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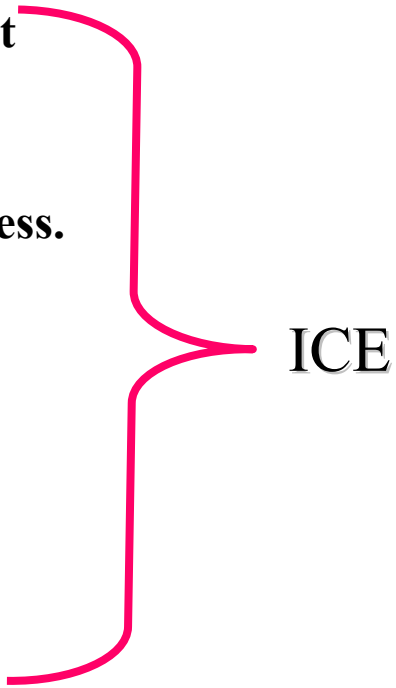
Leaders in Instrumentation, Controls and Electronics.
Partners in Economic Growth.

Joseph P. Keithley
Chairman, Chairman, President and CEO
Keithley Instruments, Inc.
Chairman, Ohio ICE
June 29, 2004

ICE is High-Tech

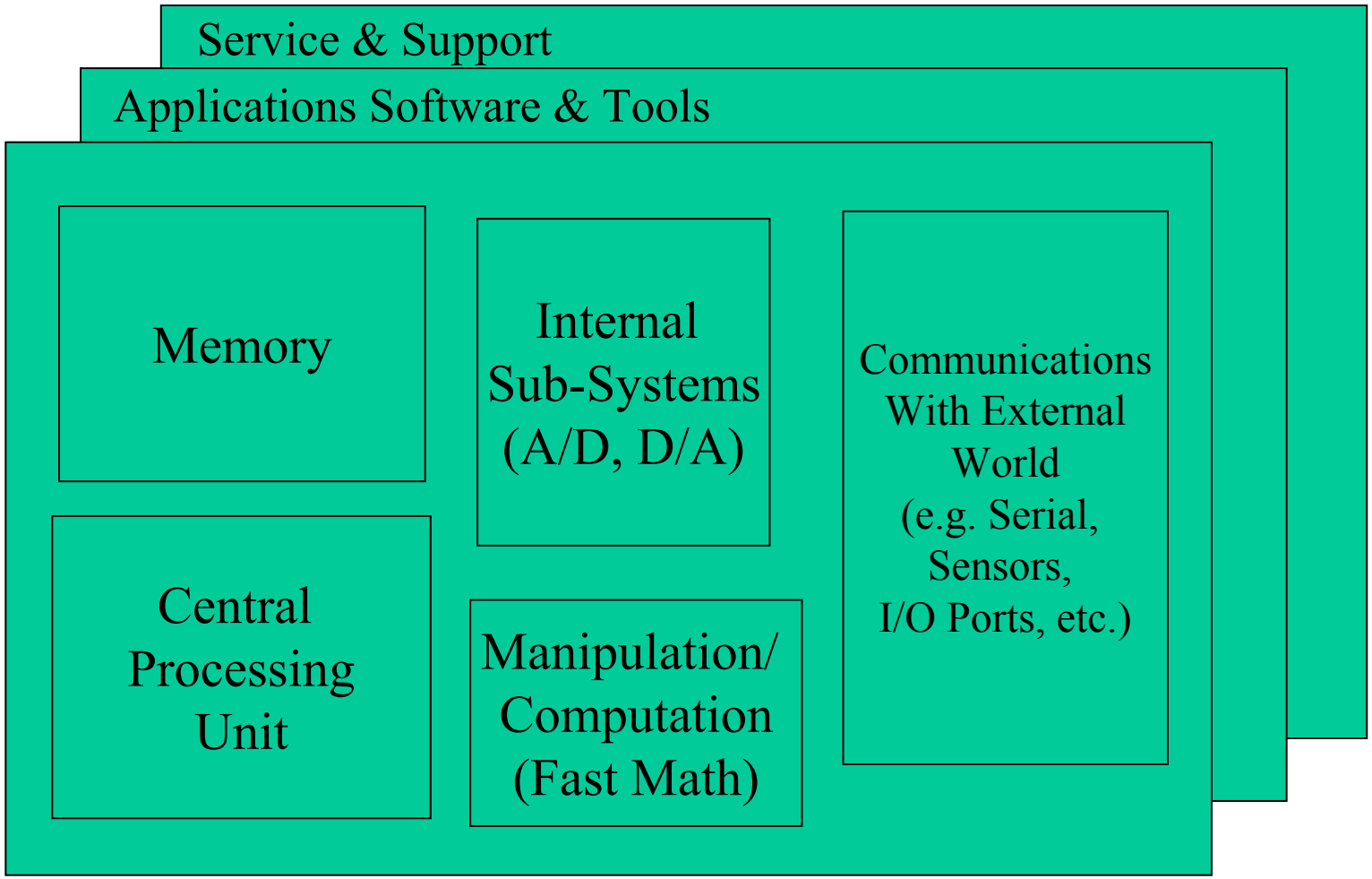
- **High-Tech Manufacturing:**
  - Computers & Office Equipment
  - Consumer Electronics
  - Communications Equipment
  - Electronic Components and Acess.
  - Semiconductors
  - Industrial Electronics
    - Instrumentation
    - Controls
  - Photonics
  - Defense Electronics
  - Electromedical Equipment



- **Communications Services (telephone & cable)**
- **Software and Computer Related Services**

Digital Signal Processor (DSP)

Highly Integrated Electronic "System on a Chip"



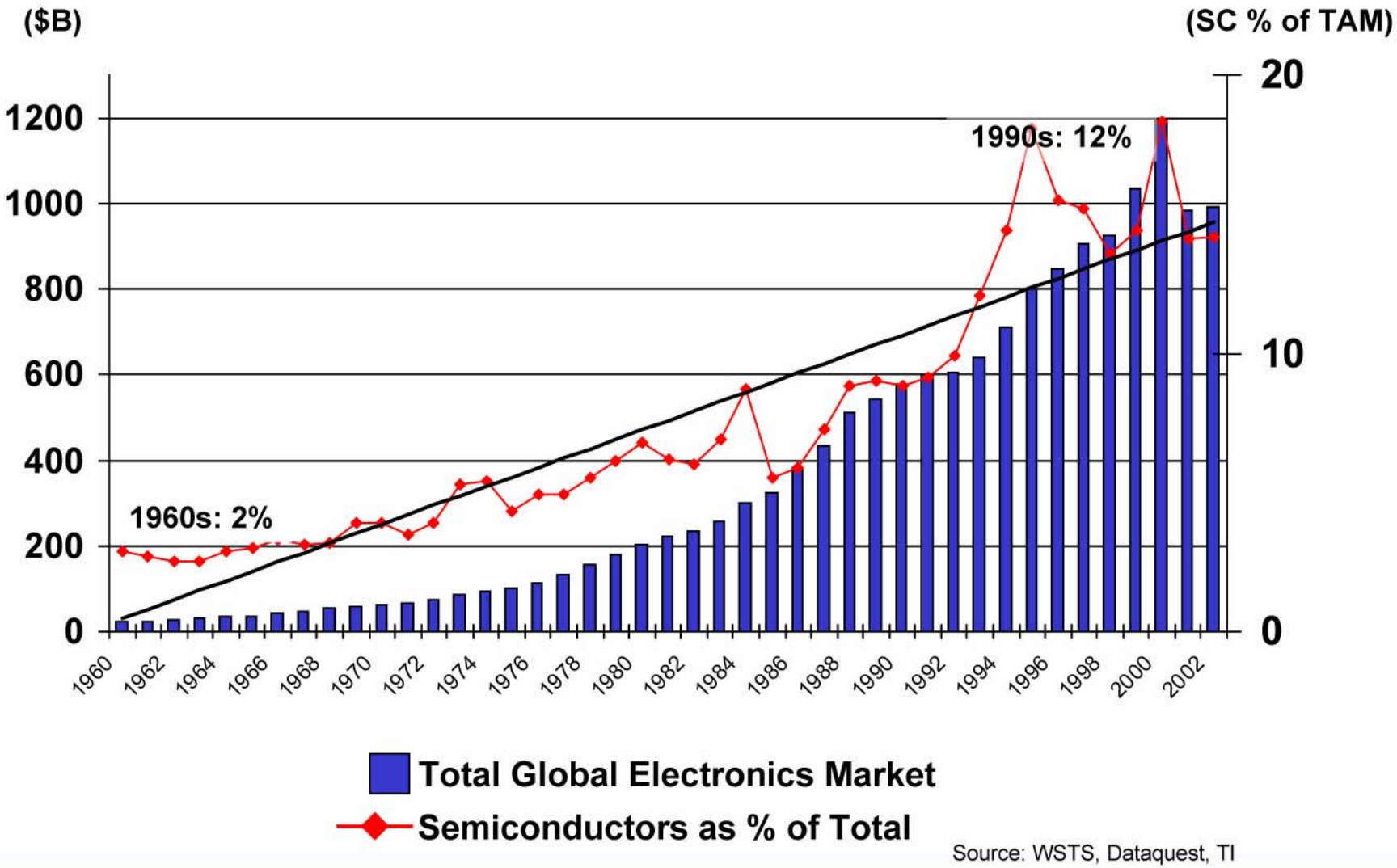
DSP End-Use Applications

Tens of Millions Shipped to Thousands of Customers

- Optimized End-Equipment Solutions
  - Heart of Advanced Embedded Control Applications
    - Home Appliances (White Goods) - Digital Motor Control
    - HVAC - Motor Control
    - Optical Lasers
    - Hard Disk Drive Servo Control
  - Heart of Handheld Solutions in Internet Era
    - Digital Still Cameras
    - Digital Cellular Phones
    - Internet Audio Players
    - Wireless Terminals
  - Heart of Solutions for New, High-bandwidth Communications and Video Equipment
    - Home Theater Audio
    - IBOC Digital Radio
    - Imaging and Video Servers
    - Gateways Wireless Base stations and Transcoders
    - Security/Surveillance/BioMetrics
    - DSL

Global Electronics Market

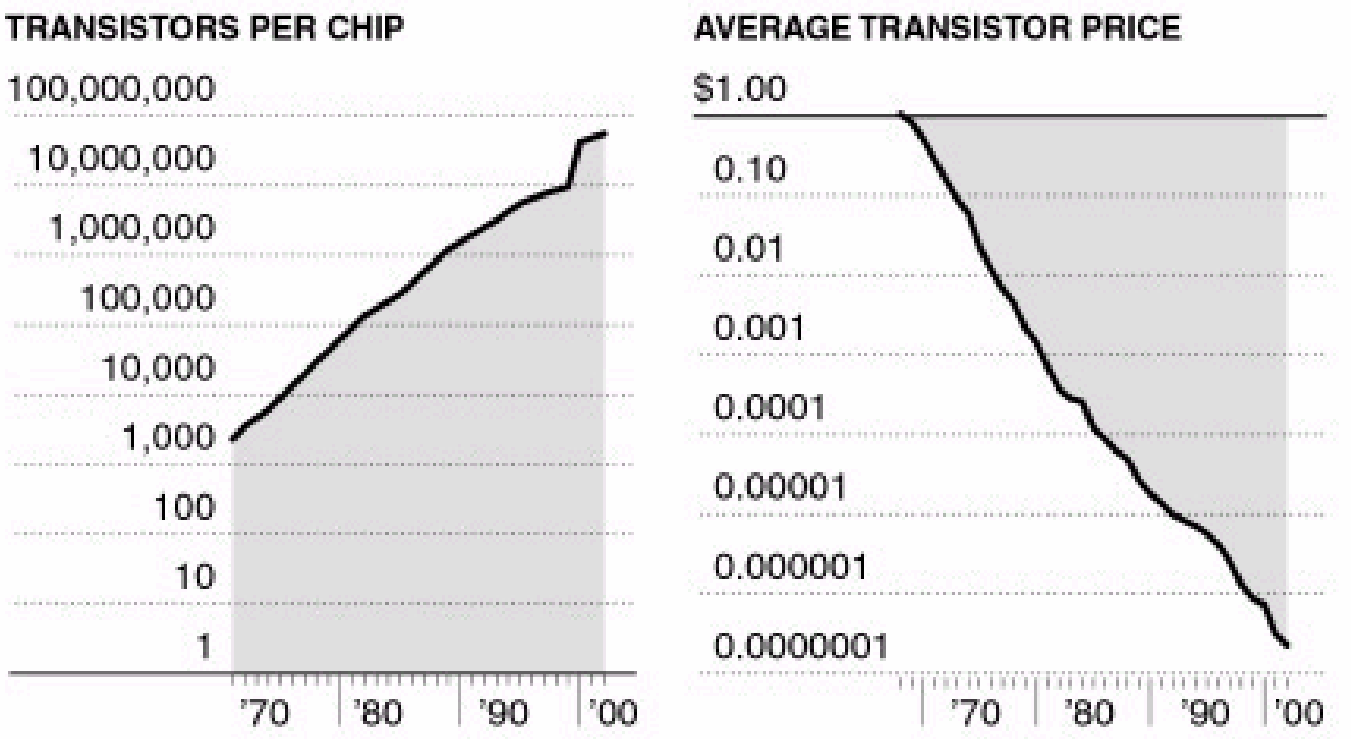
Semiconductors Rising in Value



Source: WSTS, Dataquest, TI

The New York Times April 8, 2003

Cheap Speed – Semiconductor Industry
Innovation Continues Unabated

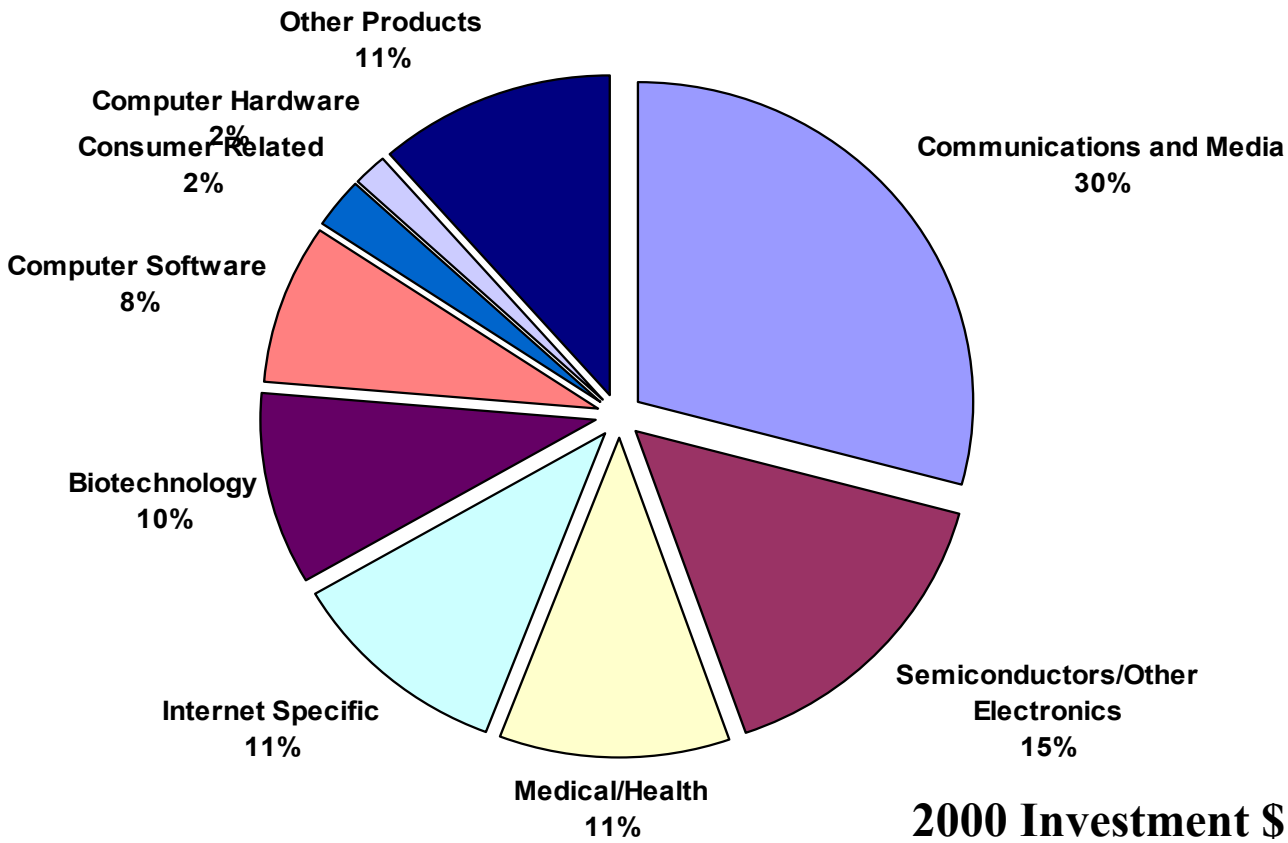


Source: Intel

The New York Times

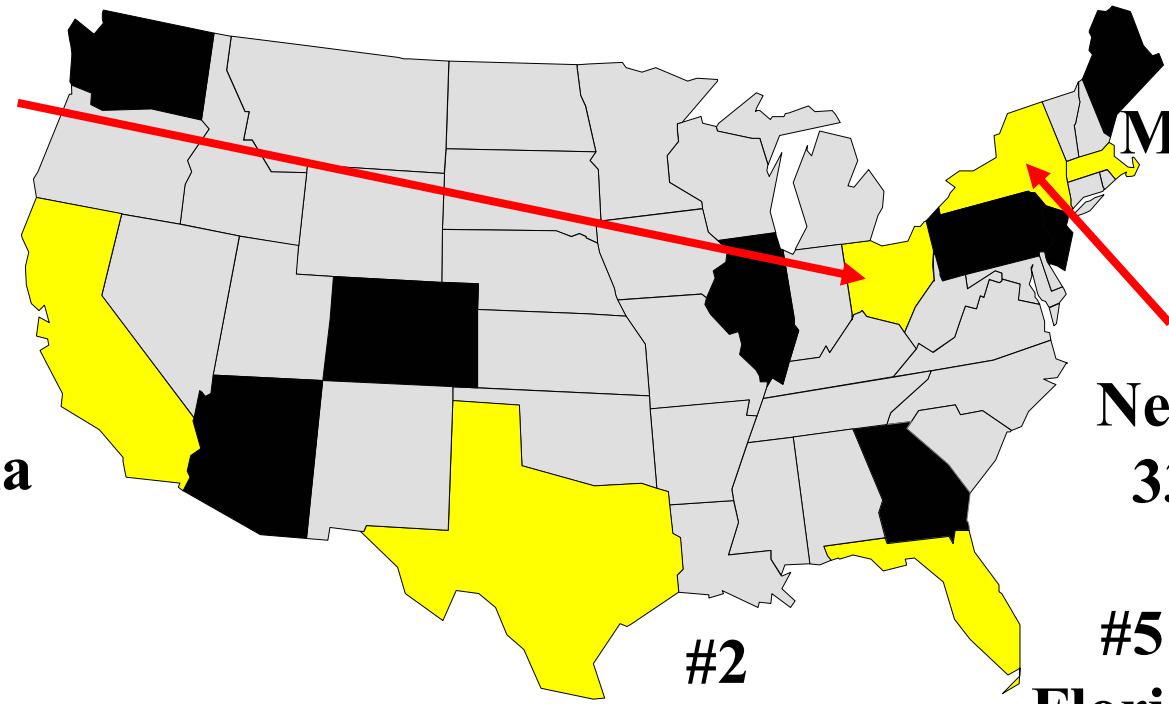
Investment Fuels Innovation

Venture Capital Investments NVCA



2000 Investment $103,848 M

US High-Tech Industry Employs 5.3 million



Source: Bureau of Labor Statistics
Top Cyberstates, By High-Tech Employment, 2000

We have a Foundation for Growth: Ohio's High Tech Corridor

Employment:

Columbus	**32,200**
Cleveland	**31,800**
Cincinnati	**20,800**
Dayton	**18,400**

Midwest
70% of total high tech employment

AEA Council

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Northeast Ohio ICE Industry

- Approx. 500 high tech companies creating / developing / manufacturing
  - Equipment & automation systems that drive & control processes
  - Equipment for testing, measuring & acquiring data
- Customer base: Worldwide
- Manufacturers whose products are enabled through electronics
  - Hardware
  - software

Northeast Ohio ICE Profile

Size	#	%	Cum %
1-9	233	49	49
10-24	95	20	69
25-49	40	8	77
50-99	45	9	86
100-249	50	11	97
250-999	7	1	98
1000+	6	1	99

Source: D&B

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Building Competitive Advantage and Increasing Impact

- Significantly increased research activity
- Greater partnership with local universities to strengthen and channel programs toward industry needs. Develop recruiting channels from these programs to cluster firms
- Build awareness of Ohio's ICE & AM industry as a source of regional strength
- Improve the awareness and effectiveness of technology exchange between the universities and their incubator efforts, and industry

Ohio ICE - A Virtual Institute Linking Industry Needs to Leading Ohio Research Centers

- **Vision:** Establish Ohio as global leader in the research, development, and application of instrumentation, control, and electronic technology to system design challenges.
- **Ohio ICE**: Will create linkages of common purpose across:
  - Ohio Universities
  - Edison Centers
  - National Laboratories
  - Ohio's ICE industries

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Ohio ICE - Strategic Objectives

- **Focus of Institute and Industry Linkages:**
  - Enhance technology research
  - Support technology transfer
  - Increase commercialization opportunities grounded in Ohio's economy
  - Provide skilled workforce to support industry growth in Ohio
  - Create an environment stimulating for Venture Capital Investment

Ohio ICE 2004-2005

Three Researchable Areas:

- Sensors
- Distributed systems and autonomous agents
- Advanced motion control

In Summary

- Investment in Electronics is critical to Ohio's future
- Communications Revolution is driving growth
- Emphasis on miniaturization, portability, universal access, and new technologies including MEM's, IT, wireless, sensors, components, advanced materials
- **To capitalize on this opportunity, Northeast Ohio requires:**
  - Leadership (industry and political)
  - Creating an image that Ohio *already has* large & important Electronics Industry
  - Regional universities with powerful EECS departments
  - A trained technical workforce
  - Increased access to capital for start-ups
  - Active program to get growing electronics companies to put their next expansions or new design centers in Ohio

Next Steps

- Support the development and recognition of the Instruments, Controls & Electronics Industry
- Increase collaborative research activity
- Further the awareness of Ohio ICE:

  Attend events, share information, collaborate, visit web site (ohio-ice.org)

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