Regional Competitiveness Project

October 21, 2009

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

RCM Regional Council of Mayors

ULI **Urban Land Institute** Minnesota

positively *Minnesota* Department of Employment and Economic Development

HUBERT H. HUMPHREY INSTITUTE OF PUBLIC AFFAIRS

UNIVERSITY OF MINNESOTA Driven to Discover℠

TODAY'S OBJECTIVE

Select 3 of the top 10 regional industry clusters.

The 3 chosen clusters that are critical to the metro area economy will be used in future project steps to create a model for regional economic and employment growth via private – public collaboration.

This model would then be used to develop strategies for additional clusters in subsequent phases.

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

THANK YOU!

Regional Competitiveness Team Research Assistants

- **Mia Adams**, Carlson School of Management, MBA Candidate 2010

- **Alisha Cowell**, Humphrey Institute of Public Affairs, MPP Candidate 2010

Technical Advisory Group Team

- **Jessica Fendos**, GIS Applications Developer, Labor Market Information (LMI) Office

- **Amanda Rohrer**, GIS Developer, LMI

- **Kyle Uphoff**, Regional Analysis and Outreach Manager

- **Thu-Mai Ho-Kim**, Analyst, Minnesota Office of Trade

BACKGROUND

Our purpose with this project is to implement a regional economic and workforce development competiveness strategy for short and long-term economic growth.

This strategy will build a regional model, effectively connecting economic and workforce development efforts of :

- Business leaders
- The Regional Council of Mayors
- Workforce Investment Boards
- MN Department of Employment and Economic Development
- The Minnesota State College and University System
- The University of Minnesota

BACKGROUND: Regional Council of Mayors
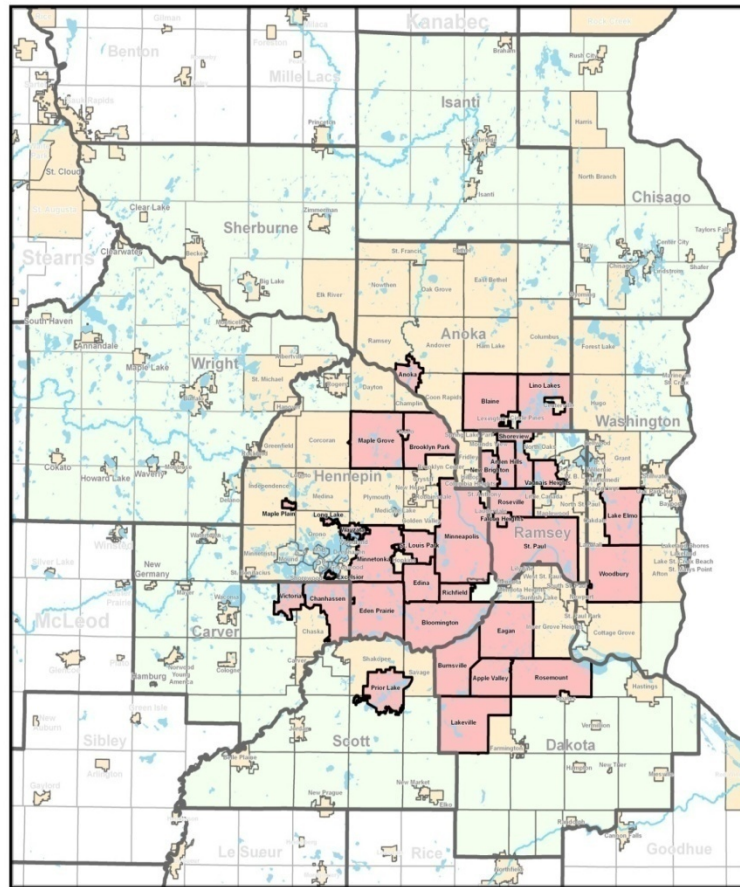
Participating Cities
Regional Council of Mayors
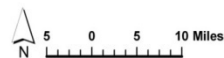
Legend:
- Participating Cities
- Other Cities
- RCM Counties
- Township Boundary
- Lakes
- Rivers

5 0 5 10 Miles
N

March 11, 2009

ULI Minnesota

BACKGROUND: Humphrey Institute Studies

Twin Cities 1995	SE MN 1996	SW MN 1998	NW MN 2001	NE MN 2001
Printing & Publishing	Composites	Computer & Electrical Components Manufacturing	Recreation & Transportation Equipment Manufacturing	Forest Products
Computers & Software	Food Processing			Information Technology
Medical Devices	Printing, Publishing & Software	Value-Added Agricultural Cooperatives	Value-Added Agricultural Processing	Health Services
Machinery and Metalworking	Industrial Machinery & Computer Manufacturing	Agricultural Equipment Manufacturing	Wood Products	Tourism
Financial Services		Dairy Processing	Tourism	
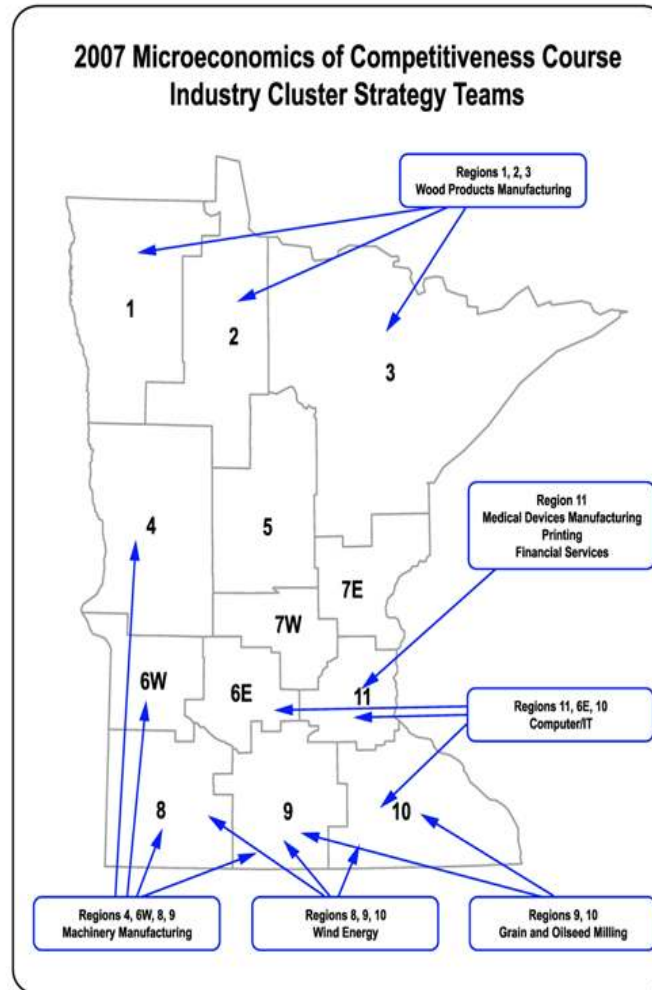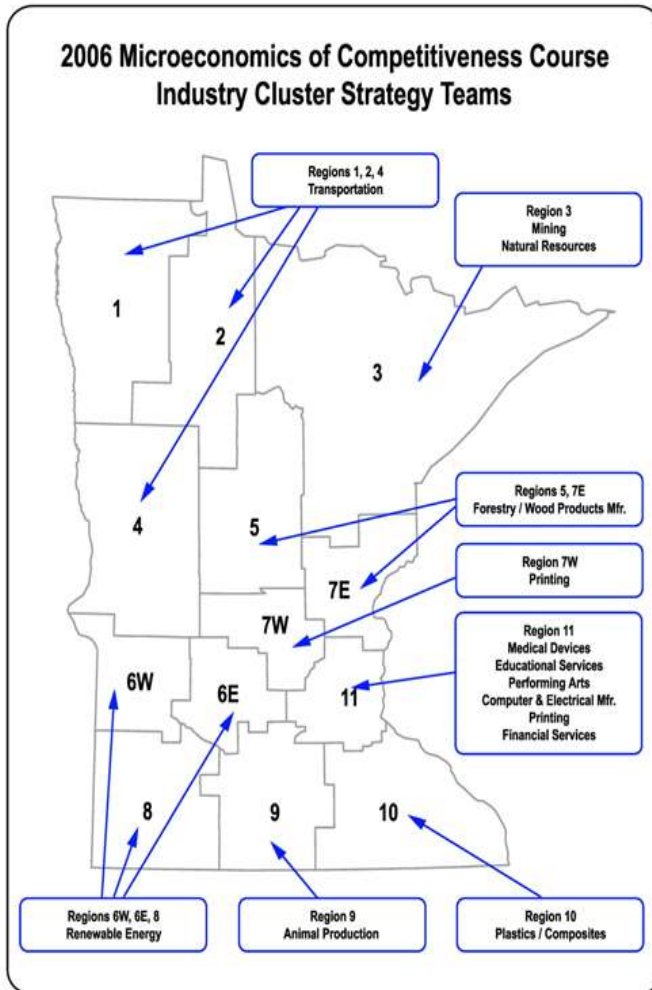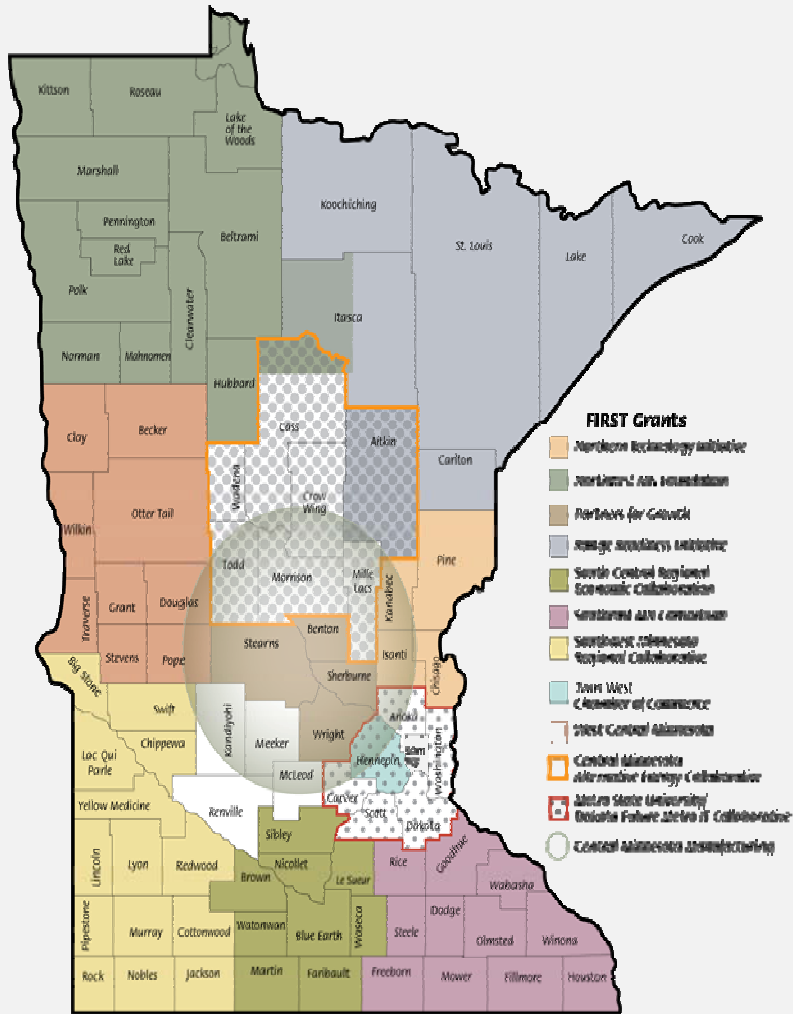
Metro FIRST grants:
- Twin West Precision Mfg
- GMWC Machine Mfg/ Prosperity Partnership
- MN IT Workforce Collaborative
- Dakota Future / Incubator for IT WFCollaborative

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

DEFINITIONS: Cluster

We define a cluster as a geographically proximate group of interconnected companies, suppliers, service providers and associated institutions in a particular field, linked by externalities of various types. Clusters are important because of the externalities that connect the constituent industries, such as common technologies, skills, knowledge and purchased inputs. Note that a given industry can be part of more than one cluster based on different patterns of externalities. Example: software is part of IT and medical devices.

Remember: (1) **Business, *not governments*, choose to cluster and choosing clusters is   not picking winners and losers but recognizing core competencies of a   region and building on strengths.**

(2) Strengthening <u>multiple</u> clusters affects regional wages more than strengthening just one. When choosing clusters, the maximum gain will be achieved by selecting three with little in common.

Source: Michael Porter, *The Economic Performance of Regions*, 2003

DEFINITIONS: Location Quotient

Location quotient (LQ) is basically a way of quantifying how concentrated a particular cluster is in a region as compared to the nation. It can reveal what makes a particular region "unique" in comparison to the national average.

The LQ is a measure of an industry's level of concentration within a location, with an LQ > 1 indicating higher than average concentration in that location.

DEFINITIONS: Traded Industry

Three types of industries:
- **Traded**
- **Local**
- **Natural Endowment Dependent**

Traded industries sell products and services across economic areas, so they are concentrated in the specific regions where they choose to locate production, due to the competitive advantages afforded by these locations. Employment levels in traded industries thus vary greatly by region, and have no clear link to regional population levels.

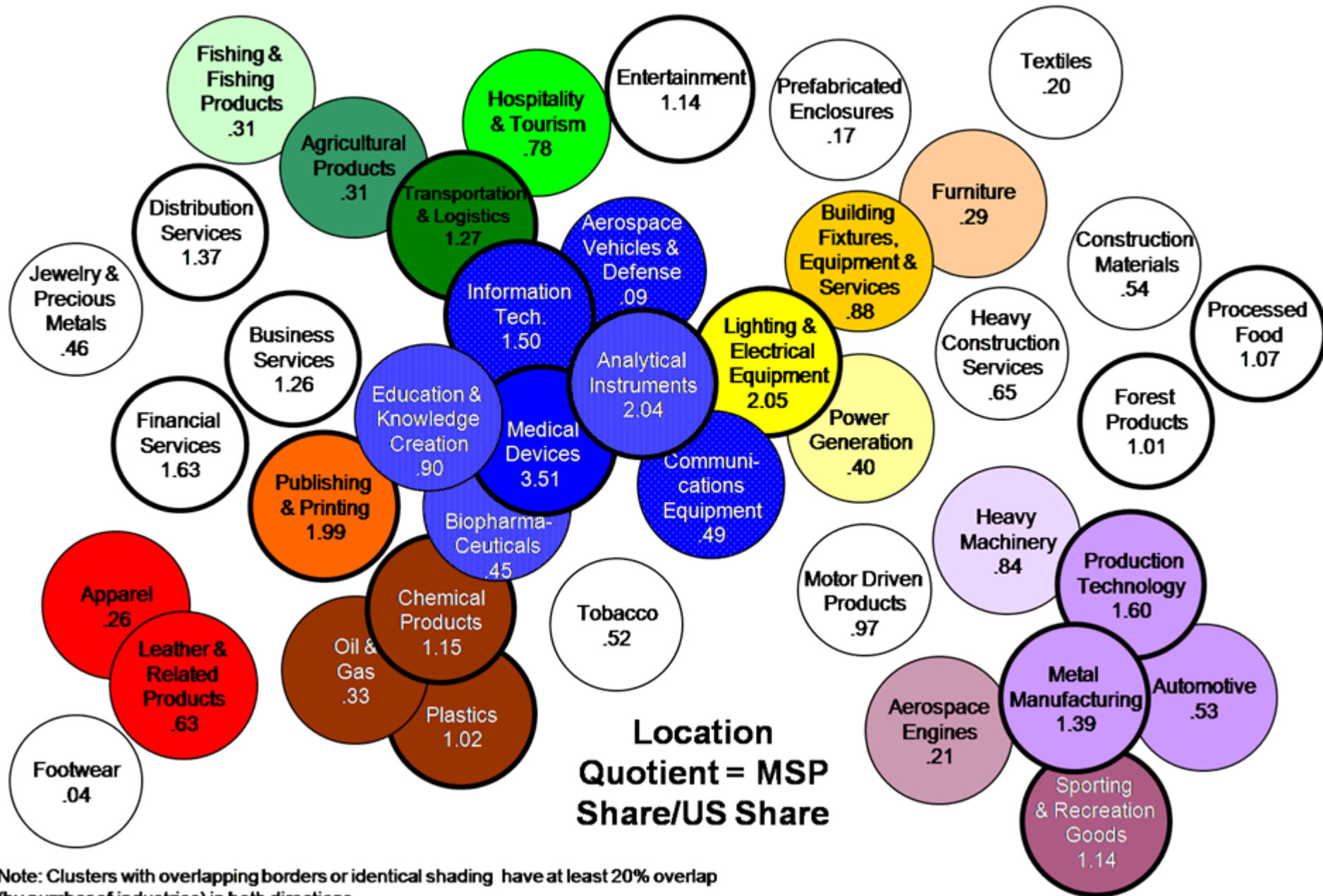Why we focus on traded industries (please also see table in appendix for supporting data):
- **Traded wages drive regional wages**. On average, local wage is 66% of traded wage
- Traded industries have higher levels of patenting, which signals more advanced products and processes, as well as higher productivity that support a higher wage
- The key is to develop the conditions for supporting high wages in traded industries. By driving these up, you will consequently also drive local wages (per the first bullet).

Source : Michael Porter, *The Economic Performance of Regions*, 2003

Regional Council of Mayors

Urban Land Institute Minnesota

positively Minnesota — Department of Employment and Economic Development

HUBERT H. HUMPHREY INSTITUTE OF PUBLIC AFFAIRS

UNIVERSITY OF MINNESOTA Driven to Discover℠

Competitiveness and Composition of MSP Metro Area
Linkages Across Traded Clusters, Location Quotients, 2006

Fishing & Fishing Products .31

Agricultural Products .31

Hospitality & Tourism .78

Entertainment 1.14

Prefabricated Enclosures .17

Textiles .20

Furniture .29

Distribution Services 1.37

Transportation & Logistics 1.27

Aerospace Vehicles & Defense .09

Building Fixtures, Equipment & Services .88

Construction Materials .54

Jewelry & Precious Metals .46

Information Tech. 1.50

Lighting & Electrical Equipment 2.05

Heavy Construction Services .65

Processed Food 1.07

Business Services 1.26

Analytical Instruments 2.04

Power Generation .40

Forest Products 1.01

Education & Knowledge Creation .90

Financial Services 1.63

Medical Devices 3.51

Communications Equipment .49

Publishing & Printing 1.99

Biopharma-Ceuticals .45

Heavy Machinery .84

Production Technology 1.60

Apparel .26

Chemical Products 1.15

Tobacco .52

Motor Driven Products .97

Leather & Related Products .63

Oil & Gas .33

Metal Manufacturing 1.39

Automotive .53

Footwear .04

Plastics 1.02

Aerospace Engines .21

Location Quotient = MSP Share/US Share

Sporting & Recreation Goods 1.14

Note: Clusters with overlapping borders or identical shading have at least 20% overlap (by number of industries) in both directions.

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

10 Clusters
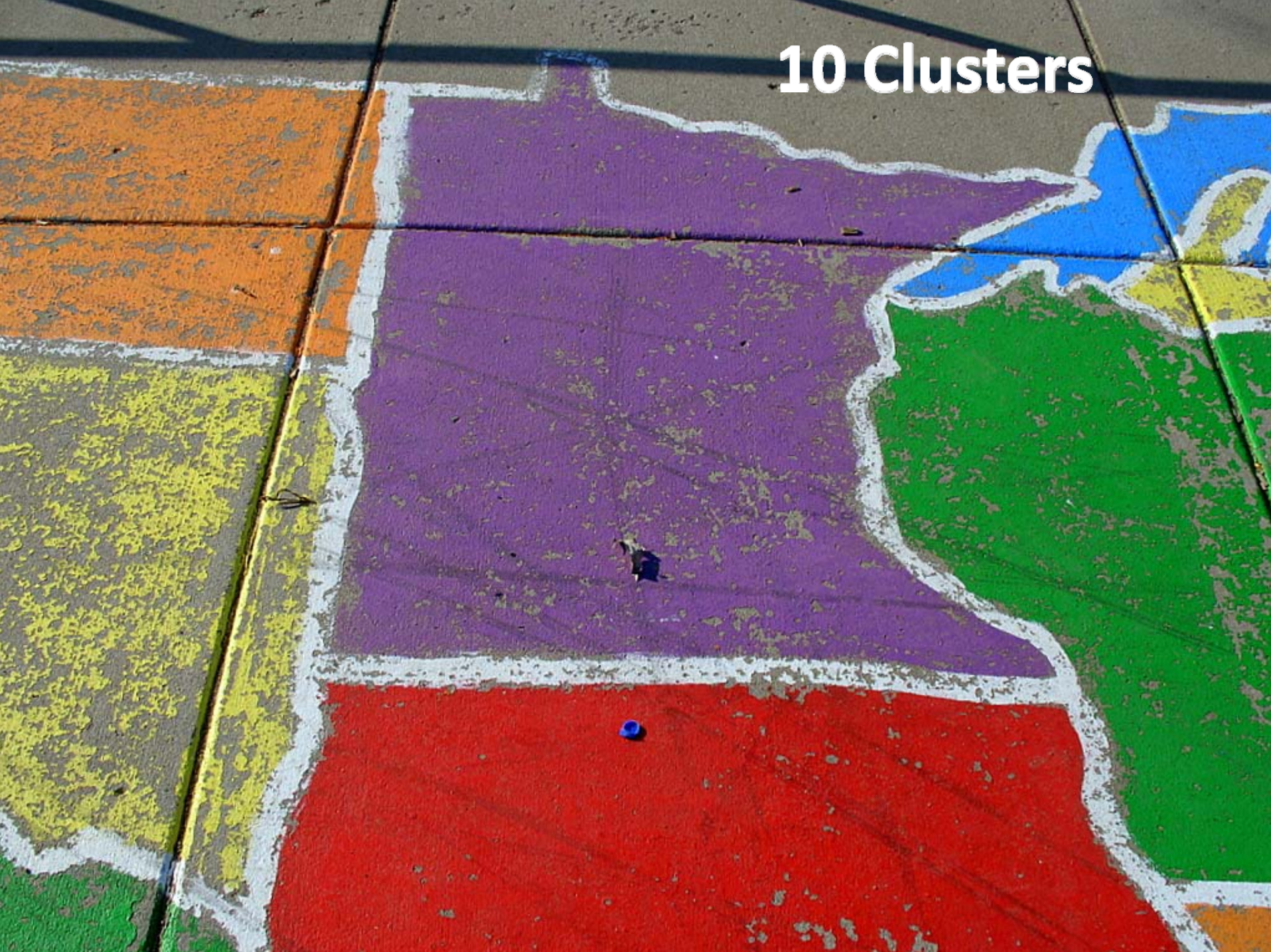
NARROWING DOWN TO 10 CLUSTERS

- Started with 41 traded clusters based on Michael Porter's defined categories

- Eliminated "lone eagles"

- Eliminated clusters based on number of employees

- Eliminated clusters based on limited or negatively increasing location quotients

EVALUATION OF CLUSTERS

Six Key Criteria

- **Strength of competitive advantage (existing or emerging)**

- **Potential gain for industry cluster from private-public collaboration**

- **Degree of geographic distribution in the region**

- **Potential to spur innovation**

- **Potential to spur entrepreneurship**

- **International strength**

STRENGTH OF COMPETITIVE ADVANTAGE

How concentrated is a particular cluster is in a region as compared to the nation? What makes a particular region "unique" in comparison to the national average?

2006 Competitive Advantage
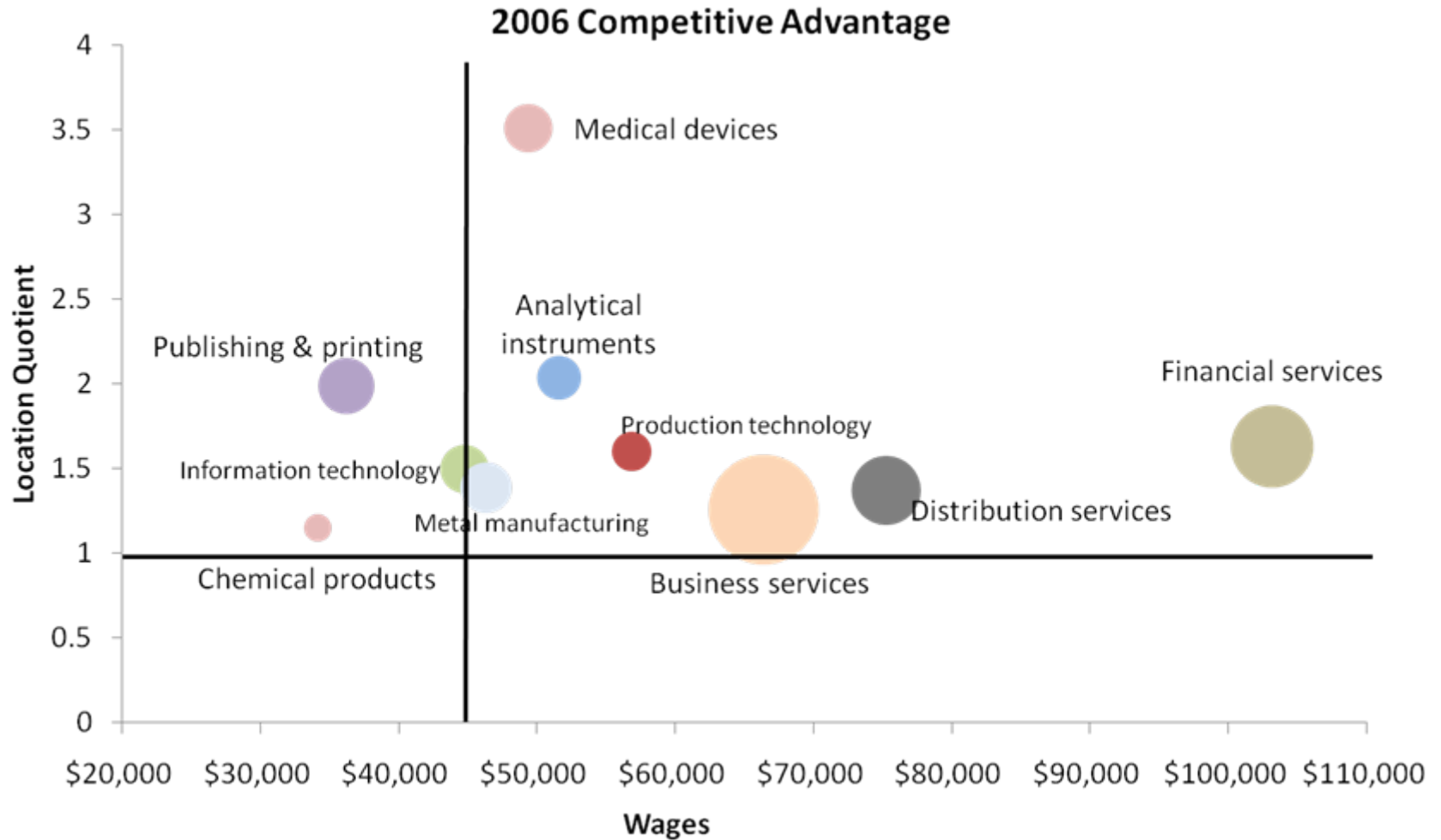
POTENTIAL FOR PRIVATE-PUBLIC COLLABORATION

**This is a critical element. How ready and organized is
each cluster to work together to actualize growth
strategies in order to maximize the effect of the project?**

Porter identifies "Institutions for Collaboration" (IFC's) as a potential valuable outcome of a cluster activation strategy.

Example: After the first round of Porter training for DEED, one of the participants helped grow the Stone Fabricators Association from 30 to 300 inclusive of three to five states - all due to cluster training.
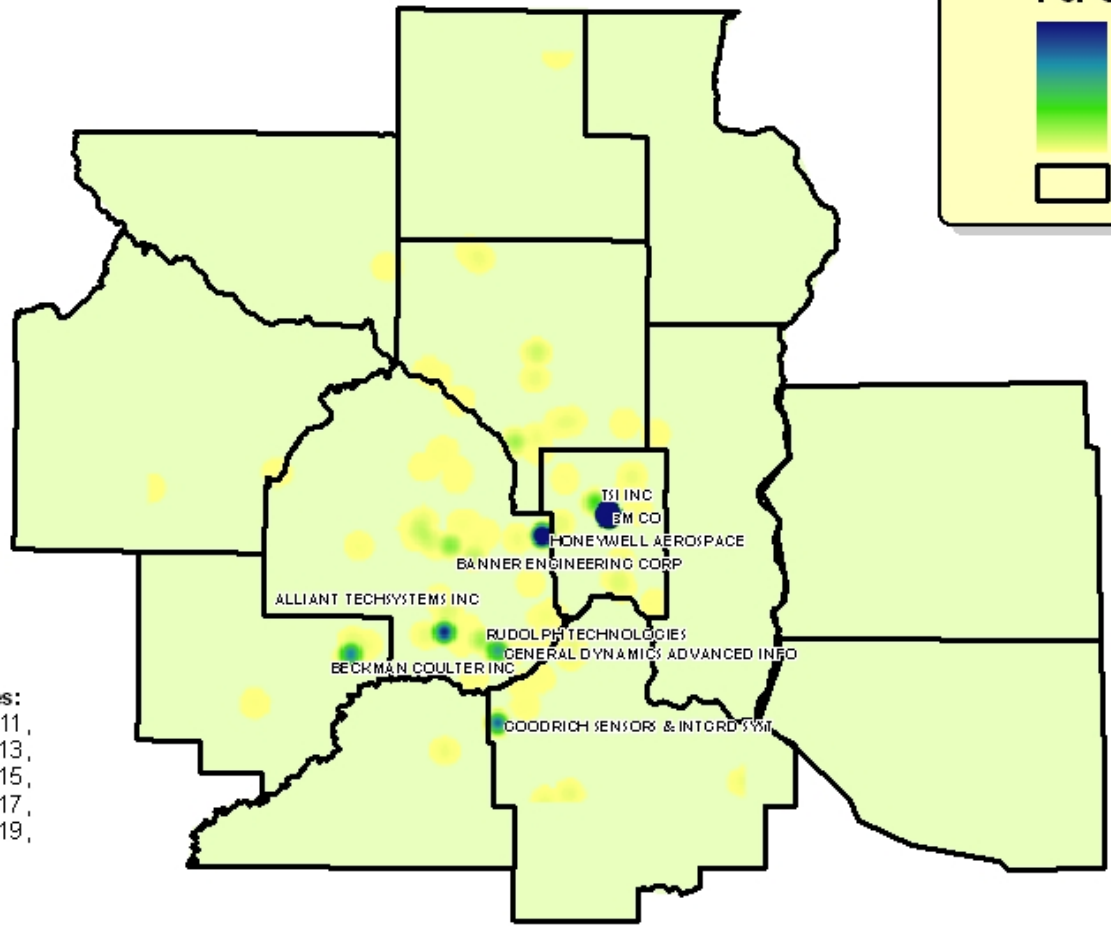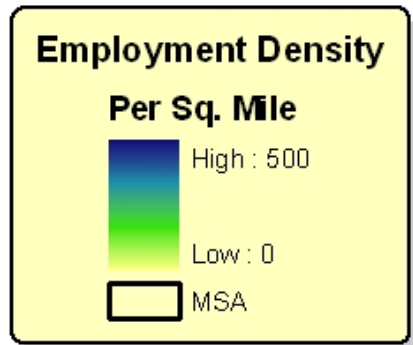
Developing a measurement for industry collaboration is part of what the cluster teams will do. However, it is important to consider now, as well.
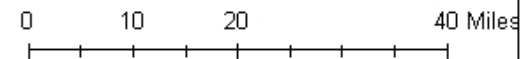
How spread out in the metro area is this cluster? We are looking for clusters that would help build the regional structure of our model.

Analytical Instruments Industry Cluster

13-County Metropolitan Statistical Area

NAICS Codes:
333314, 334511,
334512, 334513,
334514, 334515,
334516, 334517,
334518, 334519,
335314

TSI INC
BM CO
HONEYWELL AEROSPACE
BANNER ENGINEERING CORP
ALLIANT TECHSYSTEMS INC
RUDOLPH TECHNOLOGIES
GENERAL DYNAMICS ADVANCED INFO
BECKMAN COULTER INC
GOODRICH SENSORS & INTGRD SYST

N
S

0   10   20   40 Miles

Companies that employ 200 or more workers are labeled.

Business Services Industry Cluster

13-County Metropolitan Statistical Area

BAE SYSTEMS

ANDERSEN CORP

HONEYWELL SENSING & CONTROL

CARLSON MARKETING ACCENTURE LTD

MARSDEN BUILDING MAINTENANCE

CARLSON COMPANIES INC

GE CAPITAL SOLUTIONS

THOMSON WEST

EMERSON PROCESS MANAGEMENT
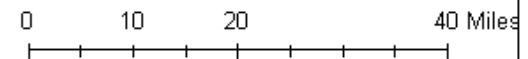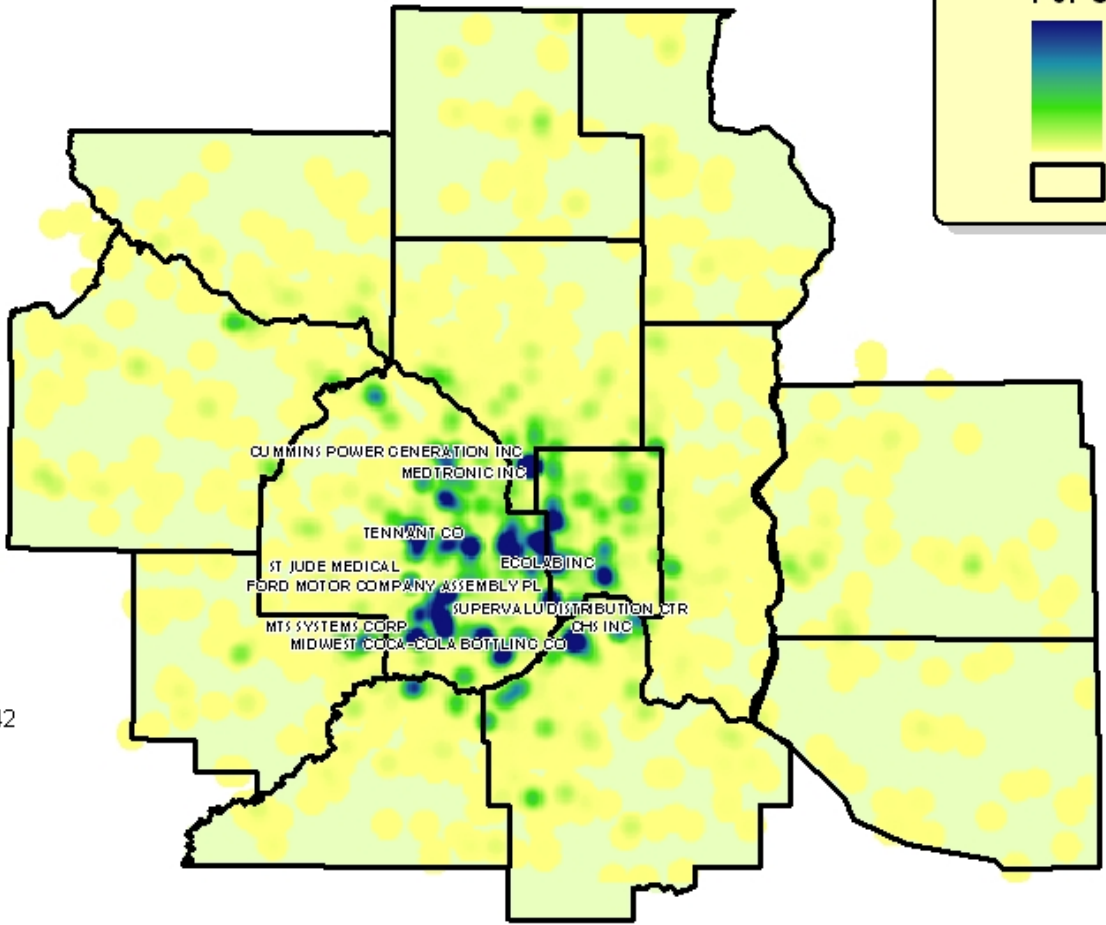
NAICS Codes:
54, 56

N

S

0   10   20   40 Miles

Companies that employ 1200 or more workers are labeled.

Distribution Services Industry Cluster

13-County Metropolitan Statistical Area

CUMMINS POWER GENERATION INC
MEDTRONIC INC
TENNANT CO
ST JUDE MEDICAL
ECOLAB INC
FORD MOTOR COMPANY ASSEMBLY PL
SUPERVALU DISTRIBUTION CTR
MTS SYSTEMS CORP
CHS INC
MIDWEST COCA-COLA BOTTLING CO

NAICS Code: 42

0   10   20   40 Miles

Companies that employ 800 or more workers are labeled.

Source: 2009 2nd Quarter InfoUSA

Prepared by DEED LMI (AR) on Oct 19, 2009.

Financial Services Industry Cluster

13-County Metropolitan Statistical Area

Employment Density

Per Sq. Mile

High : 500

Low : 0

☐ MSA

PRUDENTIAL INSURANCE CO

THRIVENT FINANCIAL-LUTHERANS

TCF NATIONAL BANK AMERIPRISE FINANCIAL

MINNESOTA LIFE INSURANCE CO

AMERIPRISE FINANCIAL SECURIAN FINANCIAL GROUP INC

TRAVELERS CO INC

STATE FARM INSURANCE

HEALTH PARTNERS BENEFITS

BLUE CROSS & BLUE SHIELD OF MN

NAICS Code: 52

N

S

0   10   20   40 Miles

Companies that employ 1000 or more workers are labeled.

Source: 2009 2nd Quarter InfoUSA

Prepared by DEED LMI (AR) on Oct 19, 2009.

Information Technology Industry Cluster

13-County Metropolitan Statistical Area

BROCADE COMMUNICATIONS SYSTEMS FAIR ISAAC
PTC
BT AMERICAS INC
FAIR ISAAC CORP
LAWSON SOFTWARE INC
CARGILL INC
IXI SALES & SVC CO INGENIX INC
DIGITAL RIVER INC UNISYS CORP

N

S

NAICS Codes:
334111, 334112,
334113, 334119,
334611, 511210,
516110, 518111,
518112, 518210,
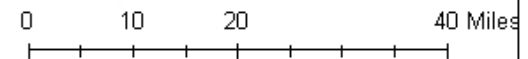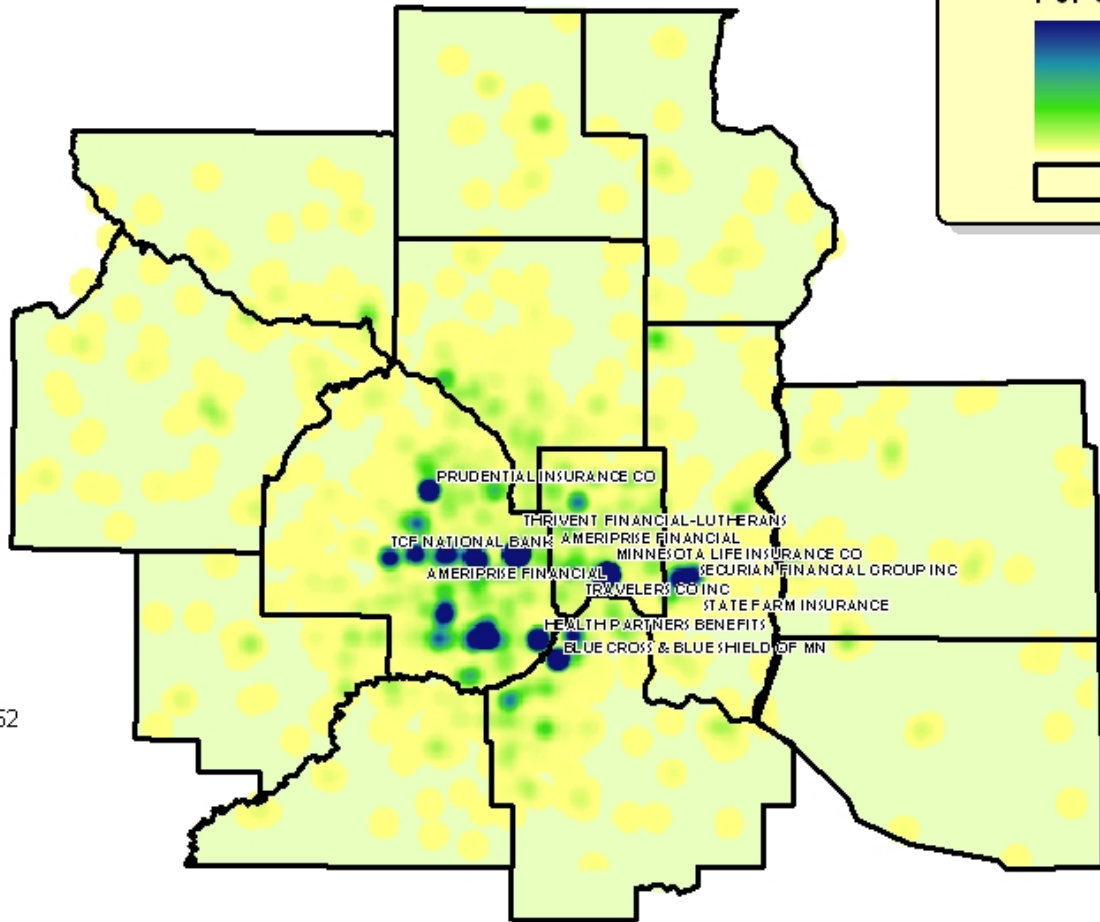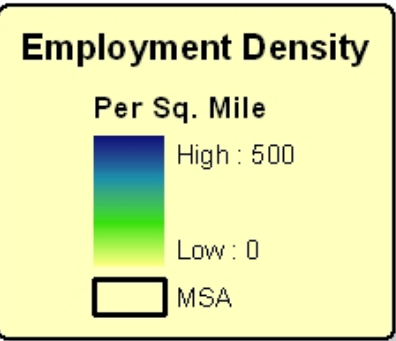541511, 541512,
541513, 541519

0   10   20   40 Miles
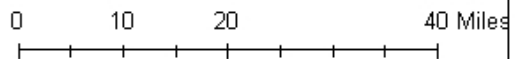
Companies that employ 300 or more workers are labeled.

Medical Devices Industry Cluster
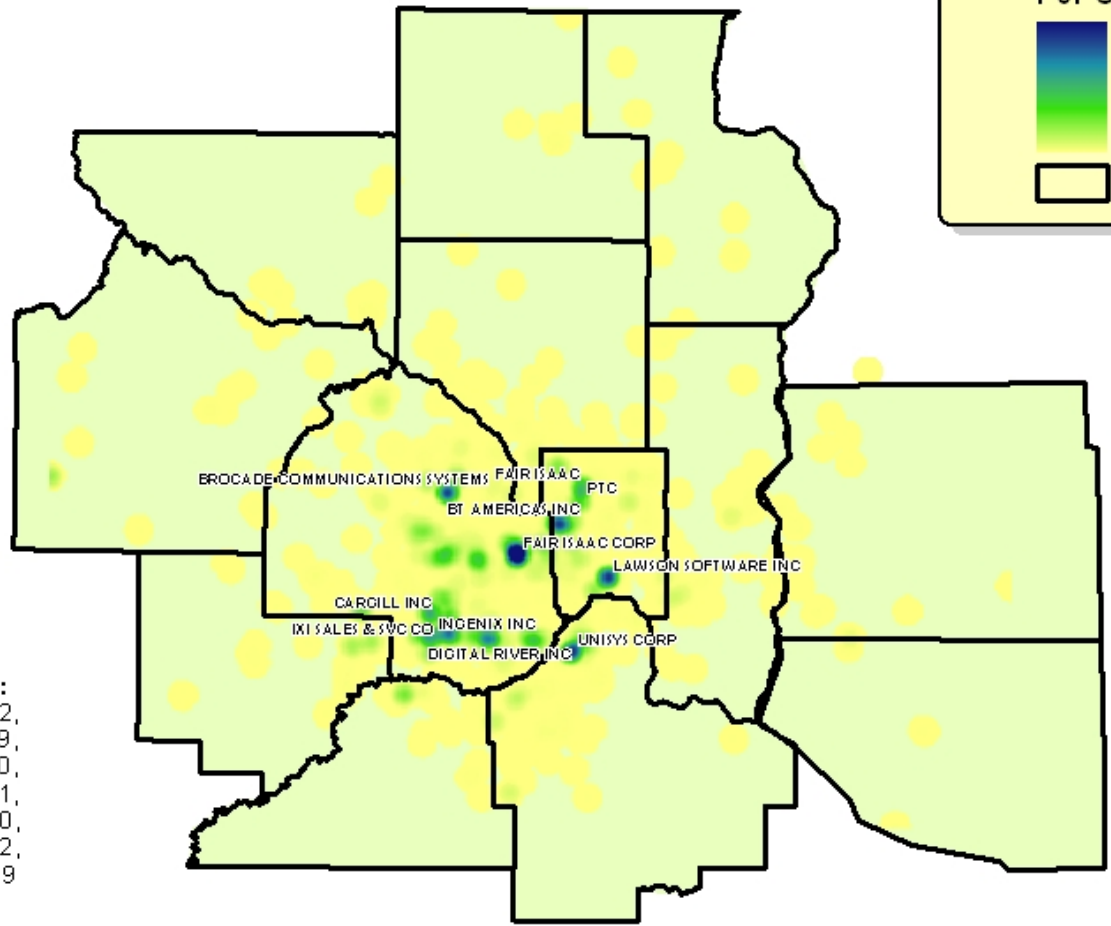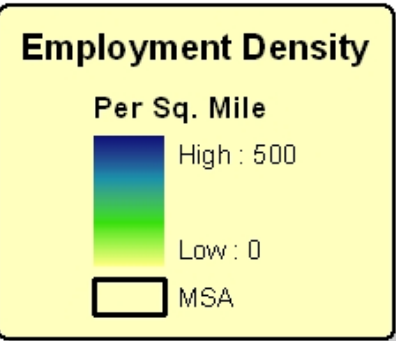
13-County Metropolitan Statistical Area

BOSTON SCIENTIFIC CORP

MEDTRONIC INC   MEDTRONIC INC

MEDTRONIC INC

3M CO

QUADION CORP

AMERICAN MEDICAL SYSTS HLDGS   AMERICAN MEDICAL SYSTEMS INC
STARKEY LABORATORIES INC

BECKMAN COULTER INC   ENTEGRIS INC   GN RESOUND GROUP NORTH AMERICA

ROSE MOUNT INC
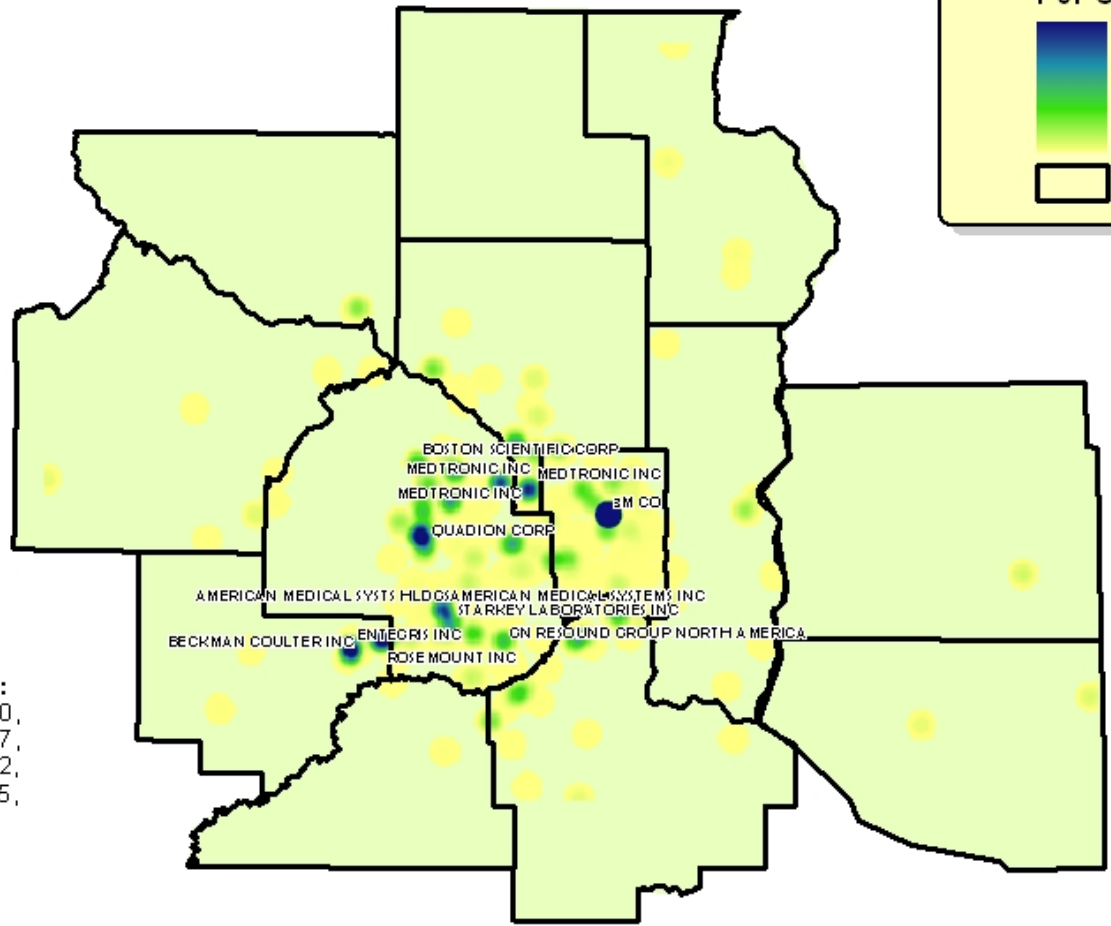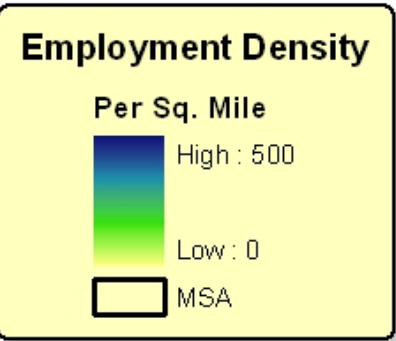
NAICS Codes:
333314, 334510,
334516, 334517,
339111, 339112,
339114, 339115,
339116

N

S

0   10   20   40 Miles
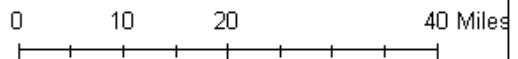
Companies that employ 500 or more workers are labeled.

Metal Manufacturing Industry Cluster

13-County Metropolitan Statistical Area

Employment Density

Per Sq. Mile

High : 500

Low : 0

MSA

WILSON TOOL INTL INC

MINCO PRODUCTS INC

ACROMETAL COMPANIES INC GRIFFITHS CORP

PROGRESS CASTING GROUP INC

METAL-MATIC INC

CERDAU AMERISTEEL

ANAGRAM INTERNATIONAL INC SEAGATE TECHNOLOGY

NAICS Codes:
Too many to display

0   10   20   40 Miles

N

S
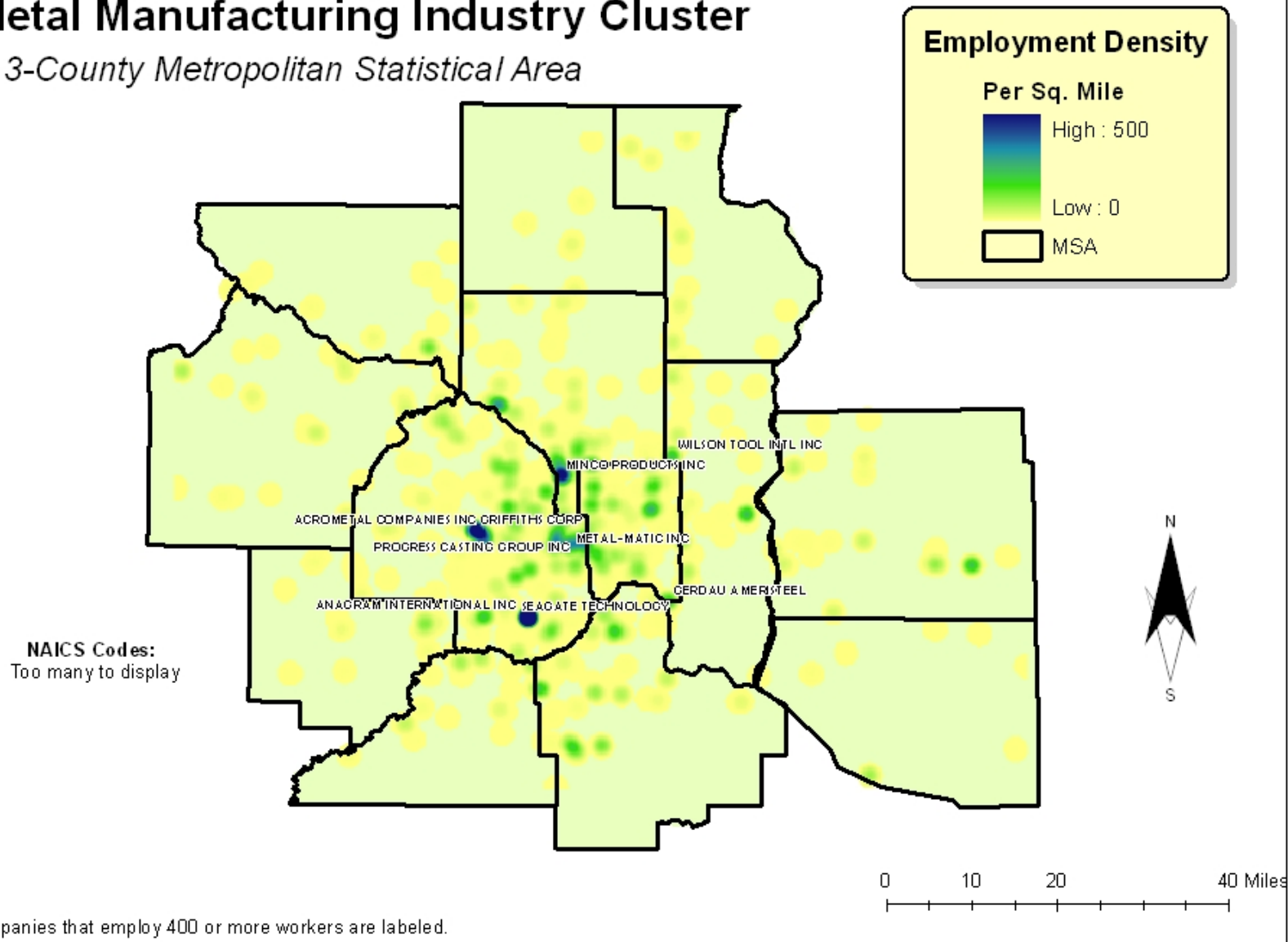
Companies that employ 400 or more workers are labeled.

Production Technology Industry Cluster

13-County Metropolitan Statistical Area

Employment Density

Per Sq. Mile

High : 500

Low : 0

MSA
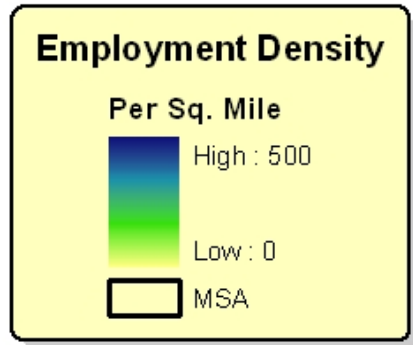
NAICS Codes:
332410, 332420,
332439, 332811,
332991, 332997,
332999, 333111,
333120, 333210,
333220, 333291,
333292, 333293,
333294, 333295,
333298, 333319,
333411, 333412,
333414, 333415,
333511, 333512,
333513, 333514,
333515, 333516,
333518, 333612,
333613, 333911,
333912, 333923,
333924, 333991,
333992, 333993,
333994, 333999,
334513, 334514,
334515, 334518,
334519

RYERSON INC

WILSON TOOL INTL INC

MINCO PRODUCTS INC

CATERPILLAR PAVING PRODUCTS

TSI INC

ACROMETAL COMPANIES INC GRIFFITHS CORP

HONEYWELL AEROSPACE

GE WATER & PROCESS TECHNOLOGY

ANAGRAM INTERNATIONAL INC

N

S

0   10   20   40 Miles
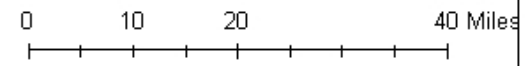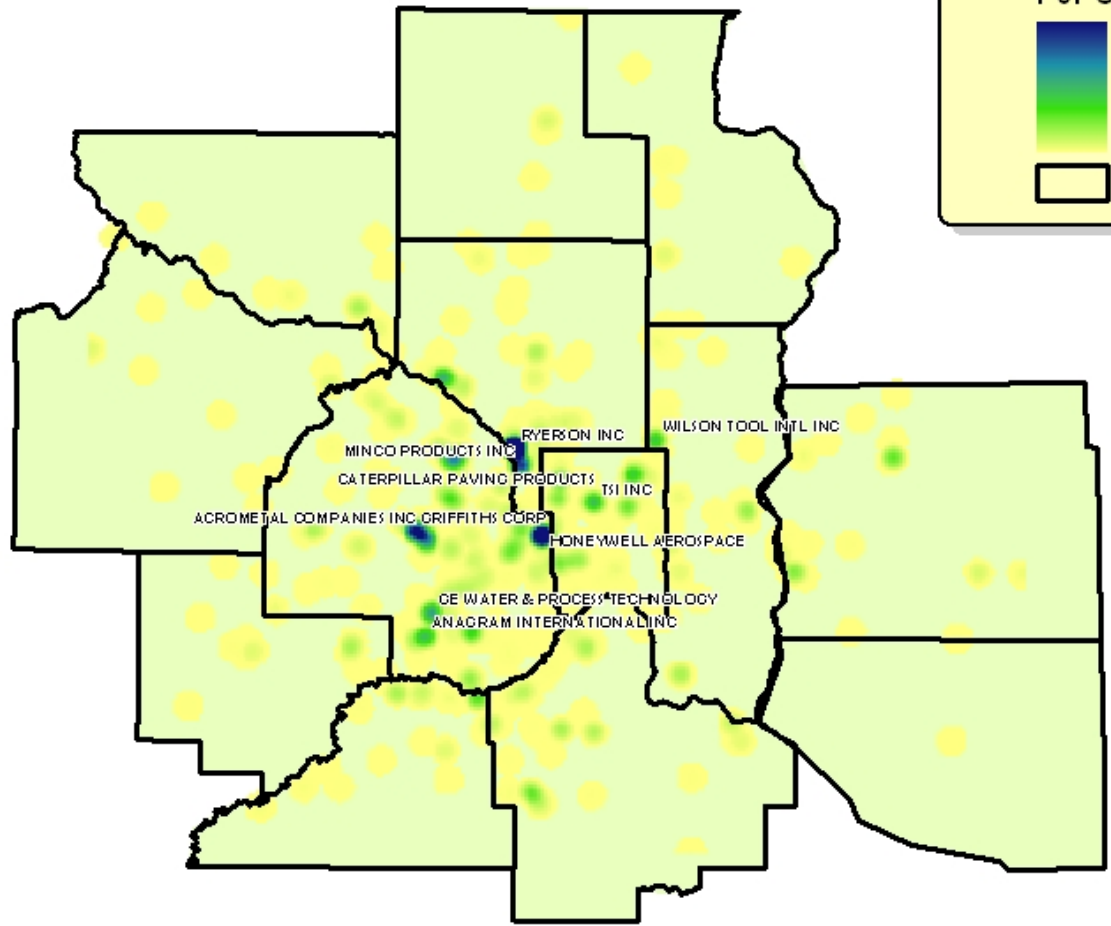
Companies that employ 400 or more workers are labeled.

Publishing and Printing Industry Cluster

13-County Metropolitan Statistical Area

OMEGA STUDIOS INC
FAIR ISAAC
DELUXE CORP
BUREAU OF ENGRAVING
STAR TRIBUNE
SUNCRAFT TECHNOLOGIES
MERRILL MAGNUS PUBLISHING CORP
PIONEER PRESS
JAPS-OLSON CO
LAWSON SOFTWARE INC
IWCO DIRECT
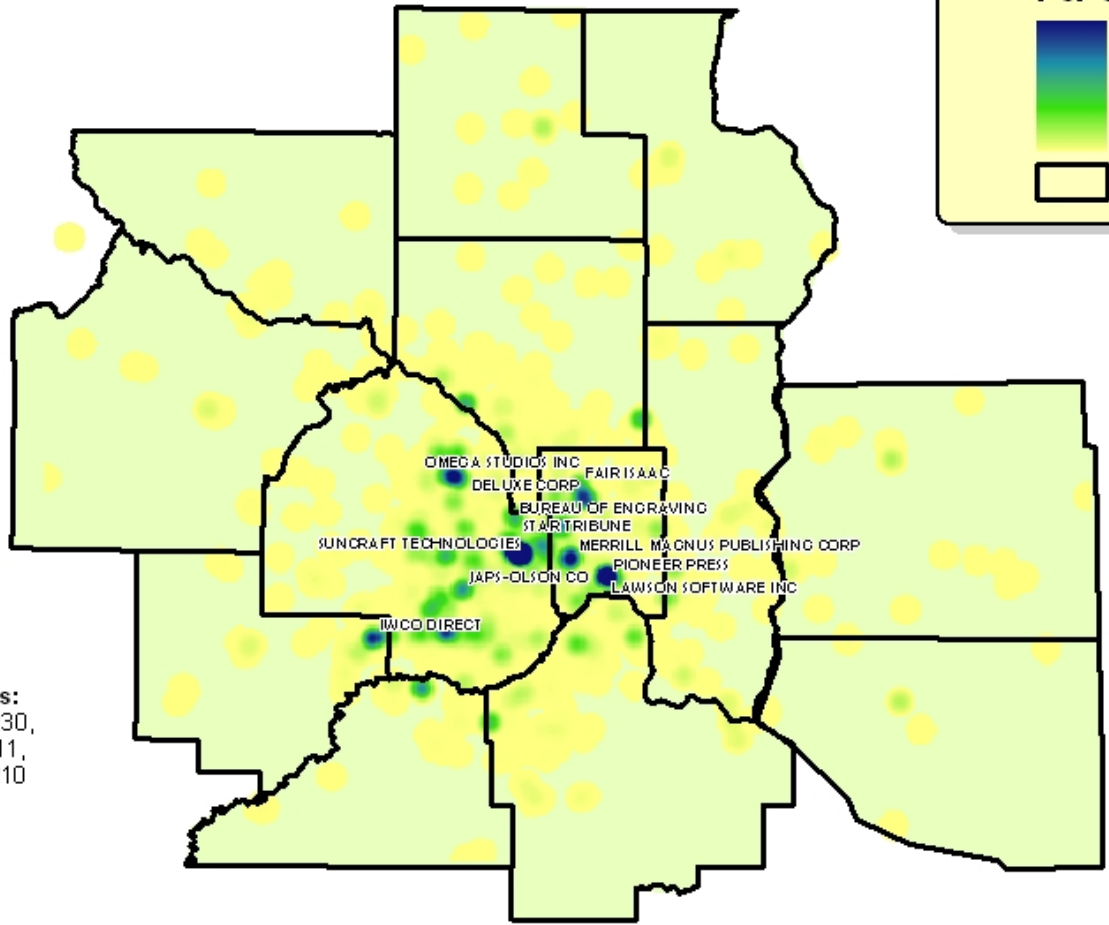
NAICS Codes:
323, 511, 512230,
516110, 518111,
518112, 518210

N

S

0   10   20   40 Miles

Companies that employ 500 or more workers are labeled.

Source: 2009 2nd Quarter InfoUSA

Prepared by DEED LMI (AR) on Oct 19, 2009.

POTENTIAL TO SPUR INNOVATION

Innovation drives the ability for clusters to maintain competitive advantage.

STRENGTH OF INNOVATION

Patents Granted to Minnesota Companies by Cluster
(11/1/2008 - 10/20/2009)

Cluster	Patents Granted Per 10,000 Employees
Information technology	454
Analytical instruments	369
Medical devices	285
Chemical products	257
Production technology	139
Metal manufacturing	42
Distribution services	12
Printing and publishing	1

Entrepreneurship drives growth by increasing competition and innovation.
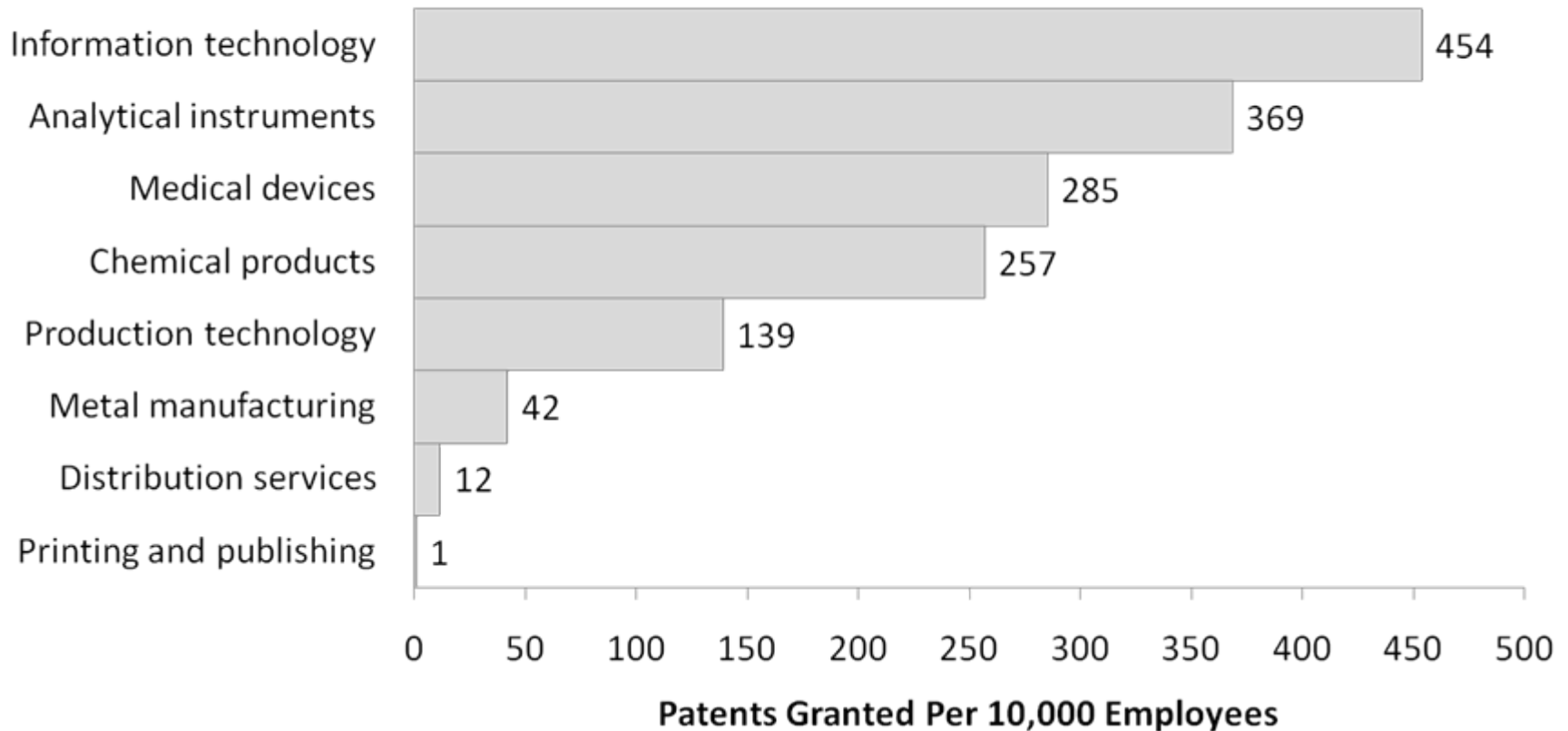
STRENGTH OF ENTREPRENEURSHIP

Companies with Founded or Changed Ownership 2001-2008

Category	Value
Business Services	22,898
Financial Services	2,789
Distribution Services	2,755
Information Technology	973
Publishing & Printing	787
Production Technology	270
Medical Devices	154
Analytical Instruments	77

**To maintain competiveness, it is essential that clusters
are strong globally.**
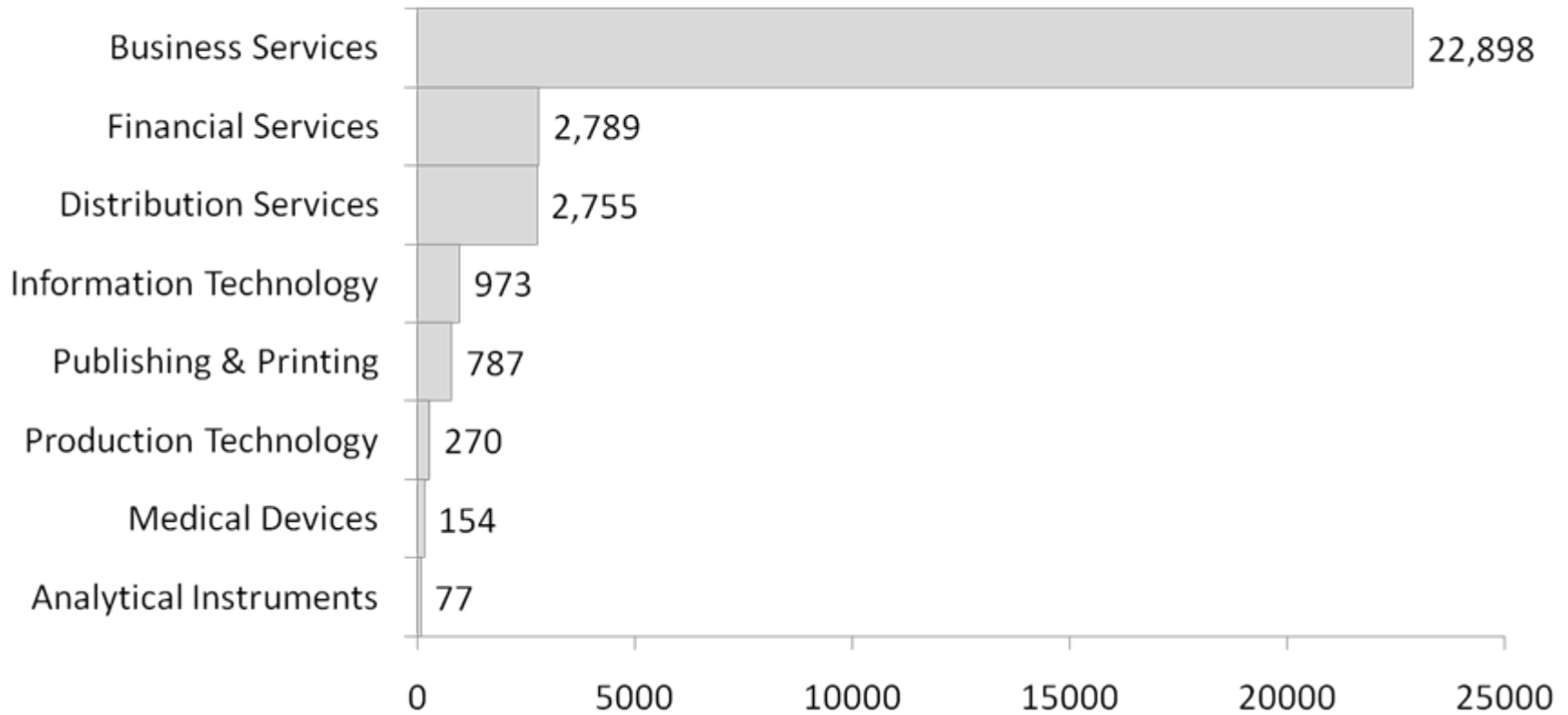
STRENGTH OF INTERNATIONAL EXPORTS

2008 Minnesota Exports by Industry Cluster
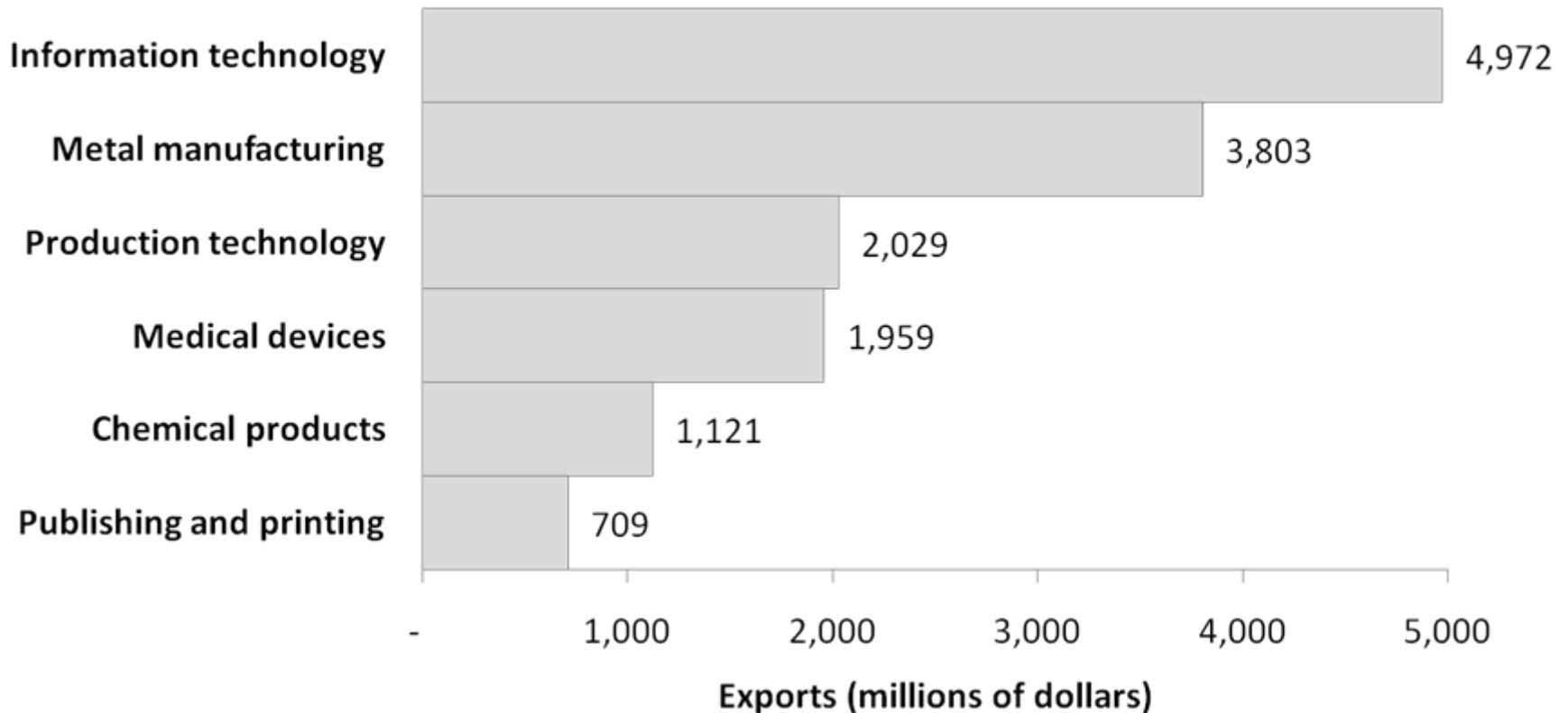
TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

CRITERA FOR SELECTION OF CLUSTERS

Six Key Criteria

•**Strength of competitive advantage (existing or emerging)**

•**Potential gain for industry cluster from private-public collaboration**

•**Degree of geographic distribution in the region**

•**Potential to spur innovation**

•**Potential to spur entrepreneurship**

•**International strength**

POSSIBLE ACTIONS

Areas for Potential Action

- Work Force

- Physical Infrastructure

- Natural Resources

- Knowledge & Technology

- Enterprise Development

- Quality of Life

- Fiscal Management

Potential Actors

- Mayors

  - Zoning, land use

  - Infrastructure, incentives

  - Joint legislative advocacy

- Government Agencies

- Universities

- Federal funding for regional competitiveness initiative

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

Break for Cluster Selection

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

NEXT STEPS

		Start	Wrap-Up
✓	1. Develop Detailed Work Plan & Assemble Project Team	Aug-09	Sep-09
●	**2. Conduct Strategic Review and Economic Analysis**	Aug-09	Dec-09
✓	3. Mayors Review and Select Clusters	Oct-09	Oct-09
●	**4. Conduct Industry Interviews and Focus Groups**	Oct-09	Jan-10
	5. Conduct MOC Capstone Workshop	Jan-10	May-10
	6. Evaluate Cluster Projects and Action Plans	May-10	Jun-10
	7. Implement Cluster Strategy Action Plans	Jul-10	May-11
	8. Evaluate Project Results and Recommend Next Steps	Oct-10	May-11

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

TODAY'S AGENDA

- **Welcome & Introduction**: *Stan Harpstead & Bonnie Elsey*

- **Objective**: *Stan Harpstead*

- **Keynote Address**: *Joe Cortright*

- **Background**: *Burke Murphy*

- **Definitions**: *Lee Munnich*

- **10 clusters**: *Alisha Cowell & Mia Adams*

- **Criteria for Selection & Possible Actions**: *Stan Harpstead*

- **Cluster selection**: *Facilitated by Lee Munnich and Burke Murphy*

- **Next steps & Cluster Team Registration**: *Burke Murphy*

- **Feedback**: *Jim Hovland*

- **Adjourn**

Regional Council of Mayors (RCM) · Urban Land Institute Minnesota · positively Minnesota Department of Employment and Economic Development · HUBERT H. HUMPHREY INSTITUTE OF PUBLIC AFFAIRS · UNIVERSITY OF MINNESOTA Driven to Discover℠

APPENDIX: Composition of the U.S. Economy by Type of Industry

	Traded Industries	Local Industries	Natural Endowment Dependent Industries
Share of Employment	**32%**	67%	1%
Employment growth 1990-2000 (CAGR)	**1.7%**	2.8%	-1.0%
Average wage	**$45,040**	$27,169	$32,129
Relative Wage (average = 100)	**$137.0**	$82.6	$97.7
Wage growth 1990-2000 (CAGR)	**5.0%**	3.6%	1.9%
Relative productivity	**144.1**	79.3	140.1
Patents per 10,000 employees	**21.1**	1.3	7.0
Number of SIC Industries	**590**	241	48

Regional Council of Mayors — RCM

ULI Urban Land Institute Minnesota

positively Minnesota
Department of Employment and Economic Development

HUBERT H. HUMPHREY INSTITUTE OF PUBLIC AFFAIRS

UNIVERSITY OF MINNESOTA
Driven to Discover℠

APPENDIX

Clusters and subclusters	2006 total employment	2006 share of national employment	2006 employment LQ	Change in LQ from 2006	2006 average wages	Rank out of 20 by employment
Analytical instruments	**15,382**	**2.8**	**2.04**	**Decrease**	$51,586	**9**
Electronic components	3,675	2.2	1.62			12
Laboratory instruments	3,250	3.5	2.51			6
Process instruments	4,532	3.4	2.46		$51,586	6
Search and navigation equipment	3,750	2.7	1.99			13
Business services	**95,929**	**1.7**	**1.26**	**Increase**	$66,440	**12**
Computer programming	20,217	1.8	1.31		$76,660	12
Computer services	7,964	1.6	1.15		$85,552	16
Engineering services	17,500	1.9	1.35			12
Management consulting	23,692	3.5	2.53		$65,767	7
Marketing related services	4,968	2.8	2		$40,077	7
Printing services	175	0.9	0.66			19
Professional organizations and services	20,663	1.1	0.8		$45,506	17
Chemical products	**5,995**	**1.6**	**1.15**	**Increase**	$34,133	**12**
Ammunition	3,250	17.2	12.4			1
Leather tanning and finishing	175	3	2.18			10
Other processed chemicals	1,525	1.9	1.35		$34,133	14

APPENDIX

Clusters and subclusters	2006 total employment	2006 share of national employment	2006 employment LQ	Change in LQ from 2006	2006 average wages	Rank out of 20 by employment
Distribution Services	37,836	**1.9**	**1.37**	**Decrease**	$75,268	**12**
Catalog and mail-order	9,310	3.5	2.55			5
Food products wholesaling	1,985	1.4	1.04			17
Merchandise wholesaling	24,605	2	1.42		$75,868	14
Transportation vehicle and equipment distribution	550	1.01	0.73			18
Financial services	**53,699**	**2.3**	**1.63**	**Increase**	$103,163	**10**
Insurance products	22,000	4.5	3.25			3
Passenger car leasing	750	8.5	6.16			4
Securities brokers, dealers and exchanges	19,754	2.1	1.5		$75,868	8
Information technology	**18,490**	**2.1**	**1.5**	**Increase**	$44,813	**15**
Electronic components and assemblies	3,485	2	1.37		$44,813	13
Peripherals	5,510	7.6	5.5			2
Software	7,500	2.2	1.59			17

APPENDIX

Clusters and subclusters	2006 total employment	2006 share of national employment	2006 employment LQ	Change in LQ from 2006	2006 average wages	Rank out of 20 by employment
Medical devices	**18,474**	**4.9**	**3.51**	**Increase**	**$49,407**	**3**
Dental instruments and supplies	375	2.4	1.74			14
Diagnostic substances	479	1.8	1.28		$49,407	15
Medical equipment	7,560	10.2	7.35			2
Opthalmic goods	750	3.1	2.23			8
Surgical instruments and supplies	9,250	4.5	3.25			4
Metal manufacturing	**20,687**	**1.9**	**1.39**	**Increase**	**$46,315**	**8**
Environmental controls	1,750	13.1	9.44			1
Fabricated metal products	1,362	1.3	0.93		$45,620	13
Fasteners	4,125	3.4	2.48			5
General industrual machinery	2,332	4.4	3.21		$52,675	2
Metal furniture	1,125	2	1.47			7
Metal processing	4,584	1.9	1.42		$39,623	8
Nonferrous mills and foundries	1,749	2.3	1.65		$45,357	10
Precision metal products	1,135	1.3	0.97			12
Pumps	750	2.4	1.76			11

APPENDIX

Clusters and subclusters	2006 total employment	2006 share of national employment	2006 employment LQ	Change in LQ from 2006	2006 average wages	Rank out of 20 by employment
Production technology	**12,416**	**2.2**	**1.6**	**Increase**	$56,856	**8**
Fabricated plate work	1,535	1.8	1.33		$46,602	8
Industrial patterns	60	1.1	0.82			19
Machine tools and accessories	924	1.5	1.1		$52,829	14
Process equipment sub-sytems and components	7,814	2.8	2.02		$56,873	5
Process machinery	1,898	2.4	1.72		$68,451	10
Publishing & printing	**24,770**	**2.8**	**1.99**	**Decrease**	$36,236	**5**
Media representatives	350	1.2	0.86			13
Paper products	1,255	2.1	1.53			11
Photographic equipment and supplies	235	0.6	0.46			19
Photographic services	375	2.8	2.02			9
Printing inputs	435	2.5	1.79			12
Printing services	6,556	2.9	2.07		$31,645	4
Publishing	12,758	3.5	2.55		$19,000	5
Signs and advertising specialties	1,976	2.2	1.6		$40,502	5
Specialty paper products	760	1.8	1.27			14