Private Sector Perspective on Directed Technology Transfer

Jason Bittner, MPA, PMP
 Principal and Practice Area Lead
 Transportation Policy Research and Planning

A presentation to the AASHTO RAC Annual Meeting
July 26, 2017
We will walk this path today

Technology Transferred!

A Cup of Perspective

Key Stumbling Blocks

Definitions & Core Principles

About ARA
About ARA

*The company that government and industry turns to for innovative technologies and solutions to critical human problems*

“Well, then try another independent research organization.”
About ARA, Inc.

- Founded 1979, Albuquerque, New Mexico
- 1100+ employee owners at locations in the U.S. and Canada
**ARA Mission**

To provide:
- Science & engineering research
- Technical support services
- Specialty products & integrated solutions

To Solve Problems of Global Importance

*This is what we do for our customers*

**ARA Purpose**

To provide a work environment:
- That challenges & rewards efforts
- That provides opportunities to grow
- Where we can pursue work that matters

*This is why we were founded*
Business Areas

National Security
ARA delivers innovative solutions to assess, detect, deter, defeat, and respond to threats facing us at home and abroad.

Infrastructure
ARA leads in technologies and services to improve performance and sustainability of infrastructure for transportation, buildings, and energy systems.

Energy & Environment
ARA provides innovative engineering services and products for alternative fuels, and the power and utility services market.

Health Solutions
ARA provides specialized research and technology services, testing and product development in health science and engineering.
We build and break things

Over 30 locations in the U.S. & Canada

- Classified computing and storage
- CMMI® Maturity Level 3 Appraised Raleigh, NC
- ISO 9001:2008 Certified Randolph, VT

Laboratory, Manufacturing & Testing Facilities

- Ablatives Laboratory Centennial, CO
- Materials Measurement Laboratory Alexandria, VA
- Engineering Science/Instrumentation Laboratory Littleton, CO
- Materials Properties Laboratory Randolph, VT
- Manufacturing/Prototyping Facility Randolph, VT
- Environmental RDT&E Laboratory Panama City, FL
- Multi-Spectral Measurement Laboratory Dayton, OH
**Definitions & Principles**

Believe it or not, words have meaning.
Definitions provide common understanding

- **Research implementation**: moving research fully from a test bed, shelf, patent, or a research paper into broad commercialization *(US-EU Forum, 2014)*

- **Technology Transfer (T²)**: A way that ideas, knowledge, practices, products, processes or techniques are shared between and within organizations *(NCHRP Report 768)*

- **Guided T²**: Organized efforts to encourage technology transfer *(NCHRP Report 768)*

- **Responsibility**: Actions that you take for which you are accountable *(Wing Institute, 2006)*

- **Covfefe**: You know what it means *(Pres. Donald Trump, 2017)*
My presentation contains one “equation”

Technology Transfer ≠ Implementation ≠ Deployment
Actually, I want to avoid “zombie” research

“Dead on arrival” research
Research way past its shelf life
Infected by bites of others
Inaccurate or dangerous
Research that needed more brains
Research that can come back to bite

NEED TO HAVE FORESIGHT
NEED TO BE PREPARED!
As expected, the literature is divided

Responsibilities matter

Variety of viewpoints on those roles and responsibilities

Emerging ideas and programs
  • Many one offs and case studies

New (renewed?) emphasis

Organizational culture will eat strategy for lunch
Where do you want to be?

Obstacles & Missteps

Maybe a harness would be a good idea
Valley(s) of death are real obstacles

Technological and commercialization valleys

Lost in Translation: The Gap in Scientific Advancements and Clinical Application
Joseph S. Fernandez-Moure
Responsibilities determine $T^2$ success

Leadership or front-line?
Ready to go or does it need more work?
Tech savvy?
What are the existing relationships?
What value will the result have on day to day activity?

In the DOT context, we can’t lose sight of who is doing the work...
Lessons learned from previous hikers

- Educate all stakeholders on process
- Conduct internal gap assessment
- Respect context and culture
- Respect viewpoints
- Complete evaluation on implementation
- Acknowledge public sector research differs from that of the private sector
- Consider consortia approaches
- Use research as a tool, not the end
- Spread the risks
Perspectives

“There are no facts, only interpretations.”

— Friedrich Nietzsche
My observations mix to-do’s and to-don’ts

Research Team Member
Principal Investigator
Research Funding Provider
Center Director
Consultant Researcher
Owner

Where you stand depends on where you sit
Team Members hold key details

Communication

Expectations need to be clear

• Easy to bury yourself in the data and information
• Easy to generate results
• Easy to defer to leadership
• Hard to be concerned with the bigger picture issues

Education is needed
PIs fear loss of ownership

Understand context

IP matters

Select right partners at the start
  • Engage partners early
  • Evaluate based on implementation

Incentives matter
  • Review phase (bonuses?)

Challenge clients
  • Pushing the envelope

Failure is ok
  • Is the effort reaching high enough?
Funding Sponsor

Procurement practices need to encourage innovation

Standards and recommendations/specifications should reflect new research

Research program, not always project-level ROI

Fund technology transfer
Center Directors worry all the time

Track and maintain accountability
- Annual reviews
- SMART Goals include implementation

Build track record

Reward innovation
- Established indirect returns
- Don’t punish failures
- Award project champions

Diversify client base – and specifically, the research customer base
Consultants want to help

Contract drives how far we move along
Pressure meeting objectives and goals
Implementation and T² are new roles
Altruism is not a weakness
Customize implementation strategies
Build implementation and follow-up tasks into projects
  • Own the work!

Be ready to offer ideas and suggestions
Owners need to bring home the bacon

Money remains part of it
Build long term relationships
Practice makes perfect
Accountability matters
And I’ll leave you with these

$T^2$ is what you make it

No magic bullets

Use the NCHRP guide

Plan for success (or plan to fail)
thank you!

Jason Bittner, MPA, PMP
Principal, Transportation Planning and Research
608-770-0394

jbittner@ara.com
@ARA_Bittner