Transforming from a Manufacturing to a Knowledge Economy

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Michigan Economic Trends

• **Manufacturing no longer economic driver**
  – Result: Unemployment in MI highest in US
    • US: 4.6%
    • MI: 7.2%; OH: 5.8%
    • Midwest average: 5.2%
  – Result: Large out migration of population

• **US economic growth resulting from knowledge**
  – Leaders: CA, WA, NY, MA (e.g. 35% in NY vs. 19% MI)
  – Michigan households among least likely to encourage college education

• **Michigan not keeping pace with US trends**

• *Michigan business and academic communities are risk averse*
Michigan is not alone...

- **Industrial dominance of US hinges on health of industrial Midwest**
  - 2/3 of US population in center, not on coast
  - Michigan is a “leading indicator” of larger regional trends
  - Trends are permanent, not transitory

- **We live in a global, not national economy**
  - People everywhere are smart and capable
  - The internet has leveled the playing field
  - *Almost* every economic advantage is portable
Building the new economy

- All significant innovation centers in US (NE, West Coast) have leveraged their university resources
  - Universities targeted to be the primary source of research infrastructure in US since 1945 (Vannevar Bush)
  - Leadership shown by Stanford, Berkeley, MIT…
  - “If the companies founded by MIT graduates and faculty formed an independent nation, the revenues produced by the companies would make that nation the 24th largest economy in the world"
    BankBoston study, 1997
The Future of Michigan IS Bright!

• **Solution requires “all hands on deck”**
  – Academia
  – Industry and investment communities
  – Government (both Federal and State)
  – Foundations

• **Solution requires inclusiveness and openness to new ideas and people**

• **Solution requires exploitation of regional strengths & infrastructure**
  – Building industries from “green fields” takes too long

• **We must learn to compete on a global, not a local, stage**
  – We can’t wait for laws to adjust imbalances
Michigan’s Ecology of Entrepreneurism

- University Research, Teaching, Technology Transfer, Outreach
  - More than 90% of R&D in universities done at UM, MSU and WSU (approx. $1.4B annually)
  - Large knowledge-base generation
  - Spin offs at a regular, but not high, rate

- Private Capital & Investment

- State Funds and Policy Support
  - SmartZones & Accelerators (e.g. SW Michigan First; The Right Place; Ann Arbor SPARK)
  - MEDC & 21st Century Jobs Fund
Building on Existing Strengths

- Advanced Manufacturing
- Health Sciences
- Energy
- IT
- .....
A New Model for University Engagement

“Partner or perish!” -Mary Sue Coleman, Pres., UM

• Create campuses that integrate in their core entrepreneurial activity
  – To include the non-academic sector
• Drive entrepreneurial activity that
  – Builds capacity for innovation
  – Attracts a critical mass of companies and talent
• Build a campus culture that encourages students and faculty to pursue their entrepreneurial interests in Michigan
• Encourage intellectual risk-taking
UM Approach: Strategy

• We are a public university with a public mission: Contributing to society is our destiny!

• We have to think **BIG** and clearly define the “**Michigan Difference**”

• We have to invest NOW!

• We must experiment: not all efforts will lead to success

• We must be in it for the long term
UM Approach: Tactics

- Leverage research between industry & government
  - We can expect to grow to 10% industry funding
  - *Largest impact* is the government mandate to work with private sector

- Support initiatives with potential for industry collaboration (*e.g.* Energy science and technology)

- Cultivate relationships with outside groups (*e.g.* Ann Arbor SPARK)

- Encourage spin out companies
  - We are big enough to initiate and sustain growth in the region

- Educate faculty in industry collaboration

- Simplify and incentivize paths to industry collaborations

- Promote industry research and tech transfer for career growth
Stages of Capital Investment

Basic Research  Idea/Concept Discovery  Idea/Concept Validation  Idea/Concept Development  Idea/Concept Marketing  Company Expansion

Public Markets  Investment Banking  Venture Capital

Translational Research  Gap  Pre-seed  Seed

Highest Risk, Lowest Valuation  ⇐The critical “Gap”⇒  Lowest Risk, Highest Valuation
Roles for Foundations

• Create “Gap Funds” for universities and their partners to advance discoveries to commercialization
  – Provide substantial resources to jump start regional innovation
  – Create opportunities to increase the innovation deal flow

• Initiate campus-based “Engagement and Talent Retention Funds” to enhance interactions with industry, VC
  – Activities both visible and central on campuses
  – Provide mentoring, example-setting opportunities (“Spread the virus”!)

• Provide “Entrepreneurial Education Funds” for training the next generation of MI entrepreneurs
  – Develop integrated education of the disciplines and business

• Collaborate on a significant “Co-investment Seed Fund” to invest in promising Michigan companies
  – Establish funds with a Michigan focus, bottom line is high ROI
Concluding Thoughts

Michigan and the Great Lakes Region are at a crossroads

• We can choose the past, but…
  – The industrial powerhouse that built the region is not suited to compete on the global scale
  – Failure to adapt will result in continued decline in prosperity, loss of population, and marginalization

• Or we can choose the future…
  – Structural and cultural changes needed to enter the knowledge age
  – Education of the population is highest priority
  – Adapting to risk and change represent a fundamental break from the past

• Rapid transformation requires all sectors to work together to achieve the same result: An attractive region of innovation and knowledge
What is the role of higher education in aiding the transformation into a knowledge-based economy, while maintaining a relationship to the region’s traditional manufacturing base?

www.urcmich.org/events/
The Role of Government

• Federal government
  Michigan’s problem is not a local, or regional problem. It is a national problem
  – Establish opportunities for regional economic recovery
  – National Laboratories and DII’s
  – Fund the American Competitiveness Initiative: Strongly support education at all levels

• State government
  The only solution to our economic problems (short- and long-term) is knowledge and innovation
  – Reverse the decline in support for education (appropriations to URC have decreased by 15% from 2002-06)
  – Provide incentives and assistance for new companies to establish or locate in Michigan
  – Provide a welcoming environment for businesses & people