

# MICROPRODUCTS SURVEY

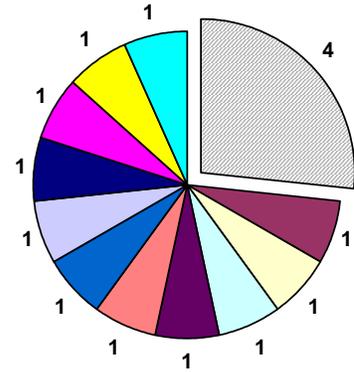
## Summer 2004

### (SURVEY RESULTS)

#### A. GENERAL

### Question 1. Most Pressing Need (Now)

- Manufacturing/Manufacturers investigate what is available
- Thermal management
- Microbots for reconnaissance
- Health (smaller pacemakers)
- Fine tolerances on product
- Educate consumers on what is available
- Nonoparticle analysis methods and tools
- Semiconductor processing
- Components (pumps, valves) with quick connects
- Replace existing sensors (10X speed, selectivity, stability, sensitivity)
- Aerospace and homeland defense
- Operational data



No. Responses

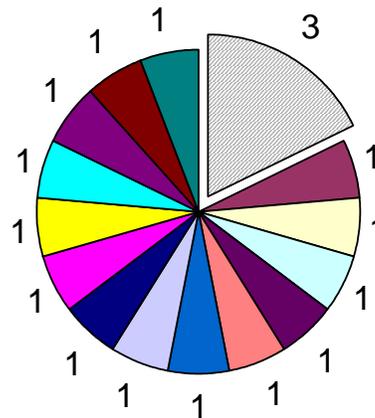
### Question 2. Most Pressing Need (5 Years)

- 
- | Category  | No. Responses |
|---|---------------|
| Tooling for polymer-based microproducts                             | 1             |
| Thermal management for power production                             | 1             |
| Nanobots for military use   | 1             |
| Digital cameras/Inkjets dpi   | 1             |
| Automated nanoparticle analysis methods and tools                   | 1             |
| Biotechnology   | 1             |
| Medical (drug delivery and biocompatibility)                        | 1             |
| Assembled unit operations and processes                             | 1             |
| Surface transformation to reduce corrosion, scaling, fouling, other | 1             |
| Aerospace and homeland defense                                      | 1             |
| New material and processes  | 1             |
| Manufacturing facilities for nanoproducts                           | 1             |
- Tooling for polymer-based microproducts
  - Thermal management for power production
  - Nanobots for military use
  - Digital cameras/Inkjets dpi
  - Automated nanoparticle analysis methods and tools
  - Biotechnology
  - Medical (drug delivery and biocompatibility)
  - Assembled unit operations and processes
  - Surface transformation to reduce corrosion, scaling, fouling, other
  - Aerospace and homeland defense
  - New material and processes
  - Manufacturing facilities for nanoproducts

No. Responses

### Question 3. Greatest Challenge (Marketplace)

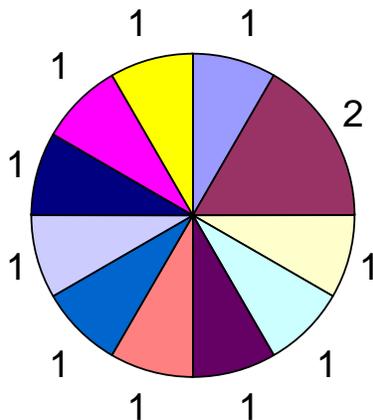
- ▨ Educate designers, end-users, industry
- Meet product demand/Identify customer need
- Structure transactions to get paid
- Transparent stock market
- Demand led corporate policies
- New war paradigm ([www.dtic.mil/doctrine](http://www.dtic.mil/doctrine))
- Microproducts manufacturing
- Funding for small groups with novel ideas
- Incentives for large corporations
- Nano-scale savvy workforce
- Sufficient timescale for grants so nanotechnology concepts can be commercialized
- Applications with value proposition
- Tests, measurement, evaluation of microproduct performance
- Consistent R&D funding base
- Access to cost-effective R&D facilities, processes, and engineering



No. Responses

### Question 4. What will accelerate the pace?

- Buyers with cash
- Education--individual, companies, all consumers
- ITRS roadmap (<http://public.itrs.net>)
- Split large grants to smaller grants for many
- Policy-making such as Soldier Nanotech Initiative
- Train nano-designers (all ages not just new graduates)
- Introduce products for laboratory use
- Move from University R&D to proof of concept product
- Fund intermediate programs
- Awareness, visibility, and success stories
- Marketing MEMS to established industries

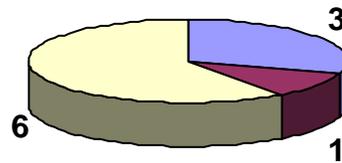


No. Responses

## B. YOUR COMPANY

### Question 5. Homegrown vs External

No. Responses



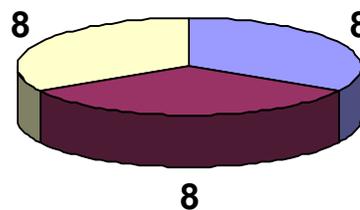
Homegrown

External

Both

### Question 6. National Lab or University

No. Responses



University

National Laboratory

Corporate

### Question 7 to 10: Your activities

Offer nanotechnology IP

Share information

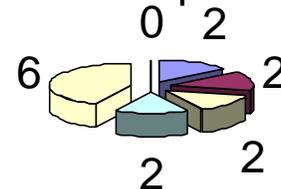
Fund research programs

Standard setting activities

Federally-Funding Research Programs

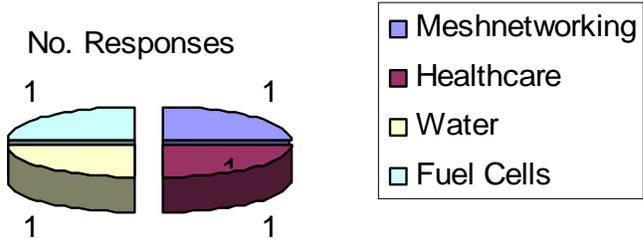
Venture Capital

No. Responses

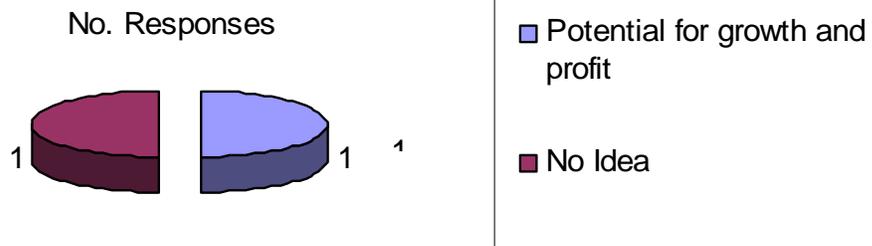


## C. VENTURE CAPITAL

### Question 10. Product Areas



### Question 11. What Investors Look For



### Question 12. Typical Funding

