

Reshoring, Retaining and Growing Mississippi's Manufacturing Jobs

August 20, 2012



9:30 a.m. **Registration and Coffee**

10:00 a.m. **Welcome**

David Shaw, Vice President of the Office of Research and Economic Development, Mississippi State University (MSU)

10:10 a.m. **MSU's Reshoring Coalition: Challenges and Opportunities**

Clay Walden, Director of CAVS Extension, MSU

10:30 a.m. **Introduction**

Allen Greenwood, Professor, Department of Industrial Systems Engineering, MSU

Accelerating Reshoring

Harry Moser, President and Founder, Reshoring Initiative



12:00 noon **Luncheon**

Introduction

Lori Bruce, Associate Dean for Research and Graduate Studies, Bagley College of Engineering, MSU

Reshoring: A Manufacturing Strategic Perspective

Jay Moon, President and CEO, Mississippi Manufacturers Association
Chairman, International Economic Development Council Board of Directors



1:00 p.m. **Strategies for Success**

Panel Discussion Moderated by Bill Martin, Director, Franklin Furniture Institute, MSU

Panel Members:

Natasha Baughman, Quality Manufacturing

Dewel Brasher, Navistar Defense

Guy Lipscomb, Southern Motion

Paul Jones, Multicraft

Ray Purnell, Southwire Company

Glenn Dennis, CAVS Extension, MSU

John Moore, CAVS Extension, MSU

2:30 p.m. **Introduction**

Robert Sheely, Manager, Business Systems and Information Technology, CAVS Extension, MSU

Supporting Reshoring in Mississippi

Brent Christensen, Executive Director
Mississippi Development Authority



2:50 p.m. **Recap of Key Points**

Clay Walden, Director of CAVS Extension, MSU

3:00 p.m. **Break**

3:15 p.m. **Total Cost of Ownership Calculator Workshop**

Harry Moser, President and Founder, Reshoring Initiative
(optional – Bring your laptop if you plan to participate)



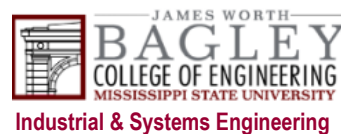
MSU's Reshoring Coalition: Challenges & Opportunities

Dr. Clay Walden, Director, CAVS Extension

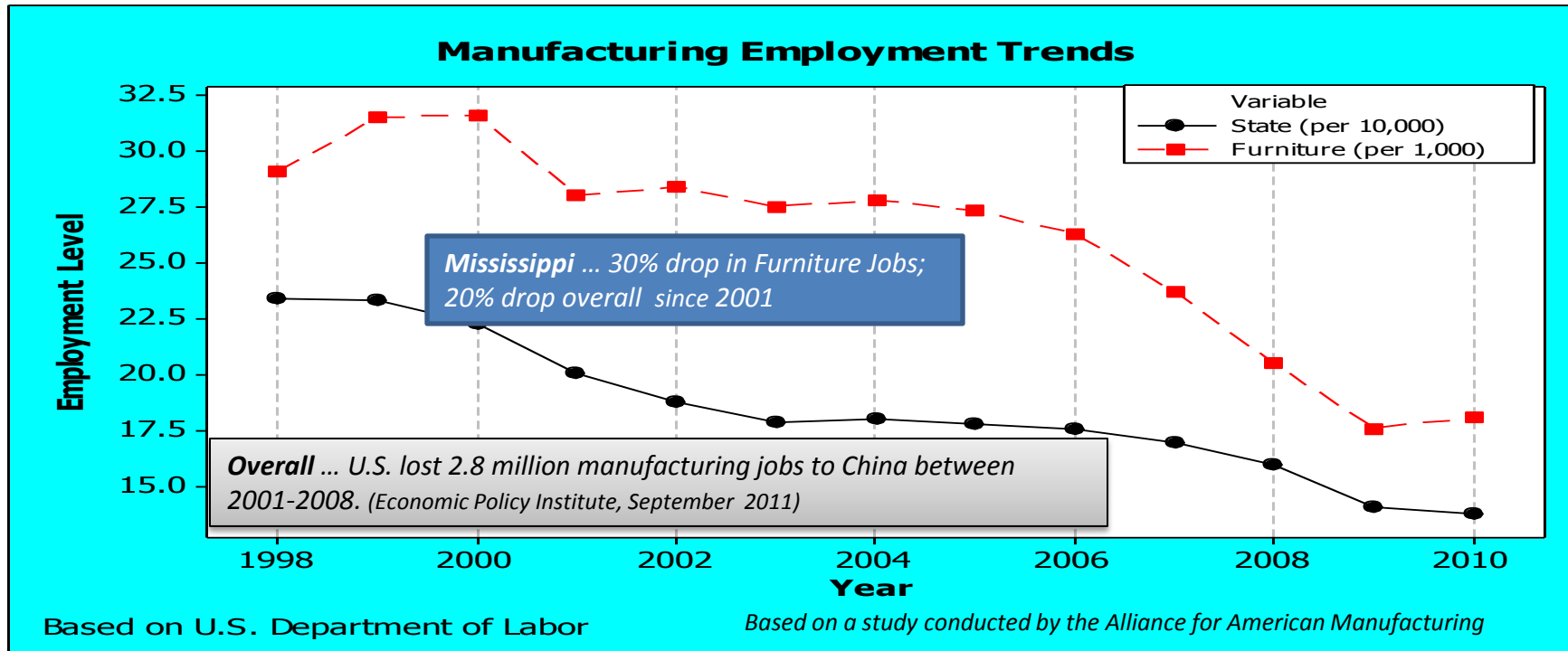
Robert Sheely, Manager Business Systems & Information Technology, CAVS Extension

Dr. Allen Greenwood, Professor of Industrial and Systems Engineering

Bill Martin, Director of Franklin Furniture Institute



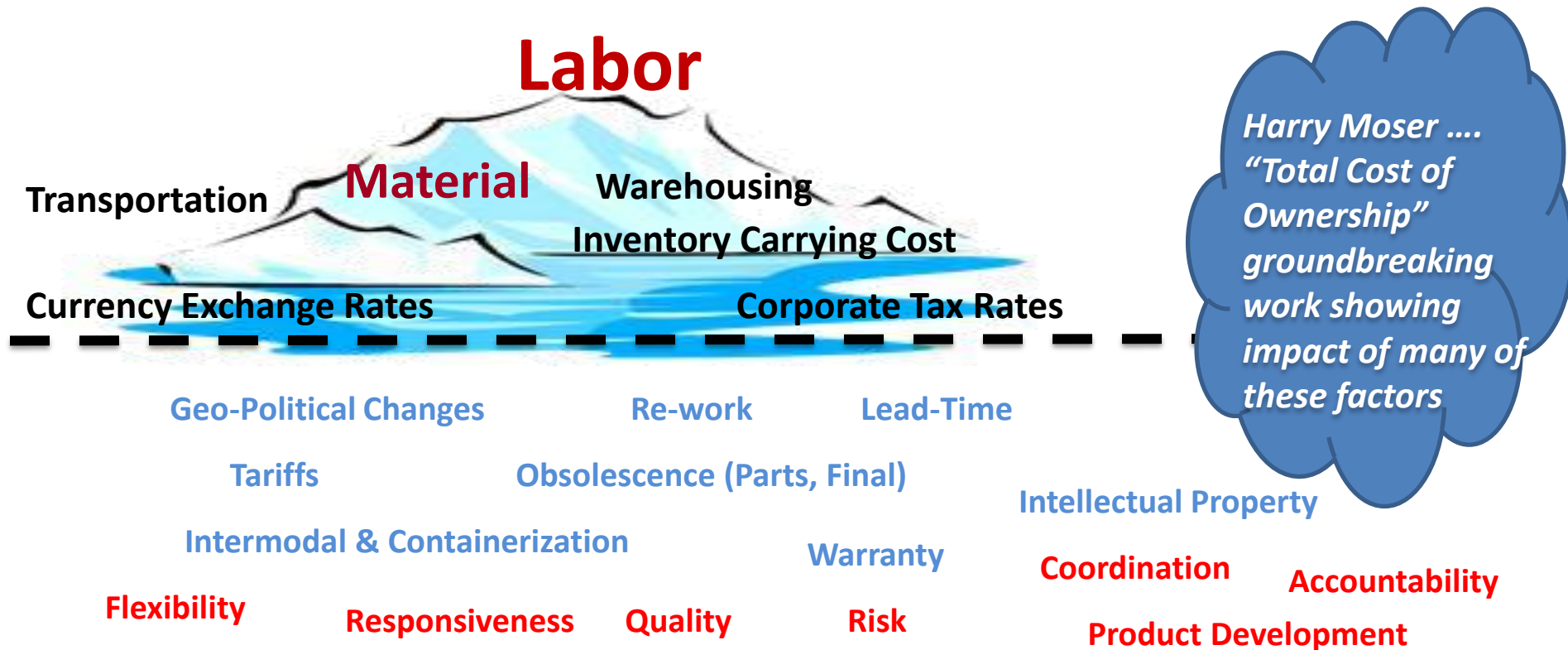
The Challenge: Loss of Manufacturing; Offshoring as a “Major Driver”



- **However**, companies are **re-examining** ... according to a recent study released by MIT, while 37% “planned” or were actively considering **reshoring**, while 14% of U.S. companies definitely plan to move some of their manufacturing back home. (Wall Street Journal, July 18, 2012).
- **Yet, the literature** ... little emphasis in the scholarly literature methodology for sourcing decisions overall and reshoring in particular. (Note: Recent attention in the popular business press thanks to Mr. Moser).

Industry needs “better tools” to help them make effective shoring decisions.

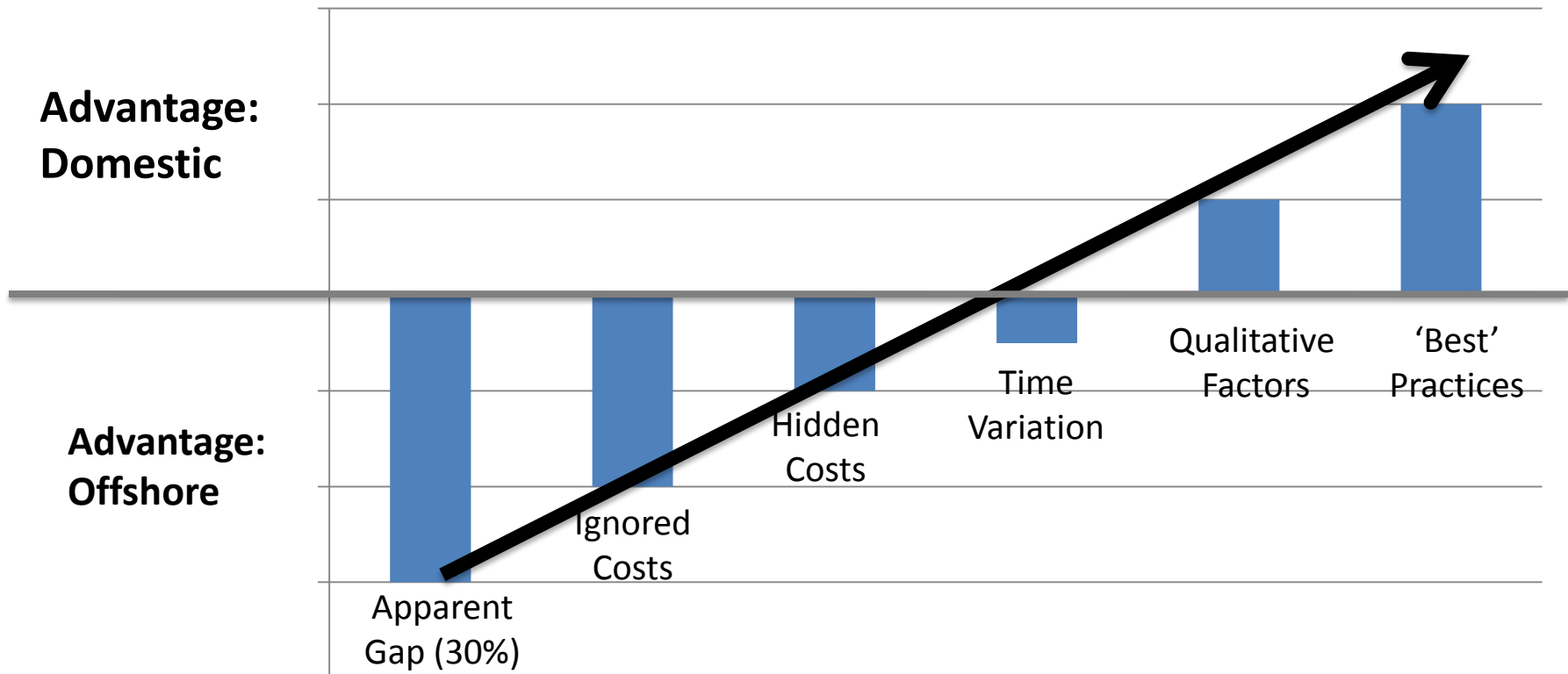
The Challenge: *The 'Shoring' Decision*



Too often off-shoring decisions are based on limited, myopic cost analyses ignoring total cost drivers and the critical element of time.

"When all costs are taken into account, certain U.S. states, such as South Carolina, Alabama, and Tennessee" ...**(insert: Mississippi?)** ... "will turn out to be among the least expensive production sites in the industrialized world. .. The early evidence of such a shift is mounting."

The Opportunity: Closing the Reshoring “Cost Gap”



The Opportunity: Reshoring, Best Practices, & Research

- Major Reasons for Reshoring
 - Reduce Time to Market
 - Respond Faster to Customer Orders
 - Savings from Warehousing / Transportation
 - Improved Quality
 - Protection of Intellectual Property

“Close the Gap”

Best Practices (e.g., Lean and Six Sigma) and appropriate technologies (e.g., Simulation); workforce training ... within an increasingly competitive manufacturing environment.

Research: Develop a holistic framework for the shoring decision that properly recognizes both “total costs” and “risks/uncertainties”

Reference: Research conducted by MIT (Simchi-Levi) based on a survey of 108 U.S. based manufacturing companies with multinational operations ...
“Some Firms Opt to Bring Manufacturing Back to U.S.”, Wall Street Journal, July 18, 2012

Approach

- **Engagement:** Summits, Seminars, and Case Studies
 - *Focus: Automotive and Furniture Clusters*
- **Research:** Modeling and Analysis, Systems Engineering
 - *Focus: Modeling & Decision Support Systems*

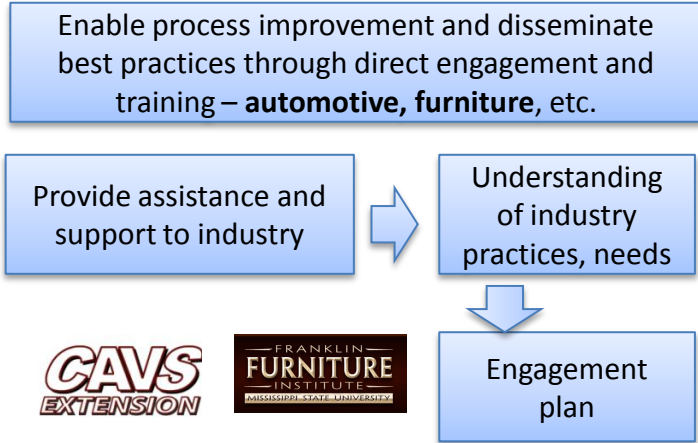


Our approach links university, federal, state, community college resources to address the re-shoring opportunities with key industries.

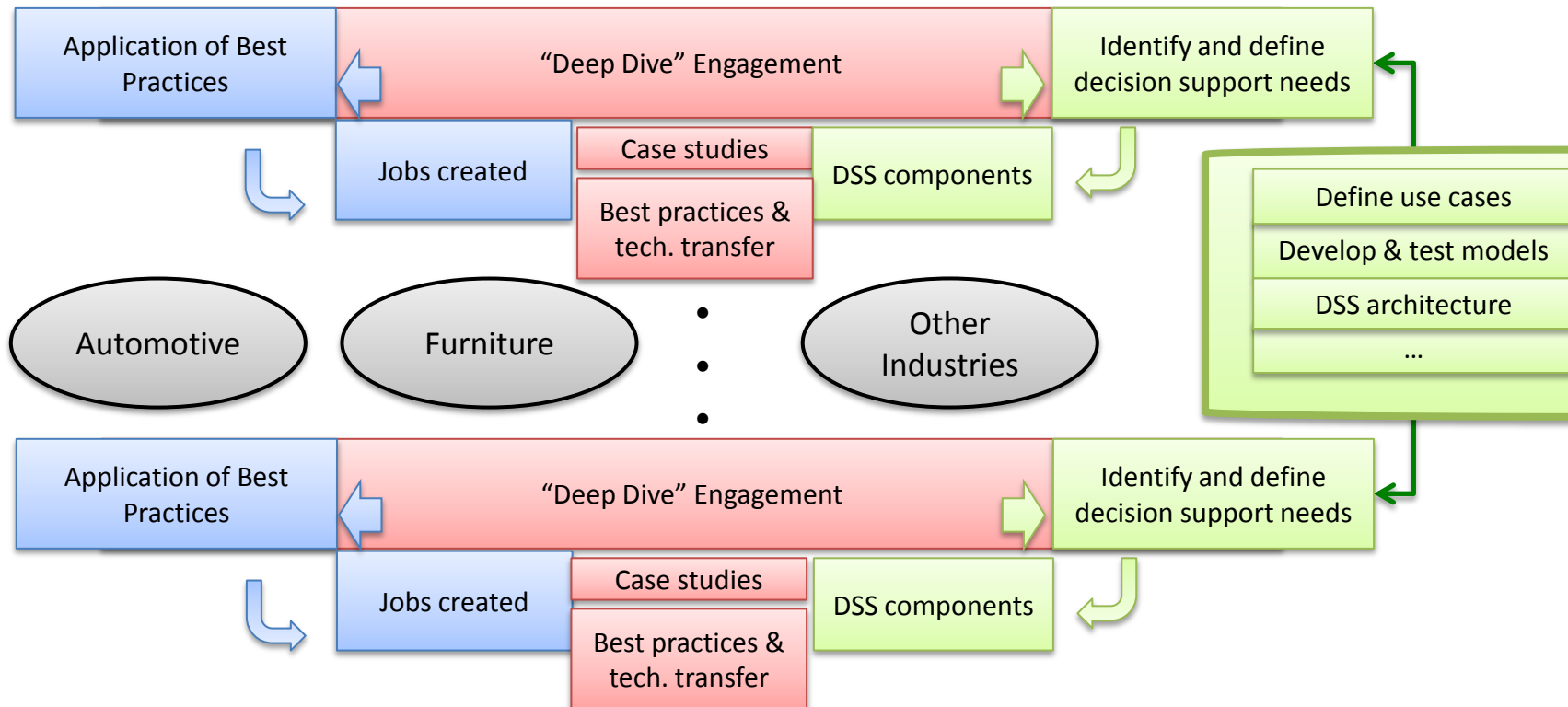
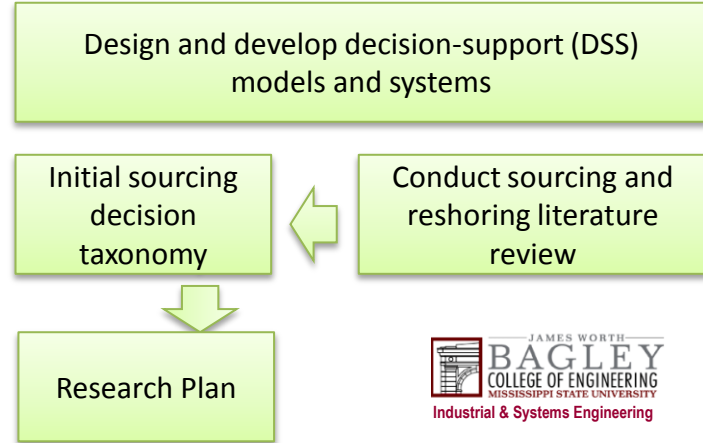
*Engagement includes leveraging strong Workforce Development partnerships, **examples include recent work with ...***



Industrial Engagement



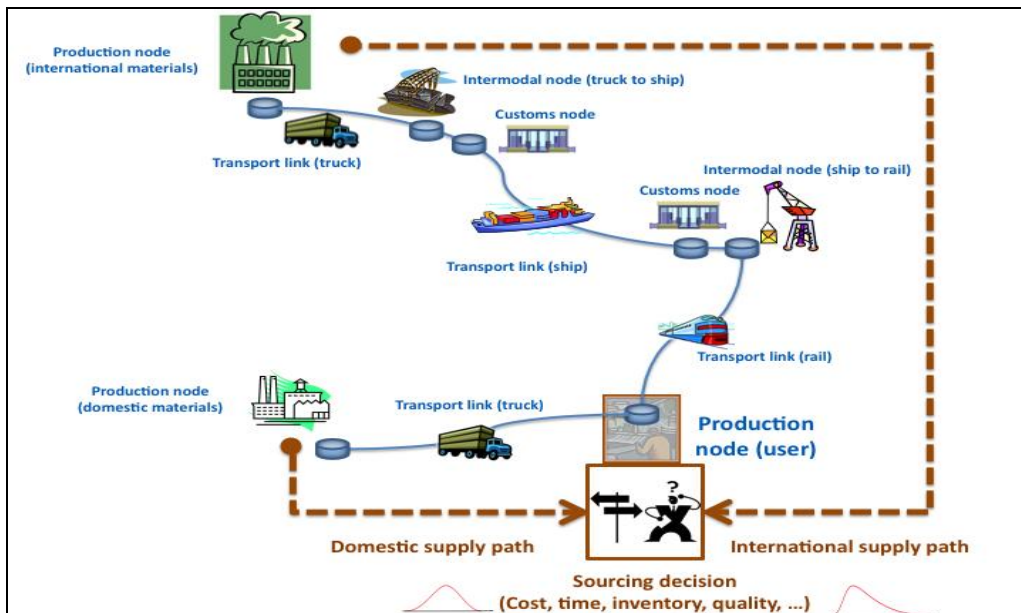
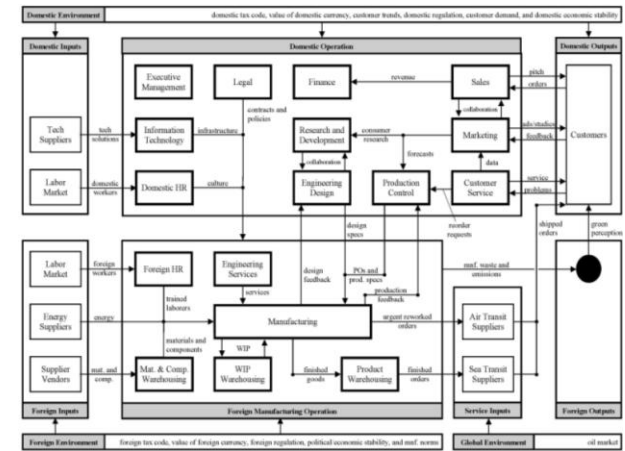
Research & Development



Current Research Projects

“Understanding Managerial Decisions About Global Sourcing: Offshoring and Reshoring of Production”

Masters Thesis Ray Purnell, May 2012; Thesis Advisor: Allen G. Greenwood, Department of Industrial and Systems Engineering



“Simulation Modeling of Domestic and International Intermodal Supply Paths”

Principal Investigators: Allen G. Greenwood, Travis Hill, Mississippi State University

Industrial Partners: Nissan, Bauhaus USA, Flexsteel



Broad Support for the Initiative

Sample of responses from Mississippi manufacturers



Automotive
Supplier

*“I was excited to hear about the possibility of your group working on “re-shoring” of manufacturing jobs as it relates to my industry. **As a small-sized, regional automotive plastic components supplier, I feel there are many opportunities for my company to gain business** within the supply chains of the various carmakers in and near Mississippi ... ”*

Scott Harrison, CEO/Owner, Harrison Manufacturing Jackson, MS

*“I was glad hear about the possibility of the institute doing research and study going forward in the area of “re-shoring” ... **We would certainly support and be very interested in detailed research that looks at all aspects and costs of this practice.** ... We feel such a study is needed to gain a through understanding of the impact this is having on the U.S. furniture manufacturer as well as the retailer and the ultimate consumer.”*

Mark Franklin, President Franklin Corporation, Houston, MS



Furniture
OEM

Leveraging strong partnerships with other Key Stakeholders ...



MAMA



MISSISSIPPI DEPARTMENT OF EMPLOYMENT SECURITY



Track Record & Capabilities

Engagement

5.3 Billion in Economic Impacts and Over 2,300 jobs created or retained
 Based on 3rd party survey conducted on behalf of Us Department of Commerce, NIST-MEP (completed projects since 2006).

Lean & 6 Sigma projects

Industry training

Enterprise assessments



Research

Cost modeling

Simulation modeling

DSS Development

Enterprise systems engineering

\$11.2 million in funded research, 101 peer reviewed publications, 7 Dissertations
 Based on data reported since 2007 to the American Society for Engineering Education.

MSU has the expertise and partners to enable this effort to be a model for the nation.

Challenges & Opportunities: Reshoring

- ***Defined Need, Robust Capabilities, and Statewide Support ...***
 - ***Engagement:*** Exploit opportunities for Mississippi manufacturers ...
 - working with OEMs and those small and medium size manufacturers (SMEs) that may become the “re-shoring” solution.
 - Assist in providing access to “best practices” like ... Lean, Six Sigma, Simulation, Moser’s Total Cost of Ownership ...
 - ***Research:*** Leverage the above “opportunities” such that a strong contribution in order to impact regionally and nationally the “shoring decision” research.

Looking for opportunities to partner with Mississippi’s SMEs and larger OEMs ... to facilitate significant growth in manufacturing jobs through re-shoring!



Our Goal ... position MSU through collaborative partnerships to become a national leader in reclaiming critical manufacturing jobs through re-shoring.

EXTRA SLIDES

The Opportunity:

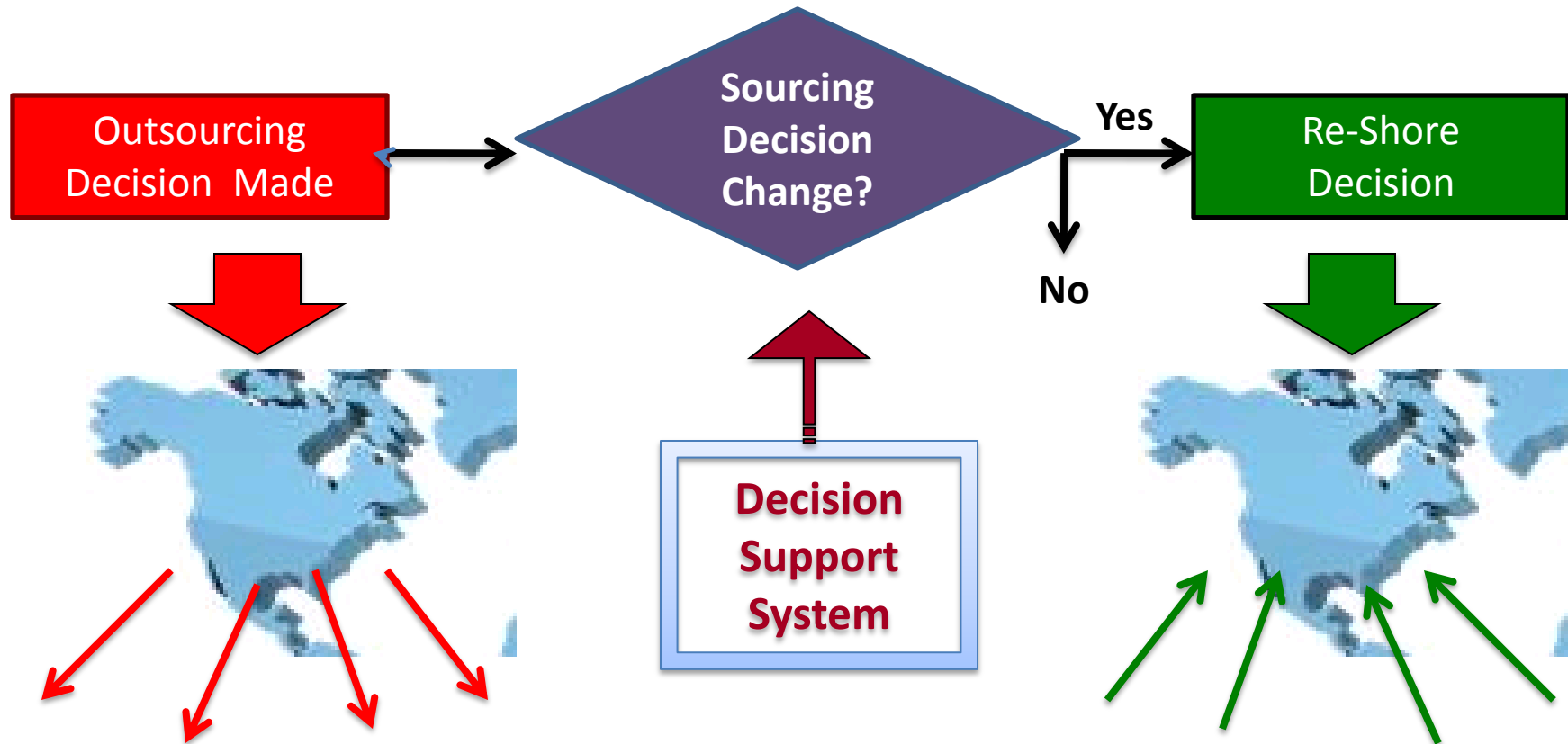
Current Situation:

- Nationally **1,900,000** manufacturing jobs lost to China.

At 10% Re-Shoring... to re-claim lost jobs:

- **190,000 jobs** nationally
- **2,000 jobs** in Mississippi (*the size of landing Automotive Assembly Plant*)

The Opportunity: *Reshoring Decision*



“When all costs are taken into account, certain U.S. states, such as South Carolina, Alabama, and Tennessee” *...(insert: Mississippi) ...* “will turn out to be among the least expensive production sites in the industrialized world. .. The early evidence of such a shift is mounting.”

Engagement

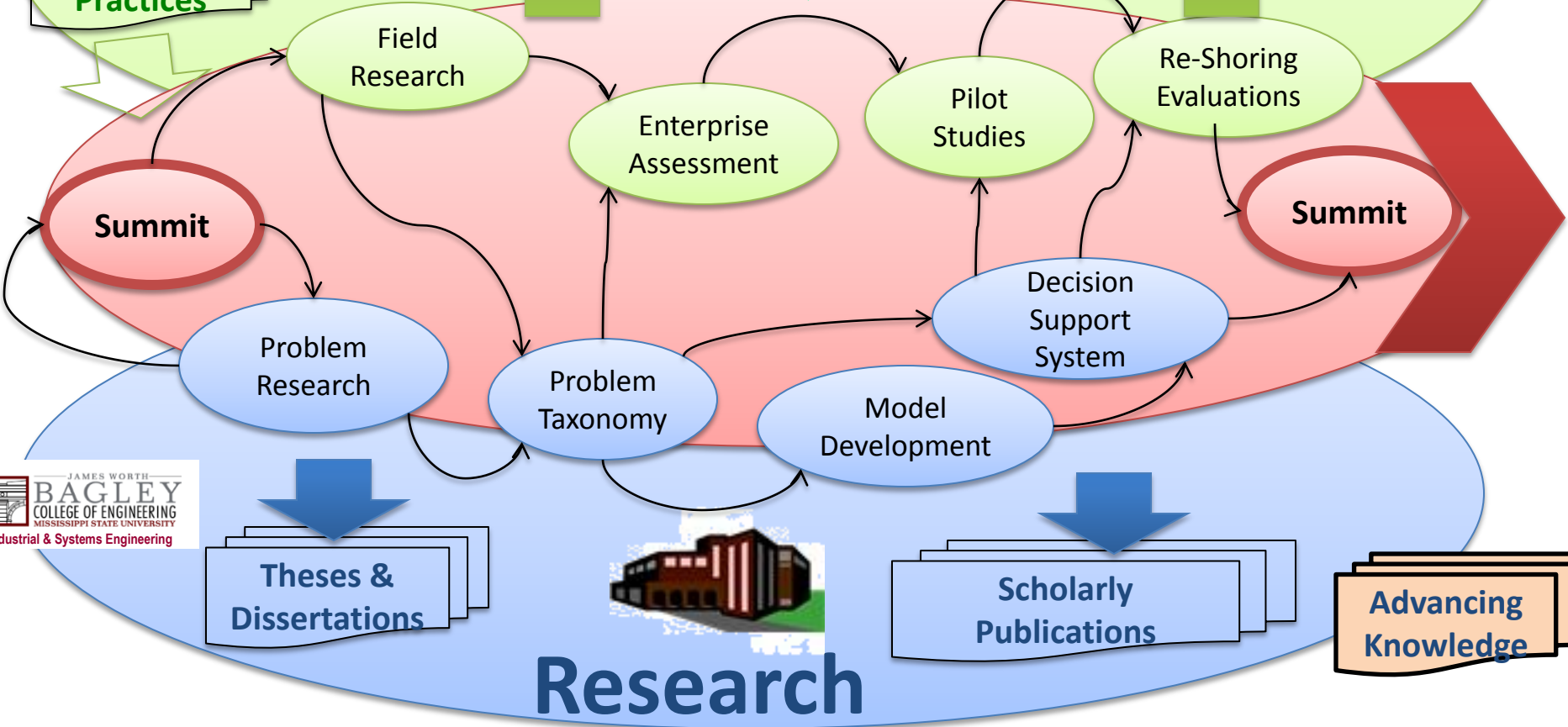


Case Studies

Training

Re-shored Jobs

Best Practices



Research



Theses & Dissertations

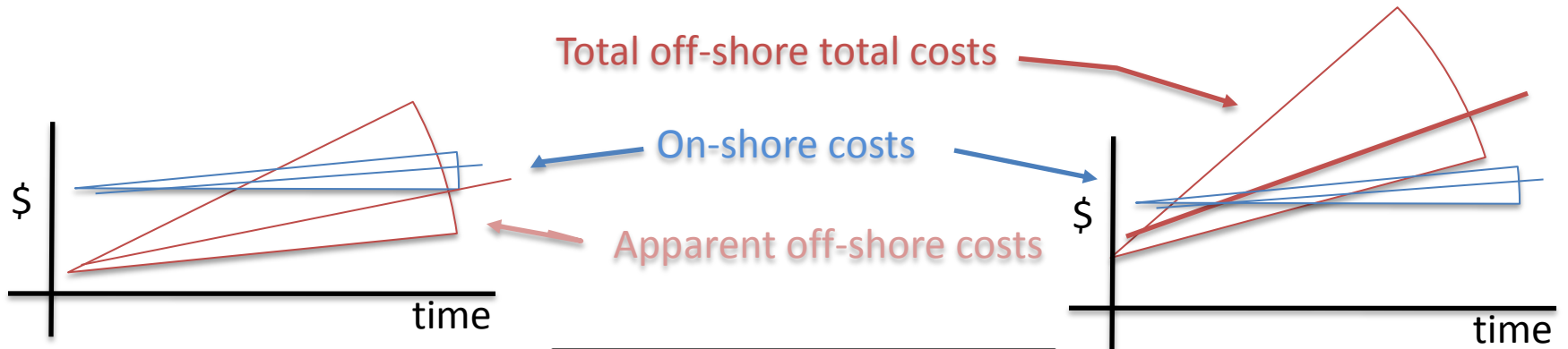
Scholarly Publications

Advancing Knowledge

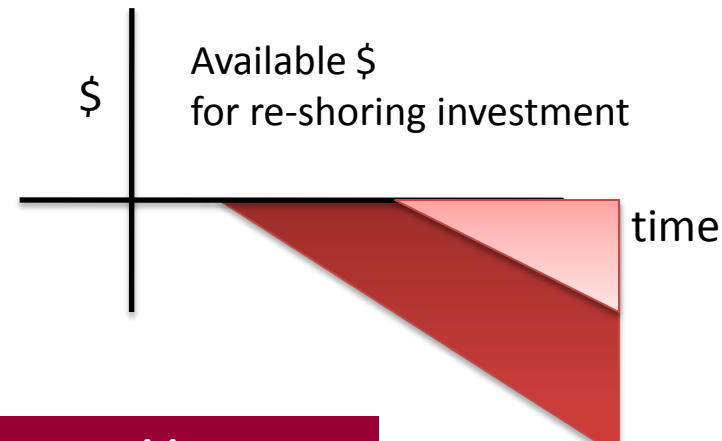
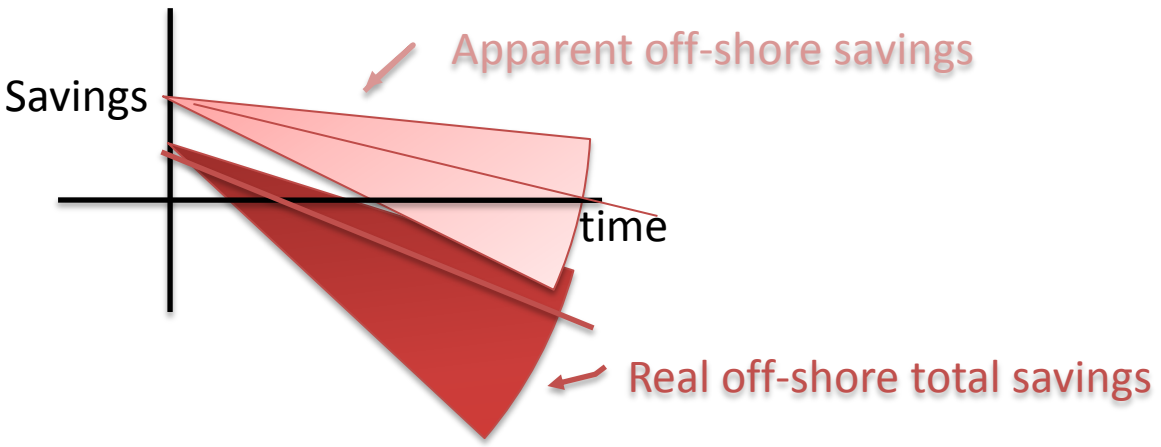
Our approach tightly couples research & outreach to improve "shoring" decision making ... piloting in Mississippi and the region model for the nation, leading to jobs.

Cost and risk over time

Analyses through Re-shoring Decision Support System



Research team is targeting supporting 5 graduate students; primarily Ph.D.



Careful analysis can clarify re-shoring opportunities.

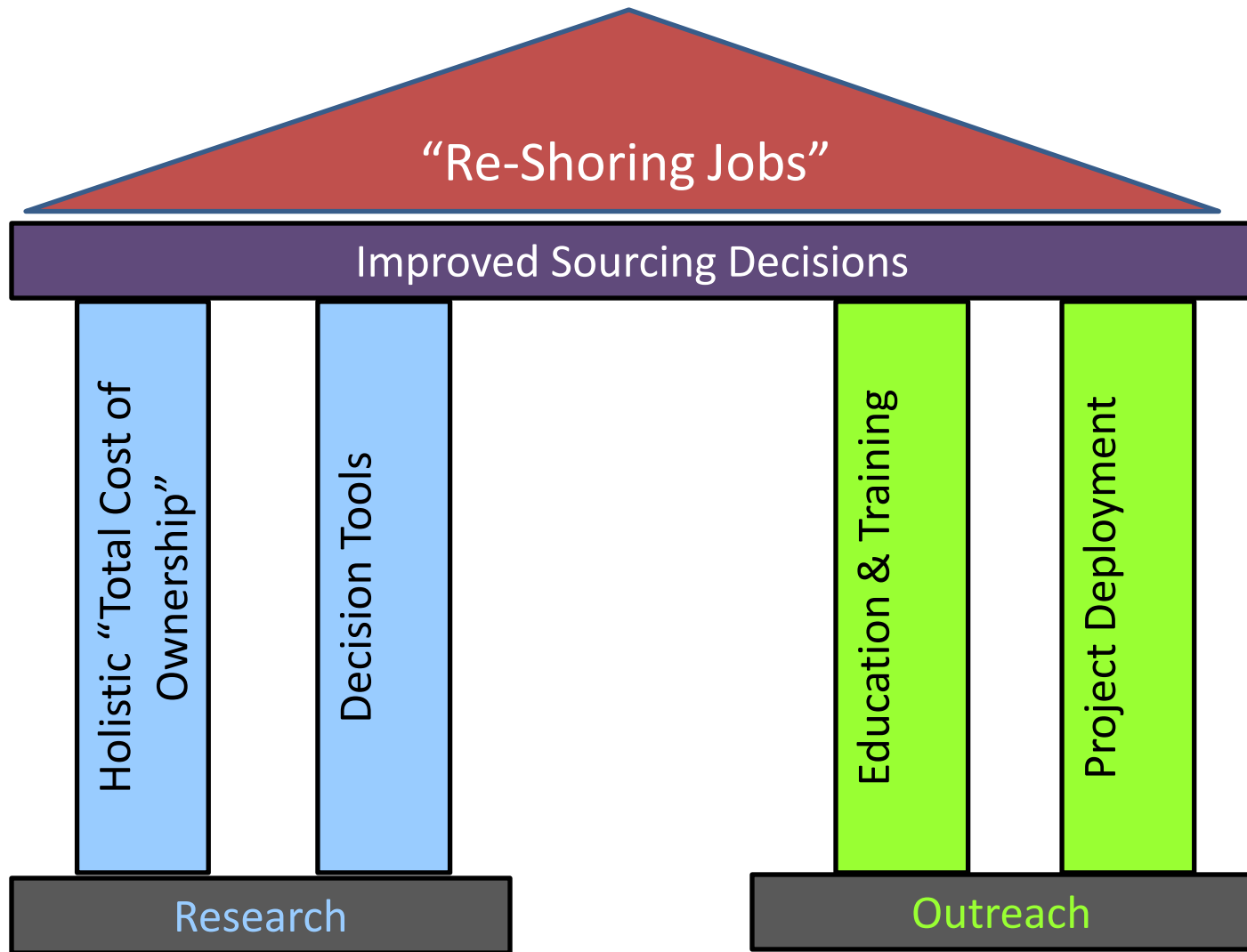
Trade Related Manufacturing Job Losses in Mississippi

- Congressional District 1 ... 8,500
- Congressional District 2 ... 3,100
- Congressional District 3 ... 4,000
- Congressional District 4 ... 3,800

Total = 19,400 jobs

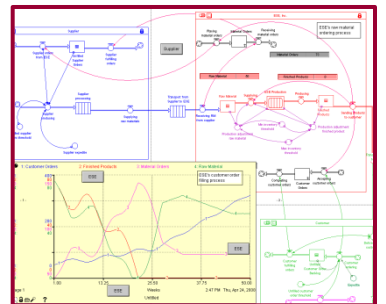
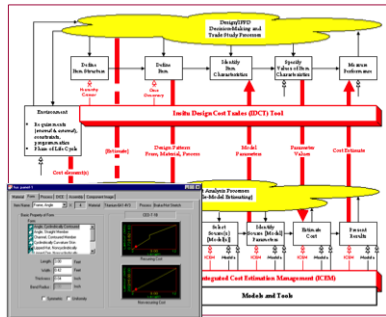
Source: Alliance for American Manufacturing (2001-2008)

Re-shoring jobs through better decisions



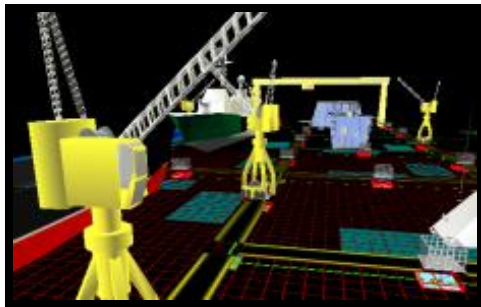
Sourcing decisions can be improved through effective research and outreach.

Research Capability: Proposal Team



- Sponsored Research
 - “A Decision Support System for Rapid Comparison of Lean-to-Batch Systems,” *USDA*.
 - “Nissan/Canton Production System Simulation Modeling and Analysis,” *State of Mississippi (CAVS)*.
 - “Nissan/NA Logistics Modeling and Analysis,” *State of Mississippi (CAVS)*.
 - “Development of an Integrated Decision Support Environment,” *NASA, John C. Stennis Space Center*.
 - “Pathfinder 2: Insitu Design Cost Trades (IDCT): A Life-Cycle Support Trades Tool,” *Air Force Research Laboratory, Materials and Manufacturing Directorate*.
 - ...
- Theses and Dissertations
 - “A Taxonomy-Based Assessment Methodology for Small- and Medium-Size Manufacturers.”
 - “Improving the Formation of Virtual Enterprises Through a Systematic Approach for Managing Key Broker Activities.”
 - ...
- Academic courses: Enterprise Systems Engineering, Logistics Engineering, Engineering Economics I and II, Systems Simulation I and II, ...

Outreach Capability: Proposal Team



Making a Difference

- **Economic Impact: \$4 Billion**
- **1,600 jobs created or retained**

Through ...

On site Projects and Professional Development Workshops (e.g., Lean Six Sigma, Problem Solving, Kaizen Events, Simulation Modeling, Solid Modeling, Finite Element Analysis ...)

Recent Successes

Simulation Modeling: Plant Start-Ups
Prototype to Full Scale production (9 mo.)
80% Improvement in Plant Quality
400% Increase in Plant Throughput (3 mo.)
2010 Recipient of University Economic Development Award of Excellence



Strong Track Record: Competitive Funding

- **NIST-Manufacturing Extension Partnership** (8 contracts); **\$2,205,000**; Timeframe 2002 – 2010; **C. Walden-CAVS Extension**, Annual contract to assist CAVS Extension in providing technical assistance via on-site projects and professional development workshops which target the needs of Small and Medium size Manufacturers.
- **Department of Labor Mississippi Department of Employment Security**; **\$500,000**; Timeframe: April 2010 – March 2011; **Walden, Sheely**; **CAVS Extension**, “Enhancing on the Job Problem Solving” targeting the development of problem solving skills throughout the automotive workforce as a result of a three way partnership between Holmes Community College, Nissan North America, and Mississippi State University.
- **Navistar Defense** (8 contracts): **\$1,134,000**; Timeframe 2005-2010; **G. Dennis, CAVS Extension**, Led manufacturing system design and implementation for MRAP vehicle launches supporting Department of Defense (covers 15,000 units across 12 vehicle platforms).
- **Bad Boy Enterprises**, **\$145,000**; Timeframe : August 2009 – Present; **G. Dennis, R. Sheely, CAVS Extension**, Provided technical assistance which resulted in the implementation of best practices in dramatically increasing plant capacity; performing R&D analysis of vehicle safety, and electric vehicle range extension.
- **U.S. Forestry Service**, **\$35,000**; Timeframe 2006; **C. Walden, CAVS Extension**, Simulation based training introducing Furniture plant managers to lean manufacturing principles.
- **National Shipbuilding Research Panel (NSRP)**, **\$99,000**; Timeframe: 2009-Present; **C. Walden, A. Greenwood, CAVS Extension; Dept. of Industrial & Systems Engineering**, project work working with Mid-tier shipyards to explicitly link CAD models with Shipyard simulation.
- **Office of Naval Research**, **\$589,000**; Timeframe 2005-2006, **C. Walden, A. Greenwood; CAVS Extension, Dept. Of Industrial & Systems Engineering**; shipyard wide simulation decision support system used during the regeneration of the Pascagoula shipyard after Hurricane Katrina, \$589,300.
- **NASA Stennis Space Center** (5 contracts), **\$170,000**; Timeframe 1996-2000; **A. Greenwood, Dept. of Industrial and Systems Engineering**, Provided technical assistance for the analysis, design, and management of an agency-wide center of excellence for propulsion testing; involved enterprise modeling for the integration four NASA test sites.
- **Air Force Research Laboratory** (5 contracts): **\$364,000**; Timeframe 1996-2002; **A. Greenwood, Dept. of Industrial & Systems Engineering**; Researched, designed, and developed methodologies and application prototypes to address total cost of ownership early in the systems design process.
- **U.S. Small Business Administration (SBA)**; **\$80,000**; **B. Martin, Franklin Furniture Institute**; to fund various programs of the Franklin Furniture Institute - to establish an Export Assistance Center to enhance Mississippi exports.
- **Small Business Administration (SBA)**; **\$1,285,924**; **B. Martin, Franklin Furniture Institute**; Timeframe 8/31/2006 – 7/31/2009; Furniture Outreach Program used to provide outreach to the Mississippi furniture industry.
- **Small Business Administration (SBA)**, **\$509,000**; Timeframe July 2006- June 2009; **R. Sheely, CAVS-Extension**, Development and Delivery of Engineering Engagement Workshops focused on the needs of improving productivity, quality, cost competitiveness of Small and Medium Size Manufacturers.
- **Borg Warner**; **\$47,712**; Timeframe July 2010 – June 2011; **J. Moore, CAVS Extension**; Comprehensive Lean Training for Water Valley, MS automotive supplier.
- **Faureica**, **\$70,000** (4 contracts; MDA, Entergy, SDPDD, Faureica); Timeframe March 2006 - January 2007, **C. Walden, R. Sheely, CAVS Extension**, provided technical assistance which resulted in playing a substantial role in helping the company achieve dramatic improvements in quality and productivity.
- **Hol-Mac**, **\$12,000**, Rear Bumper Design, Analysis, & Testing, Timeframe August 2010-Novemembr 2010, **G. Dennis, D. Oglesby, CAVS & CAVS Extension**.