Understanding Innovation Programs & Opportunities (RD&T)

Accelerating Market Readiness…

Thomas Harman
Director
CENTER FOR ACCELERATING INNOVATION
Four ‘Simple’ Questions

Q. **Where** do you go if you have an innovative idea? *(individual, industry, or DOT)*

Q. **What** support is available?

Q. **How** can you get to **MARKET READY**?

Q. **How long** does all this take?
Impact of Innovation

- Disruptive ✓ Game Changing
- Emerging ✓ Gap Filling, significantly advance the state-of-the-art
- Noteworthy ✓ Significantly advance conventional practice
- Incremental ✓ Advance the state-of-the-practice

TRANSFORMATIVE
Measure of Outcome of Innovation

- Quantitative ✓ Return on Investment (ROI)
- Qualitative ✓ Derived Value (DV)
- Marketing ✓ Success Stories (Mar/Com)

FYI: AASHTO Value of Research (VOR) Task Force
Is there a Chasm between Research & Practice?
# Market Readiness of Innovation: Technology Readiness Level (TRL)

<table>
<thead>
<tr>
<th>Basic Research</th>
<th>Applied Research</th>
<th>Development</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRL 1 to 3</td>
<td>TRL 4 to 5</td>
<td>TRL 6 to 8</td>
<td>TRL of 9</td>
</tr>
<tr>
<td>2. Application formulated</td>
<td>4. Integrated components demonstrated in a laboratory environment</td>
<td>7. Prototype demonstrated in operational environment</td>
<td>- EDC Innovations are a TRL of 9</td>
</tr>
<tr>
<td>3. Proof of Concept</td>
<td></td>
<td>8. Technology proven in operational environment</td>
<td></td>
</tr>
</tbody>
</table>
Technology Readiness Level (TRL)
Range of National RD&T Programs

Chasm between Research & Practice

Market Ready
Operationally Proven
Prototype demo Operational Env.
Prototype demo Relevant Env.
Demo in Lab
Components Validated in Lab
Proof of Concept
Application Formulated
Basic principles

MLEA  NCHRP  Synthesis  Dom Sc4n  NCHRP 20-44  NCHRP 20-07  SHRP2  TPF  FHW A R&D  CRADA  SBIR  A.I.I.  NTPEP  APEL  EDC  STIC  AID  FHW A PO  AMR  HIN Challenge
Technology and Innovation Deployment Program (TIDP) Goals

- Significantly accelerate adoption of innovative technologies…
- Provide leadership and incentives
- Construct longer-lasting highways
- Improve highway efficiency, safety, mobility, reliability, service life, environmental protection, and sustainability
- Develop and deploy new tools, techniques, and practices to accelerate the adoption of innovation
OIPD- CAI TIDP Programs
Fostering a Culture of Innovation

EDC
every day counts

AID Demo
Accelerated Innovation Deployment

STIC
State Transportation Innovation Councils
Missouri Department of Transportation—Nano-coating Technology for Bridges

**NEW** - Big Bend Boulevard Bridge over I-270 in east central St. Louis County

- Mo DOT’s current painting system involves a 3 coat system with lengthy closure time.
- New product called Tesla Nano-coating: forms a passive corrosion protection system that only requires two coats with the second coat being applied prior to drying.

Source: Fox2
Concept: NEW
Accelerating Market Readiness (AMR)

…to provide resources for the rapid, national assessment of emerging innovations and to provide transportation offices with objective-written assessments to accelerate the adoptions of innovations that meet their unique needs.
Goals of new Program

Provide a rapid, national assessment of emerging innovations…

✓ Provide a shared-risk environment
✓ Provide sound, objective, detailed, and coordinated evaluation and reporting
✓ Provide marketing and communication
✓ Help feed the EDC pipeline
✓ Provide a pathway between research and practitioner
✓ Identify future areas for research and development
BAA - AMR Solicitation
FHWA / STIC feed AMR

State DOTs
AASHTO Innovation Initiative (A.I.I.) Members
Outside Transportation Stakeholders
Local Agencies
Industry
Other STIC Members
Academia & Research Community
FHWA

National STIC Network

Emerging Innovations for AMR
Evaluation Criteria

1. Does the innovation have the potential to significantly advance conventional practice? **Transformative**
2. Does the innovation have potentially high demand for implementation? **Demand**
3. Is the innovation substantially developed? **TRL 6+**
4. Does the innovation have the potential to be included in the EDC cycle? *(aspirational)* **EDC?**
Proposed Funding

Up to $5 million dollars annually (TIDP)
Opportunity to leverage other complementary programs (e.g. AID and STIC Incentive)

Range from $100 to $500k per innovation

• Delta Costs for Innovation and Report Writing
• Support Findings with Mar/Com
• Leverage National STIC Network in dissemination & AASHTO All (APEL for posting)
Center for Accelerating Innovation

Discussion – Additional Information

Tony Furst
Chief Innovation Officer
Office of Innovative Program Delivery
Tony.Furst@dot.gov

Thomas Harman
Director
Center for Accelerating Innovation
Tom.Harman@dot.gov