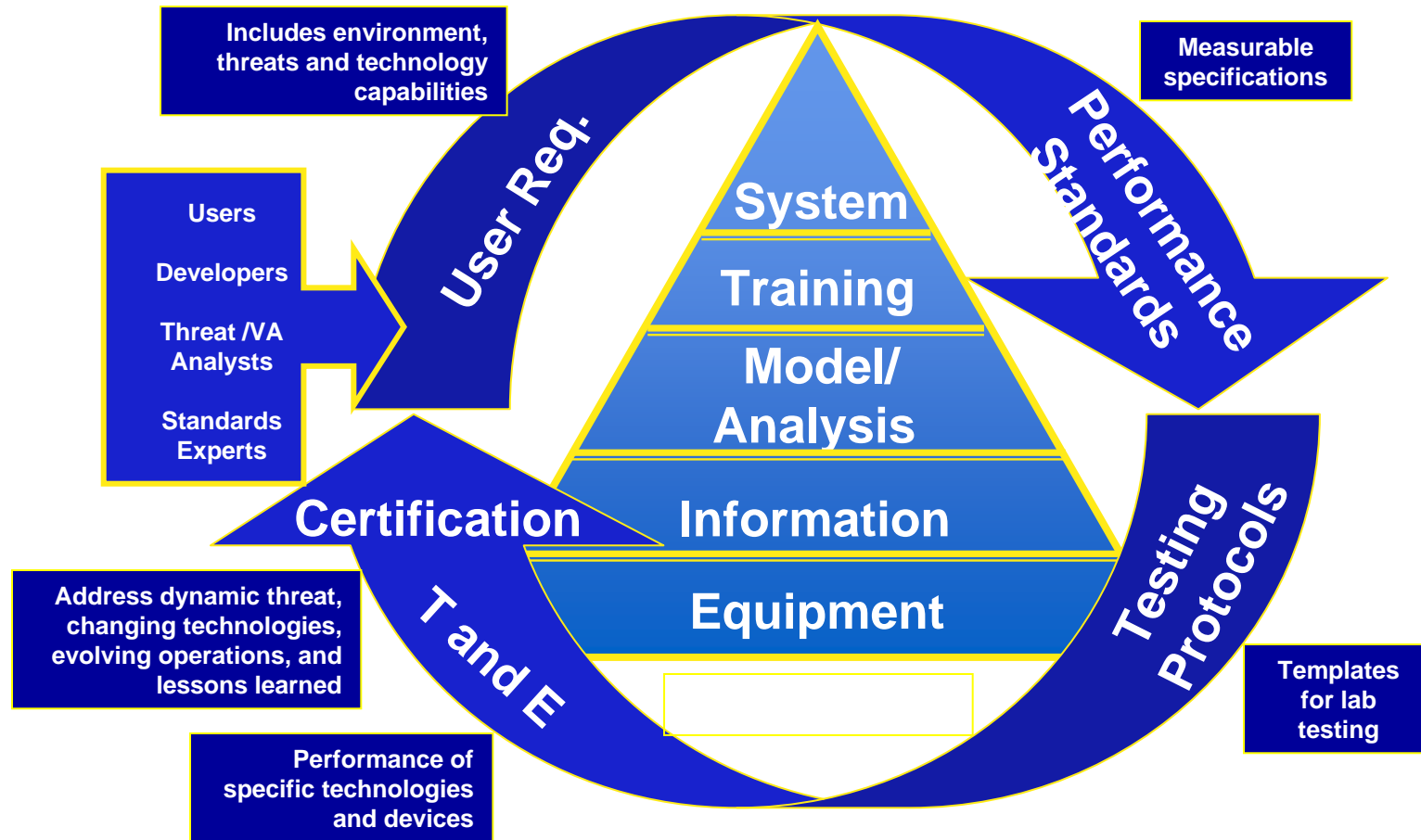
National Institute of Justice

The Research, Development, and Evaluation Agency of the U.S. Department of Justice

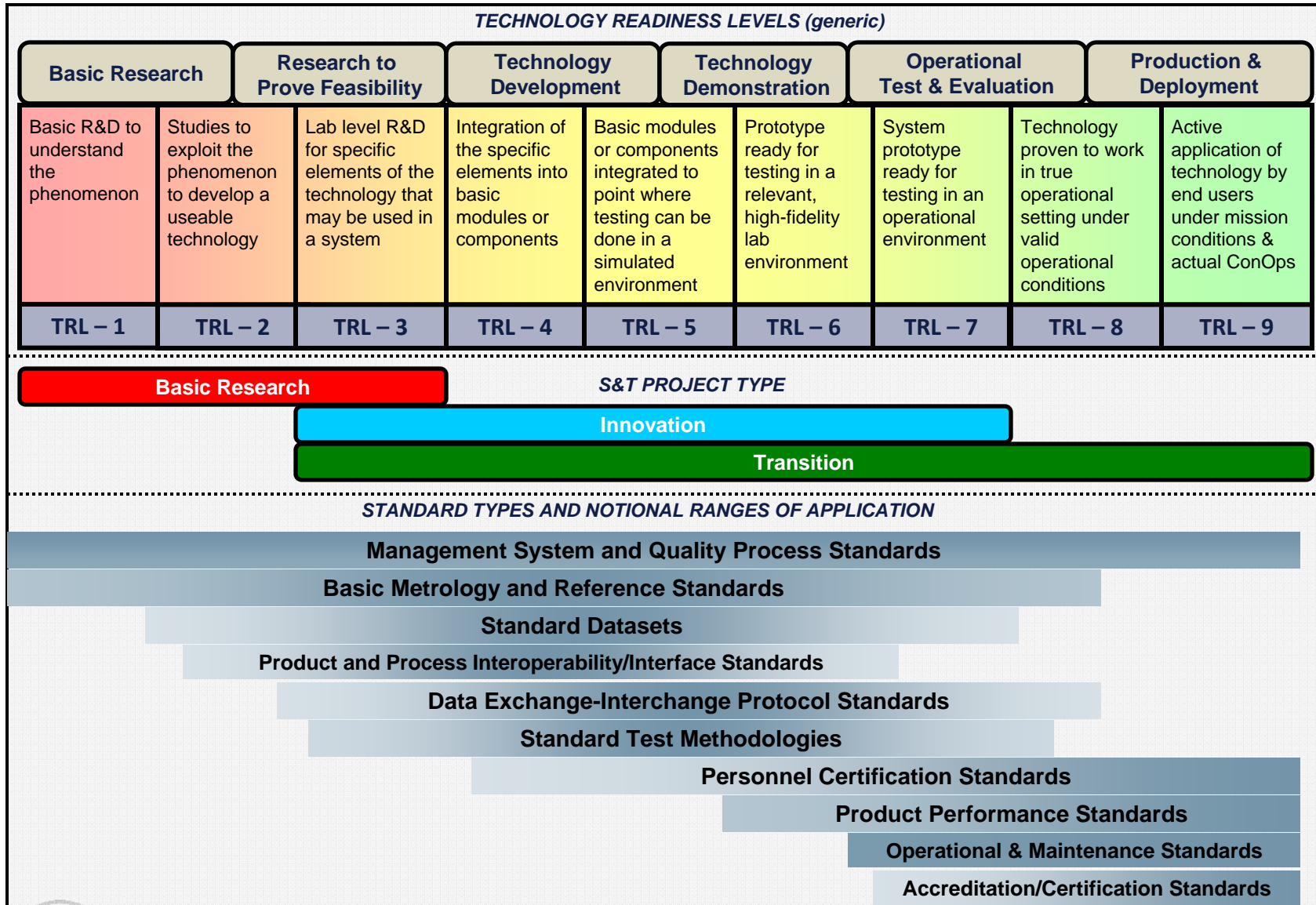


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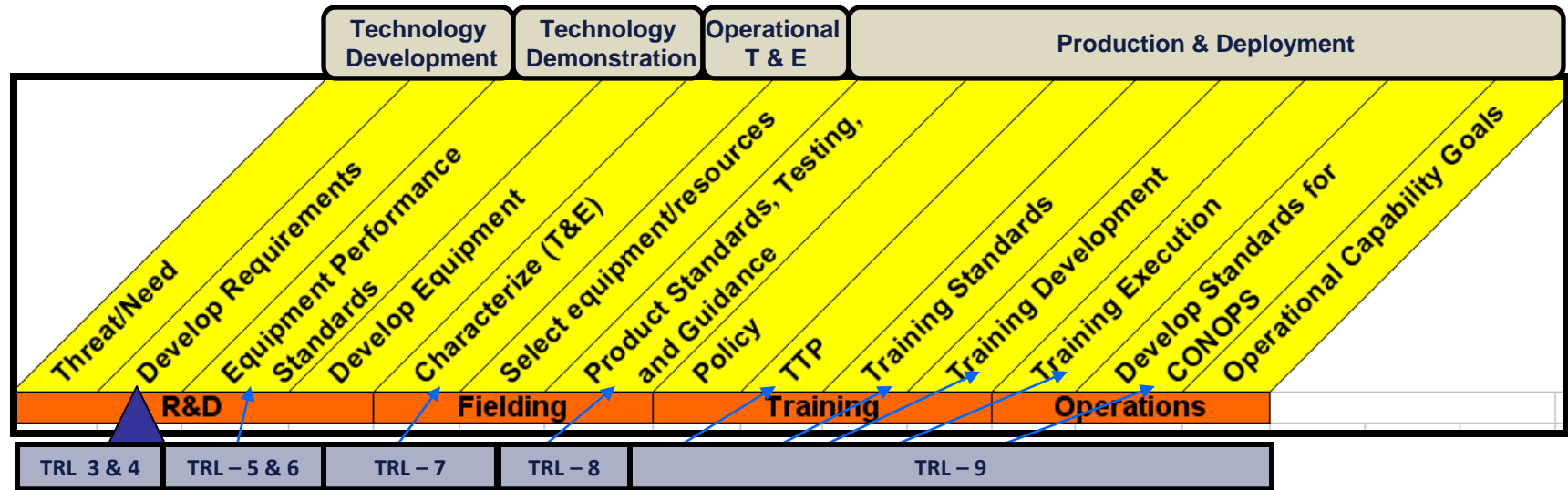
Standards Process



Relationship of Standards to the S&T Technology Development Cycle



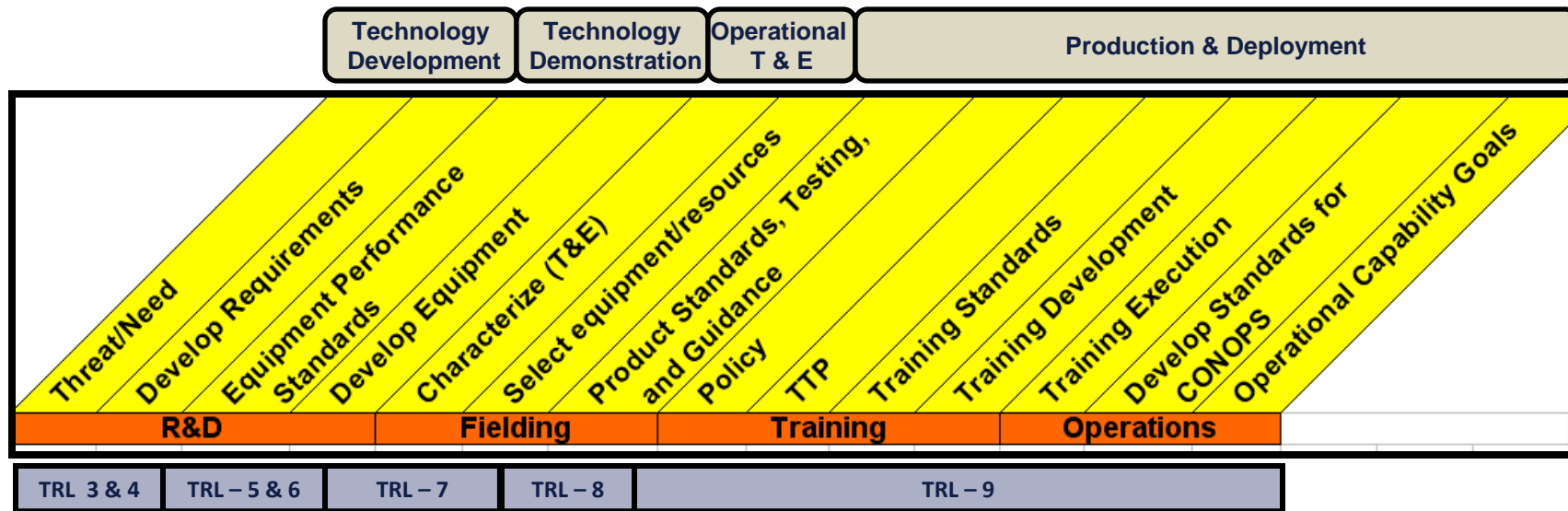
Standards in Goal Oriented Strategic Planning*



Requirements primarily influence the “Requirements Development” phase of strategic planning, but also feed into other phases in the preparation needed to address each of the “Operational Capability Goals.”



Parallel Programs Required*



Immediate: 0-18 months

What can be done now?

Near term: 0-3 years

What new or soon to be developed technologies will be available?

Long term: 0-10 years

What are the desired long term capabilities and the plan to achieve them?



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* Derived from NBSCAB Technology Requirements Prioritization Process

DHS Office of Standards Projects

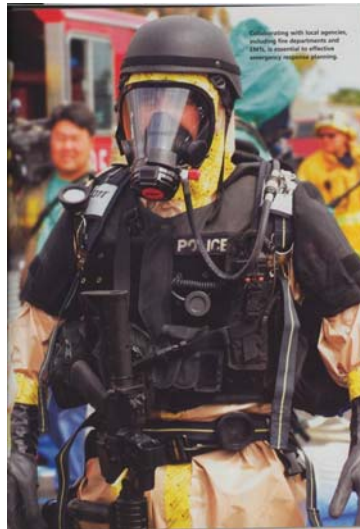
Highlights:

- Personal Protective Equipment (PPE) (NFPA, NIOSH)
- Urban search & rescue robots (ASTM)
- Explosives detection (ASTM)
- Biometrics (INCITS)
- Chemical agent detectors (ASTM)
- Biological agent detectors (AOAC)
- Incident Management Standards (NFPA)

PPE Standards Cover Many Disciplines



Fire Service



Law Enforcement



Medical and Decon Personnel



Bomb Squad



HAZMAT



US&R



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PPE Standards Cover Many Disciplines

- Hazardous Materials Incident (HAZMAT)
- CBRN Incident Response PPE
- Urban Search and Rescue
- Occupational Safety
- Law Enforcement
- Bomb Squads
- Fire Service
- EMS



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Multiple Efforts Across DHS

- Grants programs
- R&D and technology efforts
- Standards development programs
- HSPD-8
- HSPD-19
- HSPD-22



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DHS Components' PPE

PPE requirements span the Department, some with unique concerns:

- DHS R&D and Tech Solutions Programs
- S&T Laboratory Requirements for Operational PPE
- FEMA - Grants Programs – COTS equipment and CDP
- Office for Bombing Prevention – State and Local Bomb Squads
- FEMA Urban Search & Rescue
- US Coast Guard – HAZMAT, ballistic protection, CB protection
- FEMA/USFA – fire service PPE
- DHS Officer PPE – USSS, CBP, ICE, FPS, FLETC
- DHS Office of Health Affairs
- DHS Office of State and Local Law Enforcement

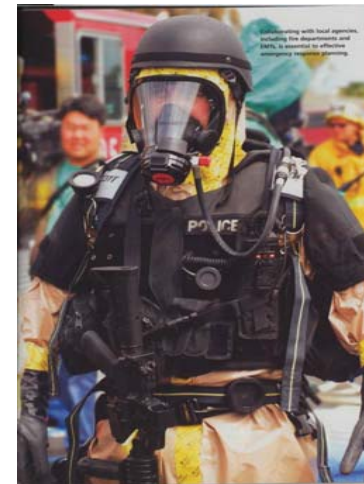


PPE Standards - Observations

- PPE standards have evolved in response to needs, primarily accidents and/or attacks
- Increasing level of PPE related activities
 - Standards development
 - Technology/equipment development
- PPE requirements for others than the traditional “first responders”
- Proliferation of PPE and standards
- Chem/Bio protection options incorporated in other types of PPE

Observations, Continued

- PPE standards are not one size fits all
- Performance standards and associated test methods, by their very nature have inherent capabilities and limitations
- The proliferation of standards with integrated chem/bio protection underscores the need to address specific mission requirements associated with PPE
- Need suite of standards to offer appropriate match of protection with operational requirements



Compounding Factors

- All hazard approach -- “CBRNE terrorist threats” or “terrorist or criminal activity, natural causes or accident”
- Boundaries are blurring
 - Fire fighters and EMS needing ballistic protection
 - Law Enforcement needing chemical and thermal/flash fire protection
- Interoperability and compatibility
- Training, operational procedures and logistic impacts of PPE decisions



PPE Standards Pre-9/11

Existing standards provided protection against TICs and TIMs with limited chemical warfare agent protection

- NFPA 1951: Standard on Protective Ensemble for USAR Operations (chemical splash and blood borne pathogens)
- NFPA 1971: Standard on Protective Ensemble for Structural Fire Fighting (no chem/bio protection)
- NFPA 1981: Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services (not cert for CWA)
- NFPA 1991: Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies (Chem/bio option)
- NFPA 1994: Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents (chem/bio protection)
- NFPA 1999: Standard on Protective Clothing for Emergency Medical Operations (blood and body fluid borne pathogens)





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CBRN PPE Standards Six Years Post 9/11

- Protection against TICs and TIMs, chemical and biological agents, and radiological contamination
- NIOSH CBRN Respiratory Protection Equipment Standards
 - Self Contained Breathing Apparatus (SCBA) and retrofit
 - Air Purifying Respirator (APR)
 - Escape Masks
 - Powered Air Purifying Respirator (PAPR)
- NIOSH respiratory standards integrated into NFPA standards
- NFPA 1991: Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies (CBRN protection)
- NFPA 1994: Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents (CBRN protection)



CBRN PPE Standards Six Years Post 9/11

- NFPA 1951: Standard on Protective Ensemble for Technical Rescue Operations (2007 Edition) (CBRN Option)
- NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (2007 Edition) (CBRN Option)
- NFPA 1981: Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services (2007 Edition) (CBRN protection)
- NFPA 1999: Standard on Protective Clothing for Emergency Medical Operations (CB Option)
- Linkage of OSHA Levels of Protection (A,B,C) to NFPA standards
- New test methods developed
- Linked to Federal grant programs



Emerging Standards – Near Term

- NIOSH CBRN Closed Circuit Self Contained Breathing Apparatus
- NIOSH CBRN Combination Supplied Air/Purified Air respirator standard
- Bomb Suit standard
- NIJ Law Enforcement Specific CBRN PPE Standards
- NFPA opening 1991 and 1994 standards for comment and accelerated revision
- Law Enforcement Advanced Protection (LEAP)
- Studies in dermal toxicity and revised test methods



Benefits of Integrated CBRNE Standards Development

- Greater safety for first responders
- More effective technologies
- Setting or raising the performance bar for the industry
- Developing standards to match new technologies
- Standards developed in anticipation of new requirements
- Equipment that works together
- Supports operational mission

Intersection of Performance Standards, SOP's and Training



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