



*U.S. Department of Energy's
Office of Science*

The Market, Society and Communicating About Things 'Nano'

*Nanoscale Science Research Centers Seminar:
Safe Handling of Engineered Nanoscale Materials*

John Carter

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Communicating About ‘Nano’

- Key points
 - The market has gone round the world ...
 - Public awareness hasn't pulled its boots on ...
 - Think globally, talk locally



Communicating About ‘Nano’

U.S. government funding for nanoscale research

2001-07: \$7.2 billion

U.S. corporate funding for nanoscale research

2007: \$2.4 billion

- 23% more than U.S./state governments combined (2007)



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Global market for 'nano-enabled' goods in
2014 projected to be:

\$2.6 trillion

(15 percent of gross global product)



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Products

- 2006 – 212 manufacturer-identified, nano-enabled *consumer* products
- Today – More than 610 consumer products
- Each week – 3-4 new nano consumer products



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Mesoplatinum:

“Promotes increased mental focus and concentration. Promotes enhanced mental acuity. Supports healthy tissue regeneration of the heart tissue, thymus and the entire endocrine system.

Promotes increased creativity.

Promotes very vivid dreams. Promotes improved memory. Supports DNA repair. Promotes increased libido in both males and females.”



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Killcycle –
World’s fastest electric motorcycle, powered by
A123 Systems nano-phosphate™ battery cells





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- US Consumer Product Safety Commissioner to Senate Appropriations Subcommittee on Financial Services and General Government (2007):

“I do not pretend to understand nanotechnology and our agency does not pretend to have a grasp on this complicated subject matter.”



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One direction business/industry has taken ...

- *2000*: Nanotek Consortium – To explore how nano can improve the food industry
- *Today*: Interdisciplinary Network of Emerging Science and Technologies – “To facilitate the rapid integration of emerging revolutionary technologies with an emphasis on commercial applications”



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A different direction taken ...

EDF/DuPont “Nano Risk Framework”

- Continues a 20-year relationship
 - promote responsible development
 - facilitate public acceptance, and
 - act as model for government policy on nano safety

NANO
Risk Framework

A Partnership of Environmental Defense Fund and DuPont



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Hart survey (2007) exploring public awareness of nanotechnology:

- 71%: Heard little or nothing about nano
- 21%: Heard some
- 6%: Heard a lot
- 2%: Unsure



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(Hart survey, continued)

Initial impression, risks/benefits:

- 51%: Not sure
- 25%: Risks/benefits about equal
- 18%: Benefits outweigh risks
- 6%: Risks outweigh benefits



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(Hart survey, continued)

Informed impression, risks/benefits:

- 11%: Not sure
- 37%: Risks/benefits about equal
- 30%: Benefits outweigh risks
- 22%: Risks outweigh benefits



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- Cultural Cognition Project study (2008) of how public attitudes toward nano are likely to evolve as more is known about it
 - “... enlightened response to sound information *cannot* be taken for granted.”
 - “... the expertise of individuals disseminating information ... should not necessarily be expected to generate enlightened consensus ...”



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And:

- “... when individuals who know little about nanotechnology are exposed to information about it, they tend to polarize in their opinion along lines that reflect their cultural predisposition toward technological and environmental risks generally.”



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National Citizens Technology Forum (2008)

- Regulatory oversight, even if a new agency
- Public info programs/panels, enhanced K-12 ed
- Access/equity/funding accountability
- Safety, ethics, privacy, environment



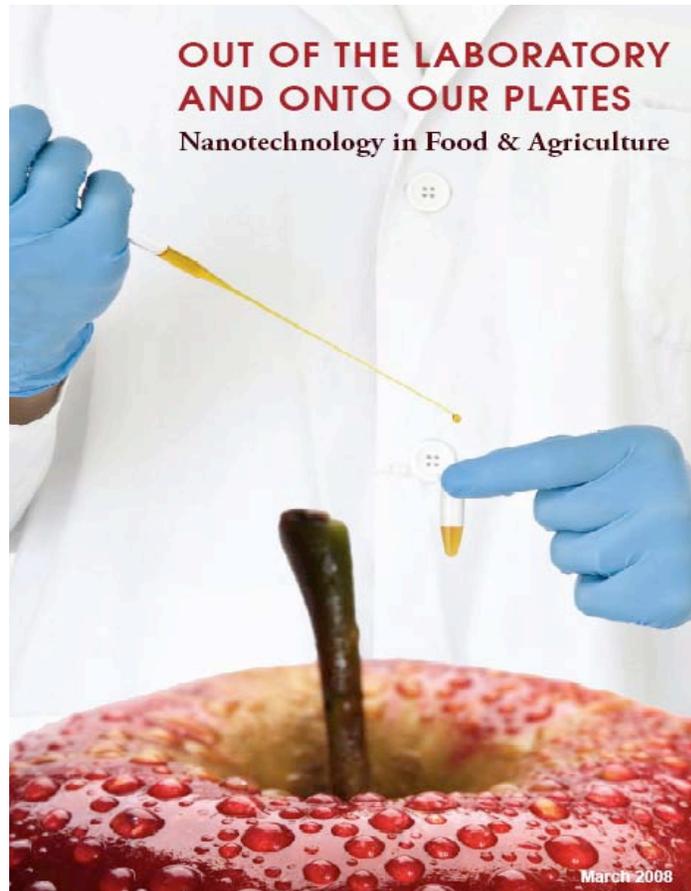


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- Citizens forum participants “disagreed significantly” with statements:
 - “I can contribute to science and technology policy decisions”
 - “Scientists understand my values”
 - “Scientists would treat me with respect”



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Friends of the Earth report:

- “products created using nanotechnology have entered the food chain”
- “rapidly expanding body of scientific studies demonstrating ... new risks to human health and the environment”
- “there is no way for anyone to choose to eat nano-free”

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Communicating nationally and locally:

- National Nanotechnology Coordination Office
 - Nanotechnology Public Engagement and Communication Group
- Brookhaven National Laboratory and its Community Advisory Council



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 - Public awareness hasn't pulled its boots on ...
 - Think globally, talk locally ... *NOW!*

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