Minnesota’s Technology-Based Economy—
A Framework for Global Competitiveness

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A Framework for Global Competitiveness

- Confluence/convergence of technologies - vertical disciplines are important, but lines are blurring

- Perceived weakness is actually a strength – MN not “super strong” in any one vertical, but “very good” in many

- Elements of a framework for sustainable technology-based economy cross vertical sectors

- Our job is to agree on elements, use collective resources to strengthen the framework/foundation
Confluence/Convergence of Technologies
Vertical disciplines are important—but lines are blurring

League of Innovations, 2002
Confluence/Convergence of Technologies

• “Biologists are helping material scientists understand how the simple abalone can take calcium carbonate – the same material that makes up common (and crumbly) schoolroom chalk – and make a seashell that is 3000 times stronger than chalk.”

• “Similarly, medical professionals who are attempting to solve complex health problems at the molecular level are now speaking with mechanical engineers to help them develop tools that mimic the motors in ATP, an enzyme in the human body.”

-- Jack Uldrich with Deb Newberry; “The Next Big Thing is Really Small;” 2003
Perceived Weakness is Actually a Strength

Minnesota is not “super strong” in any one vertical, but “very good” in many

Vertical Sectors—Industry Segments

<table>
<thead>
<tr>
<th>MED TECH</th>
<th>BIO MED</th>
<th>AG &amp; FOOD SCIENCES</th>
<th>INDUSTRIAL BIOTECH</th>
<th>ALTERNATIVE ENERGY</th>
<th>ADVANCED MATERIALS</th>
<th>ADVANCED MFG</th>
<th>IT &amp; SOFTWARE</th>
<th>COMMUNICATIONS</th>
<th>CONSULTING</th>
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- Difficult to clearly segment/measure vertical sectors
Perceived Weakness is Actually a Strength

Minnesota is not “super strong” in any one vertical, but “very good” in many

• “Corporations will become a melting pot not of racial diversity but of technical diversity, bringing together all aspects of the sciences.”

• “…with the introduction of nanotechnology into the market segment, guidelines become very blurred.”
  – “Computer manufacturers, for example may need biologists to implement a molecular computer approach (as opposed to traditional silicon-based electronics).”
  – “Medical device companies might need computer-simulation experts to predict and model the biological interactions at the atomic scale.”
  – “With the ability of nanotechnology to merge biological and electronic systems, health-care providers may find that they need significant electrical engineering expertise in addition to their biology knowledge strength.”

-- Jack Uldrich with Deb Newberry; “The Next Big Thing is Really Small;” 2003
Elements of a Framework for Sustainable Tech-Based Economy

- **Economic Summit – 12/2000 – Critical Success Factors**
  - Develop a knowledge-driven industry cluster strategy within the state (may be regional) – including workforce skills, research and innovation and fostering entrepreneurship
  - Cultivate a competitive workforce for the 21st Century (merit scholarships, science and technology focus, awareness of promising Minnesota industries and occupations
  - Creating top-ranked research and innovation capacity
  - Foster positive business climate to support entrepreneurship and growth, coordinated strategies to encourage MN as a desirable place to live, work, learn, do business
  - Build an enduring leadership coalition to guide the strategy’s implementation
- **Great North Alliance – 2002 - Critical Success Factors**
  - Workforce quality
  - Amenities and quality of life
  - Research and development intensity
  - Infrastructure, basic services and deployment of new technologies
  - Investment climate
  - Global linkages and mindset
- **Business Partnership Biosciences Study – 2002 – “What it Takes to Thrive”**
# Framework Elements Cross Vertical Sectors

## K-12 Math Science and Technology

**Workforce Development skills**
Formal (U of M, MnSCU; private colleges) and Informal (orgs like MHTA)

## University R&D → Commercialization

**Investment Capital**
Especially development, early stage

## Leadership Talent – Management Teams – Development

**Business-to-Business Connections**
Sales, partnerships, awareness, networking, talent, advisors

## Celebration/Recognition

**Image**

## Communications/Awareness

Newsletters, Websites, magazines, PR networks, Business Leaders, Gov’t, Education

## Policy/Advocacy
Our Job is to Agree on Elements, Use Collective Resources to Strengthen the Framework/Foundation

• “We need a plan to maintain and enhance Minnesota’s place in the knowledge economy and the economy of the 21st century. That should be a goal, and the specifics that I mentioned earlier [venture investment tax credits, competitive R&D tax code; U of M technology transfer, State Board of Investment in Minnesota businesses, tax free zones] should be part of our initiatives.

• “It shouldn’t be limited to IT, either. We have strength here in Minnesota in areas such as biomed, med tech, and genomics research. I think the opportunity exists for Minnesota to become an even better place for technology-based businesses—we just need vision and leadership and we need to get things done.”

--Governor-elect Tim Pawlenty; Fall 2002 Minnesota Technology magazine
The MHTA accelerates the growth, success and sustainability of Minnesota’s technology-based economy through advocacy, education and collaboration.

**ADVOCATE**

Develop favorable public policy environment

- Policy positions/initiatives
- Legislative involvement

**EDUCATE**

Build executive knowledge base, community awareness and future workforce

- CEO/CIO Forums
- Technology Economy Events
- Wonders of Technology*
- Computers for Schools*
  *MHTF Programs

**COLLABORATE**

Galvanize communities of interest, partnerships and technology transfers

- Minnesota Tekne Awards
- Partnering Services
- AeA Membership
- CEO Roundtables
- Golf & Q Events