RESEARCH PROJECT:

Minnesota Regional Manufacturing/Technology Opportunity Assessment: Southeast Region

Round Table Discussion/Executive Summary

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Bureau of Business and Economic Research

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Prepared for:
Minnesota Technology, Inc.
I. INTRODUCTION

The purpose of this paper and five others like it is to describe the economic base of six regions in the state of Minnesota, and to identify possible future niches for development. The relative health of Minnesota’s economy today, and nearly full employment allows us an opportunity to plan strategically for the long term health of our state’s economy. For this reason, our philosophy in formulating this paper and our recommendations has been that economic development efforts should focus on industries providing high wage/high value jobs which lead to an improved quality of life for Minnesota’s citizens.

The economic base of Southeast Minnesota includes a combination of agriculture and value added agriculture production, technology based manufacturing and services, and the medical industry. The presence of a large number of employers in industries identified as technology based is a distinguishing feature of this economy.

Our recommendations begin with a look at the top technology manufacturing performers in the region, identified by analyses of secondary data. We have identified candidates for business retention and development efforts that are important suppliers to the industries which comprise the economic base of the region.

Note: For the Southeast region, unlike other regions in this study, comments from focus group discussion and individual interviews with knowledgeable people in the region were not available.

Readers who are interested in further information are invited to look at reports 1 and 2 for the Southeast region.

Report #1: SUPPORTING DATA, including the Notion of Economic Base, Measuring Economic Base, Employment in Southeast Minnesota, Location Quotient Values for Southeast Minnesota, Shift-share Analysis for Southeast Minnesota, Input-output: Industry Ranking by Output Levels, Manufacturing - Technology Rankings, and appendix material with complete data.

Report #2: PRELIMINARY DATA, including Discussion of Data Sources, Data Organization, Industry Leaders, General Information and Analysis of Regional Structure for Key Industries, and tables of top performers.

The data for these reports are taken from secondary sources, including:

# Regional Economic Information System (REIS), United States Department of Commerce.

# County Business Patterns (CBP), United States Department of Commerce.

# NU OnRamp, University of Nebraska Bureau of Business Research computer based retrieval system (NUOR).

# IMPLAN 1993. MIG, Inc. Stillwater, MN.

# Standard Industrial Classification Manual, Executive Office of the President, Office of Management and Budget.
II. ECONOMIC BASE OF SOUTHEAST MINNESOTA

STRONGEST INDUSTRIES

The Southeast region is unique when compared to the rest of Greater Minnesota. Its economic base includes a combination of agriculture and value added agriculture production, technology based manufacturing and services, and of course, the medical industry. The presence of a large number of employers in industries identified as technology based is a distinguishing feature of this economy.

We identify as the strongest industries in the economic base of the Southeast region industries that:

1. are large employers,
2. present high value added to the region,
3. export from the region (either to the rest of the United States or to foreign countries),
4. interact strongly with other industries in the local economy leading to spin-off (multiplier) economic impacts, and
5. show good prospects for future economic growth. The region depends upon these industries in a very real way. Their strengths and weaknesses should be of major concern to those with an interest in the growth and development of the regional economy.

Economic base, in a technical sense, consists of industries that bring money in from outside the region through export activity. At least a part of this money is then used to buy local goods and services, either as semi-finished goods, or as professional services, both contributing to basic production. The secondary or local supplying industries are part of the infrastructure that makes a basic industry competitive in the global marketplace. Thus, such industries as construction, local retail trade, and related servicing sectors both depend upon the basic industry and nurture it.

The following list of industries represent those that are dominant in the above categories of performance. To be included in the following list requires that the industry in question be in the top thirty industries (out of over 500 industries) in at least four of the five categories of performance. All of these conclusions are based on 1993 data taken from IMPLAN, a regional industrial structure estimating software and data base system.

Key Facts about Southeast Minnesota’s Economic Base: Top Industries from Analysis of Data Sources

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<td>Cheese, Natural And Processed</td>
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<td>339.55</td>
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<td>419.82</td>
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<tr>
<td>Soybean Oil Mills</td>
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<td>411.82</td>
<td>6.00</td>
<td>1.61</td>
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<td>Communications, Except Radio An</td>
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<td>297.83</td>
<td>178.03</td>
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<td>864.43</td>
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<td>Doctors And Dentists</td>
<td>814.58</td>
<td>883.31</td>
<td>1,369.77</td>
<td>1,113.51</td>
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### Food Processing

Several categories of food processing showed up in the top thirty list. Each will be discussed briefly in turn:

- **Cheese, Natural and Processed:** This industry was in the top thirty in every category. It demonstrated high value added, a significant portion of which is made up of employee compensation. It was also a significant exporter from the region, had a high value for total gross output, and exhibited high values in terms of its influence on other industries in the region (output multipliers) and on regional income (income multipliers).

- **Meat Packing Plants:** This industry was in the top thirty for four of the five categories - employee compensation, exports, output, income effects on the rest of the region, output effects on the other industries in the region.

- **Sausages and Other Prepared Meats:** This industry appeared in the top thirty for four of the five categories - employee compensation, levels of exports, level of gross output, value added, and its output effects on the other industries in the region.

- **Soybean Oil Mills:** This industry was in the top thirty for levels of exports, its own level of output, and its effects on the region’s income levels, as well as on the output levels for other industries in the region.

In addition to these agriculture processing industries, one purely agriculture sector stands out:

- **Hogs, Pigs, and Swine Production:** This is a major exporter from the region, is in the top thirty industries for its own level of output, and has significant effects on the region’s income level and on the output levels of other industries in the region.

The first obvious conclusion from the data is that the region has a significant agricultural base and that value added agriculture production is a major component of the region’s economic base. The region’s industrial/service base industries follow:

### Electronic Computer Production

While it may seem to be obvious, computer production existed as a significant base industry in the region in 1993. It was found to be among the top industries in terms of employee compensation, value added, levels of exports, and its own level of output.

### Doctors and Dentists

Again, somewhat self explanatory for this particular region. This sector exhibited high levels of compensation, value added, levels of exports, and its own dollar levels of output.

### Commercial Printing

This is an interesting industry that might not be quite as obvious as some of the others listed above. It demonstrated a high level of employee compensation, value added, levels of exports from the region, and its own dollar value of output.

### Communications, Except Radio and TV

Much the same as for Commercial Printing, this industry is in the top thirty for the same categories - compensation, value added, exports, and output.

### Banking

Again, this industry is high in compensation...
levels, value added, export levels, and output. There is evidence that the region is a financial center for other surrounding regions.

RECOMMENDATIONS

Recommendation I:  A focus of economic development efforts should be on helping those existing industries which provide higher wage/value jobs to grow and survive, as opposed to emphasizing the recruitment of new businesses.

This is a recommendation that should have had more discussion and attention within economic development circles than it has received until quite recently. This recommendation was confirmed by the respondents in focus group and individual interview sessions throughout Greater Minnesota.

There is an increasing awareness in development publications that economic development, especially in rural regions, stems from internal (endogenous) sources. Small-to-medium sized enterprises, begun and nourished by local residents, often define the economic future of a region. Competitive industrial prospecting, combined with strong locational financial incentives, too often find industries offered incentives at a location they would have chosen in any case. Locating firms simply take advantage of these significant concessions from competing regions.

We will look at Southeast Minnesota from the standpoint of technology industries important to the region that demonstrate both initial strength and strong growth potential. We then look at local technology and other industries that might be able to use some local retention support.

TOP TECHNOLOGY MANUFACTURING PERFORMERS

We identify in this section top performing technology industries in the region. The technology sector definitions were provided, for the purposes of this analysis, by the sponsors of this research project, Minnesota Technology, Inc. Technology industries typically provide higher wages, they tend to be export oriented, and they are likely to be industries worthy of additional economic development attention. Most of the technology industries are in the manufacturing sector, although a few services related to computer and engineering services are also included.

Employment and employment trends between the years 1990 and 1993 form the criteria for classifying industries in this analysis. There are quite a few technology industries to list or discuss relative to this region in the state. However, we did not conduct focus group surveys or individual interviews in the Southeast region as we did in the other regions of Greater Minnesota. Our narrative can therefore refer only to the analysis of the secondary data we obtained from the U. S. Department of Commerce, County Business Patterns and from NUONRAMP, a data base centered at the University of Nebraska, Lincoln.

The list of industries follows:

# Construction Machinery
This industry manufactures heavy machinery and equipment typically used in the construction industry. Examples include equipment such as bulldozers, concrete
mixers, cranes, etc. Over 100 jobs were added to the regional economy in this industry between 1990 and 1993 bringing the total employment in this industry to over 1,400 in 1993. The industry is shown to be over represented in the region relative to the same industry in the nation in terms of employment. The extent of this over representation increased between 1990 and 1993 which indicates that the industry is basic to the region and perhaps becoming even more basic in recent years. This is certainly an industry worthy of continued support.

# Hoists, Cranes, and Monorails

This industry added 55 employees to the economy’s 1990 total to achieve a 1993 employment total of 230 employees. The industry is shown to be basic to the region with significant over representation relative to the nation in terms of employment. It is another technology industry in the region where all signs are positive.

# Computer Storage Devices

Storage devices includes such things as disc and drum drives, magnetic storage units, etc. This industry added 25 employees to the local economy between 1990 and 1993 to a 1993 total of almost 190 employees. The industry is shown to be basic to the region.

# Relays and Industrial Controls

These establishments engage in manufacturing relays, motor starters and controllers. It was a strong growth sector in the economy between 1990 and 1993, adding over 300 employees to the regional economy. Its total employment in 1993 was estimated to be almost 320. The additional employees over the three-year period moved this industry from being under to over represented relative to the rest of the nation, i.e., from non-basic to basic.

# Electronic Components, n. e. c.

This is a composite industry with quite an array of products. Its commodities include: receiving antennas, switches, and waveguides. Electronic Components, n. e. c. added almost 670 employees over the three-year period 1990 - 1993 to a 1993 total of 2,136 individuals. It is also shown to be basic to the region. It is both a growth sector and a major regional employer.

# Electrical Equipment and Supplies, n. e. c.

Products in this industry include high energy particle acceleration systems, electronic simulators, appliance and extension cords, bells and chimes, and insect tapes. It is obviously an industry that produces many diverse products. The industry added 216 employees to the region between 1990 and 1993 to a 1993 total of 487 individuals. It is basic to the region, i.e., is identified as an regional exporting sector.

# Orthopedic, Prosthetic, and Surgical Appliances and Supplies

Products of this industry include arch supporters, braces, and trusses as well as various forms of bandages and gauze. It accounted for an additional 111 employees between 1990 and 1993 and showed a total employment in 1993 of 356 individuals. It is basic to the region and a strong performer in several measurement categories.

# Computer Programming Services

This industry showed an increase of 165 employees between 1990 and 1993. The 1993 total employment in this industry was 720 employees. It is basic to the region.

# Prepackaged Software

This represents an industry engaged in the design, development, and production of prepackaged computer software. Its increase in employment between 1990 and 1993 was 182 individuals. Its total employment in 1993 was 245 employees. It is basic to the region.

# Engineering Services
Over 100 jobs were added to the local economy in this industry between 1990 and 1993. The total employment in this industry in 1993 was equal to 431 individuals. However, the industry is not basic to the region and might actually find further development through import replacement.

CANDIDATES FOR RETENTION EFFORTS IN SOUTHEAST MINNESOTA

We found a number of industries in the Southeast region which are contributing significantly to the region’s economy but that are displaying signs of difficulty, are declining in relative importance, or are participating in employment downsizing to a greater extent than would be expected from national trends. (Our next several observations are taken from an analysis of employment and employment trends.) These industries should be the focus of retention efforts or further study on the part of local/state governments and development agencies. A successful retention effort is likely to pay dividends at least as large as high risk efforts to attract new industry into the region.

The earliest sectors listed are within the technology industry definitions provided by Minnesota Technology, Inc. Sectors showing either absolute or relative decline include:

# Computer Peripheral Equipment, n. e. c.

This equipment category includes such products as printers, plotters, and graphic displays. The region lost 1,000 employees in this industry between 1990 and 1993. Most of this loss can be accounted for by the fact that the industry declined nationally and the region participated in that sluggish national performance. In fact, the regional industry declined at a slower pace than its national counterpart making the regional loss less than it otherwise might have been. The industry is extremely important to the region’s employment base with over 6,600 employees in 1993.

# Telephone and Telegraph Apparatus Manufacturing

This industry produces wire telephone and telegraph equipment (not cellular telephones). The industry lost almost 90 employees between 1990 and 1993. Its total employment in 1993 was 310 employees. The industry showed a sluggish performance in terms of employment nationally. In addition, the regional industry’s performance was not up the national level.

# Radio and TV Communications

This industry produces such products as closed-circuit and cable equipment, transmitters, transceivers and receivers, and light communications equipment. The regional industry lost over 410 individuals between 1990 and 1993. Its total employment in 1993 was over 1000 individuals. The industry demonstrated a sluggish performance nationally in terms of employment growth. However, the region’s performance was even more sluggish than would have been predicted by national trends. It appears that the region lost out in terms of its competitive advantage for attracting employment in this sector when compared to other regions in the global economy. It is a significant regional employer that deserves local attention.

# Printed Circuit Boards

This regional industry lost over 480 employees between 1990 and 1993. Its total employment in 1993 was equal to 724 individuals. The industry was actually a strong growth sector nationally, so the noted loss in employment in the region is especially disturbing. There appears to be a loss in competitive advantage for attracting jobs in this industry for the region. Separate
analysis may be warranted in terms of what this regional industry requires to remain competitive.

### Architectural Services

74 individuals were no longer employed in the region in this industry when comparing 1990 to 1993. The total employment in 1993 in this industry was 143 individuals. The industry showed sluggish growth relative to all industries in the nation. In addition, the region performed at an even slower pace than was true for the nation. This might indicate a loss in competitive regional advantage for attracting employment in this industry.

Industries other than technology based worthy of retention attention include some of the following:

### Several Categories of Agriculture Value Added Manufacturing

Categories of value added manufacturing associated with agriculture include:

- Meat Packing Plants
- Poultry Slaughtering and Processing
- Ice Cream and Frozen Deserts
- Fluid Milk Production
- Dog and Cat Food Production
- Food Preparation, n. e. c.

In every one of these cases, the regional economy’s performance was below its counterpart in the national economy indicating a loss in competitive advantage. In every instance, more than 100 employees were lost between 1990 and 1993 up to a high of a 622 employee loss in Poultry Slaughtering and Processing. Since we did not have an opportunity to conduct focus group and individual interviews in the region, we have no basis for speculation as to what this possible loss in competitive advantage might be.

### Several Wood Products Manufacturing Industries

Wood product manufacturing has a strong employment base in the region. Several of these say a loss in employment. Like the food processing sectors above, all of these lost out relative to national performances in the same industries indicating a loss in regional competitive advantages.
Industries in this category include:

- Wood Kitchen Cabinets
- Structural Wood Members, n. e. c.
- Mobile Homes
- Wood TV and Radio Cabinets
- Wood Office Furniture

**# Other Industries**

A list of other relative employment losing industries in the region (industries that lost out relative to the performances of the same industries in the national economy) include:

- Commercial Printing, n. e. c.
- Rubber and Plastics Hose and Belting Manufacturing
- Hand and Edge Tools Manufacturing, n. e. c.
- Metal Doors, Sash, and Trim Manufacturing
- Automotive and Metal Stampings
- Farm Machinery and Equipment

**RECOMMENDATION II:** Because basic industries buy many of their inputs to production from other local firms, attention to these local suppliers’ needs helps to make the basic industries more competitive.

A region’s economic future requires that the region be efficient in its production. Efficiency lowers the cost of production, making the region more competitive. Efficiency can be associated with those industries supplying the basic sector, the provision of government services, the character of the region’s infrastructure regarding roads and communications, and the efficiency of local resources, such as the productivity of its workforce. So much attention is often paid to a region’s exporting industries that those local industries supporting the base are often ignored or forgotten. This section looks at a few of those local industries that supply the economic base.

**# Construction**

One sector identified as the leading local supplier time and time again was that of Construction. Four industries important to the region identified construction as a major supplier: Wholesale Trade, Consulting & Research, Banking, and Motor Freight Transport and Warehousing. Because the industry is competitive, little government encouragement or interference is necessary. However, making sure the industry has what it needs in the way of skilled workers could be viewed as a responsibility of the local education structure. Monitoring the finance picture in the region to make sure funds for construction are there when needed could be the responsibility of government and of the business community itself. Quality assurance is the responsibility of everyone associated with construction in the region.

**# Utilities**

Suffice it to say that local utilities play a major role as a supplier to regional industries.
There is much going on with utilities that could change the efficiency and nature of this industry in the very near future. The possibility of deregulation at the federal level, the existing fact of deregulation in the interstate wholesale transmission of electricity, ever present concerns over the environment as it relates to this industry, and the already occurring consolidation of the industry through multiple mergers and acquisitions, all serve to make this industry one of concern to this and to many other regions in the nation.

**RECOMMENDATION III:** *Substituting locally produced goods and services for those previously imported defines a niche for future development. We recommend this option be explored.*

The substitution of local goods and services for imported goods and services, or import substitution, is a particularly strong economic growth strategy because it not only provides the direct employment associated with the new facility, but it increases the interaction between local industries which lead to greater spin-off (multiplier) impacts.

The first two sectors listed here are identified by Minnesota Technology, Inc., as being technology based. This implies higher than normal wages/value are brought into the region when these industries are encouraged and expanded.

**# Pharmaceutical Preparations**

This industry manufactures pharmaceutical preparations for the dental, medical, and veterinary professions or for sale to the public. These pharmaceutical preparations are primarily in a form for final consumption. The industry experienced modest employment growth between 1990 and 1993.

It is an industry under represented in the region relative to the nation in terms of employment levels (indicating it is a possible importing sector), and it has a modest 1993 employment level in the region of slightly over 60 individuals. It is also an industry that connects to the dominant medical community in the region. All of these factors make this industry a possible candidate for import substitution.

**# Industrial Organic Chemicals, n. e. c.**

This is a composite industry that includes a very large number of possible products, the most important of which include aliphatic and other acyclic organic chemicals, solvents, polyhydric alcohols, synthetic perfume, plasticizer, synthetic tanning agents, and esters, amines, etc. The industry showed a moderate rate of employment growth between the years 1990 and 1993 of close to 50 individuals. This brought total employment in this industry in 1993 to slightly over 100 individuals. It is a growing sector with a significant employment base already located in the region. However, it is under represented relative to the nation in terms of employment. This indicates that the region is not producing enough for its own needs, and that the products of this industry are being imported into the region. This might be a good candidate for further analysis to see if import substitution might be possible.

Other possible import substitution opportunities based on under representation in the region relative to the nation include but not defined as technology sectors include:

- Porcelain Electrical Supplies
- Phosphatic Fertilizers Production
- Industrial Organic Chemicals, n. e. c.
- Data Processing and Preparation
- Business Consulting, n. e. c.
• Radiotelephone Communications
• Engineering Services
• Computer Related Services, n. e. c.
• Ophthalmic Goods
• Pharmaceutical Preparations
• Dental Equipment and Supplies Manufacturing
• Medical Equipment Rental Firms
• Computer Maintenance and Repair
• Surgical and Medical Instrument Manufacturing
• Hospital and Medical Service Plans