



Final Report from Madison, Wisconsin March 30, 2008

INTRODUCTION

In March 2008, fourteen residents of the Madison metropolitan area participated in the “National Citizens’ Technology Forum” (NCTF), a project funded by the National Science Foundation through the Center on Nanotechnology and Society at Arizona State University. Teams of researchers from six universities, including the University of Wisconsin-Madison, organized parallel panels of approximately 15 individuals. Each group was charged with the task of developing policy recommendations on the topic of *technologies of human enhancement*, addressing scientific and technical developments in nanotechnology, biotechnology, information technology, and cognitive science (NBIC technologies). Participants undertook a guided process of learning and deliberating in order to create a set of recommendations arrived upon by consensus. Participants were chosen to reflect the diversity of each region and applicants were screened for conflicts of interest and prior affiliation with organizations that had taken a political position on nanotechnology.

THE PROCESS

Participants began by reading a sixty page packet of background materials compiled by the NCTF coordinating researchers at North Carolina State University. The packet, “Human Enhancement, Identity, and Biology,” represented an attempt to assemble the most accurate, current, and non-partisan information available and was reviewed by a number of specialists to ensure its accuracy, balance, and accessibility to non-experts. On March 1 and 2, the Madison participants met together with a team of researchers from the University of Wisconsin-Madison to discuss the background materials and begin to explore the various social, political, technical, economic, environmental, and ethical aspects of human enhancement NBIC technologies. The second phase of deliberation occurred online: Madison participants joined participants from the five other sites across the USA in a series of nine virtual, web-based meetings to develop and pose questions to scientific experts. In the third phase, the Madison group met in person on March 29 and 30 to evaluate what they had learned and deliberate over possible policy recommendations.

THE PURPOSE

Challenges such as genetically modified food, climate change, and stem cell research suggest the value of engaging citizens in technological governance. Often, however, citizens are invited to learn and deliberate only *after* a technology has been introduced. In contrast, the NCTF aims to engage laypersons before significant technologies of human enhancement mature and reach the stage of deployment and commercialization. Researchers and participants alike see the value in incorporating the concerns of laypersons in the governance, research, and development of technologies with great potential to affect human society and the environment. The consensus format of the NCTF, in particular, represents one strategy to take advantage of the intersection of lay and expert knowledge – engaging “ordinary” citizens who have invested time and energy to learn from experts and deliberate over possible guidelines for technology.

POLICY RECOMMENDATIONS

The following recommendations represent the consensus of the fourteen members of the Madison panel of the NCTF. For the purposes of this document, consensus indicates not unanimous support, but the wisdom of the group without major objection.

1. FUNDING ACCOUNTABILITY

Require state and federal agencies that fund or provide partial funding for human enhancement technologies research at either private or public institutions to make the following information available at a centralized, online location:

- Availability of funding/criteria
- Agency/researchers being funded
- Goals of the research
- Regular status reports
- Final reports
- Community notification/outreach

2. PRIVACY CONCERNS

- Recent erosions of privacy might combine with unprecedented possibilities of nanotech to further endanger privacy rights. We propose that appropriate precautions be taken to safeguard privacy, favoring individual rights.
- We propose that diagnostic tests or procedures, especially those that could result in denial of health coverage, be kept confidential and private.
- Legal privacy concerns will be more complex as new NBIC technologies emerge. For example, body modifications and modifications of one’s children challenge current distinctions between individual rights and the public interest.

3. ETHICAL CONSIDERATIONS

We believe that ethical considerations are integral to the scientific process. To that end, scientists in both the public and private sectors of nanotechnology development should strive to benefit the greatest common good and address basic societal issues. In order to achieve this goal, we recommend the following:

- Ethical concerns should be incorporated in all science curricula.
- All regulatory bodies involved with nanotechnology should include at least one ethicist.
- Policies should be developed to address the possibility that an increase in expensive technology will result in an increase in economic and social division, both nationally and internationally.

4. SAFETY/TESTING CONCERNS

“Prevention is better than cure” holds true for NBIC human enhancement developments. We suggest that it will be more cost efficient to enforce comprehensive and rigorous testing and safety standards before the products are on the market, rather than addressing the various health and legal problems that might arise without extensive and thorough testing of the products.

In order to ensure that the risk/benefit ratio is properly assessed prior to using such products, we recommend that FDA provide effective communication of possible/expected side effects and long term effects of using any nanotech products, not just medicine and food-related, in easy language that is understood by the common people.

5. HEALTH INSURANCE

- Health insurance policies in general should cover any nanotech enhancements and remediation technologies that could be deemed as medically necessary by current medical and insurance industry standards.
- Health insurance providers should be diligent in keeping up with current NBIC procedures and technologies and updating policies with specific inclusions and exclusions to coverage.
- Health insurance providers should include clear statements of their coverage of NBIC technologies in their policies.

6. FDA

- Empower the FDA to accomplish its mission with adequate funding in order to review its mission and to operate successfully to meet the mission.
- The FDA’s mission needs to include nanotechnology.
- Ensure enforcement of FDA guidelines for all individuals involved in the development and manufacture of NBIC technologies.
- Ensure that guidelines keep pace with new developments and their social and ethical impacts.
- Make nano-toxicity research a higher funding priority.
- Establish a series of regulatory goals and deadlines for the nanotech industry.

7. EDUCATION

- Include nanotechnology in basic high school science curricula.
- Increase funding for science programs for improving teacher training and recruitment as part of a broad effort to improve K-12 education.

THE PANELISTS

Daña Alder, Theresa Behnen, John Bushong, Nathan Comp, Andrea Connell, Madhavi Dodda, John Endres, Abbey Johnson, Leslie Kurabelis, Virginia Pickerell, Joseph Powell, Don Schantz, Marissa Steen, Magda Valdes

THE RESEARCH AND FACILITATION TEAM (UW Madison)

Daniel Kleinman, Jason Delborne, Ashley Anderson, Maria Powell, Mathilde Colin

For more information, please contact Jason Delborne (delborne[AT]wisc[DOT]edu)