

Reinventing Technology Assessment

A 21st Century Model

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The Challenge



Science and technology transform our world.




Often the ramifications are not understood until they are well-entrenched.

Photos: © Arnold Paul, courtesy of Wig Zamore, http://www.cc.nih.gov/centerio/images/8662_large.jpg ; <http://www.tx.nrcs.usda.gov/news/lonestarlink/archives/09/biofarm.html>



**We style ourselves as living in a
“Technological Society” and an
“Information Age”**

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**We style ourselves as living in a
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“Information Age”**

**Yet we lack the information we
need to make informed decisions
about technology.**

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Technology Assessment (TA)

Enhances societal understanding
of the broad implications of
science and technology, and
improves decision-making.

Technology Assessment (TA)

- 1972: U.S. opens Office of Technology Assessment (OTA)
- 1995: U.S. Congress shuts down the OTA
- Meanwhile: 18 TA agencies now operate in Europe
- Since 1995: Repeated attempts to re-open U.S. OTA have failed
- 2008: Congress asks Government Accountability Office (GAO) to establish a permanent TA capability.

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- 2008: Congress asks Government Accountability Office (GAO) to establish a permanent TA capability.
 - For now GAO anticipates producing studies at less than 1/10th the OTA's annual rate.

Technology Assessment (TA)

*has the potential to
alter and improve societal outcomes*

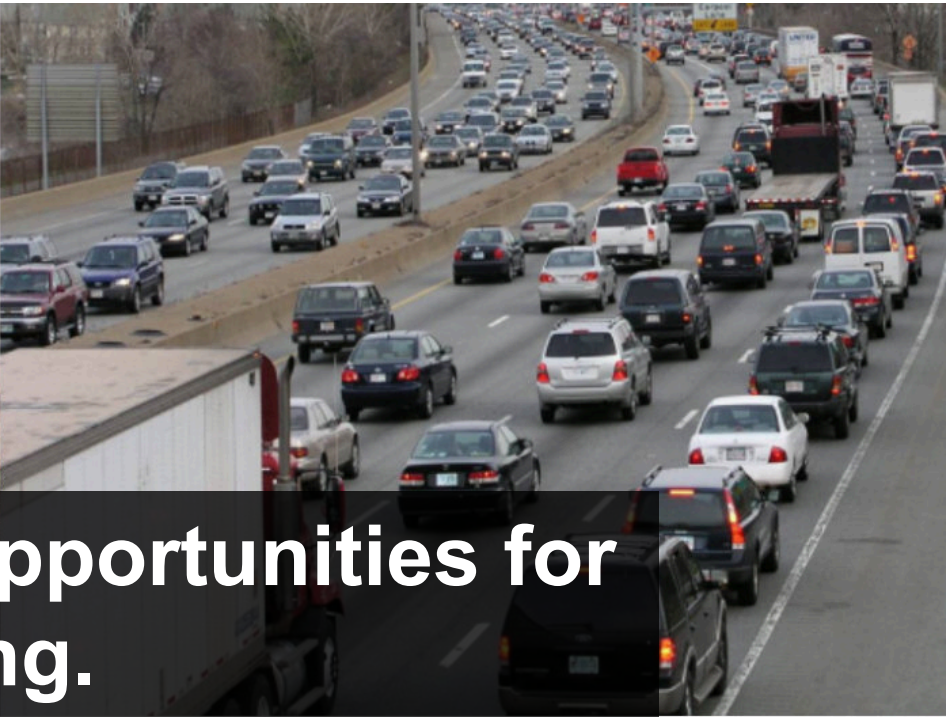
In Europe, TA has contributed to:

- Taking steps to adapt to global warming
- Developing strategies to produce green technologies
- Nuanced genetic technology choices (accelerating new pharmaceuticals, while going slow on gene-modified foods)
- Implementing REACH program that economically regulates all manufactured chemicals

New Opportunities & Developments

- New TA practices in Europe, including participatory technology assessment (pTA), which involves citizens
- Collaboration between universities and TA agencies in developing new TA concepts & methods
- The Internet makes TA and pTA possible on a more transparent, decentralized, agile, collaborative, and cost-effective basis.
- Transnational collaboration in TA is expanding.

→ TA and pTA are increasingly influential around the world.



**The need and opportunities for
TA are expanding.**

But the U.S. is lagging.



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Beyond OTA-style expert analysis, what's also needed is TA that...

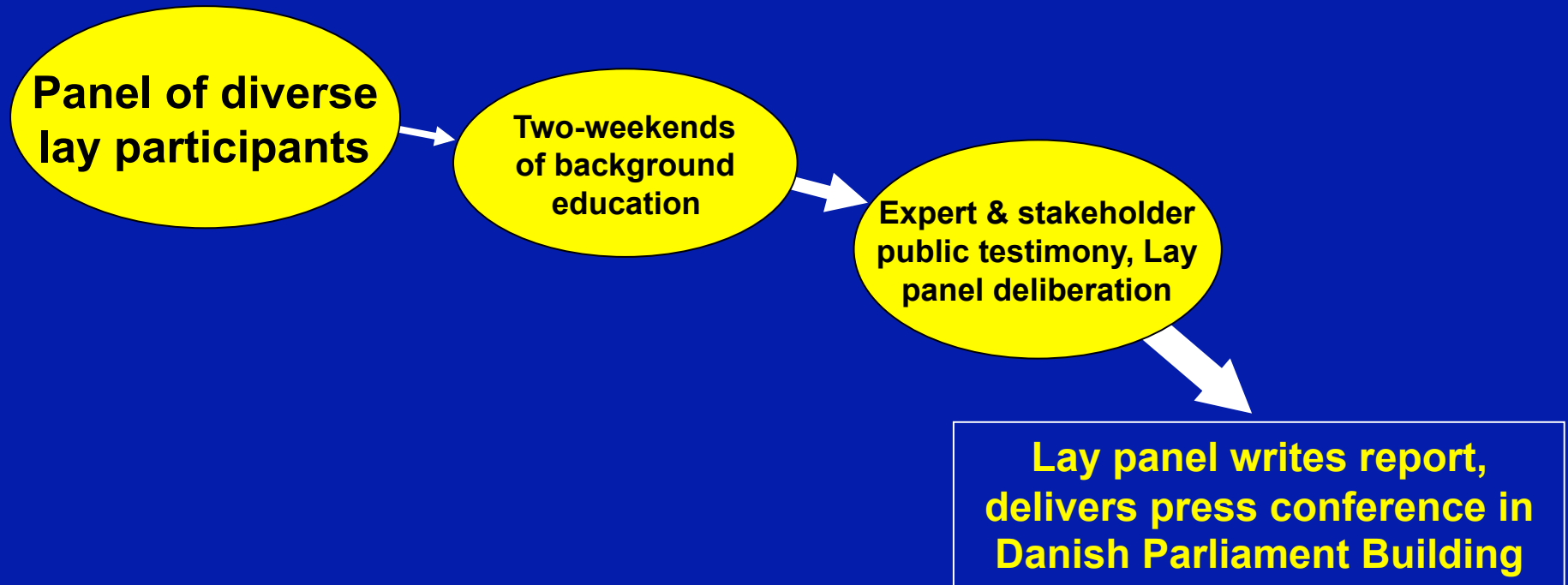
- Gives **a voice to everyday laypeople**, who are otherwise omitted in politics of science and technology
- Lets decision-makers know **constituents' informed views**
- Stimulates broad **societal discussion**
- Allows innovators to anticipate public reactions and to alter innovation to **reduce costly controversy**
- Deepens **social and ethical analysis** of technology, informing and enriching expert TA

***pTA and expert TA complement one another
in critical ways.***

An Influential pTA Method: Danish Consensus Conferences



An Influential pTA Method: Danish Consensus Conferences



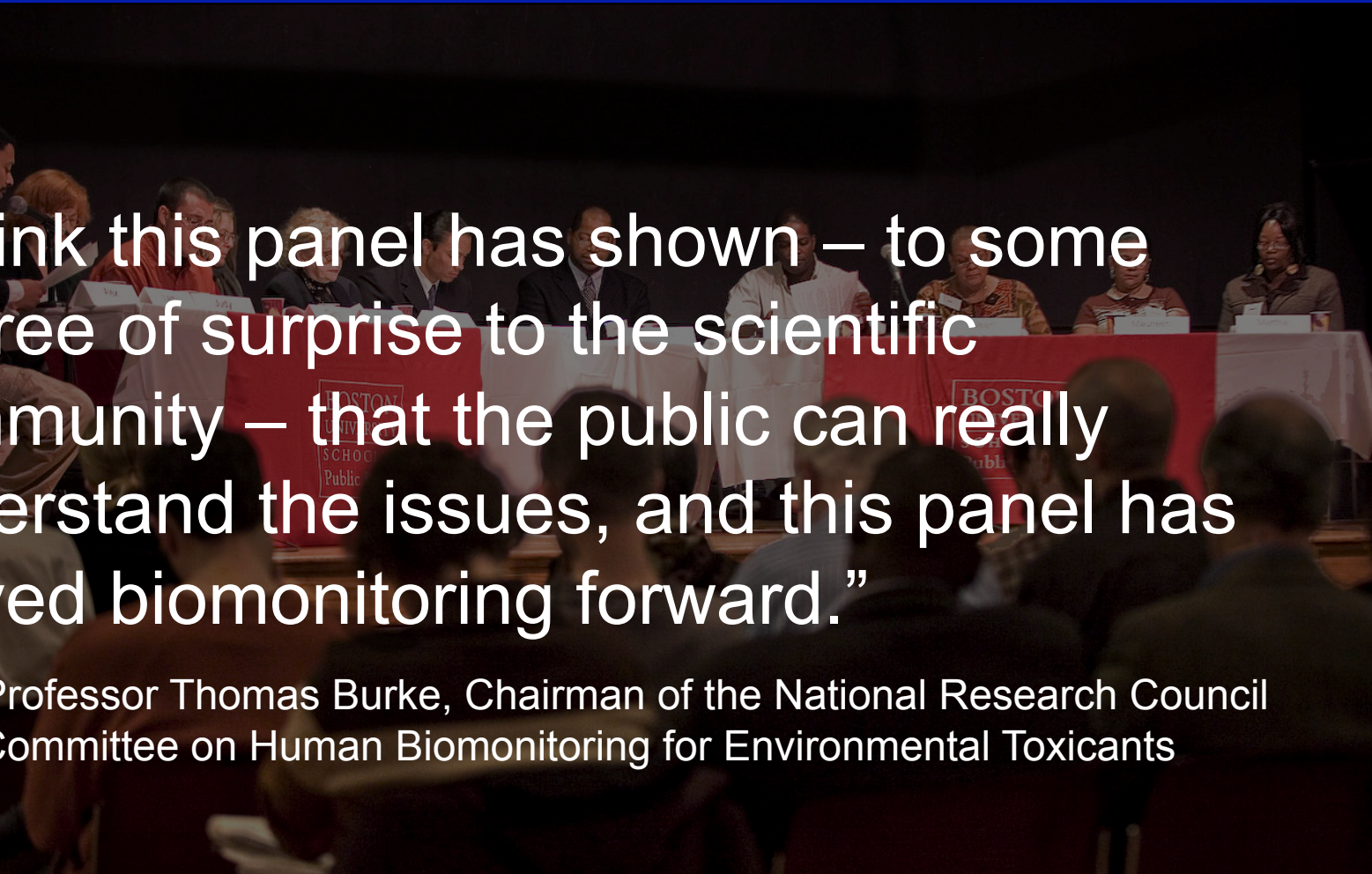
Sample pTA adaptations in the US:

- Boston Consensus Conference on Biomonitoring (2006)
- National Citizens' Technology Forum on Nanotech & Human Enhancement (2008)
- World Wide Views on Global Warming (2009)
- UMass-Lowell Scenario Workshop on Urban Ecology & Democracy (2002)

Boston Consensus Conference on Biomonitoring



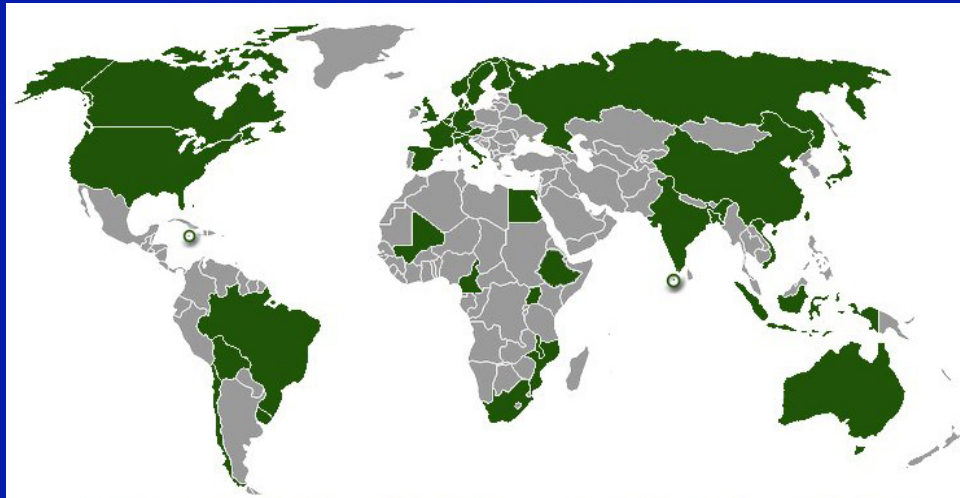
Boston Consensus Conference on Biomonitoring



“I think this panel has shown – to some degree of surprise to the scientific community – that the public can really understand the issues, and this panel has moved biomonitoring forward.”

- Professor Thomas Burke, Chairman of the National Research Council Committee on Human Biomonitoring for Environmental Toxicants

World Wide Views on Global Warming (WWViews)



WWViews at Boston
Museum of Science



Ambassadors of Sweden, Uganda, China, Chile and
India discuss WWViews results, Danish Parliament,
Nov. 19, 2009

Cost of Expert TA, Large-Scale pTA, and other Large-Scale Deliberative Processes

Location + Scope	Project or Method	Characteristics	Year	Est. Total Cost (2009 dollars)
U.S. TA	OTA Expert TA Study	Expert analysts; expert + knowledgeable stakeholder advisors	1980-1995	\$0.7 –1.4 million
	National Citizens Technology Forum on Nanotechnology & Human Enhancement (NCTF)	74 US laypeople at 6 sites across the USA, meet for 6 days face-to-face (f2f) + 9 two-hour online sessions	2008	\$0.5 million
	National Consensus Conference	24 U.S. laypeople travel 3 times to one site for f2f meetings, totaling 8 days. Note: substituting online for some or all f2f would reduce cost below range shown.	est.	\$0.4 – 0.8 million

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Large, High-End Non-TA, Citizen Deliberations	“CaliforniaSpeaks” – AmericaSpeaks 21 st Century Town Meeting	3,500 citizens at 8 California sites for 1 day, face-to-face + satellite-linked	2007	\$4.4 million
	U.S. Deliberative Poll (Fishkin)	200-600 people, f2f at one site for several days. Note: in future, online may lower cost.		“6 to 7 figures”
	Europewide Deliberative Poll	~350 citizens from 27 EU nations deliberate in Brussels for 3 days; 21 languages	2007 & 2009	\$2.2 – 3.6 million

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We need a 21st Century TA Model

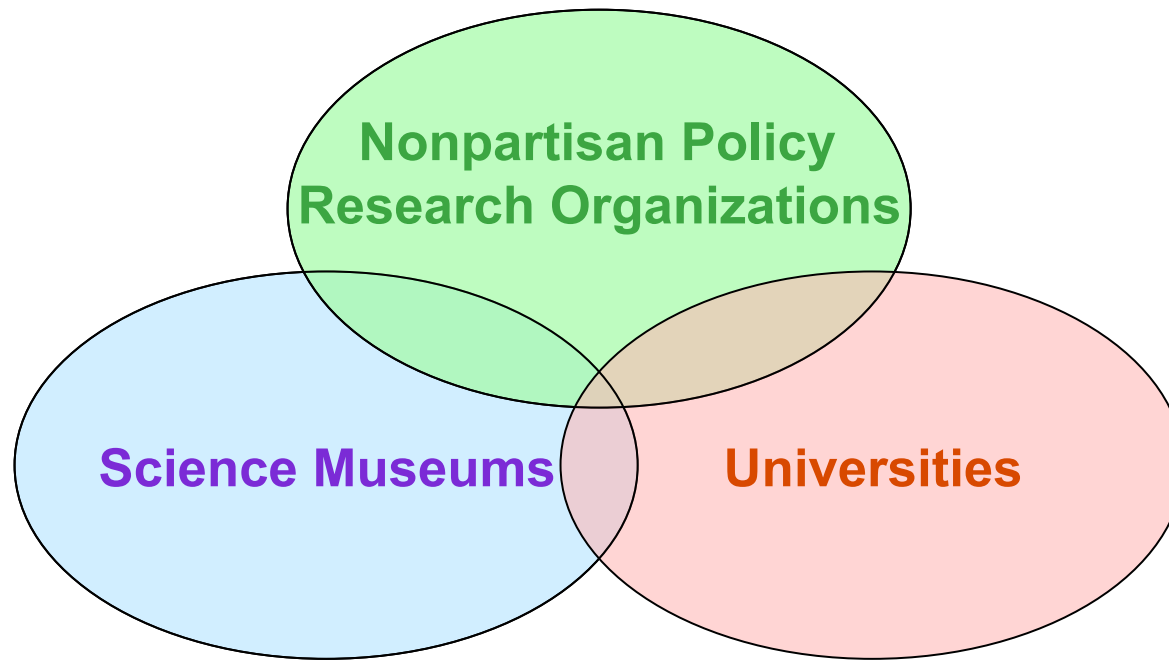
- Participation + Expertise
- 21st Century Structure: distributed, agile, collaborative
- Institutionally non-partisan while inviting and integrating diverse value perspectives
- Integrated into government policy-making, into wider societal deliberation, and into technological R&D, dissemination & management
- Continuously innovative in concepts and practices

A TA capability within Congress is valuable but not sufficient.

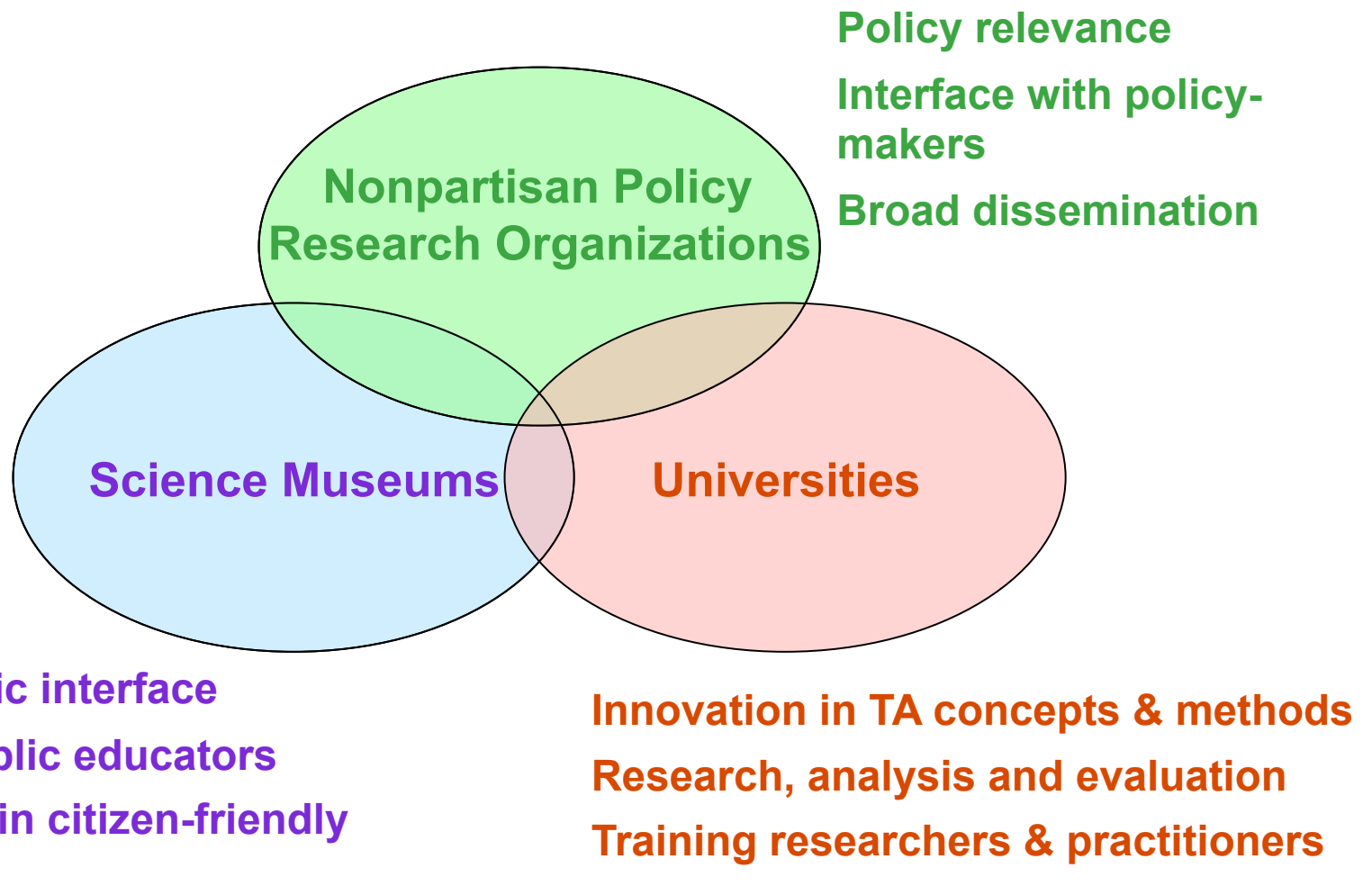
A TA capability *outside* Congress can more effectively:

- Conduct and demonstrate pTA
- Innovate in TA and pTA methods
- Conduct TA and pTA on behalf of other clients/agencies, etc.
- Stimulate societal discussion and advance public education
- Flexibly collaborate in transnational TA and pTA projects

An Institutional Network Model



An Institutional Network Model



**ECAST = *Expert & Citizen Assessment of
Science & Technology network***

The logo for ECAST features the letters 'E', 'C', 'A', 'S', and 'T' in a stylized, blocky font. The 'E' is red, the 'C' is blue, and the 'A', 'S', and 'T' are green. A thick red horizontal bar runs across the bottom of the letters, and a thick blue horizontal bar runs across the top of the letters.

Expert & Citizen Assessment of Science & Technology

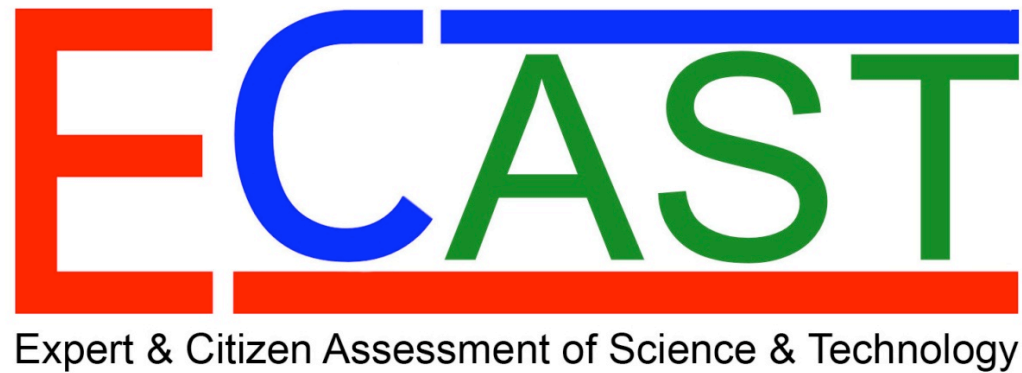
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Expert & Citizen Assessment of Science & Technology

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ECAST will expand to encompass institutions across the nation.



Founding partners:

- **Woodrow Wilson Center (Washington, DC)**
- **Arizona State University**
- **Boston Museum of Science**
- **ScienceCheerleader**
- **The Loka Institute**



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As other institutions learn about ECAST, they are expressing support and interest.

Establishing a 21st century TA capability in the U.S.

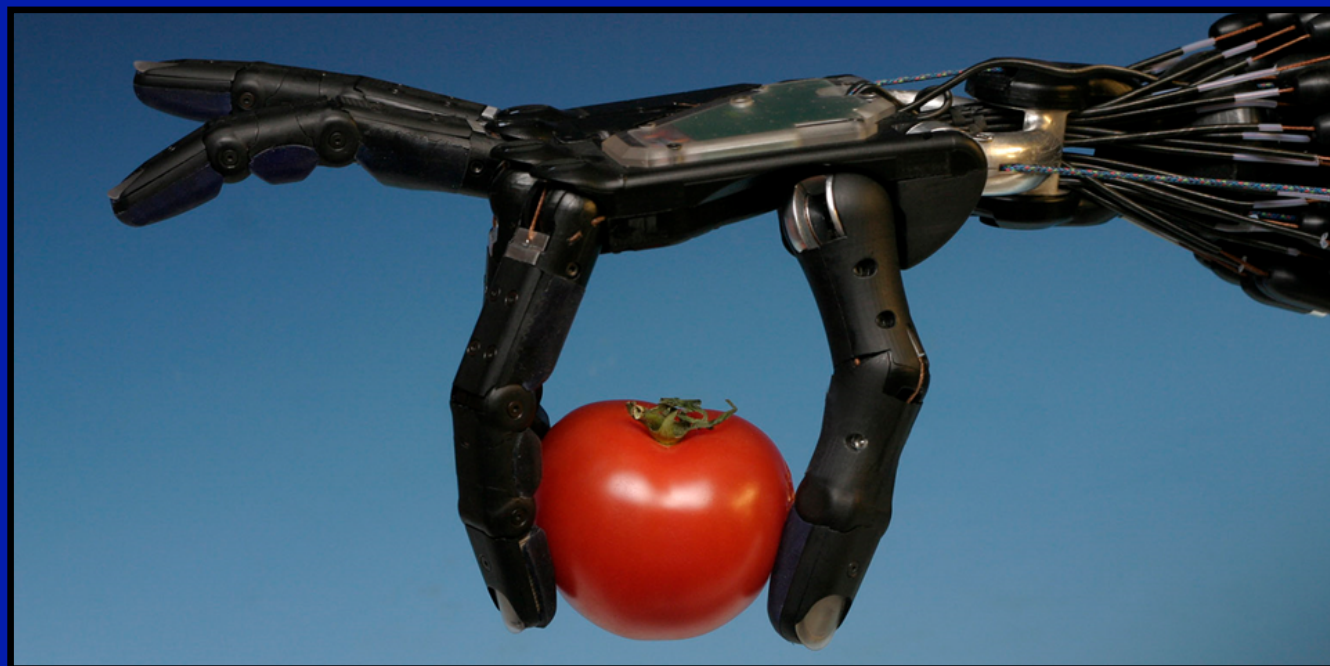
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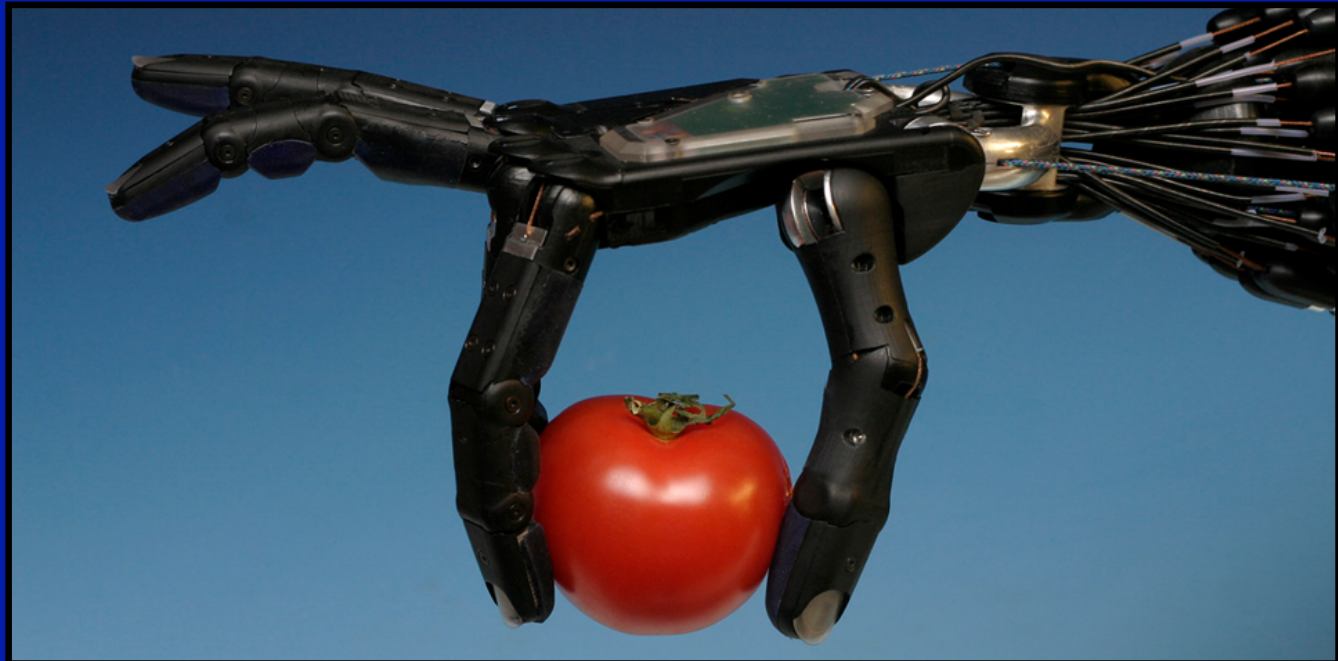


Courtesy Shadow Robot Company, Ltd.

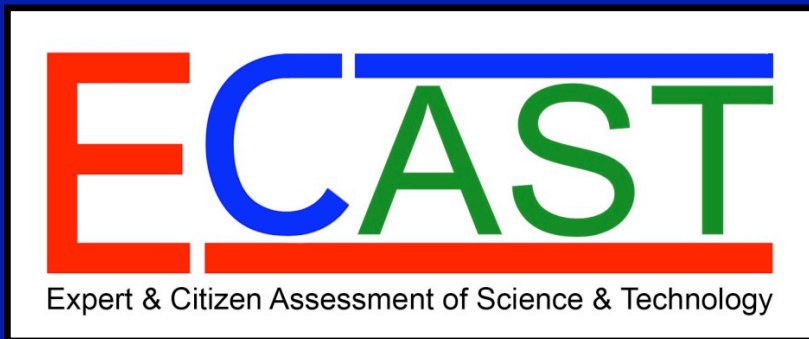
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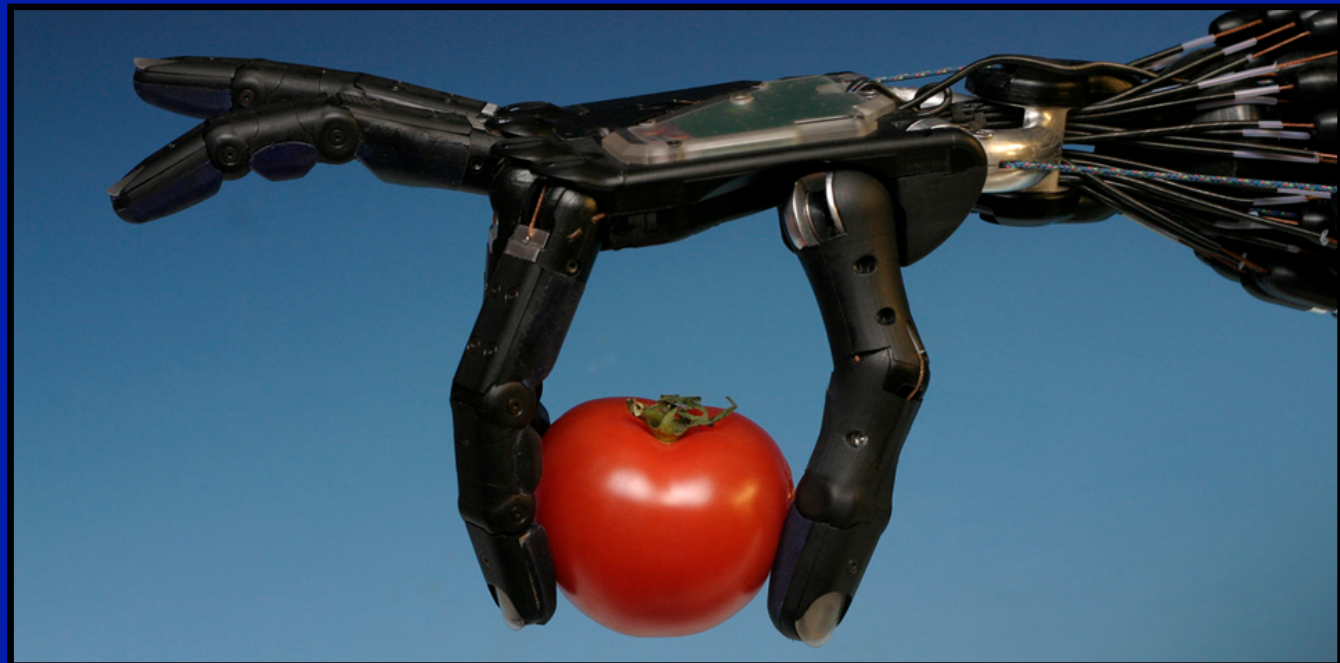


Visit www.ECASTnetwork.org for:

- E-mail updates about ECAST
- Richard Sclove's "Reinventing TA" report
- A video of today's discussion (available after May 7, 2010)

Contact presenter: Richard@Sclove.org

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