Why Look at Technology This Way?

Our project is unique in the sense that we are not producing any tangible product. We are here to present to you information, and to hopefully raise your awareness of the complexity of the issues involved with the creation of technology. The need for such a project stems from two factors. First, the acceleration of growth. Technologies are being developed at a quickening pace, with little time for existing institutions and policies to adapt. We can no longer afford a reactionary stance to future technologies, which in many respects will redefine what it is to be human. Secondly, information pertaining to any technology is readily available to those who seek it. This availability of information allows for such discussion to occur, but only if people are willing to look.

For these reasons, we hope to bring awareness of the inability to address the societal impacts, such that better decisions and wiser choices can be made for the future.

Where do we go next?

INSIGHT, the formal title of our IPRO, can be a unique source for information regarding nanotechnology, including information on the technology itself, its applications, its possible risks, and social, political and economic issues that correlate to it.

Following this research we hope to investigate further the distribution of information on nanotechnology and answer questions that pertain to why these providers (Academic, Commercial, Government and Independent organizations) are presenting their information.

Connecting With You

The first step of our research has been to determine where our society stands today on the shift from the past to the future. The emergence of nanotechnology is extremely important and the implications that will arise, positive and negative, need to be evaluated and taken in to consideration when revealing the potential capabilities of this fascinating technology.

But now we need your help!

To move forward, INSIGHT will be depending on public involvement to gather your thoughts on these questions. After all, the public is the most important stakeholder in any technology, which will become pervasive in daily life. We hope that we have piqued your interests today, and invite you to visit our website to learn more about us, our project, and how you can begin thinking about these big questions.

Feel free to contact us for more information.

INSIGHT

Anticipating the Future... Assessing the Impact

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INSIGHT

Anticipating the Future... Assessing the Impact

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PROBLEM STATEMENT:

Our goal is to find a clear, understandable and unbiased provider of information on nanotechnology. We have also taken an extensive look at how information about nanotechnology is distributed to the general public, as well as some possible and current applications of nanotechnology.

OBJECTIVES

1. Research Nanotechnology

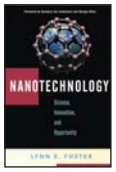
The first objective of IPRO 341 is to research the history and science of nanotechnology. The team will understand the underlying principles nanotechnology, identify key applications and stakeholders in the arena.

2. Assess Information from Stakeholders

The second objective of IPRO 341 is to assess several key stakeholders and evaluate the quality of information coming from each source.

NANO History Timeline

1959:
Richard Feynman's "There's plenty of Room at the Bottom" milestone speech



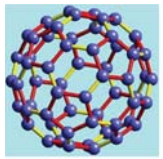
1974:
Word nanotechnology was first used by a man named Norio Taniguchi.

1974:
Mark Ratner and A. Aviram of IBM proposed that individual molecules may exhibit the behavior of basic electronic devices

1980:
Researchers found that a chemical- thiol would spontaneously react with a gold surface to assemble in layers

1981
Scanning Tunneling Microscope (STM) was invented

1985:
The buckyball discovered



1986:
the Atomic Force Microscope (AFM)

1997:
Zyvex, the first nanotech company was founded

zyvex

WHAT IS NANOTECHNOLOGY?

Nanotechnology is a technology based on the nanoscale (1/1,000,000,000 of a meter). Scientists are able to construct things from the ground up, by organizing atoms together one by one, until a larger object is made.

How small is nano?

- Human hair is 50,000 nm in diameter
- The smallest object visible to humans is 10,000 nm
- 10 hydrogen atoms in line equal 1 nm

Nanotechnology applications

- Adhesive bandages, where silver nano-particles mixed in the dressing area help to heal the wound faster
- Drug delivery patches where nano-sized medicine particles are absorbed through the skin
- Socks that contain small silver particles to keep the foot smelling fresh all day
- Sporting goods – tennis balls, golf balls and bowling balls perform better
- Cosmetic Products – sunscreen and anti-aging cream

WHY SHOULD WE CARE?

- It is already in use in some common products today, and according to the Woodrow Wilson Report, 54% of the public knows nothing about nanotechnology.
- President Bush said, "I propose to double the federal commitment to the most critical basic research programs. This funding will support. . . promising areas such as nanotechnology, supercomputing, and alternative energy sources."
- Certain possible risks have not been evaluated and accessed by regulatory agencies

1999:
National Nanotech Initiative

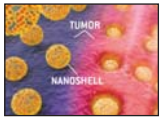
Pre-2010:
Nanotechnology itself revolution
Low-power, high-density computer memory

Pre-2010
Longer lasting batteries

Pre-2010
Some medical applications

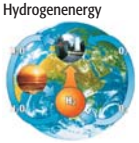
2015:
Advances in computer processing

2020:
New medical materials



2025:
Energy resolution: High effective solar energy

2025:
Hydrogenenergy



2045:
Robotics revolution: Intelligence Robot (as a cheap manual labor)

OPPORTUNITIES:

Nanotechnology offers opportunities to improve efficiency and sustainability. The National Nanotechnology Initiative (NNI) established a list of "Grand Challenges", which would be targeted for funding in the first year of the NNI:

1. Nanostructured materials by design-stronger, lighter, harder, self-repairing, and safer
2. Nanoelectronics, optoelectronics, and magnetics
3. Advanced healthcare, therapeutics, and diagnostics
4. Nanoscale processes for environmental improvement
5. Efficient energy conversion and storage
6. Microcraft space exploration, and industrialization
7. Bionanosensors for communicable disease and biological threat detection
8. Applications to economical and safe transportation
9. Applications to national security

CONCLUSION:

Our research leads us to conclude that nanotechnology needs information sources that take a step back from the disjointed and inconsistent approach now taken by current stakeholders. Nanotechnology, being such a dynamic technology, possesses the potential to change the way our society functions.

Common elements identified:

- Each organization and provider of information has its own agenda to promote and support
- The information provided has a bias on some level, whether it is content presented or affiliations recognized
- Almost all funding could be traced back to government money (e.g. NNI) either directly or indirectly

Thus, we conclude that there is a need for a source that generates public awareness as well as participates in public discourse, which does not have influencers that could raise doubt about its integrity and reliability, and shares information that is easily accessible as well as credible.