MAMTC REGIONAL MARKET ASSESSMENT

Prepared for:

Mid-America Manufacturing Technology Center

Submitted by:

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Table of Contents

EXECUTIVE SUMMARY **1**
INTRODUCTION TO SURVEY REPORT **10**
FOUR-STATE REGION SURVEY **12**
EXECUTIVE SUMMARY 12
METHODOLOGY 13
COMPANY PROFILE 16
CRITICAL ISSUES 18
COMPANY COMPETENCIES AND MODERNIZATION PLANS 21
EXTERNAL ASSISTANCE ISSUES 26
STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS 30
CONCLUSION 32
COLORADO SURVEY **34**
EXECUTIVE SUMMARY 34
METHODOLOGY 35
COMPANY PROFILE 35
CRITICAL ISSUES 37
COMPANY COMPETENCIES AND MODERNIZATION PLANS 39
EXTERNAL ASSISTANCE ISSUES 43
STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS 45
CONCLUSION 47
KANSAS SURVEY **48**
EXECUTIVE SUMMARY 48
METHODOLOGY 49
COMPANY PROFILE 50
CRITICAL ISSUES 52
COMPANY COMPETENCIES & MODERNIZATION PLANS 54
EXTERNAL ASSISTANCE ISSUES 57
STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS 59
CONCLUSION 61
MISSOURI SURVEY **63**
EXECUTIVE SUMMARY 63
METHODOLOGY 64
COMPANY PROFILE 64
CRITICAL ISSUES 66
COMPANY COMPETENCIES & MODERNIZATION PLANS 68
EXTERNAL ASSISTANCE ISSUES 71
STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS 74
CONCLUSION 76
WYOMING SURVEY **77**
EXECUTIVE SUMMARY 77
METHODOLOGY 78
COMPANY PROFILE 78
CRITICAL ISSUES 80
COMPANY COMPETENCIES AND MODERNIZATION PLANS 82
EXTERNAL ASSISTANCE ISSUES 86
STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS 88
CONCLUSION 89
MAMTC FOCUS GROUPS **91**
EXECUTIVE SUMMARY 91
FINDINGS 91
INTRODUCTION 95

MAJOR PROBLEM OF MANUFACTURING ORGANIZATIONS 97
USE OF OUTSIDE CONSULTANTS/SERVICE PROVIDERS..... 99
KNOWLEDGE AND IMPRESSIONS OF MAMTC..... 103
PRICING ISSUES 109
MARKETING SUGGESTIONS FOR MAMTC..... 111
CONCLUSION..... 117
Appendix I - Survey..... 118

EXECUTIVE SUMMARY

PURPOSE

The purpose of this study is to assess the business needs, plans for modernization, and use of outside service providers by the Mid-America Manufacturing Technology Center's (MAMTC) target clientele--small and mid-size manufacturers in Colorado, Kansas, Missouri and Wyoming. In addition, the study provides data and suggestions to help MAMTC better market its services to manufacturers.

The results are based on a survey with responses from 1,457 firms and six focus groups held throughout the four-state area. The focus group questions were somewhat different from the survey questions; thus, some sections of this summary refer only to the survey, some refer only to the focus groups, and some include information from both.

CRITICAL ISSUES

Survey findings

1. The most critical issue for manufacturing firms in all four states is the hiring, training and retention of qualified employees. Over 90% of the firms surveyed reported this as a critical or important issue. The most serious shortage is for production workers, but there is also concern for the recruiting of sales and marketing staff and technicians.

2. Other highly ranked critical or important issues identified in the survey were meeting quality standards, cost control, competitive pricing, and the availability of quality supplies.

3. Eighty percent of the firms in the survey cited improvements in manufacturing and production as critical or important.

4. Selecting and implementing software was the lowest-rated issue in the survey, but was still cited by almost 50% of the firms as critical or important. The availability and cost of financing were also rated low among the 14 business issues in the survey.

5. Marketing was identified as critical by 73 percent of the survey respondents.

Focus group findings

1. The focus groups in all four states identified obtaining qualified employees as the most critical issue facing their businesses. Employee training is especially important in view of the difficult labor situation.

2. The second most critical area was technology-related, i.e., keeping up with rapid changes in manufacturing technology, training employees to use new technology effectively, and financing technology acquisitions.

3. Computerization was the third major area; organizations are in various stages of computerizing their operations and require considerable outside assistance to implement these changes.

4. Few focus group participants mentioned marketing as a critical issue. This apparent discrepancy with the survey findings may be explained by the different formats; e.g., the focus groups answered open-ended questions, while the survey questions "forced" a response about the importance of marketing. Marketing did not appear to be uppermost in the minds of focus group participants, perhaps because market conditions were so good at the time of this study.

AREAS OF SIGNIFICANT CHANGE MADE IN PLANTS DURING THE LAST THREE YEARS

Survey findings

1. Firms indicated that the most significant change is occurring in areas where innovation has been most dramatic: continuous quality improvement, information systems, and manufacturing processes. Over a third of the firms surveyed reported significant changes in these areas.

2. There are fewer significant changes in the more traditional areas of management: management systems/human resources, market development, and business and financial systems.

COMPANY COMPETENCIES AND MODERNIZATION PLANS

Survey findings

1. Continuous Quality Improvement. Firms in the survey perceive a relatively high need to develop continuous quality improvement activities. About 75% said they have or will develop formal quality programs; 63% said they have or will develop quality assurance teams; 59% have implemented or will implement just-in-time production; and 43 % statistical process control. Firms are doing the least with ISO 9000 certification, which was cited by 37%, and CE Mark, which was cited by only13%. These findings apply to all four states.

   Relatively small percentages of the firms in the survey indicated that they may use outside help on continuous quality improvement activities. The highest-ranked area was ISO 9000 certification, which was cited by 15% of the firms surveyed. The lowest-ranked activity was just-in-time production, which was cited by 3% of the firms.

2. Management Systems/Human Resources. Substantial majorities of firms have either implemented or are developing plans to implement activities in the management systems/human resources area. The highest ranked activity was setting and implementing goals, which was cited by 93% of the firms. The lowest ranked activity was locating assistance for short-term projects, which was cited by 48% of the surveyed firms. All other activities in this area--dealing with government regulations, assessing competencies/opportunities, team building, incentive-based pay systems or programs, and formal employee development programs--were cited by at least 68% of the firms

   Fewer than 10% of the surveyed firms indicated that they might use outside assistance on management systems/human resources activities. The most interest in outside assistance is in locating assistance with short-term projects.

3. Market Development. A majority of firms currently conduct or are implementing the market development activities included in the survey, with the exception of beginning or expanding international sales. Customer communication/service was cited by the most firms – 93%. The responses for other areas were: updated market plan/strategy (85%), improve existing products (84%), develop and use new marketing methods (79%), expand U.S. Sales (76%), web site development and maintenance (67%), develop a new product (65%), and begin or expand international sales (45%).

   The firms surveyed are most likely to use outside help with developing and using new marketing methods and Web site development and maintenance, both of which were cited by 20% of the firms surveyed. In addition, 9% of the firms indicated they may use outside help to begin or expand international sales.

4. Business and Financial Systems. Very high percentages of firms have either implemented or are developing activities related to business and financial systems. Computerized accounting systems are the highest ranked, being cited by 96% of the firms. Other activities are business or strategic plan (91%), inventory control systems (91%), cost systems (91%), financing current operations (85%), financing improved equipment and facilities (80%), and financing expansion plans (64%). The lowest ranked activity in this area was business re-engineering, which was cited by 48% of the firms.

   The survey indicated that there is substantial interest in outside help with financial activities. About 15% of the firms surveyed are interested in outside help financing expansion plans and financing improved equipment and facilities. About 8% of the firms said they may use outside help with business re-engineering.

5. Information Systems. The highest-ranked information systems activities are computer systems maintenance, software/hardware selection, and access to the use of the Internet. Over 80% of the firms are doing or developing these activities. The

least activity is occurring with electronic data interchange, which was cited by 55% of surveyed firms.

There is more interest in using outside assistance with information systems activities than any other area. The highest-ranked activity is computer systems maintenance, which was cited by 19% of the firms in the survey. Other high-ranked activities are software/hardware selection (13%), access to and use of Internet (12%) and electronic data interchange (11%).

6. Plant Operations/Manufacturing. Over 80% of firms surveyed are doing or developing safety programs, effective production floor layouts, and environmental programs. However, there is substantially less activity in newer areas of automated material handling, computer numerical control, and cellular manufacturing, all of which were cited by less than 50% of the firms.

   Firms indicated they are most likely to use outside help with information on new techniques, which was cited by 17% of those surveyed, and bar coding, cited by 13% of firms. Only 4% of firms may use outside help with cellular manufacturing.

7. Best opportunities for help. Overall, the manufacturers in the four-state region indicated they are most likely to seek outside assistance in the following areas: creating and maintaining Web sites, developing new marketing methods, maintaining computer systems, acquiring information about new manufacturing techniques, identifying assistance for financing expansion plans, acquiring ISO 9000 certification, identifying assistance for financing improved equipment and facilities, selecting software and hardware, obtaining information about bar coding, accessing and using the Internet, implementing electronic data interchange, locating assistance for short-term projects, and updating marketing plans and strategies.

Focus group findings

1. In answer to open-ended questions about what kinds of outside assistance they used, focus group participants indicated they most frequently sought help in the following areas: engineering and technical consultation, information systems, training programs for workers and managers, and help with continuous improvement or other process improvements.

2. Focus group participants indicated that they rely heavily on equipment vendors as consultants.

3. Human resource issues were seen as critical, but the companies seek advice on these issues only occasionally.

4. Focus groups rarely mentioned marketing as an area where they sought outside assistance. This may have been due to the fact that the group discussions tended to focus on production issues.

5. Other areas, where outside assistance was used included safety consultants, strategic planning, goal setting, ISO 9000, and leadership training.

The following section summarizes company competencies and modernization plans. This information allows manufacturers to benchmark their own current performance to that of manufacturing firms in the four state area, as well as gauge plans for future development in several business and technical areas.

	Percent		
Activities	*Our Company already does this*	We plan to develop in this area	Total
1 – CONTINUOUS QUALITY IMPROVEMENT			
Formal quality program	44.7	22.4	67.1
Implement just-in-time production	42.3	11.7	67.1
Quality assurance teams	37.9	18.4	56.3
Statistical process control system	24.0	14.7	38.7
ISO 9000 certification or equivalent	11.0	20.9	31.9
CE mark	4.8	5.1	9.9
2 – MANAGEMENT SYSTEMS/HUMAN RESOURCES			
Dealing with government regulations	72.1	4.7	76.8
Assessment of competencies/opportunities	55.6	16.3	71.9
Setting and implementing goals	67.7	15.8	83.5
Team building	51.8	18.3	70.1
Incentive based pay systems or programs	45.4	18.2	63.6
Locate assistance for short-term projects	31.1	10.6	41.7
Formal employee development program	37.0	23.3	60.3
3 – MARKET DEVELOPMENT			
Updated market plan/strategy	51.1	24.7	75.8
Customer communications/service	69.0	15.9	84.9
Improve existing products	61.5	14.7	76.2
Develop a new product	39.1	18.8	57.9
Expand U.S. sales	43.7	25.3	69.0
Begin or expand international sales	24.7	16.0	40.7
Web site development and maintenance	28.6	31.4	60.0
Develop and use new marketing methods	30.1	39.2	69.3
4 – BUSINESS AND FINANCIAL SYSTEMS			
Business or strategic plan	66.8	16.2	83.0
Inventory control system	69.3	15.0	84.3
Computerized accounting systems	81.7	7.3	89.0
Cost systems	71.0	12.2	83.2
Financing current operations	71.5	5.8	77.3
Financing improved equipment and facilities	58.5	13.3	71.8
Business re-engineering	30.1	12.2	42.3
Financing expansion plans	41.0	15.8	56.8

5 – INFORMATION SYSTEMS			
Management Information System	48.9	13.2	62.1
Electronic data interchange (EDI)	31.8	17.9	49.7
Software/hardware selection	61.5	12.2	73.7
Computer Aided Design/Manufacturing	43.3	9.2	52.5
Access to and use of the Internet	53.5	20.5	74.0
Computer systems maintenance	65.3	9.5	74.8
6 – PLANT OPERATIONS/MANUFACTURING			
Effective production floor layout	58.5	16.2	74.7
Automated material handling	25.5	16.9	42.4
Environmental compliance program	68.9	6.2	75.1
Safety program	79.8	7.4	87.2
Cellular manufacturing	15.7	4.9	20.6
Materials Resource Planning	41.7	8.0	49.7
Computer Numerical Control	29.4	6.6	36.0
Information on new techniques	43.9	20.8	64.7
Setup reduction/quick changeover	36.2	13.9	50.1
Bar coding	22.9	22.6	45.5
Source: University of Kansas/University of Colorado Survey 1998			

SELECTING OUTSIDE ASSISTANCE

Survey findings

1. A set of questions focused on what factors firms consider when choosing a consultant or other service provider to assist with improving a part of the firms operations. Surveyed firms indicated that the most effective way to identify technical or management assistance is by personal contact or referrals from users. When seeking to identify outside assistance, 78% of manufacturing firms said they rely on personal contact, such as phone calls and visits, and 77% use referrals from other users of the service.
   Direct mail materials (30%) and newspaper ads/articles (25%) are used substantially less than referrals or personal contact for identifying technical or management assistance. Telemarketing calls are relied on by only 6% of firms and without doubt are seen as the least effective way of reaching companies.

2. The most important factor used for identifying management services is a personal recommendation from a trusted source, cited by 89% of surveyed firms. Also important are experience in a specific industry (84%) and referrals from other users of the service (83%).
   The two least important factors for identifying management services, according to the survey, are being close to the company's location and the academic credentials of the service provider.

3. When manufacturers need help or information from outside the company, the most frequently used outside assistance sources are suppliers/vendors (82%) and trade associations (54%). These sources are viewed as providing highly-specialized consultants and information. About 7% of the surveyed firms said they had used

MAMTC's services prior to the survey. While MAMTC's services were rated favorably by those who used them, there is an opportunity to improve their level of customer satisfaction.

4. Perceived value in relation to cost is important in selecting outside service providers. One-fourth of the surveyed firms said that getting the job done right is more important than the cost of the service. One-fourth of the firms also indicated that they expect to pay a fair market price. This suggests that the consultant's perceived expertise is more important than price.

   Only a few manufacturing firms in the survey are looking for the lowest price for outside assistance or for free assistance. Only 3% of firms usually ask for bids and then take the lowest price. A higher percentage asks for bids but then take the best value. Less than 10% of firms look for free advice or rely on low-cost government assistance. This suggests that consultants need to stress the high quality of their service rather than low prices.

Focus group findings

1. The focus groups tended to confirm the above findings, and emphasized that advertising in print media, television, radio, and telemarketing would generally not be enough to cause a manufacturer to contact or select a particular assistance provider. Awareness gained through media exposure and other means may, however, help predispose potential users in favor of a provider.

2. Confidence in a consultant's expertise was the primary factor in selection of a consultant among focus group participants. Consultants' credentials and specialty expertise in the industry or application in question are extremely important.

3. Consultants are chosen overwhelmingly through word of mouth and networking. Referrals come primarily from within the company or industry involved, but may also come from trade associations, small business centers, bankers, accountants, or other business associates.

3. Larger companies appeared to be willing to pay more for consulting services than smaller firms. The smaller firms were somewhat likely to award consulting work to the lowest bidder. This may be because the perceived costs are greater and benefits lower than for larger firms. A significant minority of firms (20-30%) in the focus groups was very reluctant to pay <u>anything</u> for outside consulting service.

4. MAMTC services were perceived as costing less than half of what private consultants charge. The low cost perception may be helpful to MAMTC in securing clients, but it could have a downside. Participants stated that MAMTC should clarify why its services are less expensive, to avoid the association of low cost with low quality.

STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS

Survey findings

1. The primary areas where manufacturing firms seek outside training assistance for staff development are computer programming or maintenance, general workplace skills, quality programs, management development, and environmental compliance.

2. The most preferred formats for receiving staff training are one-day seminars, customized on-site training, partial day workshops, and videos or CD-ROMs.

3. Formats that are least preferred for staff training, are cable or satellite TV, Internet, series of daily classes, and multi-day conferences.

Focus group findings

1. Focus group participants use outside training assistance in the same areas as survey participants.

2. The preferred format for staff training varies widely, depending on the type of training, the subject, and the individual company's needs.

3. Participants typically expected to pay around $100 - $200 for a day-long workshop.

IMPRESSIONS OF MAMTC

Focus group findings

1. About 40% of the focus group participants had heard of MAMTC and about 20% had used MAMTC. Awareness of MAMTC appeared to be highest in Wichita and Kansas City, Kansas.

2. MAMTC is perceived very positively by clients but is not well understood by other companies in the region. MAMTC users at the focus groups reported very favorable experiences and recommend that other companies use MAMTC. Non-users tended to believe that MAMTC is primarily for small or less specialized companies. Further, non-users felt that the very broad array of services offered by MAMTC detracts from its credibility.

3. Both MAMTC users and non-users felt that MAMTC needs to market itself more aggressively. Direct personal contact is essential. Participants recommended that MAMTC network actively with local trade associations, service clubs, chambers of commerce, and development groups. They also recommended that MAMTC use its own seminars as a marketing vehicle for its other services.

4. Direct personal visits by MAMTC representatives were seen as an effective marketing tool; however, companies in Wichita and Wyoming were much more receptive to such visits than companies in the larger cities, where access would require a previous referral or personal contact.

5. Participants liked MAMTC's brochures and felt that mailings were important; however, they were more likely to pay attention to these if they had personal contact with a MAMTC representative first.

6. Some focus group participants were wary of MAMTC's government connection. To overcome this bias, MAMTC needs to emphasize its national network of expertise; and stress the industry experience of its personnel.

INTRODUCTION TO SURVEY REPORT

Purpose

The purpose of the study is to assess the critical issues and service needs for MAMTC's target clientele – small and mid-sized manufacturers in Colorado, Kansas, Missouri, and Wyoming. The study will help MAMTC understand the clients it serves or potentially could serve and will support program development and service delivery to manufacturers throughout the four-state service area.

Methodology

The methodology for this study consisted of two parts – a survey of manufacturers and focus groups of manufacturers in each of the four states. The authors, in co-operation with MAMTC, prepared a survey. Survey questions in the following areas were included:

1. Critical Issues – what are the issues affecting the companies' advancement;

2. Competencies and Modernization Plans – in what area do manufacturing companies plan to develop or improve their competencies;

3. External Assistance Issues – in what areas may manufacturing companies seek outside help and how do they identify management or technical assistance resources;

4. Staff Development and Organizational Issues.

After field testing, the survey was mailed to a random sample of manufacturers with SIC codes from 2000 to 3999. Only firms with 10 to 500 employees were included in the sample. Two additional mailings were made to ensure that an adequate response was received. The number of surveys mailed and the responses by state are as follows:

Table 1
Sample Size and Responses by State

	Manufacturers surveyed	Responses	Response Rate
1. Colorado	7,038	405	5.8%
2. Kansas	4,436	226	6.0%
3. Missouri	9,030	712	7.9%
4. Wyoming	1,158	69	6.0%
5. Uncategorized		5	

The survey results were analyzed for each of the four states and for the four-state region as a whole.

Six focus groups were conducted with representatives of manufacturing firms in the four-state region. Focus groups were held in Wichita, Kansas; St. Louis, Missouri; Denver, Colorado; Casper/Cheyenne, Wyoming; Kansas City, Kansas; and Kansas City, Missouri. Five to ten firms participated in the focus groups. Included were firms that had used MAMTC's service and those who had no direct contact with MAMTC. The purpose of the focus groups was to allow more detailed discussion of issues facing the firms and to identify areas where MAMTC might be most useful.

While the focus groups were too small to allow the results to be generalized to all manufacturing firms in the four states, they do provide insights that will be useful to MAMTC. Topics covered were:

1. Major problems of manufacturing firms
2. Use of outside consultants/service providers
3. Knowledge and impressions of MAMTC
4. Pricing issues
5. Marketing suggestions for MAMTC.

The chapter on the focus groups reports findings for the region as a whole but also contains information for each state.

FOUR-STATE REGION SURVEY

EXECUTIVE SUMMARY

Profile

The responding manufacturers have been in business a mean of 29 years and a median of 22 years, about 86% have fewer than 100 employees, and approximately 65% have less than $5 million in annual sales. Over half of the manufacturers sell their products in local, regional, and national markets. A majority of the manufacturers also plan to expand their operations in some way during the next three years.

Critical Issues

The most critical issues facing the responding manufacturers are hiring and retaining qualified employees and meeting quality standards. This labor shortage occurs in the following operations areas: production employees, sales and marketing workers, technicians, production supervisors, clerical staff, and engineers.

Other critical issues include cost control, employee training, the challenges of offering competitive pricing, and finding quality suppliers. About two-thirds of the manufacturers are faced with either cyclical variations in their business, excess capacity, or strained capacity. The responding manufacturers indicated that in the past three years they have experienced the most significant changes in the areas of continuous quality improvement, manufacturing processes, and information systems.

Competencies and Modernization Plans

The responding manufacturers reported their firms feel competent in the areas of general management issues, marketing, business and financial systems, information systems, and basic manufacturing issues. However, they did not seem to be as comfortable with their competency in the area of continuous quality improvement.

The manufacturers in the four-state region indicated they are most likely to seek outside assistance in the following areas: creating and maintaining a Web site, developing new marketing methods, maintaining computer systems, acquiring information about new manufacturing techniques, identifying assistance for financing expansion plans, acquiring ISO 9000 certification, identifying assistance for financing improved equipment and facilities, selecting software and hardware, obtaining information about bar coding, accessing and using the Internet, implementing electronic data interchange, locating assistance for short-term projects, and updating marketing plans and strategies.

Service Providers

Responding manufacturers reported that currently they seek outside training assistance primarily in computer programming or maintenance, general workplace skills, management training, and quality programs. The most preferred formats for training are one-day seminars, customized on-site training, partial day workshops, and video or CD-ROMs.

MAMTC

Sixty-five percent of MAMTC's past customers were satisfied or highly satisfied with the service provided. While this is a respectable number 92% were satisfied or highly satisfied with the services supplied by other vendors.

METHODOLOGY

In November 1997, the survey instrument for this project was co-designed by the Institute for Public Policy and Business Research at the University of Kansas, the University of Colorado's Business Research Division, and the University of Colorado's Business Advancement Center. The questionnaire was reviewed by MAMTC field engineers and field-tested with local manufacturers.

The survey was designed to address the following topics:

- Critical Issues – What are the issues affecting companies' advancement?
- Competencies and Modernization Plans – In what areas do manufacturing companies plan to develop or improve their competencies?
- External Assistance Issues – In what areas may manufacturing companies seek outside help, and how do they identify management or technical assistance resources?
- Staff Development and Organizational Issues.

The MAMTC office provided a list of 24,342 potential manufacturers in the four-state region of Colorado, Kansas, Missouri, and Wyoming. Prior to mailing the questionnaire, the list was reviewed, and 1,983 companies with non-manufacturing SIC codes were identified. These were subsequently removed from the population. A total of 697 questionnaires were returned due to bad addresses, reducing the total population to 21,662 manufacturers.

To achieve a satisfactory level of responses, it was necessary to conduct mailings in November 1997, January 1998, and March 1998. Each of these mailings consisted of approximately 4,400 surveys. The November and March mailings included follow-up postcards. All mailings included a postage-paid return envelope, and a fax number was listed on the survey to provide manufacturers with the opportunity to fax their completed surveys. To increase the response rate, in February and March approximately 1,800

manufacturers were contacted by telephone and asked to fill out and return the survey questionnaires.

In each state, every manufacturer with 10 to 500 employees was given at least one opportunity to fill out the survey. In each state the list of manufacturers with fewer than 10 employees was stratified by SIC code. Every 10th manufacturer was selected in each state for inclusion in the sample. This group was included only in the first mailing.

A total of 1,457 completed surveys were received from the four states. This represents 6.7% of the total available manufacturers in the four-state region. The response rate by state was

- Colorado, 5.8%;
- Kansas, 6.0%;
- Missouri, 7.9%; and
- Wyoming, 6.0%.

As can be seen in Table 1, the overall results contain a slight bias toward Missouri manufacturers.

TABLE 1 – RESPONSE RATE BY STATE

State	*Percent of Total Responses*	*Percent of Manufacturers by State*
Colorado	28.8	32.5
Kansas	18.3	20.5
Missouri	49.0	41.7
Wyoming	4.8	5.3
Uncategorized responses	5	
Total	100.0%	100.0%

Source: University of Kansas/University of Colorado Survey 1998

To better understand potential biases in the survey, it is advisable to evaluate the size breakdown of the manufacturers by state. As Table 2 shows, there is a significant difference between states. On a percentage basis Wyoming and Colorado have substantially more small companies (1 to 19 employees).

TABLE 2 – MANUFACTURERS BY SIZE

Number of Employees and Percent	*Colorado*	*Kansas*	*Missouri*	*Wyoming*	*Total*
1 to 19	5,665	3,293	6,564	1,078	16,600
Percent of state	80.5%	74.2%	72.7%	93.1%	76.6%
20 to 49	786	570	1,217	46	2,619
Percent of state	11.2%	12.8%	13.5%	4.0%	12.1%
59 to 99	321	272	583	19	1,195
Percent of state	4.6%	6.1%	6.5%	1.6%	5.5%
100 to 249	199	234	500	12	945
Percent of state	2.8%	5.3%	5.5%	1.0%	4.4%
250 to 500	67	67	166	3	303
Percent of state	1.0%	1.5%	1.8%	0.3%	1.4%
Total	7,038	4,436	9,030	1,158	21,662

Source: University of Kansas/University of Colorado Survey 1998

Table 3 shows the response rate by state and by size of company. Initially, it appears a bias might exist against the companies in the 1 to 19 range of employees. This is a result of the sampling process.

An effort was made to represent all manufacturers in the 1 to 19 employee range; however, the sampling was biased to include more companies with 10 or more employees. In the states of Colorado, Missouri, and Kansas approximately 81% of the manufacturers in the 1 to 19 employee range have fewer than 10 employees. In Wyoming this total jumps to approximately 93%. If this sampling adjustment is taken into consideration, then the percentage of responses for this group is in line with the other ranges of employees.

More realistically, it is reasonable to think that Missouri is slightly underrepresented in the 100 to 249 range of employees and Kansas and Colorado are slightly underrepresented in the 20 to 49 employee range.

TABLE 3 – RESPONSE RATE BY COMPANY SIZE

	Response Rate by State and by Size of Company				
Number of Employees	*Colorado*	*Kansas*	*Missouri*	*Wyoming*	*Total*
1 to 19	2.6%	2.6%	5.2%	3.4%	3.7%
20 to 49	15.5	13.9	17.3	41.3	16.5
50 to 99	21.5	17.6	13.4	36.8	16.9
100 to 249	24.1	16.7	10.6	50.0	15.4
250 to 500	28.4	14.9	14.5	0.0	17.5
Total response rate	5.8%	6.0%	7.9%	6.0%	6.7%

Source: University of Kansas/University of Colorado Survey 1998

COMPANY PROFILE

Overview

The responding manufacturers have been in business an average of 29 years and a median of 22 years, about 86% have fewer than 100 employees, and slightly more than 65% earn less than $5 million in annual sales. Although manufacturers sell their products in international markets, the majority, tend to sell their goods either locally or regionally. A majority of the manufacturers plan to expand their operations in some manner during the next three years.

Number of Years in Business and Size of Operation

About 80% of the responding manufacturers have been in business for more than 10 years. The median number of years in business is 22 (Table 4).

TABLE 4 – NUMBER OF YEARS IN BUSINESS

Year	*Percent*
Before 1960	24.8
1960-1969	12.5
1970-1979	22.6
1980-1989	26.9
1990 to present	13.2
Total	100.0%

Source: University of Kansas/University of Colorado Survey 1998

As shown in Table 5, just over 72% of the responding manufacturers have fewer than 50 employees, and slightly more than 86% have fewer than 100 employees.

TABLE 5 – NUMBER OF EMPLOYEES

Employee Range	*Percent*
1 to 19	42.2
20 to 49	30.0
50 to 99	14.0
100 to 249	10.1
>250	3.7
Total	100.0%

Source: University of Kansas/University of Colorado Survey 1998

Sales

Approximately 65% of the responding manufacturers have annual projected gross sales of less than $5 million, and slightly more than 23% have annual projected sales of less than $1 million. See Table 6.

TABLE 6 – PROJECTED GROSS SALES

Sales Range	*Percent*
Less than $500,000	9.3
$500,000 to $999,999	13.9
$1.0M to $4.9M	42.2
$5.0M to $9.9M	12.4
Greater than $10.0M	22.2
Total	100.0%

Source: University of Kansas/University of Colorado Survey 1998

The primary markets for the responding manufacturers are local and regional. As Table 7 indicates, about 55% of the manufacturers sell their products in each of these markets. About 53% sell their products nationally, and about half of the manufacturers sell their products statewide. Slightly more than one-third of the manufacturers sell their products in international markets.

TABLE 7 – MARKETS OF PRODUCTS SOLD IN 1997

Market	*Percent*
Local	55.0
Statewide	49.1
Regional	54.7
National	52.9
International	34.2

Source: University of Kansas/University of Colorado Survey 1998

In terms of expansion plans, responding manufacturers mentioned building new facilities and renovating current facilities most frequently. About 30% of the manufacturers plan to build additional facilities in the next three years, and just over 23% are planning to renovate their current facilities. Almost 13% indicated they would rent or lease additional facilities. See Table 8.

Nearly 38% of the manufacturers indicated they would not expand their facilities in the next three years, and about 1% of the manufacturers planned to reduce the size of their facilities.

TABLE 8 – COMPANY EXPANSION PLANS

Will Expand	*Percent*
We will renovate current facilities	30.1
We plan to build additional facilities	23.1
We will rent or lease additional facilities	12.6
We will purchase additional facilities	7.6
Will Not Expand	*Percent*
We will not expand our current facilities	37.9
We will reduce the size of our facilities	1.1

Source: University of Kansas/University of Colorado Survey 1998

CRITICAL ISSUES

Overview

Respondents were asked to rate 14 business areas according to their importance to the company's advancement. The most critical issues facing the responding manufacturers are hiring and retaining qualified employees, meeting quality standards, and cost control. More than 90% of the respondents identified these as their most critical issues. Between 80% and 90% of the respondents identified employee training, competitive pricing, the availability of quality suppliers, and finding ways to improve their manufacturing and production operations as critical issues.

About 63% of the manufacturers are faced with either cyclical variations in their business, excess capacity, or strained capacity. The responding manufacturers indicated that in the past three years they have experienced the most significant changes in their business in the areas of continuous quality improvement, manufacturing processes, and information systems.

The Issues

The most critical issue for the responding manufacturers is hiring and retaining qualified employees. Almost 67% of the manufacturers rated this as a critical issue, while 30% rated it as important. Other issues that received a high percentage of critical and important responses are meeting quality standards, cost control, employee training, competitive pricing, the availability of qualified suppliers, and manufacturing improvements. See Table 9 for a complete breakdown.

Approximately 74% of the respondents indicated that marketing issues were critical or important, while just over 73% reported that adapting to technology change was critical or important.

The following issues were identified as critical or important by 60% to 64% of the respondents: addressing government regulations, developing new products, and upgrading and maintaining computers.

TABLE 9 – RANKING OF CRITICAL ISSUES

Critical Issues	*Percent**
Hiring and retaining qualified employees	96.9
Meeting quality standards	94.5
Cost control – including product liability	91.6
Training of employees	89.8
Ability to offer price competitive products	88.8
Availability of quality suppliers	84.8
Improvements in manufacturing and production	80.6
Marketing – promotion, analysis, research	73.7
Adapting to technology changes	73.4
Addressing government regulations	63.7
Development of new products	62.5
Maintaining and upgrading computers	60.1
Availability and cost of financing	52.7
Selecting and implementing computer software	48.0

** Sum of critical and important responses.*

Source: University of Kansas/University of Colorado Survey 1998

As indicated in Table 10, state-by-state evaluation of the critical issues, including critical issues with overall responses greater than 80%, shows that the top issues for manufacturers in all four states are hiring and retaining qualified employees and meeting quality standards. These issues are followed in importance by cost control and employee training. The final grouping includes the ability to offer competitively priced products, the availability of quality suppliers, and improvements in manufacturing and production.

TABLE 10 – RANKING AND RESPONSE RATE FOR CRITICAL ISSUES

		*Ranking and Percent**				
Critical Issues		*Colorado*	*Kansas*	*Missouri*	*Wyoming*	*Overall*
Hiring and retaining qualified employees	*Ranking*	2	1	1	1	1
	Percent	95.8	96.2	97.9	97.1	96.9
Meeting quality standards	*Ranking*	1	2	2	2	2
	Percent	96.0	95.4	93.2	95.7	94.5
Cost control – including product liability	*Ranking*	3	3	3	3	3
	Percent	91.7	92.3	91.3	91.3	91.6
Training of employees	*Ranking*	4	6	4	4	4
	Percent	89.0	88.3	90.9	89.9	89.8
Ability to offer price competitive products	*Ranking*	5	4	5	6	5
	Percent	84.9	89.0	90.9	89.6	88.8
Availability of quality suppliers	*Ranking*	7	5	6	5	6
	Percent	82.7	88.9	86.2	89.7	84.8
Manufacturing/production improvements	*Ranking*	6	7	7	7	7
	Percent	83.0	82.9	78.9	76.8	80.6

** Sum of critical and important responses.*

Source: University of Kansas/University of Colorado Survey 1998

Level of Business Activity

Table 11 details responses to survey questions about manufacturers' level of business activity. Approximately 37% of the responding manufacturers reported that their level of business activity is just right, while about 22% indicated that they had too little business. About 19% of respondents stated they had too much business. About one-fourth of the manufacturers experience wide seasonal or cyclical variations in their business.

TABLE 11 – LEVEL OF BUSINESS ACTIVITY

Business Activity	*Percent*
Business activity is just right	36.7
Wide seasonal or cyclical variations in demand	23.1
We have too little business: excess capacity	21.7
We have too much business: capacity is strained	18.5

Source: University of Kansas/University of Colorado Survey 1998

Areas of Change

As shown in Table 12, the responding manufacturers indicated that in the last three years the most change has occurred in continuous quality improvement, manufacturing processes, and information systems. It will be shown later in this analysis that these are also the areas where the manufacturers have lower levels of competency.

TABLE 12 – AREAS OF SIGNIFICANT CHANGE

Functional Areas	*Percent**
Continuous quality improvement	46.3
Manufacturing processes	39.4
Information systems	38.1
Market development	31.5
Management systems/human resources	25.7
Business and financial systems	22.0

** Sum of very significant and significant changes.*
Source: University of Kansas/University of Colorado Survey 1998

On a state-by-state basis continuous quality improvement was the area where the companies indicated they had experienced the most significant change in the past three years. In all states except Colorado, changes to information systems ranked second. In Kansas and Wyoming there was a noticeable difference between the response rates for information systems and manufacturing processes, while in Missouri and Colorado this difference was minimal.

COMPANY COMPETENCIES AND MODERNIZATION PLANS

Overview

Manufacturers were asked to evaluate their competencies. In this study the term competency means firms are either already doing or plan to develop that area. Respondents indicated their firms were most competent in the areas of general management issues, marketing, business and financial systems, information systems, and basic manufacturing issues. They did not indicate a strong need or desire for cutting-edge manufacturing processes, such as MRP or cellular manufacturing. Although the responding manufacturers did not display a strong desire to seek outside assistance in their major operational areas, they did indicate they are most likely to seek outside assistance in creating and maintaining a Web site, developing new marketing methods, maintaining computer systems, acquiring information about new manufacturing techniques, identifying assistance for financing expansion plans, acquiring ISO 9000 certification, identifying assistance for financing improved equipment and facilities, selecting software and hardware, obtaining information about bar coding, accessing and using the Internet, locating assistance for short-term projects, implementing electronic data interchange, and updating marketing plans and strategies.

Continuous Quality Improvement

As Table 13 indicates, about 75% of responding manufacturers have formed quality programs and nearly 63% have quality assurance teams or plan to create them. A total of 59% of the respondents plan to improve or develop their JIT process.

Less than 37% of the responding manufacturers indicated that they had ISO 9000 certification or planned to develop it. About 15% of the responding manufacturers indicated they would seek outside assistance in improving or developing their ISO 9000 certification. This appears to be the area of quality improvement where the responding manufacturers might be receptive to outside assistance.

TABLE 13 – CONTINUOUS QUALITY IMPROVEMENT

	*Percent**	
Activities	*Doing or Developing*	*May Use Outside Help*
Formal quality programs	75.3	8.4
Quality assurance teams	62.7	4.2
Implement Just-in-Time production	59.0	3.0
Statistical process control system	43.4	5.5
ISO 9000 certification or equivalent	36.8	15.0
CE Mark	12.7	4.7

**Percentages are based on total sample.*

Source: University of Kansas/University of Colorado Survey 1998

Management Systems

The responding manufacturers have either implemented or have plans to implement measures for improving many of their management systems and human resources capabilities (see Table 14). The top area of competency is setting and implementing goals. Other areas include dealing with government regulations, assessing competencies and opportunities, and team building.

Manufacturers are most likely to seek outside assistance in locating short-term projects and in creating formal employee development programs.

TABLE 14 – MANAGEMENT SYSTEMS/HUMAN RESOURCES

	*Percent**	
Activities	*Doing or Developing*	*May Use Outside Help*
Setting and implementing goals	92.7	2.8
Dealing with government regulations	86.0	8.5
Assessing competencies/opportunities	81.9	5.9
Team building	78.9	5.1
Incentive based pay systems or programs	69.2	5.6
Formal employee development program	67.9	9.3
Locating assistance for short-term projects	47.9	11.3

**Percentages are based on total sample.*
Source: University of Kansas/University of Colorado Survey 1998

Marketing

The responding manufacturers have either implemented or have plans to develop measures for improving many of their marketing efforts. More than 93% of the respondents indicated they had in place or planned to develop customer communication and service programs. Manufacturers appear to have competencies or plan to develop competencies in the areas of updating their market plan, improving their existing products, developing new marketing methods, and expanding domestic sales.

More than 21% of the respondents indicated they would seek outside assistance in creating a Web site and developing new marketing methods. About 10% indicated they would use outside assistance to update their marketing plan or expand their international sales. See Table 15.

TABLE 15 – MARKET DEVELOPMENT

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Customer communications/service	93.3	5.4
Updated market plan/strategy	85.4	10.2
Improve existing products	84.4	4.3
Develop and use new marketing methods	78.7	20.1
Expand U.S. sales	75.7	7.3
Web site development and maintenance	67.4	21.2
Develop a new product	64.7	6.9
Begin or expand international sales	44.6	9.1

**Percentages are based on total sample.*
Source: University of Kansas/University of Colorado Survey 1998

Financial Systems

The responding manufacturers have either implemented or have plans to develop measures for improving most areas of their business and financial systems, with the exception of business re-engineering. Approximately 15% of the responding manufacturers may seek outside assistance to finance expansion, about 14% may use outside assistance to improve equipment and facilities, and about 9% might seek assistance to finance their current operations. See Table 16.

TABLE 16 – BUSINESS AND FINANCIAL SYSTEMS

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Computerized accounting systems	95.6	6.3
Business or strategic plan	90.9	6.2
Inventory control systems	90.5	4.9
Cost systems	90.5	4.9
Financing current operations	84.6	8.9
Financing improved equipment and facilities	80.4	13.7
Financing expansion plans	64.3	15.3
Business re-engineering	48.1	8.4

**Percentages are based on total sample.*
Source: University of Kansas/University of Colorado Survey 1998

Information Systems

As Table 17 shows, the responding manufacturers' information systems competencies are in the areas of computer system maintenance, hardware and software selection, and Internet-related activities. About 87% of manufacturers have developed or plan to develop the maintenance of their computer systems. There is a willingness to seek outside assistance for information systems issues in all areas except CAD/CAM and general MIS issues.

TABLE 17 – INFORMATION SYSTEMS

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Computer systems maintenance	87.1	19.1
Software/hardware selection	84.0	13.2
Access to and use of the Internet	80.0	12.1
Management information system	69.9	8.8
Computer-aided design/manufacturing	57.7	6.5
Electronic data interchange (EDI)	55.2	11.3

**Percentage are based on total sample.*
Source: University of Kansas/University of Colorado Survey 1998

Plant Operations

The results reported in Table 18, indicate that the responding manufacturers' operations efforts have focused primarily on safety issues. Their competencies and plans for development also include designing an effective floor layout, creating an environmental compliance program, and learning new techniques. There seems to be a limited number of manufacturers focusing on advanced manufacturing techniques or processes.

Manufacturers will primarily seek outside assistance to learn about new techniques. There also seems to be special interest in learning more about bar coding.

TABLE 18 – PLANT OPERATIONS/MANUFACTURING

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Safety program	94.1	4.7
Effective production floor layout	81.7	6.2
Environmental compliance program	81.3	6.0
Information on new techniques	74.5	16.7
Setup reduction/quick changeover	55.8	5.6
Materials resource planning	53.7	3.2
Bar coding	49.1	13.1
Automated material handling	45.6	7.1
Computer numerical control	39.5	4.0
Cellular manufacturing	22.3	2.7

**Percentages are based on total sample.*
Source: University of Kansas/University of Colorado Survey 1998

Additional Comments on Competencies

Manufacturers were asked to assess their level of competency in 45 activities in six functional areas (see Table 12). Overall, at least 90% of the manufacturers indicated they were currently doing or planning to develop competency in one of the following seven areas:

- Computerized accounting systems,
- Safety program,

- Customer communications/service,
- Setting and implementing goals,
- Business or strategic plan,
- Inventory control systems, and
- Cost systems.

The respondents indicated minimal interest in receiving outside assistance in these areas.

Between 80% and 89.9% of the manufacturers indicated they were currently doing or planning to develop competency in one of the following 11 areas:

- Computer systems maintenance,
- Dealing with government regulations,
- Updating market plan/strategy,
- Improve existing products,
- Financing current operations,
- Selecting software/hardware,
- Assessing of competencies/opportunities,
- Effective production floor layout,
- Environmental compliance program,
- Financing improved equipment and facilities, and
- Accessing and using the Internet.

Of these 11 items, the responding manufacturers indicated an interest in receiving outside assistance in five areas. Three of these areas related to computers: maintaining computer systems, selecting hardware and software, and accessing and using the Internet. More than 10% of the respondents indicated they would seek outside assistance to help update their marketing plan and finance improved equipment.

It is interesting to note that none of the continuous quality improvement activities received ratings above 80% in the doing or developing category. Even though this area has changed the most in the past three years, according to the responsible manufacturers, it is also an area that will continue to see additional changes for a period of time.

The manufacturers indicated they would seek outside assistance at least 10% of the time for 13 of the 45 listed activities. As can be seen in Table 19, the top 7 activities have similar rankings for all states. After this point, the priorities for Wyoming are slightly different.

Only one activity received a response rate greater than 10% for Wyoming manufacturers; 10.1% of the manufacturers indicated they might seek outside assistance in dealing with the government. For Kansas manufacturers two activities had response rates greater than 10%; 10.9% of the manufacturers indicated they might seek outside assistance for formal quality programs and 10.1% indicated they might seek outside assistance for formal employment development programs.

The shaded cells in Table 19 indicate that less than 10% of manufacturers are willing to seek outside assistance for these activities.

TABLE 19 – ACTIVITIES FOR WHICH OUTSIDE ASSISTANCE MAY BE USED*

Activities	*Colorado*	*Kansas*	*Missouri*	*Wyoming*	*Overall*
Web site development and maintenance	22.0%	21.4%	20.9%	18.8%	21.2%
Develop and use new marketing methods	21.7	19.2	19.4	20.3	20.1
Computer systems maintenance	16.8	20.3	20.4	15.9	19.1
Information on new techniques	15.6	19.9	15.6	21.7	16.7
Financing expansion plans	19.3	14.3	13.5	14.5	15.3
ISO 9000 certification or equivalent	14.3	16.9	15.3	10.1	15.0
Financing improved equipment and facilities	16.3	11.7	13.2	11.6	13.7
Software/hardware selection	13.8	14.3	13.2	5.8	13.2
Bar coding	12.3	13.5	13.1	15.9	13.1
Access to and use of the Internet	13.1	12.4	11.9	7.2	12.1
Electronic data interchange (EDI)	12.1	9.8	11.8	4.3	11.3
Locate assistance for short-term projects	10.6	13.9	10.5	11.6	11.3
Updated market plan/strategy	9.6	10.9	10.7	7.2	10.2

**Activities were included in this table only if the overall total was greater than 10%.*

***Percentages are based on total sample.*

Source: University of Kansas/University of Colorado Survey 1998

EXTERNAL ASSISTANCE ISSUES

Overview

For those service providers who want to assist manufacturers, a solid presence in the industry and a strong relationship with individual manufacturers appear to be essential. In particular, manufacturers value personal contact with peers and service providers.

The responding manufacturers indicated that personal recommendations from trusted sources, service providers' experience in the industry, and referrals from other users of the service are critical in deciding which service providers to use. The most frequently used outside assistance sources are suppliers, trade associations, and private consulting firms.

Identifying Assistance

The responding manufacturers indicated that the most effective tools for identifying technical or management assistance were personal contact with the service provider or referrals from other users of the service. Without a doubt, the least effective means of identifying assistance was a telemarketing call. See Table 20.

In the states of Missouri and Kansas, the top rated methods of identifying technical or management assistance were personal contact with the service provider and referrals from other users of the service. In Colorado and Wyoming the order was reversed.

TABLE 20 – IDENTIFYING TECHNICAL OR MANAGEMENT ASSISTANCE

Method	*Percent*
Personal contact with company	78.0
Referrals from other users of the service	76.8
Article in trade/business publication	48.3
Ad in trade/business publication	46.9
Trade show exhibit	45.0
Telephone book or directory listing	34.6
Introductory materials by direct mail	30.7
Ad or article in a newspaper	24.8
Internet	22.4
Telemarketing call	5.5

Source: University of Kansas/University of Colorado Survey 1998

Table 21 shows that manufacturers prefer to receive information from their peers. Receiving promotional literature and confidential consultation were also viewed favorably.

TABLE 21 – PREFERRED METHOD FOR RECEIVING INFORMATION

Method	*Percent*
Communications with peers	38.9
Promotional literature	34.0
Confidential consultation	33.3
Group instruction	15.0

Source: University of Kansas/University of Colorado Survey 1998

The top factor in identifying management services is a personal recommendation from a trusted source, closely followed by service providers' industry experience and referrals from other users of the service (Table 22). The cost of service is very important or important to 65% of the respondents, while about 64% reported that the time to complete a project is important or very important.

TABLE 22 – FACTORS IN IDENTIFYING MANAGEMENT SERVICES

Factors	*Percent**
Personal recommendation from trusted source	88.9
Experience in my specific industry	84.4
Referrals from other users of the service	83.2
Cost of service	65.0
Time to complete project	64.3
Close to my location	43.5
Academic credentials of personnel	37.0

** Sum of very important and important responses.*
Source: University of Kansas/University of Colorado Survey 1998

Use of Outside Sources and Fees

As indicated in Table 23, slightly more than 82% of the responding manufacturers seek outside assistance from suppliers or vendors and approximately 54% seek assistance from trade associations. About 27% ask for help from private consulting firms and approximately 22% seek assistance from universities or community college programs or faculty.

The responding manufacturers look to state agencies only 17% of the time. Other organizations such as the MAMTC, SBA, SBDCs, and business incubators are sought out less frequently.

For each state in the study, suppliers/vendors and trade associations are the top two outside sources used by manufacturers. The third and fourth ranked sources varied by state. In Colorado and Missouri the third ranked outside resource is private consulting firms, while in Kansas and Wyoming it is universities or community colleges. The fourth ranked outside resource in Colorado and Missouri is universities or community colleges, while in Kansas it is private consulting firms and in Wyoming it is state agencies.

TABLE 23 – USE OF OUTSIDE SOURCES

Source	*Percent**
Suppliers/vendors	82.1
Trade associations	54.4
Private consulting firm	26.7
University or community college program or faculty	21.5
State or local agencies	17.0
Mid-America Manufacturing Technology Center	6.7
Small Business Administration	6.3
Small Business Development Center	4.8
Business incubator	3.6

Source: University of Kansas/University of Colorado Survey 1998

Nearly 92% of the respondents are highly satisfied or satisfied with the services provided by suppliers or vendors. Just over 80% of manufacturers are highly satisfied or satisfied with trade associations, while between 71% to 74% are highly satisfied or satisfied with universities and private consulting firms.

Almost 65% of the manufacturers who have used MAMTC rated their experience as highly satisfactory or satisfactory, while only about 5% were highly dissatisfied. The response rates in Table 24 are based on the number of people who used the service at least once.

In Kansas almost 67% of the manufacturers who have used MAMTC rated their experience as highly satisfactory or satisfactory, and about 61% of Missouri manufacturers gave MAMTC a highly satisfactory or satisfactory rating. While the responses in Colorado and Wyoming were more favorable than those of these two states, there were not enough responses to reliably report the response rate.

TABLE 24 – SATISFACTION WITH OUTSIDE SOURCES*

Source	*Percent Highly Satisfied or Satisfied*	*Percent Not Satisfied*
Suppliers/vendors	91.8	0.8
Trade associations	80.3	3.5
University or community college program or faculty	74.2	3.6
Private consulting firm	71.6	4.7
Mid-America Manufacturing Technology Center	64.7	5.9
State or local agencies	55.1	12.1
Small Business Administration	53.7	9.3
Small Business Development Center	47.4	9.5
Business incubator	38.3	12.8

** One or more times per year in past five years.*
Source: University of Kansas/University of Colorado Survey 1998

Of particular interest to MAMTC is the varied market penetration, as shown in Table 25. The market penetration for the entire region was 6.7%.

TABLE 25 – MAMTC MARKET PENETRATION

State	*Percent**
Kansas	12.1
Wyoming	8.8
Missouri	5.1
Colorado	4.6

Source: University of Kansas/University of Colorado Survey 1998

It appears that the respondents place a premium on quality work and fair pricing. See Table 26.

TABLE 26 – PROFESSIONAL SERVICE FEES

Criteria	*Percent*
We ask for bids and take the best value for the price	29.9
We expect to pay a fair market rate	25.0
Getting the job done right is more important than cost of service	24.2
We do not use outside consultants because we cannot afford to pay them	10.7
We often look for free advice or rely on low cost government assistance programs	7.0
We usually ask for bids and take the lowest price	3.2

Source: University of Kansas/University of Colorado Survey 1998

STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS

Overview

The responding manufacturers identified what appears to be a serious shortage in the areas of production employees, business managers, technicians, engineers, and sales and marketing staff. Responding manufacturers primarily seek outside training assistance in computer programming or maintenance, general workplace skills, management training, and quality programs. The most preferred formats for training are one-day seminars, customized on-site training, partial day workshops, and video or CD-ROMs.

Employment Concerns

The responding manufacturers appear to face many challenges in hiring employees. Slightly more than 54% of the responding manufacturers indicated they had problems hiring production workers. Almost 23% had difficulties hiring sales and marketing staff, followed closely by technicians with almost 22%. Just over 14% had trouble hiring production supervisors, 13% had difficulties hiring clerical staff, and almost 12% had difficulties hiring engineers. Ironically, about 15% of the responding manufacturers indicated they seldom had difficulties finding employees. See Table 27.

TABLE 27 – DIFFICULTY RECRUITING EMPLOYEES

Employee Classification	*Percent*
Production employees	54.4
Sales/marketing staff	22.5
Technicians	21.6
Production supervisors	14.3
Clerical/office staff	13.0
Engineers	11.6
Business managers	6.0
Information systems staff	4.8

Source: University of Kansas/University of Colorado Survey 1998

While all states need production employees, it appears that Colorado and Kansas have the most pressing needs for all types of employees. As shown in Table 28, there is some minor variation in the priorities of manufacturers on a state-by-state basis.

The shaded cells indicate that less than 10% of the responding manufacturers have difficulty in finding this classification of employee.

TABLE 28 – DIFFICULTY RECRUITING EMPLOYEES BY STATE*

Employee Classification	*Colorado*	*Kansas*	*Missouri*	*Wyoming*	*Overall*
Production employees	59.5%	56.4%	50.1%	42.0%	53.5%
Sales/marketing staff	27.4	17.3	22.8	13.0	21.1
Technicians	21.7	24.1	21.1	15.9	20.7
Production supervisors	14.8	16.9	13.6	8.7	14.2
Clerical/office staff	17.0	12.4	11.8	5.8	13.3
Engineers	14.8	14.3	9.3	7.2	11.6

**Activities were included in this table only if the overall total was greater than 10%.*
Source: University of Kansas/University of Colorado Survey 1998

Outside Assistance

As shown in Table 29, outside providers are used for staff development primarily in the areas of computer programming or maintenance, workplace skills, management training, and quality programs. Slightly less than 39% of the responding manufacturers seek assistance in computer programming and maintenance and approximately 38% seek outside assistance in developing workplace skills. About 35% seek outside assistance in developing management training and nearly 30% seek outside assistance in designing quality programs. Only 13% of the respondents seek outside assistance in developing basic adult education skills.

TABLE 29 – AREAS WHERE OUTSIDE PROVIDERS USED FOR STAFF DEVELOPMENT

Areas for Staff Development	*Percent*
Computer programming or maintenance	38.8
Workplace skills (communication, teamwork, decision making, etc.)	37.5
Management training	34.5
Quality programs	29.9
Environmental compliance	24.7
Shop floor management processes	24.0
Advanced manufacturing techniques	21.3
Adult basic education (reading, writing, arithmetic etc.)	13.0

Source: University of Kansas/University of Colorado Survey 1998

Format for Staff Training

Slightly less than 38% of the responding manufacturers prefer one-day seminars for staff training. Approximately 35% prefer customized on-site training, and 29% prefer partial day workshops. See Table 30. The least preferred formats for training were cable or satellite television classes, Internet training, and a series of daily classes. About 35% of the respondents seldom use external sources for training.

TABLE 30 – PREFERRED FORMATS FOR STAFF TRAINING

Format	*Percent*
One-day seminar	37.9
Customized on-site training	34.7
Partial day workshops	28.9
Video or CD-ROM	20.8
Self-study printed material	17.0
Customized off-site training	16.3
Series of weekly classes	9.1
Multiday conferences	7.6
Series of daily classes	7.2
Internet	3.6
Cable or satellite TV	1.2

Source: University of Kansas/University of Colorado Survey 1998

CONCLUSION

In a national economy that is expected to enjoy a 4.9% or lower unemployment rate and minimal inflation, the responding manufacturers in the four-state area indicated they would be facing the following challenges:

Human Resources
- Hiring and retaining qualified employees
- Training employees

Quality
- Meeting quality standards

Finance
- Controlling costs

Marketing
- Offer price competitive products
- Conducting marketing promotion, analysis, and research

Manufacturing
- Finding quality suppliers
- Improving manufacturing and production
- Adapting to technology changes
- Expanding business operations

Overall
- Managing the change that has occurred and will continue to occur in the areas of quality improvement, information systems, and manufacturing processes
- Coping with excess capacity or strained capacity
- Addressing cyclical variations in their businesses

MAMTC will be received favorably by the manufacturers in this four-state region by maintaining a positive presence in the industry and by taking appropriate advantage of the many positive relationships they have established with past clients. In addition, MAMTC can achieve the important face-to-face introduction to firms through industry trade shows, group presentations, and its seminar series. The most appropriate way for MAMTC to provide information to their clients is through one-day seminars, customized on-site training, partial day workshops, and video or CD-ROMs.

MAMTC can most likely assist the manufacturers in areas where the manufacturers have indicated they would seek outside assistance. Consequently, MAMTC should promote and provide the following capabilities using internal staffing and external service relationships.

Marketing
- Creating and maintaining a Web site
- Developing new marketing methods
- Locating assistance for short-term projects
- Updating marketing plans and strategies

MIS
- Maintaining computer systems
- Selecting software and hardware
- Accessing and using the Internet
- Implementing electronic data interchange

Manufacturing
- Providing information about new manufacturing techniques
- Identifying assistance for financing improved equipment and facilities
- Providing information about bar coding

Finance
- Identifying assistance for financing expansion plans

Quality
- Acquiring ISO 9000 certification

COLORADO SURVEY

EXECUTIVE SUMMARY

Profile

The responding Colorado manufacturers have been in business a median of 19 years, about 83% have fewer than 100 employees, and about 61% have less than $5 million in annual sales. Over half of the manufacturers sell their products in local, regional, state, and national markets. A majority of the manufacturers also plan to expand their operations in some way during the next three years.

Critical Issues

The most critical issues facing the responding manufacturers are meeting quality standards and hiring and retaining qualified employees. This employee shortage occurs in almost all areas of their operations. Other issues include cost control, employee training, and the ability to offer competitive pricing. About two-thirds of the manufacturers are faced with either cyclical variations in their business, excess capacity, or strained capacity. The responding manufacturers indicated that in the past three years they have experienced the most significant changes in the areas of continuous quality improvement, information systems, and manufacturing processes.

Competencies and Modernization Plans

The responding manufacturers reported their firms are competent in each of the areas of general management issues, marketing, business and financial systems, information systems, and basic manufacturing issues. Providers can most likely assist the Colorado manufacturers in the following areas: creating and maintaining a Web site, developing new marketing methods, financing expansion plans, financing improved equipment and facilities, maintaining computer systems, providing information about new manufacturing techniques, acquiring ISO 9000 certification, selecting software and hardware, accessing and using the Internet, locating assistance for short-term projects, implementing electronic data interchange, providing information about bar coding, and re-engineering their businesses.

Service Providers

A solid presence in the manufacturing sector and a strong relationship with manufacturing firms appear to be key in providing outside assistance. Responding manufacturers primarily seek outside training assistance in computer programming or maintenance, general workplace skills, and quality programs. The most preferred formats for training are one-day seminars, partial day workshops, customized on-site training, video or CD-ROM, and self-study printed material.

METHODOLOGY

The MAMTC office provided a list of 7,683 potential manufacturers in Colorado. Prior to mailing the questionnaire, the list was reviewed and 489 companies with non-manufacturing SIC codes were identified. These were subsequently removed from the population. A total of 156 surveys were returned because of bad addresses, reducing the total population to 7,038 manufacturers.

A random sample of manufacturers with 10 to 500 employees and a random group of manufacturers with fewer than 10 employees were sent an initial survey during the last week of November 1997 to address manufacturing issues in Colorado. A follow-up postcard was mailed to each company in December 1997. In January a second survey was sent to every manufacturer with 15 to 500 employees, excluding those manufacturers who had responded to the December survey. A telephone campaign was conducted in February and March to secure additional responses. In March surveys were sent to the remaining manufacturers in the 10 to 15 employee range who had not responded to the survey. Follow-up postcards were sent to increase the response rate. All mailings included a postage-paid envelope, and respondents were invited to return their completed surveys by fax.

A total of 405 completed surveys were received from Colorado manufacturers. This represents 5.8% of the total available manufacturers in the state and approximately 20,000 employees.

COMPANY PROFILE

Overview

The general demographics of the responding Colorado manufacturers are similar to manufacturers in other states. The median number of years in business is 19 and the mean is 24. Between 54% and 58% of the manufacturers sell their products in local, regional, state, and national markets. A majority of the manufacturers plan to expand their operations in some manner during the next three years.

Years in Business and Number of Employees

About 79% of the responding manufacturers have been in business for more than 10 years (Table C1).

TABLE C1 – NUMBER OF YEARS IN BUSINESS

Year	*Percent*
Before 1960	18.4
1960-1969	11.1
1970-1979	23.8
1980-1989	31.3
1990 to present	15.4
Total	100.0%

Source: University of Colorado/University of Kansas Survey 1998

As shown in Table C2, just over 66% of the responding manufacturers have fewer than 50 employees and slightly more than 83% have fewer than 100 employees.

TABLE C2 – NUMBER OF EMPLOYEES

Employee Range	*Percent*
1 to 19	36.1
20 to 49	30.2
50 to 99	17.1
100 to 249	11.9
>250	4.7
Total	100.0%

Source: University of Colorado/University of Kansas Survey 1998

Sales and Expansion

Approximately 61% of the responding manufacturers have annual projected gross sales of less than $5 million and about 20% have annual projected sales less than $1 million. See Table C3.

TABLE C3 – PROJECTED GROSS SALES

Sales Range	*Percent*
Less than $500,000	7.8
$500,000 to $999,999	12.3
$1.0M to $4.9M	41.3
$5.0M to $9.9M	13.3
Greater than $10.0M	25.3
Total	100.0%

Source: University of Colorado/University of Kansas Survey 1998

The primary markets for the responding Colorado manufacturers are regional and local. As Table C4 indicates, between 54% and 58% of the manufacturers sell their products in local, regional, state, and national markets.

International markets are secondary markets for the responding Colorado manufacturers. A total of 41% of the responding manufacturers sell their products in international markets.

TABLE C4 –MARKETS OF PRODUCTS SOLD IN 1997

Market	*Percent*
Local	55.6
Statewide	55.8
Regional	54.3
National	57.5
International	41.0

Source: University of Colorado/University of Kansas Survey 1998

In terms of expansion plans, responding Colorado manufacturers mentioned renovating and building additional facilities most frequently. About 26% of the manufacturers plan to expand their business in the next three years by renovating their current facilities and just over 20% plan to expand by building additional facilities. About 19% indicated they would rent or lease additional facilities. See Table C5.

More than one-third of the manufacturers indicated they would not expand their facilities in the next three years, and about 1% of the manufacturers planned to reduce the size of their facilities.

TABLE C5 – COMPANY EXPANSION PLANS

Will Expand	*Percent*
We will renovate current facilities	26.4
We plan to build additional facilities	20.2
We will rent or lease additional facilities	18.8
We will purchase additional facilities	7.4
Will Not Expand	*Percent*
We will not expand our current facilities	36.3
We will reduce the size of our facilities	1.2

Source: University of Colorado/University of Kansas Survey 1998

CRITICAL ISSUES

Overview

The most critical issues facing the responding manufacturers are meeting quality standards, hiring and retaining qualified employees, cost control, employee training, and the ability to offer competitive pricing. About two-thirds of the manufacturers are faced with either cyclical variations in their business, excess capacity, or strained capacity. The responding manufacturers indicated that in the past three years they have experienced the most significant changes in the areas of continuous quality improvement, information systems, and manufacturing processes.

Issues

It is shown in Table C6 about 96% of the responding Colorado manufacturers felt the most critical issues facing them are meeting quality standards and hiring and retaining qualified employees. Almost 70% of the manufacturers rated the hiring of employees as a critical issue, while over 26% rated it as important. Over 88% of the respondents felt that cost control and employee training were critical or important.

About 85% of the respondents indicated that offering products at competitive prices was critical or important. The following issues were identified as being critical or important by about 83% of the respondents: availability of quality suppliers and improvements in manufacturing and production. Slightly over 79% of the respondents indicated that marketing issues were critical or important, while adapting to technology changes was

critical or important to approximately 73%. New product development was important or critical to about 67%, while dealing with government regulations was important to about 61%.

TABLE C6 – RANKING OF CRITICAL ISSUES

Critical Issues	*Percent**
Meeting quality standards	96.0
Hiring and retaining qualified employees	95.8
Cost control – including product liability	91.7
Training of employees	89.0
Ability to offer price competitive products	84.9
Improvements in manufacturing and production	83.0
Availability of quality suppliers	82.7
Marketing – promotion, analysis, research	79.3
Adapting to technology changes	72.6
Development of new products	67.4
Addressing government regulations	61.2
Maintaining and upgrading computers	59.8
Availability and cost of financing	49.9
Selecting and implementing computer software	45.7

** Sum of critical and important responses.*
Source: University of Colorado/University of Kansas Survey 1998

Business Activity and Change

Table C7 details responses to survey questions about manufacturers' level of business activity. Approximately 33% of the responding manufacturers reported that their level of business activity is just right, while about 25% indicated that they had too little business. About 20% of respondents stated they had too much business.

TABLE C7 – LEVEL OF BUSINESS ACTIVITY

Business Activity	*Percent*
Business activity is just right	32.6
We have too little business: excess capacity	24.7
Wide seasonal or cyclical variations in demand	23.0
We have too much business: capacity is strained	19.7

Source: University of Colorado/University of Kansas Survey 1998

As shown in Table C8, the responding manufacturers indicated the most significant areas of change occurred in their continuous quality improvement efforts. Significant change was also noted in the areas of information systems, manufacturing processes, and market development.

TABLE C8 – AREAS OF SIGNIFICANT CHANGE

Functional Areas	*Percent**
Continuous quality improvement	50.3
Information systems	41.6
Manufacturing processes	40.6
Market development	35.0
Management systems/human resources	27.4
Business and financial systems	22.0

** Sum of very significant and significant changes.*
Source: University of Colorado/University of Kansas Survey 1998

COMPANY COMPETENCIES AND MODERNIZATION PLANS

Overview

Manufacturers were asked to evaluate their competencies. Respondents indicated their firms were most competent in the areas of general management issues, marketing, business and financial systems, information systems, and basic manufacturing issues. They did not indicate a strong need or desire for cutting-edge manufacturing processes. Although the responding manufacturers did not display a strong desire to seek outside assistance in their major operational areas, they did indicate they are most likely to seek outside assistance in the areas of creating and maintaining a Web site and developing new marketing methods. More than 20% of the respondents indicated they would seek outside assistance in these areas. Between 10% and 20% of the respondents indicated they would seek assistance in the areas of financing expansion plans, financing improved equipment and facilities, computer maintenance, information on new manufacturing techniques, ISO 9000 certification, software and hardware selection, access to and use of the Internet, locate assistance for short-term projects, electronic data interchange, bar coding, and business re-engineering.

Continuous Quality Improvement

As Table C9 indicates, about 82% of responding manufacturers have formed quality programs and nearly 66% have quality assurance teams or plan to create them. About 64% of the respondents plan to improve or develop their JIT process.

Just over 40% of the responding manufacturers indicated that they had ISO 9000 certification or planned to develop it. About 14% of the responding manufacturers indicated they would seek outside assistance in improving or developing their ISO 9000 certification. This appears to be the major area of quality improvement where the responding manufacturers are receptive to outside assistance.

TABLE C9 – CONTINUOUS QUALITY IMPROVEMENT

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Formal quality programs	81.8	6.4
Quality assurance teams	65.6	3.5
Implement Just-in-Time production	63.6	3.2
Statistical process control system	43.4	5.9
ISO 9000 certification or equivalent	40.1	14.3
CE Mark	18.2	5.9

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Management Systems

The responding manufacturers have either implemented or have plans to implement measures for improving many of their management systems and human resources capabilities (see Table C10). The top area of competency is setting and implementing goals. Other areas include dealing with government regulations, assessing competencies and opportunities, team building, and the developing of incentive based pay systems.

Manufacturers are most likely to seek outside help in locating assistance for short-term projects and in creating formal employee development programs.

TABLE C10 – MANAGEMENT SYSTEMS/HUMAN RESOURCES

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Setting and implementing goals	95.0	2.7
Dealing with government regulations	86.1	7.4
Assessment of competencies/opportunities	83.1	5.9
Team building	79.8	6.7
Incentive based pay systems or programs	74.9	7.4
Formal employee development program	67.6	9.1
Locate assistance for short-term projects	44.8	10.6

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Marketing

The responding manufacturers have either implemented or have plans to develop measures for improving many of their marketing efforts. More than 88% of the respondents indicated they had the following programs in place or they planned to develop them: customer communication and service programs, current marketing strategies, improve existing products and develop and use new marketing methods. The companies appear to have competencies, or plan to develop competencies, in expanding domestic sales and Web site development.

More than 20% of the respondents indicated they would seek outside assistance in developing Web sites and developing new marketing methods. Other areas where

manufacturers might seek outside assistance are in updating their marketing plan and in expanding domestic and international sales. See Table C11.

TABLE C11 – MARKET DEVELOPMENT

	*Percent**	
Activities	*Doing or Developing*	*May Use Outside Help*
Customer communications/service	96.2	4.9
Updated market plan/strategy	89.8	9.6
Improve existing products	84.8	3.7
Develop and use new marketing methods	83.1	21.7
Expand U.S. sales	73.7	8.1
Web site development and maintenance	73.7	22.0
Develop a new product	69.3	6.7
Begin or expand international sales	48.5	8.9

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Financial Systems

The responding manufacturers have either implemented or have plans to develop measures for improving most areas of their business and financial systems, with the exception of business re-engineering. Approximately 20% of the responding manufacturers may seek outside assistance to finance expansion, about 16% may use outside assistance in improving equipment and facilities, and about 9% may seek assistance in financing their current operations. About 11% indicated they may seek outside assistance in business re-engineering. See Table C12.

TABLE C12 – BUSINESS AND FINANCIAL SYSTEMS

	*Percent**	
Activities	*Doing or Developing*	*May Use Outside Help*
Computerized accounting systems	97.9	4.9
Business or strategic plan	94.6	5.7
Cost systems	89.5	5.2
Inventory control systems	89.3	4.2
Financing current operations	84.7	9.4
Financing improved equipment and facilities	80.6	16.3
Financing expansion plans	66.8	19.3
Business re-engineering	47.5	10.6

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Information Systems

As Table C13 shows, the responding manufacturers' information systems competencies are in the areas of computer system maintenance, hardware and software selection, and Internet-related activities. About 89% of manufacturers have developed or plan to develop the maintenance of their computer systems, and fewer than 17% may seek

outside assistance in this effort. There is a willingness to seek outside assistance for information systems issues in all areas except Computer-aided design/manufacturing.

TABLE C13 – INFORMATION SYSTEMS

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Computer systems maintenance	88.5	16.8
Software/hardware selection	85.0	13.8
Access to and use of the Internet	84.5	13.1
Management information system	75.3	8.6
Computer-aided design/manufacturing	61.1	4.4
Electronic data interchange (EDI)	60.5	12.1

**Percentage are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Plant Operations

The results reported in Table C14 indicate that the responding manufacturers' operations efforts have focused primarily on safety issues. Their competencies and plans for development also include effective floor layout, environmental compliance, and learning new techniques. There seems to be a limited number of manufacturers focusing on advanced manufacturing techniques or processes.

Manufacturers will primarily seek outside assistance to learn about new techniques. They also exhibited special interest in learning more about bar coding.

TABLE C14 – PLANT OPERATIONS/MANUFACTURING

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Safety program	94.7	2.7
Effective production floor layout	85.4	6.2
Environmental compliance program	80.3	4.4
Information on new techniques	75.1	15.6
Setup reduction/quick changeover	58.2	5.2
Bar coding	55.9	12.3
Materials resource planning	55.3	3.2
Automated material handling	46.8	7.2
Computer numerical control	38.2	3.0
Cellular manufacturing	25.3	3.2

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

EXTERNAL ASSISTANCE ISSUES

Overview

For those service providers who want to assist manufacturers, a solid presence in the industry and a strong relationship with individual manufacturers appear to be essential. In particular, manufacturers value personal contact with peers and service providers.

The responding manufacturers indicated that personal recommendations from trusted sources, referrals from other users of the service, the service provider's experience in the industry, and personal contact with the provider are critical in deciding which service providers to use. The most frequently used outside assistance sources are suppliers, trade associations, and private consulting firms.

Identifying Assistance

The responding manufacturers indicated that the most effective tools for identifying technical or management assistance were referrals from other users of the service and personal contact with the service provider. Without a doubt, the least effective means of identifying assistance was a telemarketing call. See Table C15.

TABLE C15 – IDENTIFYING TECHNICAL OR MANAGEMENT ASSISTANCE

Method	*Percent*
Referrals from other users of the service	78.5
Personal contact with company	76.5
Article in trade/business publication	50.1
Ad in trade/business publication	48.1
Trade show exhibit	46.9
Telephone book or directory listing	39.0
Introductory materials by direct mail	35.8
Ad or article in a newspaper	25.9
Internet	24.4
Telemarketing call	6.2

Source: University of Colorado/University of Kansas Survey 1998

Table C16 shows the preferred methods for receiving information is communications with peers or others in the industry and confidential consultation.

TABLE C16 – PREFERRED METHOD FOR RECEIVING INFORMATION

Method	*Percent*
Communications with peers	42.2
Promotional literature	36.8
Confidential consultation	32.3
Group instruction	13.3

Source: University of Colorado/University of Kansas Survey 1998

The top factor in identifying management services is a personal recommendation from a trusted source (Table C17). Other very important or important factors include referrals from other users of the service and the provider's specific industry experience. The cost of service is very important or important to about 62% of the respondents, while about 60% reported that the time needed to complete a project is important or very important.

TABLE C17 – FACTORS IN IDENTIFYING MANAGEMENT SERVICES

Factors	*Percent**
Personal recommendation from trusted source	87.8
Referrals from other users of the service	84.3
Experience in my specific industry	81.5
Cost of service	62.2
Time to complete project	60.4
Close to my location	34.3
Academic credentials of personnel	33.8

** Sum of very important and important responses.*
Source: University of Colorado/University of Kansas Survey 1998

Use of Outside Sources and Fees

As indicated in Table C18, almost 85% of the responding manufacturers seek outside assistance from suppliers or vendors and approximately 55% seek assistance from trade associations. About 30% ask for help from private consulting firms and slightly more than 17% seek assistance from universities or community college programs or faculty.

The responding manufacturers look to state agencies only about 12% of the time. Other organizations such as the SBA, SBDCs, MAMTC, and business incubators are sought out less frequently.

TABLE C18 – USE OF OUTSIDE SOURCES

Source	*Percent**
Suppliers/vendors	84.8
Trade associations	55.4
Private consulting firm	30.3
University or community college program or faculty	17.2
State or local agencies	11.5
Small Business Administration	6.8
Mid-America Manufacturing Technology Center	4.6
Business incubator	4.3
Small Business Development Center	4.3

** One or more times per year in past five years.*
Source: University of Colorado/University of Kansas Survey 1998

It appears that the respondents place a premium on quality work and fair pricing. See Table C19.

TABLE C19 – PROFESSIONAL SERVICE FEES

Criteria	*Percent*
We ask for bids and take the best value for the price	28.1
Getting the job done right is more important than cost of service	27.6
We expect to pay a fair market rate	25.5
We do not use outside consultants because we cannot afford to pay them	9.5
We often look for free advice or rely on low cost government assistance programs	5.4
We usually ask for bids and take the lowest price	3.9

Source: University of Colorado/University of Kansas Survey 1998

STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS

Overview

The responding manufacturers identified what appears to be a serious staffing shortage in all areas except business managers and information systems staff. Responding manufacturers primarily seek outside training assistance in computer programming or maintenance, general workplace skills, and quality programs. The most preferred formats for training are one-day seminars, partial day workshops, customized on-site training, video or CD-ROM, and self-study printed material.

Employment Concerns

Colorado manufacturers appear to face many challenges in hiring employees. Almost 60% of the responding manufacturers indicated they have problems hiring production workers. Slightly more than 27% experience difficulties hiring sales and marketing staff and almost 22% have difficulty hiring technicians. A total of 17% have difficulties hiring clerical staff, while about 15% cannot find enough engineers or production supervisors. Ironically, about 15% of the responding manufacturers indicated they seldom have difficulties finding employees (Table C20).

TABLE C20 – DIFFICULTY RECRUITING EMPLOYEES

Employee Classification	*Percent*
Production employees	59.5
Sales/marketing staff	27.4
Technicians	21.7
Clerical/office staff	17.0
Engineers	14.8
Production supervisors	14.8
Business managers	7.7
Information systems staff	6.9

Source: University of Colorado/University of Kansas Survey 1998

Outside Assistance

As shown in Table C21, outside providers are used for staff development primarily in the areas of computer programming or maintenance, workplace skills, management training, and quality programs. Slightly less than 40% of the responding manufacturers seek assistance in computer programming and maintenance and 38% seek outside assistance in developing workplace skills. About 37% seek outside assistance for management training and just over 30% seek outside help in developing quality programs. Only about 14% of the respondents seek outside assistance in developing basic adult education skills.

TABLE C21 – AREAS WHERE OUTSIDE PROVIDERS USED FOR STAFF DEVELOPMENT

Areas for Staff Development	*Percent*
Computer programming or maintenance	39.8
Workplace skills (communication, teamwork, decision making, etc.)	38.0
Management training	36.8
Quality programs	30.4
Shop floor management processes	26.4
Advanced manufacturing techniques	22.5
Environmental compliance	21.7
Adult basic education (reading, writing, arithmetic, etc.)	14.1

Source: University of Colorado/University of Kansas Survey 1998

Format for Staff Training

Fewer than 56% of the responding manufacturers prefer one-day seminars for staff training. Approximately 38% of the responding manufacturers prefer partial day workshops and customized on-site training. See Table C22. The least preferred formats for training were cable or satellite television classes, multi-day conferences and training via the Internet. About 46% of the respondents seldom use external sources for training.

TABLE C22 – PREFERRED FORMATS FOR STAFF TRAINING

Format	*Percent*
One day seminar	55.8
Partial day workshops	38.0
Customized on-site training	37.5
Video or CD-ROM	30.7
Self-study printed material	22.7
Customized off-site training	17.4
Series of weekly classes	16.9
Series of daily classes	12.9
Internet	7.0
Multi-day conferences	5.5
Cable or satellite TV	1.6

Source: University of Colorado/University of Kansas Survey 1998

CONCLUSION

The state of Colorado has approximately 3.9 million people spread over 104,100 square miles. Projected state employment for 1998 is 2.1 million, with an unemployment rate of 3.5%.

Projected employment in the manufacturing sector for 1998 is 203,600 employees, or 9.6% of total employment. Manufacturing employment has increased at close to the same level as overall state employment. In 1991 manufacturing employment was 9.4% of total state employment. Average annual wages in the manufacturing sector for 1996 were $37,075 compared to average annual wages of $28,517 for the state.

As the manufacturing sector continues to grow and become a larger contributor to the Colorado economy, manufacturers will be facing the following challenges:

- Meeting quality standards;
- Hiring and retaining qualified employees;
- Controlling costs;
- Training employees;
- Providing competitively priced products;
- Expanding business operations;
- Managing the change that has been occurring in the areas of quality improvement, information systems, and manufacturing processes;
- Coping with excess capacity or strained capacity; and
- Addressing cyclical variations in their businesses.

MAMTC will be able to effectively assist Colorado manufacturers by having a positive presence in the industry and by building relationships with the manufacturers. The most preferred formats for training are one-day seminars, partial day workshops, customized on-site training, video or CD-ROM, and self-study printed material. MAMTC can most likely assist the Colorado manufacturers in the following areas:

- Creating and maintaining a Web site,
- Developing new marketing methods,
- Identifying assistance in the areas of financing expansion plans,
- Identifying assistance in financing improved equipment and facilities,
- Maintaining computer systems,
- Providing information about new manufacturing techniques,
- Acquiring ISO 9000 certification,
- Selecting software and hardware,
- Accessing and using the Internet,
- Locating assistance for short-term projects,
- Implementing electronic data interchange,
- Providing information about bar coding,
- Re-engineering their businesses.

KANSAS SURVEY

EXECUTIVE SUMMARY

Profile

Kansas manufacturers tend to be established businesses, with a typical firm having operated in the state for 25 years. The vast majority of responding firms had fewer than 100 employees, with more than half having fewer than 50 employees. Although the majority of firms sell in regional or national markets, state and local markets are also important. Slightly more than a third of the firms sell in international markets.

Critical Issues

The most critical issues facing the responding manufacturers are: hiring and retaining qualified employees, meeting quality standards, cost control (including product liability), ability to offer price competitive products, and training of employees. Over half of the firms identified a difficulty in recruiting production employees. To a lesser extent, firms reported difficulty in recruiting technicians, sales and production staff, production supervisors, and engineers.

During the past three years, responding firms have seen the most significant change in their business in the areas of continuous quality improvement, manufacturing processes, and information systems. Only about a fourth of the firms report that their business is characterized by wide seasonal or cyclical fluctuations in demand.

Competencies and Modernization Plans

The responding manufacturers demonstrated competencies in each of the areas of general management issues: quality improvement, marketing, business and financial systems, information systems, and basic manufacturing and operating issues. In general, firms did not show a strong desire for outside assistance. However firms did indicate a significant desire for outside assistance in specific areas, such as ISO 9000 certification, formal quality programs, dealing with government regulations, locating assistance for short-term projects, formal employee development programs, updating market plans or strategies, developing new marketing methods, Web site development, beginning or expanding international sales, financing improved equipment or facilities, financing expansion plans, computer systems maintenance, software and hardware selection, access to and use of the Internet, information on new technologies, and bar-coding. Kansas firms seem unlikely to seek outside assistance in the areas of quality assurance teams, implementing just-in-time production, setting and implementing goals, team building, customer communications/service, improving existing products, safety programs, materials resource planning, and cellular manufacturing.

Service Providers

Keys to providing outside assistance to manufacturers appear to be having a presence in the industry and developing a relationship with them. When identifying management or technical assistance, the responding firms indicated that personal recommendations from trusted sources, experience in the industry, and referrals from other users of the service are important. The most frequently used outside sources are suppliers, vendors, and trade associations.
In the human capital area, firms identified a serious difficulty in recruiting production employees, and to a lesser extent, technicians, sales and production staff, production supervisors, and engineers. The main areas where Kansas manufacturing firms seek outside training assistance are workplace skills (communication, teamwork, and decision making), computer programming or maintenance, and management training. The most preferred formats for receiving training are one-day seminars, customized on-site training, and partial day workshops.

METHODOLOGY

The MAMTC office provided a list of 4,913 potential manufacturers in Kansas. Prior to mailing the questionnaire, the list was reviewed and 375 manufacturers with non-manufacturing SIC codes were identified. These were subsequently removed from the population. A total of 102 surveys were returned because of incorrect addresses, reducing the total population to 4,436 manufacturers.

A random sample of manufacturers with 10 to 500 employees and a random group of manufacturers with fewer than 10 employees were sent an initial survey during the last week of November 1997 to address manufacturing issues in Kansas. A follow-up postcard was mailed to each company in December 1997. In January a second survey was sent to every manufacturer with 15 to 500 employees, excluding those manufacturers who had responded to the December survey. A telephone campaign was conducted in February and March to secure additional responses. In March surveys were sent to the remaining manufacturers in the 10 to 15 employee range which had not responded to the survey. Follow-up postcards were sent to increase the response rate. All mailings included a postage-paid envelope, and respondents were invited to return their completed surveys by fax.

A total of 266 completed surveys were received from Kansas manufacturers. This represents 6.0% of the total available manufacturers in the state and approximately 14,250 employees.

COMPANY PROFILE

Overview

The typical responding Kansas manufacturer is well established, has fewer than 50 employees, and has more than $5 million in annual sales. A majority of manufacturers sell domestically although more than one third sell internationally. In the next three years more than 60% of the manufacturers plan some kind of expansion with more than half of those planning to renovate their current location.

Years in Business and Number of Employees

Of the manufacturers responding, 82% have been in business at least 10 years. Nearly half the firms have been in business since before 1970. The median number of years in business is 25 years. At the extremes, the number of years that businesses operated in Kansas ranged from 1 to 140 (Table K1).

TABLE K1 - NUMBER OF YEARS IN BUSINESS

Year	*Percent*
Before 1960	28.7
1960-1969	13.6
1970-1979	24.8
1980-1989	20.2
1990 to present	12.8
Total	100.0

Source: University of Kansas/University of Colorado Survey 1998

The size of firms, as measured by the number of employees, tends toward the small and mid-sized company. More than 60% of the responding manufacturers have fewer than 50 employees while only 20% have more than 100 employees (Table K2).

TABLE K2 – NUMBER OF EMPLOYEES

Employee Range	*Percent*
1 to 19	33.1
20 to 49	30.0
50 to 99	18.3
100 to 249	14.8
> 250	3.8
Total	100.0

Source: University of Kansas/University of Colorado Survey 1998

Sales and Expansion

As shown in Table K3, the majority of respondents have projected gross annual sales between $1 and $10 million, while nearly a third have projected annual sales of more than $10 million. Only an eighth of the firms have sales of less than $1 million.

TABLE K3 – PROJECTED GROSS SALES

Sales Range	*Percent*
Less than $500,000	4.3
$500,000 to $999,999	8.2
$1.0 M to $4.9 M	44.0
$5.0 M to $9.9 M	12.5
Greater than $10.0 M	31.1
Total	100.0

Source: University of Kansas/University of Colorado Survey 1998

Manufacturers in Kansas cover the spectrum of geographical markets. More than 50% of firms sell in each category of domestic market. The regional and national markets are as important or slightly more important than statewide or local markets for product sales. Only the international market lags, by a margin of 15 to 20% (Table K4).

TABLE K4 – MARKETS WHERE PRODUCTS SOLD

Market	*Percent*
Local	51.1
Statewide	50.4
Regional	53.8
National	56.4
International	37.2

Source: University of Kansas/University of Colorado Survey 1998

About 60% of responding Kansas manufacturers indicated that they plan to expand in the next three years (Table K5). The majority of the expanding manufacturers will renovate their current facilities or build additional facilities. Renting, leasing, and purchasing existing facilities are much less-frequently used avenues for expansion.

More than one third of manufacturers surveyed have no plan for expansion. Only 2% of respondents have plans to reduce their facilities.

TABLE K5 – COMPANY EXPANSION PLANS

Action	*Percent*
We will renovate current facilities	35.0
We plan to build additional facilities	22.6
We will rent or lease additional facilities	10.9
We will purchase additional facilities	8.6
Action	*Percent*
We will not expand our current facilities	36.5
We will reduce the size of our facilities	1.5

Source: University of Kansas/University of Colorado Survey 1998

CRITICAL ISSUES

Overview

In Kansas the most critical issues facing manufacturing companies are meeting quality standards, hiring and retaining qualified employees, cost control, ability to offer price competitive products, and training employees. About two-thirds of responding manufacturers indicated they did not have the right amount of business due to cyclical variations, excess capacity, or strained capacity. Areas of significant change in the past three years included continuous quality improvement, manufacturing processes, and information systems.

Issues

Kansas manufacturers were asked rate a list of issues as "critical," "important," "somewhat important," or "not important" for their company's advancement. Table K6 shows the percent of respondents who rated each issue as either "critical" or "important"; hiring and retaining qualified employees, and meeting quality standards topped the list, with more than 95% of the responding firms indicating that they were critical or important issues. To emphasize the stress that firms placed on retaining qualified employees, we note that 72% of the firms characterized this issue as "critical," while only 53% of the firms rated meeting quality standards as "critical." Other dominant issues included cost control, ability to offer price competitive products, and training employees.

Between 85% and 75% of the respondents felt the following issues were critical or important: improving manufacturing process, availability of quality suppliers, and adapting to technology changes.

Between 69% and 60% of the respondents identified the following issues as critical or important: government regulations, marketing, and maintaining and upgrading computers.

TABLE K6 - RANKING OF CRITICAL ISSUES

Critical Issues	*Percent**
Hiring and retaining qualified employees	96.2
Meeting quality standards	95.4
Cost control - including product liability	92.4
Ability to offer price competitive products	89.0
Training of employees	88.3
Availability of quality suppliers	83.6
Improvements in manufacturing and production	82.9
Adapting to technology changes	75.0
Addressing government regulations	68.5
Marketing - promotion, analysis, research	65.5
Maintaining and upgrading computers	63.0
Development of new products	59.1
Selecting and implementing computer software	53.7
Availability and cost of financing	51.2

* Sum of critical and important responses
Source: University of Kansas/University of Colorado Survey 1998

Business Activity and Change

Of the responding manufacturers, 60% indicated that business activity was just right or above capacity, as represented in Table K7. Manufacturers whose demand is seasonal or cyclical make up 23% of the respondents. In total, about 63% of responding manufacturers felt their business activity was not at its optimum level.

TABLE K7 - LEVEL OF BUSINESS ACTIVITY

Business Activity	*Percent*
Business activity is just right	36.8
We have too much business: capacity is strained	23.4
Wide seasonal or cyclical variations in demand	23.0
We have too little business: excess capacity	16.9

Source: University of Kansas/University of Colorado Survey 1998

Manufacturers were asked to rate areas of change in their companies on a scale from 1 to 5, with 1 being "no change" and 5 being "significant change." Table K8 shows the percentage of respondents who answered either 4 or 5 in each area. Kansas' manufacturers believe the most significant areas of change in the last three years are in continuous quality improvement and manufacturing processes. It should be noted that 19% of firms rated manufacturing processes as a 5 ("very significant" change), while only 14% rated continuous quality improvement as a 5. Hence, manufacturers in process-intensive industries have seen marked changes in manufacturing process areas, although in general more believe quality improvement in their industry has changed in the past three years.

TABLE K8 - AREAS OF SIGNIFICANT CHANGE

Functional Areas	*Percent**
Continuous quality improvement	45.1
Manufacturing processes	41.6
Information systems	37.8
Management systems/human resources	31.7
Market development	25.2
Business and financial systems	20.7

*Sum of very significant and significant changes
Source: University of Kansas/University of Colorado Survey 1998

COMPANY COMPETENCIES & MODERNIZATION PLANS

Overview

The responding manufacturers demonstrated competencies in each of the areas of general management issues: quality improvement, marketing, business and financial systems, information systems, and basic manufacturing and operating issues.

The responding manufacturers indicated a desire to seek outside assistance in certain major operational areas. The areas where they are most likely to seek outside help are computer systems maintenance, ISO 9000 certification or equivalent, information on new technologies, financing expansion plans, assistance for short-term projects, Web site development and maintenance, bar coding, and software/hardware selection. The respondents will be less likely to seek outside assistance in the areas of setting and implementing goals, customer communications/service, and cost systems.

Continuous Quality Improvement

As shown in Table K9, nearly 80% of all respondents have or plan to develop formal quality assurance programs, and 64% already have or plan to form quality assurance teams. About 61% plan to improve or develop their JIT production method, and almost 48% plan to improve or develop statistical process control systems. Nearly 17% of respondents indicated that they might use outside assistance with ISO 9000 certification, while almost 11% thought that they might use outside help with formal quality programs.

TABLE K9 - CONTINUOUS QUALITY IMPROVEMENT

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Formal quality programs	79.6	10.9
Quality assurance teams	64.0	4.9
Implement Just-in Time production	61.2	4.5
Statistical process control system	47.9	5.3
ISO 9000 certification or equivalent	38.4	16.9
CE Mark	11.0	3.4

Source: University of Kansas/University of Colorado Survey 1998

Management Systems

An overwhelming majority of all responding manufacturers indicated that they have either implemented or had plans to implement measures for improving their management systems and human resources capabilities. As Table K10 shows, setting and implementing goals is a current competency for just over 91% of all respondents, but only 0.8% indicated they would require outside assistance in its development. The areas where outside help is likely to be required include assistance for short-term projects, dealing with government regulations, and formal employee development programs.

TABLE K10 - MANAGEMENT SYSTEMS/HUMAN RESOURCES

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Setting and implementing goals	91.1	0.8
Dealing with government regulations	88.4	9.0
Assessment of competencies/opportunities	85.6	6.4
Team building	80.5	6.0
Formal employee development program	73.0	10.2
Incentive based pay systems or programs	67.8	5.6
Locate assistance for short-term projects	52.3	13.9

Source: University of Kansas/University of Colorado Survey 1998

Marketing

Most of the responding manufacturers have either implemented or have plans to develop measures for improving their marketing efforts (Table K11). Areas where the respondents would most likely require outside help are Web site development and maintenance, development and use of new marketing methods, updating a market plan or strategy, and international sales.

TABLE K11 - MARKET DEVELOPMENT

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Customer communications/service	94.0	4.1
Improve existing products	84.6	4.5
Updated market plan/strategy	84.0	10.9
Develop and use new marketing methods	78.5	19.2
Expand U.S. sales	77.1	7.1
Web site development and maintenance	71.1	21.4
Develop a new product	66.1	7.5
Begin or expand international sales	48.8	9.0

Source: University of Kansas/University of Colorado Survey 1998

Financial Systems

As shown in Table K12, most of the responding manufacturers have either implemented or have plans to develop measures for improving their business and financial systems.

About 14% of respondents would seek outside assistance in financing expansion plans, while almost 12% would use outside help for financing improved equipment.

TABLE K12 - BUSINESS AND FINANCIAL SYSTEMS

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Computerized accounting systems	97.1	4.9
Inventory control systems	94.1	5.6
Cost systems	93.3	3.8
Business or strategic plan	90.0	7.9
Financing current operations	84.7	6.8
Financing improved equipment and facilities	84.2	11.7
Financing expansion plans	65.2	14.3
Business re-engineering	51.7	7.1

Source: University of Kansas/University of Colorado Survey 1998

Information Systems

As shown in Table K13, development of information systems is of great importance to responding manufacturers. A high percentage of respondents indicated that they either have or plan to improve their information systems, so extensive computerization of operations does not appear to be a problem. This is also an area where many of the respondents would require outside help. Computer system maintenance, software/hardware selection, and access to and use of the Internet are areas where 10%-20% of respondents indicated the need for outside help.

TABLE K13 – INFORMATION SYSTEMS

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Computer systems maintenance	92.4	20.3
Software/hardware selection	89.2	14.3
Access to and use of the Internet	82.0	12.4
Management Information System	71.4	8.6
Computer Aided Design/Manufacturing	60.5	6.4
Electronic data interchange (EDI)	58.5	9.8

Source: University of Kansas/University of Colorado Survey 1998

Plant Operations

Table K14 shows that responding manufacturers have given much attention to safety and environmental compliance programs as well as to effective production floor layout. Areas where well over 10% of the respondents are likely to use outside assistance are information on new techniques and bar coding.

TABLE K14 - PLANT OPERATIONS/MANUFACTURING

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Safety program	97.2	3.8
Environmental compliance program	83.3	7.5
Effective production floor layout	82.0	7.1
Information on new techniques	78.3	19.9
Materials Resource Planning	60.3	2.6
Setup reduction/quick changeover	59.7	6.8
Bar coding	52.6	13.5
Automated material handling	47.6	6.8
Computer Numerical Control	47.1	4.1
Cellular manufacturing	26.9	1.5

Source: University of Kansas/University of Colorado Survey 1998

EXTERNAL ASSISTANCE ISSUES

Overview

Kansas manufacturers appear to value the relationships they have within their industry to find assistance for technical and management problems. Assistance is generally obtained from those who have the most exposure to the company or industry. Personal contact, referrals from other users of the service, trade-show exhibits, and suppliers/vendors provide the primary assistance and information for most manufacturers. External management and technical consulting services are primarily chosen based on personal recommendations from trusted sources, experience in the industry, and referrals from others utilizing the service. Manufacturers seem to prefer the best value for the price and quality when considering professional service fees.

Identifying Assistance

When manufacturers are identifying sources for technical or management assistance they value personal contact with the company and referrals from other users of the service. As shown in Table K15, the Internet and general publications are rarely-utilized methods for identifying management or technical assistance resources.

TABLE K15 – IDENTIFYING TECHNICAL OR MANAGEMENT ASSISTANCE

Method	*Percent*
Personal contact with company	78.9
Referrals from other users of the service	77.4
Trade show exhibit	49.2
Article in trade/business publication	48.9
Ad in trade/business publication	47.7
Telephone book or directory listing	29.3
Introductory materials by direct mail	27.4
Ad or article in a newspaper	21.8
Internet	19.5
Telemarketing call	4.1

Source: University of Kansas/University of Colorado Survey 1998

In table K16, responding manufacturers indicate they prefer to obtain the majority of their information from confidential consultation and promotional literature.

TABLE K16 - PREFERRED METHOD FOR RECEIVING INFORMATION

Method	*Percent*
Confidential consultation	36.1
Promotional literature	34.2
Group instruction	15.0
Communications with peers	2.6

Source: University of Kansas/University of Colorado Survey 1998

As shown in Table K17, manufacturers identify management services based on personal recommendations from trusted sources, referrals, and experienced industry participants. First hand contact is the important determinant when manufacturers select external management or technical consulting services.

TABLE K17 - FACTORS IN IDENTIFYING MANAGEMENT SERVICES

Factors	*Percent**
Personal recommendation from trusted source	93.2
Experience in my specific industry	89.2
Referrals from other users of the service	86.5
Time to complete project	69.6
Cost of service	67.0
Close to my location	49.2
Academic credentials of personnel	32.8

*Sum of very important and important responses
Source: University of Kansas/University of Colorado Survey 1998

Use of Outside Sources and Fees

Table K18 shows the percentage of firms that used each of a number of outside sources of assistance at least once a year during the past 5 years. Suppliers and vendors are the most commonly-used sources for assistance. Manufacturer's responses also show that 45% used suppliers and vendors for assistance more than four times a year for the last 5 years. Trade associations by comparison were used for assistance more than four times a year by only 15% of the responding manufacturers. Other important sources include university and college programs/faculty and private consulting firms.

Associations with organizations such as SBA, SBDCs, MAMTC, and business incubators are utilized much less frequently.

TABLE K18 - USE OF OUTSIDE SOURCES

Source	*Percent**
Suppliers/vendors	80.3
Trade associations	53.6
University or community college program or faculty	29.4
Private consulting firm	27.4
State or local agencies	18.3
Mid-American Manufacturing Technology Center	12.9
Small Business Development Center	5.5
Small Business Administration	5.1
Business incubator	2.4

*One or more times per year in past five years
Source: University of Kansas/University of Colorado Survey 1998

Quality and value for price are the important criteria when responding manufacturers are considering professional service fees, as represented in Table K19. Otherwise, fair market rate generally dictates how manufacturers see their service fees.

TABLE K19 - PROFESSIONAL SERVICE FEES

Criteria	*Percent*
We ask for bids and take the best value for the price	32.5
We expect to pay fair market rate	25.4
Getting the job done right is more important than cost of service	24.2
We do not use outside consultants because we cannot afford to pay them	9.1
We often look for free advice or rely on low cost government assistance programs	7.9
We usually ask for bids and take the lowest price	0.8

Source: University of Kansas/University of Colorado Survey 1998

STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS

Overview

Over half of all respondents indicated that they experienced difficulty finding production employees. Another area of concern, indicated by 24% of respondents, is finding technicians. The primary areas where the responding manufacturers are likely to use outside assistance are workplace skills, computer programming or maintenance, and management training. The most preferred formats of receiving staff training are customized on- and off-site training and partial day workshops.

Employment Concerns

With the exception of production employees and technicians, the respondents indicated that employees are relatively easy to find. As shown in Table K20, 56.4% of respondents indicated difficulty in recruiting production employees, 24.1% had trouble finding technicians, 17.3% had difficulty locating sales and marketing staff, 16.9% had trouble finding production supervisors, and 14.3% found it difficult to recruit engineers.

About 14% of respondents indicated that they rarely had difficulties finding employees.

TABLE K20 – DIFFICULTY RECRUITING EMPLOYEES

Employee Classification	*Percent*
Production employees	56.4
Technicians	24.1
Sales/marketing staff	17.3
Production supervisors	16.9
Engineers	14.3
Clerical/office staff	12.4
Business managers	4.9
Information systems staff	3.4

Source: University of Kansas/University of Colorado Survey 1998

Outside Assistance

As shown in Table K21, the primary areas where outside providers are used for staff development include workplace skills (45.9%), computer programming or maintenance (38.7%), and management training (37.2%). Only about 14% of responding manufacturers seek outside assistance for adult basic education.

TABLE K21 – AREAS WHERE OUTSIDE PROVIDERS USED FOR STAFF DEVELOPMENT

Areas for Staff Development	*Percent*
Workplace skills (communication, teamwork, decision making, etc.)	45.9
Computer programming or maintenance	38.7
Management training	37.2
Quality programs	33.5
Environmental compliance	29.3
Shop floor management processes	27.1
Advanced manufacturing techniques	25.9
Adult basic education (reading, writing, arithmetic, etc.)	14.3
Other	5.6

Source: University of Kansas/University of Colorado Survey 1998

Format for Staff Training

Table K22 shows that over 40% of respondents list a one-day seminar as a preferred format for staff training, while more than one-third of all respondents include customized on-site training and partial day workshops on their list of preferred formats. Somewhat less popular are video or CD-ROM (19.1%), customized off-site training (17.3%) and self-study printed material (15.4%). Series of weekly classes, series of daily classes, multi-day conferences, were even less-frequently cited as preferred formats, while the Internet and cable or satellite TV were rarely cited.

About 31.6% of firms indicated that they rarely use external sources for staff training.

TABLE K22 - PREFERRED FORMATS FOR STAFF TRAINING

Format	*Percent*
One-day seminar	43.6
Customized on-site training	36.0
Partial day workshops	35.0
Video or CD-ROM	19.1
Customized off-site training	17.3
Self-study printed material	15.4
Series of weekly classes	10.1
Series of daily classes	9.0
Multi-day conferences	7.9
Internet	2.7
Cable or satellite TV	1.2

Source: University of Kansas/University of Colorado Survey 1998

CONCLUSION

As Kansas firms face the immediate future, they will continue to deal with the critical issues that more than two-thirds of them identified on the survey:

- Hiring and retaining qualified employees (especially production workers)
- Meeting quality standards
- Cost control – including product liability
- Ability to offer price competitive products
- Training of employees
- Availability of quality suppliers
- Improvements in manufacturing and production
- Adapting to technology changes
- Addressing government regulations

Outside service providers can assist Kansas companies only by first building a presence in the industry and developing relationships with individual firms. Areas where outside service providers are most likely to be of assistance to Kansas manufacturers are:

- ISO 9000 certification or equivalent
- Formal quality programs
- Dealing with government regulations
- Formal employee development programs
- Updating market plans or strategies
- Locating assistance for short-term projects
- Developing and using new marketing methods
- Web site development and maintenance
- Beginning or expanding international sales
- Financing improved equipment or facilities
- Financing expansion plans
- Computer systems maintenance
- Software/hardware selection

- Access to and use of the Internet
- Information on new technologies
- Bar coding

MISSOURI SURVEY

EXECUTIVE SUMMARY

Profile

The responding Missouri manufacturers tend to be established, have fewer than 50 employees, and less than $5 million in annual sales. The majority of manufacturers sell their products in the domestic market although there is a desire and growing movement to enter international markets. Most manufacturers plan some type of expansion in the next three years, primarily renovating current facilities and building additional facilities.

Critical Issues

The most critical issues facing the responding manufacturers are hiring and retaining qualified employees, meeting quality standards, cost control, competitive pricing, and training employees. The responding manufacturers identified what appears to be a serious shortage in production employees. About sixty percent of responding manufacturers are not at the optimal level of business activity. The most significant changes in the manufacturing business according to the respondents are in the areas of continuous quality improvement, manufacturing processes, information systems, and market development.

Competencies and Modernization Plans

The responding manufacturers demonstrated competencies in each of the areas of general management issues, marketing, business and financial systems, information systems, and basic manufacturing issues. The responding manufacturers did not display a strong desire to seek outside assistance in their major operational areas. The areas where they are most likely to seek outside assistance are: information on new manufacturing techniques, developing new marketing techniques, web site development, computer system maintenance, and bar coding. They will be less likely to seek assistance in the areas of internal culture issues such as setting goals and team development.

Service providers

Keys to providing outside assistance to manufacturers appear to be having a presence in industry and developing relationships with firms. When identifying management or technical assistance, the responding manufacturers indicated that referrals from other users of the service, personal recommendations from trusted source, personal contact with the company, and experience in the industry are critical. The most frequently used outside assistance sources are suppliers, vendors, and trade associations.

The responding manufacturers identified what appears to be a serious worker shortage in production employees. The primary areas where the responding manufacturers seek

outside training assistance are computer programming or maintenance, general workplace skills, quality programs, management training and environmental compliance. The most preferred formats for receiving training are one-day seminars, customized on-site training, and partial-day workshops.

METHODOLOGY

The MAMTC office provided a list of 10,205 potential manufacturers in Missouri. Prior to mailing the questionnaire, the list was reviewed and 814 companies with non-manufacturing SIC codes were identified. These were subsequently removed from the population. A total of 361 surveys were returned because of incorrect addresses, reducing the total population to 9,030 manufacturers.

A random sample of manufacturers with 10 to 500 employees and a random group of manufacturers with fewer than 10 employees were sent an initial survey during the last week of November 1997 to address manufacturing issues in Missouri. A follow-up postcard was mailed to each company in December 1997. In January a second survey was sent to a random group of manufacturers with 25 to 500 employees, excluding those manufacturers who had responded to the December survey. A telephone campaign was conducted in February and March to secure additional responses. In March surveys were sent to every manufacturer in the 10 to 25 employee range which had not responded to the survey. Follow-up postcards were sent a week after the initial mailing. All mailings included a postage-paid envelope, and respondents had the option of returning their surveys by fax.

A total of 712 completed surveys were received from Missouri manufacturers. This represents 7.9% of the total available manufacturers in the state and approximately 25,250 employees.

COMPANY PROFILE

Overview

The typical responding Missouri manufacturer is well established, has less than 50 employees, and has less than $5 million in annual sales. A majority of manufacturers sell domestically although 30% sell internationally. In the next three years, 60% of the manufacturers plan some kind of expansion; about half of them plan to renovate their current location.

Years in Business and Number of Employees

Of the manufacturers responding, more than 86% have been in business at least 10 years. The median number of years in business is 24 years. Respondent businesses have operated in Missouri from 1 to 130 years (Table M1).

TABLE M1 - NUMBER OF YEARS IN BUSINESS

Year	*Percent*
Before 1960	28.0
1960-1969	13.2
1970-1979	20.7
1980-1989	26.7
1990 to present	11.4
Total	100.0

Source: University of Kansas/University of Colorado Survey 1998

The number of employees reported by respondent manufacturers shows a pattern of small- and medium-sized companies (Table M2). More than 75% of the responding manufacturers have fewer than 50 employees while about 90% have fewer than 100 employees.

TABLE M2 - NUMBER OF EMPLOYEES

Employee Range	*Percent*
1 to 19	48.3
20 to 49	29.8
50 to 99	11.0
100 to 249	7.5
> 250	3.4
Total	100.0

Source: University of Kansas/University of Colorado Survey 1998

Sales and Expansion

Table M3 shows that more than 73% of the respondents have sales greater than $1 million, while 55% of respondents have sales between $1 and $10 million. Less than a fifth of the firms had projected sales of more than $10 million.

TABLE M3 – PROJECTED GROSS SALES

Sales Range	*Percent*
Less than $500,000	10.9
$500,000 to $999,999	15.8
$1.0 M to $4.9 M	43.6
$5.0 M to $9.9 M	11.8
Greater than $10.0 M	17.9
Total	100.0

Source: University of Kansas/University of Colorado Survey 1998

Half of Missouri manufacturers operate in national markets for their products, while more than half sell in regional markets or local markets. Less than half of the firms sell their

products in statewide markets, while only about three out of ten firms operate in international markets (Table M4).

TABLE M4 - MARKETS WHERE PRODUCTS SOLD

Market	*Percent*
Local	55.9
Statewide	44.5
Regional	54.6
National	50.1
International	29.6

Source: University of Kansas/University of Colorado Survey 1998

About 60% of responding Missouri manufacturers plan to expand their operations in the next three years. The majority of the expanding manufacturers will either renovate their current facilities or build additional facilities. Renting, leasing, and purchasing will be used minimally by expanding manufacturers (Table M5).

Almost 40% of manufacturers surveyed have no plan for expansion. Only 1% of respondents plan to reduce their facilities.

TABLE M5 - COMPANY EXPANSION PLANS

Action	*Percent*
We will renovate current facilities	30.1
We plan to build additional facilities	24.3
We will rent or lease additional facilities	10.1
We will purchase additional facilities	7.6
Action	*Percent*
We will not expand our current facilities	39.7
We will reduce the size of our facilities	1.0

Source: University of Kansas/University of Colorado Survey 1998

CRITICAL ISSUES

Overview

In Missouri the most critical issues facing manufacturing companies are quality standards, hiring and retaining qualified employees, cost control, ability to offer price competitive products, and training employees. About 60% of responding manufacturers indicated they did not have the right amount of business due to cyclical variations, excess capacity, or strained capacity. Areas of significant change in the past three years included continuous quality improvement and manufacturing processes.

Issues

Missouri manufacturing respondents rated hiring and retaining qualified employees and meeting quality standards as the two most critical issues (Table M6)**.** Other dominant issues included cost control, ability to offer price competitive products, and training employees.

About 86% of firms thought that the availability of quality suppliers was critical, while just over 78% of the respondents felt that improving manufacturing and production was critical. About 74% of the respondents identified adapting to technology changes and marketing as critical issues for their firms.

TABLE M6 - RANKING OF CRITICAL ISSUES

Critical Issues	*Percent**
Hiring and retaining qualified employees	97.9
Meeting quality standards	93.2
Cost control - including product liability	91.3
Training of employees	90.9
Ability to offer price competitive products	90.9
Availability of quality suppliers	86.2
Improvements in manufacturing and production	78.9
Adapting to technology changes	74.1
Marketing - promotion, analysis, research	73.8
Addressing government regulations	62.8
Development of new products	60.9
Maintaining and upgrading computers	60.4
Availability and cost of financing	54.4
Selecting and implementing computer software	47.3

* Sum of critical and important responses
Source: University of Kansas/University of Colorado Survey 1998

Business Activity and Change

Of the responding manufacturers, more than 60% indicated that business activity was just right or above capacity, as represented in Table M7. Seasonal and cyclical manufacturers make up 22% of the respondents. In total, about 60% of responding manufacturers felt their business activity was not at its optimum level.

TABLE M7 - LEVEL OF BUSINESS ACTIVITY

Business Activity	*Percent*
Business activity is just right	39.9
We have too little business: excess capacity	21.9
Wide seasonal or cyclical variations in demand	21.9
We have too much business: capacity is strained	16.4

Source: University of Kansas/University of Colorado Survey 1998

Manufacturers were asked to rate areas of change in their companies on a scale from 1 to 5, with 1 being “no change” and 5 being “significant change.” Table M8 shows the percentage of

responding manufacturers who answered either 4 or 5 in each area. Missouri manufacturers believe that the most significant areas of change in the last three years are in continuous quality improvement and manufacturing processes. It should be noted that 16.1% of manufacturers rated changes in manufacturing processes as 5 - "very significant," 12.8% rated changes in information systems as 5 - "very significant," and 12.6% rated changes in continuous quality improvement as 5 - "very significant." All others categories were cited by fewer than 10% of respondents as being "very significant" areas of change.

TABLE M8 - AREAS OF SIGNIFICANT CHANGE

Functional Areas	*Percent**
Continuous quality improvement	44.7
Manufacturing processes	37.8
Market development	32.4
Information systems	32.0
Business and financial systems	22.0
Management systems/human resources	22.0

*Sum of very significant and significant changes
Source: University of Kansas/University of Colorado Survey 1998

COMPANY COMPETENCIES & MODERNIZATION PLANS

Overview

The responding manufacturers demonstrated competencies in each of the areas of general management issues, quality improvement, marketing, business and financial systems, information systems, and basic manufacturing and operating issues. Responding manufacturers indicated that many critical areas have already been developed; for example quality programs and safety manufacturing process. Areas in which firms show the least desire for outside assistance are accounting, financing, and marketing. Information systems appears to be the manufacturing area that requires the most external help.

Continuous Quality Improvement

As shown in Table M9, quality programs and quality assurance teams are the prominent activities that have been developed or are currently being developed as indicated by the responding manufacturers. The two areas which firms are most likely to develop in the near future are formal quality programs (25.8% of responding firms) and ISO 9000 certification or equivalent (24.6% of responding firms); these are also areas in which firms will most likely seek outside assistance.

TABLE M9 - CONTINUOUS QUALITY IMPROVEMENT

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Formal quality programs	70.9	9.1
Quality assurance teams	61.0	4.6
Implement Just-in Time production	55.8	2.7
Statistical process control system	42.3	5.6
ISO 9000 certification or equivalent	35.4	15.3
CE Mark	10.6	4.6

Source: University of Kansas/University of Colorado Survey 1998

Management Systems

Most manufacturers have developed or are developing management systems and human resources, as indicated in Table M10. Setting and implementing goals and dealing with government regulations are the critically-focused activities. External help would be used in dealing with government regulations (8.8% of responding firms), formal employee development programs (9.4% of responding firms), and locating assistance for short-term projects (10.5% of responding firms).

TABLE M10 – MANAGEMENT SYSTEMS/HUMAN RESOURCES

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Setting and implementing goals	92.0	3.7
Dealing with government regulations	84.3	8.8
Assessment of competencies/opportunities	79.8	5.2
Team building	78.6	3.9
Formal employee development program	66.5	9.4
Incentive based pay systems or programs	65.1	4.8
Locate assistance for short-term projects	46.6	10.5

Source: University of Kansas/University of Colorado Survey 1998

Marketing

Table M11 shows the percentage of responding firms that are either currently pursuing or plan to implement improvement plans in various market development areas. The most commonly-cited areas were customer communications/service (91.3%), improving existing products (84%), and updating market plan or strategy (83.2%). These areas require little outside assistance as indicated by the responding manufacturers. Areas which firms are not currently pursuing but plan to develop programs in the near future are finding and using new marketing methods (38.6%), web site development/maintenance (36.2%), expanding U.S. sales (28.6%), and updating the market plan/strategy (24.3%). Relatively few manufacturers are currently pursuing or planning to develop methods to expand or enter international markets (16%). Areas where responding manufacturers are likely to seek outside assistance are Web site development and new marketing methods.

TABLE M11 - MARKET DEVELOPMENT

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Customer communications/service	91.3	6.2
Improve existing products	84.0	4.8
Updated market plan/strategy	83.2	10.7
Develop and use new marketing methods	76.5	19.4
Expand U.S. sales	75.1	6.9
Web site development and maintenance	63.6	20.9
Develop a new product	60.8	7.3
Begin or expand international sales	41.3	9.6

Source: University of Kansas/University of Colorado Survey 1998

Financial Systems

Approximately 90% of the responding manufacturers have in place or are developing these business/financial systems: computerized accounting systems, inventory control systems, cost systems, and business or strategic plans. Areas in which firms are most likely to seek outside assistance are financing improved equipment and facilities and financing expansion plans (Table M12).

TABLE M12 - BUSINESS AND FINANCIAL SYSTEMS

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Computerized accounting systems	93.9	7.9
Inventory control systems	89.9	4.6
Cost systems	89.9	5.3
Business or strategic plan	89.5	6.2
Financing current operations	84.7	9.6
Financing improved equipment and facilities	79.0	13.2
Financing expansion plans	62.8	13.5
Business re-engineering	46.5	8.0

Source: University of Kansas/University of Colorado Survey 1998

Information Systems

Information systems and related technology seems to be as much a priority as the other competency areas as reported by responding manufacturers (Table M13). The strongest activities include computer systems maintenance and software/hardware selection. Information systems areas that manufacturers are most likely to be pursuing in the near future are developing Internet access (24.1%) and electronic data interchange (EDI) (20.1%). Areas in which firms would be most likely to seek outside assistance are computer systems maintenance, software and hardware selection, access to and use of the Internet, and electronic data interchange.

TABLE M13 – INFORMATION SYSTEMS

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Computer systems maintenance	84.1	20.4
Software/hardware selection	81.9	13.2
Access to and use of the Internet	77.1	11.9
Management Information System	66.8	9.4
Computer Aided Design/Manufacturing	54.7	7.9
Electronic data interchange (EDI)	51.8	11.8

Source: University of Kansas/University of Colorado Survey 1998

Plant Operations

As shown in Table M14, safety, environmental compliance, and effective floor layout are the competencies in the area of plant operations that most responding manufacturers have or are developing. The activities that are most likely to be developed in the near future include information on new techniques (24.4%) and bar coding (23.3%). The areas where firms are most likely to seek outside assistance are information on new techniques and bar coding.

TABLE M14 – PLANT OPERATIONS/MANUFACTURING

Activities	*Doing or to Develop*	*Percent May use Outside Help*
Safety program	92.4	6.5
Environmental compliance program	81.1	6.7
Effective production floor layout	79.7	5.6
Information on new techniques	72.6	15.6
Setup reduction/quick changeover	53.3	5.2
Materials Resource Planning	51.4	3.7
Bar coding	45.1	13.1
Automated material handling	43.3	7.2
Computer Numerical Control	37.5	4.4
Cellular manufacturing	19.2	2.8

Source: University of Kansas/University of Colorado Survey 1998

EXTERNAL ASSISTANCE ISSUES

Overview

Manufacturers in Missouri appear to value the relationships they have within their industry to find assistance for technical and management problems. Assistance is generally obtained from those who have the most exposure to the company or industry. Personal contact, referrals from other users of the service, trade-show exhibits, and suppliers/vendors provide the primary assistance and information for most manufacturers. External management and technical consulting services are primarily chosen based on personal recommendations from trusted sources, experience in the industry, and referrals

from others utilizing the service. Manufacturers seem to prefer the best value for the price and quality when considering professional service fees.

Identifying Assistance

By far the most common methods for identifying management or technical assistance resources (Table M15), are personal contact with the company (79.2% of responding firms) and referrals from other users of the service (76.1% of responding firms).

TABLE M15 – INDENTIFYING TECHNICAL OR MANAGEMENT ASSISTANCE

Method	*Percent*
Personal contact with company	79.2
Referrals from other users of the service	76.1
Article in trade/business publication	47.8
Ad in trade/business publication	45.5
Trade show exhibit	43.4
Telephone book or directory listing	34.0
Introductory materials by direct mail	28.9
Ad or article in a newspaper	25.3
Internet	22.2
Telemarketing call	5.8

Source: University of Kansas/University of Colorado Survey 1998

In table M16, responding manufacturers indicate they prefer to obtain external assistance in the form of a confidential consultation and promotional literature.

TABLE M16 – PREFERRED METHOD FOR RECEIVING INFORMATION

Method	*Percent*
Promotional literature	39.2
Confidential consultation	32.4
Group instruction	15.4
Communications with peers	1.8

Source: University of Kansas/University of Colorado Survey 1998

As shown in Table M17, manufacturers select management services based on personal recommendations from trusted sources, referrals, and experience in the industry. First hand contact is the important determinant when manufacturers select external management or technical consulting services.

TABLE M17 – FACTORS IN IDENTIFYING MANAGEMENT SERVICES

Factors	*Percent**
Personal recommendation from trusted source	88.0
Experience in my specific industry	84.4
Referrals from other users of the service	82.1
Cost of service	65.4
Time to complete project	64.8
Close to my location	45.5
Academic credentials of personnel	40.2

*Sum of very important and important responses
Source: University of Kansas/University of Colorado Survey 1998

Use of Outside Sources and Fees

Table M18 shows the percentage of firms that used each of a number of outside sources of assistance at least once a year during the past 5 years. As indicated in Table M18, suppliers and vendors are the most frequently used sources for assistance. On the other hand, manufacturers who used suppliers and vendors for assistance more than four times each year used them only 45%. Trade associations by comparison were used for assistance more than four times a year by only 17% of the responding manufacturers. Other important sources include university and college programs and/or faculty, and private consulting firms. Associations with organizations such as SBA, SBDCs, MAMTC, and business incubators are utilized much less frequently than other sources.

TABLE M18 - USE OF OUTSIDE SOURCES

Source	*Percent**
Suppliers/vendors	80.7
Trade associations	54.0
Private consulting firm	24.8
University or community college program or faculty	19.7
State or local agencies	18.2
Small Business Administration	5.8
Mid-American Manufacturing Technology Center	5.1
Small Business Development Center	4.4
Business incubator	3.4

*One or more times per year in past five years
Source: University of Kansas/University of Colorado Survey 1998

Quality and value for price are the important criteria when responding manufacturers are considering professional service fees, as represented in Table M19. Otherwise, fair market rate generally dictates how manufacturers see their service fees.

TABLE M19 - PROFESSIONAL SERVICE FEES

Criteria	*Percent*
We ask for bids and take the best value for the price	31.4
We expect to pay fair market rate	23.8
Getting the job done right is more important than cost of service	21.7
We do not use outside consultants because we cannot afford to pay them	12.1
We often look for free advice or rely on low cost government assistance programs	7.8
We usually ask for bids and take the lowest price	3.3

Source: University of Kansas/University of Colorado Survey 1998

STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS

Overview

The responding manufacturers identified what appears to be a serious worker shortage in production employees. Other areas of potential concern in recruiting employees include sales and marketing staff, and technicians. The primary areas where the responding manufacturers seek outside training assistance are computer programming or maintenance, management training, and workplace skills. The most preferred formats for receiving training are one-day seminars, on-site training, and a partial-day workshop.

Employment concerns

With the exception of production employees, the responding manufacturers seemed to have little trouble recruiting employees. As shown in Table 20, 52% had difficulty recruiting production employees. More than a fifth of the firms had difficulty recruiting sales and marketing staff, and technicians.

About 11% of the responding manufacturers indicated they seldom had difficulties finding employees.

TABLE M20 – DIFFICULTY RECRUITING EMPLOYEES

Employee Classification	*Percent*
Production employees	52.0
Sales/marketing staff	22.8
Technicians	21.1
Production supervisors	13.6
Clerical/office staff	11.8
Engineers	9.3
Business managers	5.3
Information systems staff	4.2

Source: University of Kansas/University of Colorado Survey 1998

Outside Assistance

In Table M21, computer programming or maintenance, workplace skills, and management training, are the areas where reporting manufacturers would use outside providers for their educational programs for staff development.

TABLE M21 – AREAS WHERE OUTSIDE PROVIDERS USED FOR STAFF DEVELOPMENT

Areas for Staff Development	*Percent*
Computer programming or maintenance	38.8
Workplace skills (communication, teamwork, decision making, etc.)	34.4
Management training	33.1
Quality programs	28.5
Environmental compliance	24.6
Shop floor management processes	21.6
Advanced manufacturing techniques	19.4
Adult basic education (reading, writing, arithmetic, etc)	12.5
Other	3.2

Source: University of Kansas/University of Colorado Survey 1998

Format for Staff Training

If given the option most responding manufacturers prefer one-day seminars for staff training, followed by customized on-site training, partial-day workshops, and CD-ROMs.

Only a small minority of manufacturers currently prefers formats such as satellite TV, cable, and the Internet.

Approximately 36.7% seldom use external sources for training.

TABLE M22 - PREFERRED FORMATS FOR STAFF TRAINING

Format	*Percent*
One-day seminar	35.3
Customized on-site training	33.6
Partial day workshops	26.2
Video or CD-ROM	21.4
Self-study printed material	16.8
Customized off-site training	16.2
Series of weekly classes	8.8
Series of daily classes	6.5
Multi-day conferences	6.3
Internet	3.0
Cable or satellite TV	1.3

Source: University of Kansas/University of Colorado Survey 1998

CONCLUSION

Manufacturers in Missouri will be facing the following challenges in the future:

- Business expansion
- Hiring and retaining qualified employees
- Managing the changing areas of quality improvement, information systems, and manufacturing processes/technology
- Identifying quality suppliers/vendors

Outside service providers will effectively be able to assist Missouri manufacturers by having a positive presence in the industry and by building relationships with them. Areas where they can most likely assist the Missouri manufacturers are:

- Providing information on new manufacturing techniques, in particular bar coding
- Develop new marketing methods
- Web site development
- Maintenance of computer systems
- Secure financing for expansion or growth projects
- Locate short-term projects
- Help meet regulatory or widely accepted standards (government and ISO 9000)

WYOMING SURVEY

EXECUTIVE SUMMARY

Profile

The responding Wyoming manufacturers have been in business a median of 18 years, have fewer than 100 employees, and less than $5 million in annual sales. Although some of the manufacturers sell their products in international markets, the majority tends to sell them either locally or regionally. A majority of the manufacturers also plan to expand their operations in some way during the next three years.

Critical Issues

According to responding manufacturers, the most critical issue facing them is hiring and retaining qualified employees. This issue was cited by slightly more than 96% of respondents. Other issues identified as critical or important are cost control, competitive pricing, employee training, and the availability of quality suppliers. The responding manufacturers also reported an apparent serious shortage of production employees. The recruitment of technicians and sales and marketing staff is important, but of less concern.

About two-thirds of the responding manufacturers are faced with either cyclical variations in their business, excess capacity or strained capacity. In the past three years, manufacturers have experienced the most significant changes in the areas of continuous quality improvement, information systems, and manufacturing processes.

Competencies and Modernization Plans

The responding manufacturers reported their firms are competent in each of the areas of general management issues, marketing, business and financial systems, information systems, and basic manufacturing issues. They did not indicate a strong need or desire for cutting-edge manufacturing processes. The responding manufacturers are most likely to seek outside assistance in acquiring information on new manufacturing techniques, developing new marketing methods, creating and maintaining a Web site, maintaining computer systems, and developing bar coding.

Service Providers

A solid presence in the manufacturing sector and a strong relationship with manufacturing firms appear to be key to providing outside assistance. Responding manufacturers indicated that referrals from other users of the service, personal recommendations from trusted sources, personal contact with the company, and experience in the industry are critical. The most frequently used outside assistance sources are suppliers, vendors, and trade associations.

The most preferred formats for receiving training are one-day seminars, customized on-site training, partial day workshops, video or CD-ROM, and self-study printed material.

METHODOLOGY

The MAMTC office provided a list of 1,541 potential manufacturers in Wyoming. Prior to mailing the questionnaire, the list was reviewed and 305 companies with non-manufacturing SIC codes were identified. These were subsequently removed from the population. Returns from the mailings produced 78 bad addresses, reducing the total population to 1,158 manufacturers.

All manufacturers with 10 to 500 employees and a random group of manufacturers with fewer than 10 employees were sent an initial survey during the last week of November 1997 to address manufacturing issues in Wyoming. A follow-up postcard was mailed to each company in December 1997. In early January a second survey was mailed to each of the manufacturers that had not responded to the initial mailing. A telephone campaign was conducted in February and March to secure additional responses. All mailings included a postage-paid envelope, and respondents were invited to return their completed surveys by fax.

A total of 69 completed surveys were received from Wyoming manufacturers. This represents 6.0% of the total available manufacturers in the state and approximately 2,000 employees.

COMPANY PROFILE

The general demographics of the responding Wyoming manufacturers are similar to manufacturers in other states. About 68% of the responding manufacturers have been in business for more than 10 years. The median number of years in business is 18 and the mean is 21. Although manufacturers sell their products in international markets, the majority tend to sell their goods either locally or regionally. A majority of the manufacturers plan to expand their operations in some manner during the next three years. See Table W1.

TABLE W1 – NUMBER OF YEARS IN BUSINESS

Year	*Percent*
Before 1960	14.3
1960-1969	9.5
1970-1979	25.4
1980-1989	28.6
1990 to present	22.2
Total	100.0%

Source: University of Colorado/University of Kansas Survey 1998

As shown in Table W2, just over 81% of the responding manufacturers have fewer than 50 employees and almost 91% have fewer than 100 employees.

TABLE W2 – NUMBER OF EMPLOYEES

Employee Range	*Percent*
1 to 19	53.7
20 to 49	27.5
50 to 99	10.1
100 to 249	8.7
>250	0.0
Total	100.0%

Source: University of Colorado/University of Kansas Survey 1998

Approximately 74% of the responding manufacturers have annual projected gross sales of less than $5 million and 47% have annual projected sales less than $1 million. See Table W3.

TABLE W3 – PROJECTED GROSS SALES

Sales Range	*Percent*
Less than $500,000	21.2
$500,000 to $999,999	25.8
$1.0M to 4.9M	27.3
$5.0M to $9.9M	13.6
Greater than $10.0M	12.1
Total	100.0%

Source: University of Colorado/University of Kansas Survey 1998

The primary markets for the responding Wyoming manufacturers are regional and local. As Table W4 indicates, about 59% of the manufacturers sell their products in regional markets and nearly 58% sell their products in local markets.

National and international markets are secondary markets for the responding Wyoming manufacturers. About 39% of the responding manufacturers sell their products in national markets, while just over 30% sell their products in international markets.

TABLE W4 –MARKETS OF PRODUCTS SOLD IN 1997

Market	*Percent*
Local	58.0
Statewide	50.7
Regional	59.4
National	39.1
International	30.4

Source: University of Colorado/University of Kansas Survey 1998

In terms of expansion plans, responding Wyoming manufacturers mentioned renovating and building additional facilities most frequently. Nearly 35% of the manufacturers plan

to expand their business in the next three years by renovating their current facilities and 29% plan to expand by building additional facilities. About 10% indicated they would rent or lease additional facilities. See Table W5.

Slightly less than one-third of the manufacturers indicated they would not expand their facilities in the next three years, and none of the manufacturers planned to reduce the size of their facilities.

TABLE W5 – COMPANY EXPANSION PLANS

Will Expand	*Percent*
We will renovate current facilities	34.8
We plan to build additional facilities	29.0
We will rent or lease additional facilities	10.1
We will purchase additional facilities	5.8
Will Not Expand	*Percent*
We will not expand our current facilities	31.9
We will reduce the size of our facilities	0.0

Source: University of Colorado/University of Kansas Survey 1998

CRITICAL ISSUES

Overview

The most critical issues facing the responding manufacturers are hiring and retaining qualified employees, meeting quality control standards, cost control, employee training, availability of quality suppliers, and competitive pricing. About two-thirds of the manufacturers are faced with either cyclical variations in their business, excess capacity, or strained capacity. The responding manufacturers indicated that in the past three years they have experienced the most significant changes in the areas of continuous quality improvement, information systems, and manufacturing processes.

Issues

The most critical issue for the responding Wyoming manufacturers is hiring and retaining qualified employees. Almost two-thirds of the manufacturers rated this as a critical issue, while about 32% rated it as important. Over 89% of the respondents felt that meeting quality standards, cost control, employee training, the availability of qualified suppliers and competitive pricing were key critical or important. See Table W6 for a complete breakdown.

Between 72% and 77% of the respondents indicated that the following issues were critical or important: improving manufacturing process, marketing, and dealing with government regulations.

The following issues were identified as critical or important by 58% to 66% of the respondents: adapting to changes in technology, new product development, and the cost and availability of financing.

TABLE W6 – RANKING OF CRITICAL ISSUES

Critical Issues	*Percent**
Hiring and retaining qualified employees	97.1
Meeting quality standards	95.7
Cost control – including product liability	91.3
Training of employees	89.9
Availability of quality suppliers	89.7
Ability to offer price competitive products	89.6
Improvements in manufacturing and production	76.8
Marketing – promotion, analysis, research	72.5
Addressing government regulations	72.5
Adapting to technology changes	66.2
Development of new products	63.8
Availability and cost of financing	58.0
Maintaining and upgrading computers	48.5
Selecting and implementing computer software	48.5

** Sum of critical and important responses.*
Source: University of Colorado/University of Kansas Survey 1998

Business Activity and Change

Table W7 details responses to survey questions about manufacturers' level of business activity. Approximately 29% of the responding manufacturers reported that their level of business activity is just right, while about 21% indicated that they had too little business. About 15% of respondents stated they had too much business.

TABLE W7 – LEVEL OF BUSINESS ACTIVITY

Business Activity	*Percent*
Wide seasonal or cyclical variations in demand	35.3
Business activity is just right	29.4
We have too little business: excess capacity	20.6
We have too much business: capacity is strained	14.7

Source: University of Colorado/University of Kansas Survey 1998

The responding manufacturers indicated the most significant areas of change occurred in quality, information systems, and manufacturing processes. Table W8 shows the responses to this question.

TABLE W8 – AREAS OF SIGNIFICANT CHANGE

Functional Areas	*Percent**
Continuous quality improvement	44.8
Manufacturing processes	39.2
Information systems	36.8
Management systems/human resources	29.0
Market development	27.5
Business and financial systems	23.2

** Sum of very significant and significant changes.*
Source: University of Colorado/University of Kansas Survey 1998

COMPANY COMPETENCIES AND MODERNIZATION PLANS

Overview

Manufacturers were asked to evaluate their competencies. Respondents indicated their firms were most competent in the areas of general management issues, marketing, business and financial systems, information systems, and basic manufacturing issues. They did not indicate a strong need or desire for cutting-edge manufacturing processes. Although the responding manufacturers did not display a strong desire to seek outside assistance in their major operational areas, they did indicate they are most likely to seek outside assistance in the areas of acquiring information on new manufacturing techniques, developing new marketing methods, creating and maintaining a Web site, maintaining computer systems, and developing bar coding. Manufacturers are less likely to seek assistance in the areas of locating short-term projects, financing expansion plans, dealing with government regulations, and financing improved equipment or facilities.

Continuous Quality Improvement

As Table W9 indicates, about 64% of responding manufacturers have formed quality programs and nearly 56% have quality assurance teams or plan to create them. About 53% of the respondents plan to improve or develop their JIT process. The responding manufacturers are not likely to seek outside assistance for improving or implementing these or other quality related processes.

Just over one-quarter of the responding manufacturers indicated that they had ISO 9000 certification or planned to develop it. About 10% of the responding manufacturers indicated they would seek outside assistance in improving or developing their ISO 9000 certification.

TABLE W9 – CONTINUOUS QUALITY IMPROVEMENT

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Formal quality programs	64.4	4.3
Quality assurance teams	55.7	1.4
Implement Just-in-Time production	52.5	0.0
Statistical process control system	36.1	1.4
ISO 9000 certification or equivalent	26.4	10.1
CE Mark	7.0	2.9

**Percentages are based on total sample.*

Source: University of Colorado/University of Kansas Survey 1998

The responding manufacturers have either implemented or have plans to implement measures for improving many of their management systems and human resources capabilities (see Table W10). The top areas of competency are setting and implementing goals and dealing with government regulations. Manufacturers are most likely to seek outside assistance in locating short-term projects, dealing with government regulations, and assessing competencies and opportunities.

Management Systems

TABLE W10 – MANAGEMENT SYSTEMS/HUMAN RESOURCES

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Setting and implementing goals	93.5	1.4
Dealing with government regulations	90.6	10.1
Assessment of competencies/opportunities	78.7	8.7
Team building	72.6	2.9
Incentive based pay systems or programs	69.8	1.4
Formal employee development program	64.1	7.2
Locate assistance for short-term projects	61.7	11.6

**Percentages are based on total sample.*

Source: University of Colorado/University of Kansas Survey 1998

The responding manufacturers have either implemented or have plans to develop measures for improving many of their marketing efforts. The top areas of competency are customer communication and service, updating their marketing strategy, and improving existing products. Areas where manufacturers will be most likely to receive outside assistance are in developing new marketing methods and in developing and maintaining Web sites. See Table W11.

Market Development

TABLE W11 – MARKET DEVELOPMENT

Activities	*Percent** *Doing or Developing*	*May Use Outside Help*
Customer communications/service	92.2	5.8
Updated market plan/strategy	85.7	7.2
Improve existing products	84.4	0.0
Develop and use new marketing methods	78.7	20.3
Develop a new product	69.8	2.9
Expand U.S. sales	58.1	7.2
Web site development and maintenance	55.6	18.8
Begin or expand international sales	39.1	7.2

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Business Systems

The responding manufacturers have either implemented or have plans to develop measures for improving most areas of their business and financial systems, with the exception of financing expansion plans and business re-engineering. Approximately 9% of the responding manufacturers may seek outside assistance to finance their current operations, just under 12% may seek outside assistance to identify financial resources for existing equipment or facilities, and about 15% may seek help finding financial assistance to expand their operations. See Table W12.

TABLE W12 – BUSINESS AND FINANCIAL SYSTEMS

Activities	*Percent** *Doing or Developing*	*May Use Outside Help*
Computerized accounting systems	92.3	2.9
Cost systems	90.6	2.9
Business or strategic plan	90.3	4.3
Inventory control systems	89.1	7.2
Financing current operations	82.3	8.7
Financing improved equipment and facilities	79.7	11.6
Financing expansion plans	60.3	14.5
Business re-engineering	52.5	4.3

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Information Systems

As Table W13 shows, the responding manufacturers are most competent at computer system maintenance, hardware and software selection, and Internet related activities. About 86% of manufacturers have developed or plan to develop the maintenance of their computer systems, and just under 16% of them may seek outside assistance in this effort.

It is unlikely that they will seek outside assistance to help deal with other computer issues.

TABLE W13 – INFORMATION SYSTEMS

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Computer systems maintenance	85.9	15.9
Software/hardware selection	79.7	5.8
Access to and use of the Internet	74.8	7.2
Management information system	63.1	1.4
Computer-aided design/manufacturing	58.2	5.8
Electronic data interchange (EDI)	46.9	4.3

**Percentage are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

Plant Operations

The results reported in Table W14 indicate that the responding manufacturers have focused primarily on safety, environmental compliance, effective floor layout, and learning new techniques. There seems to be a limited number of manufacturers focusing on advanced manufacturing techniques or processes.

Manufacturers will primarily seek outside assistance to learn about new techniques. There also seems to be special interest in learning more about bar coding.

TABLE W14 – PLANT OPERATIONS/MANUFACTURING

Activities	*Percent**	
	Doing or Developing	*May Use Outside Help*
Safety program	94.1	2.9
Environmental compliance program	80.6	2.9
Effective production floor layout	79.7	7.2
Information on new techniques	74.6	21.7
Setup reduction/quick changeover	49.2	5.8
Automated material handling	42.6	5.8
Materials resource planning	40.0	1.4
Computer numerical control	37.1	4.3
Bar coding	36.9	15.9
Cellular manufacturing	17.9	2.9

**Percentages are based on total sample.*
Source: University of Colorado/University of Kansas Survey 1998

EXTERNAL ASSISTANCE ISSUES

Overview

For those service providers who want to assist manufacturers, a solid presence in the industry and a strong relationship with individual manufacturers appear to be essential. In particular, manufacturers value personal contact with peers and service providers .

The responding manufacturers indicated that referrals from other users of the service, personal recommendations from trusted sources, personal contact with the service company, and experience in the industry are critical in deciding which service providers to use. The most frequently used outside assistance sources are suppliers, vendors, and trade associations.

Identifying Assistance

The responding manufacturers indicated that the most effective tools for identifying technical or management assistance were referrals from other users of the service and personal contact with the service company. The least effective means of identifying assistance was a telemarketing call. See Table W15.

TABLE W15 – IDENTIFYING TECHNICAL OR MANAGEMENT ASSISTANCE

Method	*Percent*
Referrals from other users of the service	71.0
Personal contact with company	69.6
Ad in trade/business publication	49.3
Article in trade/business publication	40.6
Telephone book or directory listing	34.8
Introductory materials by direct mail	31.9
Trade show exhibit	30.4
Ad or article in a newspaper	23.2
Internet	21.7
Telemarketing call	4.3

Source: University of Colorado/University of Kansas Survey 1998

Similarly, Table W16 shows the preferred methods for receiving assistance is communication from peers or others in the industry and confidential consultation.

TABLE W16 – PREFERRED METHOD FOR RECEIVING INFORMATION

Method	*Percent*
Communications with peers	37.7
Confidential consultation	33.3
Promotional literature	33.3
Group instruction	18.8

Source: University of Colorado/University of Kansas Survey 1998

Again, the top factor in identifying management services is a personal recommendation from a trusted source (Table W17). Other very important or important factors include the provider's specific industry experience and referrals from other users of the service.

The cost of service is very important or important to about 71% of the respondents, while nearly 61% say that proximity of the service provider or time to complete the project is important or very important.

TABLE W17 – FACTORS IN IDENTIFYING MANAGEMENT SERVICES

Factors	*Percent**
Personal recommendation from trusted source	87.1
Experience in my specific industry	82.5
Referrals from other users of the service	74.6
Cost of service	70.5
Time to complete	61.3
Close to my location	60.7
Academic credentials of personnel	36.1

** Sum of very important and important responses.*
Source: University of Colorado/University of Kansas Survey 1998

Use of Outside Sources and Fees

As indicated in Table W18, slightly more than 85% of the responding manufacturers seek outside assistance from suppliers or vendors and approximately 56% seek assistance from trade associations. About 32% ask for help from state or local agencies and nearly 31% seek assistance from universities or community college programs or faculty.

The responding manufacturers look to private consultants about 21% of the time. Other organizations such as the SBA, SBDCs, MAMTC, and business incubators are sought out less frequently.

TABLE W18 – USE OF OUTSIDE SOURCES

Source	*Percent**
Suppliers/vendors	85.3
Trade associations	55.9
State or local agencies	32.4
University or community college program or faculty	30.9
Private consulting firm	20.6
Small Business Administration	11.8
Small Business Development Center	8.8
Mid-America Manufacturing Technology Center	8.8
Business incubator	5.9

** One or more times per year in past five years.*
Source: University of Colorado/University of Kansas Survey 1998

It appears that the respondents place a premium on quality work and fair pricing. See Table W19.

TABLE W19 – PROFESSIONAL SERVICE FEES

Criteria	*Percent*
We expect to pay a fair market rate	32.4
Getting the job done right is more important than cost of service	29.2
We ask for bids and take the best value for the price	16.9
We do not use outside consultants because we cannot afford to pay them	9.2
We usually ask for bids and take the lowest price	7.7
We often look for free advice or rely on low cost government assistance programs	4.6

Source: University of Colorado/University of Kansas Survey 1998

STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS

Overview

The responding manufacturers identified what appears to be a serious shortage of production employees. Other areas of potential concern are recruiting technicians and sales and marketing staff. Responding manufacturers primarily seek outside training assistance in computer programming or maintenance, general workplace skills, quality programs, management training, and environmental compliance. The most preferred formats for training are one-day seminars, customized on-site training, partial day workshops, video or CD-ROM, and self-study printed material.

With the exception of production employees, the responding manufacturers seemed to have little trouble recruiting employees. As shown in Table W20, 42% have difficulty recruiting production employees, while nearly 16% have difficulty recruiting technicians and 13% have difficulty recruiting business managers.

About 7% of the responding manufacturers indicated they seldom had difficulties finding employees.

TABLE W20 – DIFFICULTY RECRUITING EMPLOYEES

Employee Classification	*Percent*
Production employees	42.0
Technicians	15.9
Sales/marketing staff	13.0
Production supervisors	8.7
Engineers	7.2
Business managers	7.2
Clerical/office staff	5.8
Information systems staff	4.3

Source: University of Colorado/University of Kansas Survey 1998

As shown in Table W21, outside providers are used for staff development primarily in the areas of computer programming or maintenance, workplace skills, quality programs, management training, and environmental compliance. Slightly less than 35% of the responding manufacturers seek assistance in computer programming and maintenance

and approximately 32% seek outside assistance in developing workplace skills. Only about 7% of the respondents seek outside assistance in developing basic adult education skills.

TABLE W21 – AREAS WHERE OUTSIDE PROVIDERS USED FOR STAFF DEVELOPMENT

Areas for Staff Development	*Percent*
Computer programming or maintenance	34.8
Workplace skills (communication, teamwork, decision making, etc.)	31.9
Quality programs	26.1
Management training	26.1
Environmental compliance	26.1
Shop floor management processes	23.2
Advanced manufacturing techniques	15.9
Adult basic education (reading, writing, arithmetic, etc.)	7.2

Source: University of Colorado/University of Kansas Survey 1998

As shown in Table W22 fewer than 42% of the responding manufacturers prefer one-day seminars for staff training. Approximately 36% of the responding manufacturers prefer customized on-site training and about one-third prefer partial day workshops. The least preferred formats for training were a series of daily classes, a series of weekly classes, and cable or satellite television classes. About 15% of the respondents seldom use external sources for training.

TABLE W22 – PREFERRED FORMATS FOR STAFF TRAINING

Format	*Percent*
One day seminar	42.0
Customized on-site training	36.2
Partial day workshops	33.3
Video or CD-ROM	24.5
Self-study printed material	23.1
Customized off-site training	13.0
Multi-day conferences	10.0
Internet	7.1
Series of daily classes	4.3
Cable or satellite TV	1.4
Series of weekly classes	1.4

Source: University of Colorado/University of Kansas Survey 1998

CONCLUSION

The state of Wyoming has approximately 500,000 people spread over 97,000 square miles. Projected state employment for 1998 is 315,680 workers, with an unemployment rate of 4.1%.

Projected employment in the manufacturing sector for 1998 is 13,430 employees, or 4.3% of total employment. It should be noted that manufacturing is growing in prominence in Wyoming; it accounted for 3.8% of total employment in 1988. Projected

wages in the manufacturing sector for 1998 are $425,406,000 or 4.9% of total state wages. Average annual wages for the manufacturing sector are $31,670 compared to average annual wages of $23,370 for the state.

It would seem reasonable to think that the issues identified in this survey, including the small size of manufacturers and the fact that their markets are primarily local and regional in nature, relate to the state's sparse population. These manufacturers may have less need for sophisticated cutting-edge manufacturing processes.

As the manufacturing sector continues to grow and become a larger contributor to the Wyoming economy, manufacturers will be facing the following challenges:

- Expanding business operations;
- Managing the change that has been occurring in the areas of quality improvement, information systems, and manufacturing processes;
- Addressing cyclical variations in their businesses;
- Coping with excess capacity or strained capacity;
- Hiring and retaining qualified employees (production, technicians, and business managers);
- Controlling costs;
- Establishing competitive pricing;
- Training employees; and
- Identifying quality suppliers.

MAMTC has an opportunity to effectively assist Wyoming manufacturers by having a positive presence in the industry and by building relationships with the manufacturers. The most preferred formats for receiving training are one-day seminars, customized on-site training, partial day workshops, video or CD-ROM, and self-study printed material. MAMTC can most likely assist the Wyoming manufacturers in the following areas:

- Providing information on new manufacturing techniques, in particular bar coding;
- Developing new marketing methods;
- Developing Web sites;
- Maintaining computer systems;
- Locating short-term projects;
- Securing financing for expansion or growth projects;
- Dealing with government regulations;
- Training, particularly in the areas of general workplace skills, quality programs, and management training; and
- Complying with environmental guidelines.

MAMTC FOCUS GROUPS

EXECUTIVE SUMMARY

Focus groups were held in St. Louis, Kansas City, Kansas, and Kansas City Missouri, Wichita, Wyoming, and Denver, in December, 1997, and January-February, 1998. The purpose of the focus groups was to:

1) Explore the reactions of current and potential MAMTC users to specific services, marketing techniques and pricing options;
2) Obtain information about experience that companies had with MAMTC, and
3) Compare MAMTC with other consultants/service providers.

Participants were recruited from lists generated from MAMTC's database. The groups consisted primarily of non-MAMTC users.

FINDINGS

Obstacles to success

- Human resource issues were the primary obstacle facing most companies. Tight labor markets, high turnover, a diminishing work ethic and lack of employees for unskilled and semiskilled positions were critical problems stressed in all the focus groups.
- Companies were having trouble keeping up with rapid changes in manufacturing technology. Knowing what technology would be best for their organization was a major concern, as was training employees to use new technology effectively. New technology was often seen as a way of circumventing the labor shortage.
- Organizations were in various stages of computerizing their operations, and required considerable outside assistance to implement these changes.

Use of outside consultants/service providers

- Nearly all of the firms in the focus groups used outside consultants or service providers for assistance with selection, design, installation, maintenance and training related to manufacturing equipment and processes.
- For these services, companies preferred highly specialized consultants, either from equipment vendor organizations, or from within their specific industries.
- Fewer consultant services were used in areas seen as less industry-specific, and less directly applicable to technology or equipment. For example, only a few companies had used consultants in the areas of quality or manufacturing processes, and even fewer had used consultants for business systems and company assessment.
- Larger companies and companies in larger metro areas tended to use consultants in general areas such as quality assessment, goal setting, or leadership training.

- Although human resources were a major problem, only two firms had obtained outside assistance for these issues. Some used temporary agencies or sheltered workshops to supplement their workforce.
- Few executives in this study felt they needed marketing assistance, particularly given the current favorable conditions in the market.

Selection of outside consultants/service providers

- Participants preferred to obtain consultants through word of mouth and referrals, generally from within their own companies or industries.
- Confidence in a consultant's expertise was the primary factor in selection, followed by price.
- Advertising in print media, television, radio, and telemarketing were not considered effective ways to market consulting services. Articles in industry journals carried somewhat more weight than advertisements.

Pricing of consultant services

- Price entered into the selection of consultants from a cost/benefit perspective. Larger companies were willing to pay more, as the perceived benefits from a good consultant were higher. For smaller companies, consulting work was frequently given to the lowest bidder.
- The hourly rate was not as important as the total cost to complete a project.
- Most of the participants felt that the best consultants were probably the most expensive.
- A minority of companies (about 20%-30%) were very reluctant to pay for any kind of outside consulting or service.
- MAMTC services were perceived as costing less than half what private consultants charged.

Seminars

- Participants expected to pay $100 to $200 for a day-long seminar, although good-quality seminars were said to be available in the $50-$100 range.

Impressions of MAMTC

- About half the participants had heard of MAMTC, and about 20% had used MAMTC.
- MAMTC users had had very favorable experiences and recommended that others use MAMTC.
- Non-users tended to feel that MAMTC was primarily for very small companies, and that the very broad ranges of services offered detracted from its credibility.
- Non-users were more likely to use MAMTC after hearing the positive opinions expressed by users at the focus groups.

MAMTC Brochures

- Participants were favorably impressed with MAMTC's printed materials, which they were shown during the focus groups.
- When given the entire packet, participants found it hard to assimilate the information.
- Only one of the participants had previously seen MAMTC's promotional folder.

MAMTC Guarantee

- MAMTC's guarantee was seen as very positive by MAMTC users, while non-users were skeptical about how results would be measured.

How MAMTC could reach more potential clients

- Both MAMTC users and non-users felt that MAMTC needed to market itself more aggressively.
- Focus groups recommended that MAMTC market itself through networking and presentations at local trade associations, service clubs, chambers of commerce and development groups, and by linking with non-competing service providers such as bankers and accountants.
- Direct personal contact via company visits was also considered very important. Such visits were more likely to be favorably received if 1) a referral could be obtained from someone known to the executive being visited; and 2) if the visit was very brief, e.g. 5-10 minutes. The offer of a free initial assessment would open some doors as well.
- MAMTC should use its own seminars as a marketing vehicle for itself. It was also suggested that MAMTC offer half-days seminars to tell about what it does.
- Mailing of brochures and seminar schedules was important; however, organizations were more likely to pay attention to these if they had personal contact with MAMTC prior to receiving the mailing.
- MAMTC may want to consider using sales representatives, rather than its own engineers, for some of the above approaches.

Differences by location

- One of the primary regional differences was in openness to sales visits or phone calls. Companies in Wyoming and Wichita seemed much more receptive, and in fact insistent upon, this type of marketing. In the larger cities it was much more important to have an "in" to gain access to a company.

- Organizations in the larger cities appeared more open to more general types of business consulting, such as quality or company assessment, than did companies

in Wyoming and Wichita. In general, the less urban regions were interested primarily in technical advice and training.

- Awareness of MAMTC was highest in the Wichita and Kansas City, Kansas groups. Wyoming companies that had not used MAMTC appeared to have had little contact with or exposure to MAMTC. In St. Louis, companies were not accustomed to having a resource like MAMTC and were unsure about what it could do for them.

MAMTC FOCUS GROUPS

TOPICS COVERED

- Current problems of manufacturing organizations
- Use of outside consultants/service providers
- Knowledge and impressions of MAMTC
- Pricing issues
- Marketing suggestions for MAMTC

CONTENTS OF THIS REPORT

- This report is organized according to the topic areas listed above.
- The report summarizes the aggregate findings for all of the focus groups.
- The report includes many verbatim quotes from the focus groups.
- In addition, highlights for individual locations are included at the end of each section, where appropriate.
- Care should be taken in generalizing these findings, particular with respect to specific locations, since the groups are too small to be representative of the general population.

Separate reports and/or transcripts for each focus group have been provided to MAMTC.

INTRODUCTION

Six focus groups were conducted between December, 1997, and March, 1998, as indicated in the following chart. The focus groups were conducted and analyzed separately from the survey, so they provide an independent viewpoint on MAMTC marketing issues. The following sections group the findings into the major topic areas discussed above.

FOCUS GROUP MEETINGS

Location	Date	Number of participants	MAMTC users	Types of industries	Company sizes	Facilitators
Wichita	12/11/98	5	2	Industrial equipment, aviation furnishings, masonry/building materials, engine job shop, aircraft instruments	15 to 150; most in 15-70 range	Rose, Mercer (University of Kansas)
St. Louis*	1/5/98	5*	0	Chemicals, chemicals distribution and packaging, sheltered workshop, defense contracting, diesel distributor and remanufacturer	10 to 1100; most 50-110	Rose, Mercer
Denver	l/16/98	9	2	Food, headwear, industrial wood products, printing, plastic molding, industrial equipment, solar power systems, metal framing, and hydraulic products	12 to 300; most in 12-20 employee range	Hovarth, Eye (University of Colorado)
Wyoming	1/26/98	6	1	Lumber assembly and manufacture (2), printing (2), industrial pumps and air compressors, highway sealants	10 to 70; most 20-30	Rose, Mercer
Kansas City, KS.	1/29/98	10	2	Industrial sweepers, metal tooling (2), industrial distributor, prosthetics, commercial kitchen appliances, steel building frames, commercial windows, insulation packaging, assembly of hydraulic cranes.	10 to 425; most in 20-100 range	Rose, Mercer
Kansas City, MO.	2/19/98	7	0	Air control products, lithographic printing, outfitter of trucks, ready-mix concrete manufacturer, architectural millwork, glass and auto glass, galvanizing	20 to 150; most in 40-80 range	Rose, Mercer

***The St. Louis focus group on 1/5/98 had five participants; this was supplemented in March, 1998, by five telephone interviews with manufacturing firms in St. Louis. The five individuals interviewed included one MAMTC user.**

MAJOR PROBLEM OF MANUFACTURING ORGANIZATIONS

What does your organization need most in order to be competitive?
What are the biggest obstacles you face in getting your business where you want it to be?

The major issues were:

- **Human resources**. Access to a trained and motivated workforce was a major problem cited by all the focus groups. Lack of skilled and semiskilled workers and laborers, and lack of "quality" workers and work ethic were critical problems.

- **Help in keeping up with technology** was needed by some organizations that wanted to find the best, state-of-the-art way to do a particular task. Several wanted competent technical support in developing new equipment to use in specific processes. High-tech companies found it difficult to cover the costs of constantly upgrading their technology.

- **Information systems**. Many organizations were having difficulty keeping up with technology in the information systems area. Organizations were often in the process of computerizing various aspects of their manufacturing programs and business cycles. Many organizations had unsatisfactory experiences with computer systems vendors.

- **Improvements in efficiency and productivity** were sought through interventions in the production process. Again, most organizations felt that intervention needed to be very specific to their needs.

- **ISO 9000**. The larger companies, in particular, were interested in ISO 9000, but were having much difficulty in meeting the requirements. Assistance with ISO provided by private consultants had not been particularly satisfactory and was perceived as extremely expensive in terms of both time and money.

- **Employee training** was especially important in view of the difficult labor situation. Many companies did most of their own training. There was concern that training needed to be specific to the technology of each organization. There appeared to be a somewhat higher need for advanced training, as compared to basic or generalized training.

- Other problems mentioned were financing, compliance with government regulations, marketing, and "getting employees to understand how critical customer service is."

Geographically, the following issues were important:

DENVER

- Firms stressed the need for constant training, due to high turnover.
- It was hard to find reliable and good quality subcontractors
- Immigrant labor was filling a need, but created its own problems.
- High turnover in vendor firms caused problems interfacing with these firms.

KANSAS CITY, KS

- Kansas City companies competed with the casinos for labor.
- Due to high turnover, there was a lack of floor supervisors and need for constant training of shop labor.
- Technology was being substituted for labor, leading to new technology problems.

KANSAS CITY, MO

- Compliance with environmental regulations was seen as a large burden on some industries.
- Firms were operating at capacity and unsure as to whether they should build capacity or wait for a downturn.
- High technology created huge financial demands due to need to renew equipment constantly.

ST. LOUIS

- Keeping up with technology and achieving high productivity were important concerns.
- Few local resources were available to help small manufacturers.
- Companies needed to outsource some production or use temporary workers.
- Finding reliable subcontractors was difficult.

WICHITA

- The need for employees ranging from high-tech workers to craftsmen and construction workers was acute.
- Wichita companies were having difficulty converting from "pencil and paper" to computerized systems in all aspects of their businesses.
- Finding people with a broad range of skills and understanding of production systems was a major problem.
- Ad valorem, real estate, and personal property taxes were seen as extremely high.

WYOMING

- Raw materials sourcing was sometimes a problem.
- ISO 9000 was an interest even in smaller companies.
- Being located in Wyoming was sometimes a disadvantage, especially in doing business with Colorado.

> *"We find constantly a battle to say, 'Look, we don't have this printing press in the back of a wagon.'...We have to go overboard with technology to convince people that we are up to date and at the leading edge of our industry." (Cheyenne)*

- The Wyoming location was an advantage in some industries, e.g., for wood products.
- Unemployment was low and it was hard to find people for unskilled as well as highly skilled jobs. People attracted to Wyoming to hunt and fish were often likely to work sporadically.
- Sales forces and managers were often separated by considerable distances, so that knowing how to use electronic communication properly was important. Some companies did not have email or Internet access.

USE OF OUTSIDE CONSULTANTS/SERVICE PROVIDERS

In what areas does your business use outside consultants or service providers?
How do you select a consultant/service provider?

Companies most frequently sought outside help in the following areas.

- **Engineering and technical consultants** were used to make improvements in equipment or production processes.

- **Information systems consultants** were used to select and install manufacturing and business software, to set up and maintain network and Internet connections, for computer training and for the Year 2000 "bug."

- **Training programs,** both for workers and managers, were often out-sourced.

- **Process consultants** to help with continuous improvement, time management, or activity-based management, had been used by a number of organizations.

- **Vendors** were relied on heavily for advice and consultation, either for free consultation or for more advanced consultation (for fee) on the use of specific equipment.

- **Human resource issues** including motivating employees, recruiting employees, and reducing turnover were critical, but consulting advice was sought only occasionally.

- **Marketing** was mentioned several times, although companies did not appear to think spontaneously of marketing as a "consulting" function.

- Other areas mentioned included **safety consultants** and help with **document writing** (for the chemical industry), **strategic planning**, **goal setting**, **leadership training**, and **comparative wage studies**.

Consultants were chosen overwhelmingly through word of mouth and networking. Referrals were generally obtained:

- From others in the company

- From someone else in the same industry

- Through previous experience with that consultant.

A few companies had selected consultants by other means, including:

- Referrals from trade association, small business center, banker, accountant, Rotary, etc.

- *Thomas Register*

- Solicitation circulated to universities and large consulting firms

- Yellow pages

- Trial and error, or process of elimination.

Major factors in selecting a consultant were:

- Confidence in that consultant's competence and experience

- Confidence that the consultant had an orientation to their type or size of business

- Price concerns.

Focus group participants indicated that they would <u>not</u> select a consultant based on an advertisement alone. Articles or "success stories" about companies that had worked with a consultant were <u>more likely</u> to be of interest, although they were still not considered to be an important way to find a consultant. Publications most frequently read were of four major types:

1) National trade publications of an industry-specific nature, e.g., *Graphic Arts Monthly*
2) National business publications, e.g. *Wall Street Journal, Harvard Business Review, Fortune*
3) Regional or local business publications, e.g., *Kansas City Business Journal, Mid-American Manufacturers*
4) Regional or local trade publications, such as *Rocky Mountain Construction.*

The focus groups did not consider radio and television to be effective marketing tools for consultants or service providers. The audiences for these media are so broad that it would be difficult to reach the target audience.

> *"I want somebody that understands inside out and upside down my exact business...I guess, reading into it, I would not expect to see that person on T.V."* (Wyoming)

> *"I think in my industry the consultants find you, and then it becomes <u>your</u> job to decide who you want to use...You go by reference, you know, somebody has used somebody and been successful. That's your first weeding out."* (Kansas City, MO)

Participants responded unfavorably to the idea of telemarketing of consulting services. The executives participating in the focus groups had little time or patience to deal with telemarketers. They either would "never" respond to telemarketing, or they only would listen if they happened to receive the call on the day they were having a problem. Typically, they would tell the caller just to send literature.

Participants appeared to distinguish between telemarketing and telephone calls of a more individualized or targeted nature. Two types of telephone calls were more likely to be favorably received:

- A brief telephone call that provided a referral from someone known to the executive

- A brief telephone call offering to follow up with a mailing, personal visit, or free assessment of the organization.

Reactions to "cold calls" or company visits by consultants were mixed. Some executives said it was important that a prospective consultant personally visit the company. These would be brief visits in which the consultant described available services and left materials. In the larger companies and larger cities, it appeared to be harder to gain access to firms.

> *"It's tough for a salesman to get in the door. I can't envision accepting a cold call. The need has to be cultivated."* (St. Louis)

There were some concerns about sharing proprietary information with consultants. At the same time, consultants used confidentiality claims to prevent prospective clients from calling their previous clients.

The preferred format for consulting depended on the nature of that consulting. Most of the organizations preferred on-site consulting, except where specialized equipment was needed that was not available on-site. For general training, managers preferred off-site locations, so that employees would not be distracted by the work environment. However, much of the specialized training was done specifically with the equipment at the work site.

DENVER

- Companies relied heavily on equipment vendors for training and assistance.
- Most companies wanted help with very specific problems.
- Companies were somewhat more open to help at the management level.

> *"Sometimes I feel like we put blinders on...I know there are better ways and I'm always looking for those better ways. I'd like to see an outside consultant come in and say, 'Here's what you do,' then come in and help implement it."*

KANSAS CITY, KS

- Firms contracted for many outside services such as freight scheduling, temporary workers, and accounting and payroll functions.
- There were also firms that sought outside help for strategic planning and comparative wage studies.
- Some companies resisted using consultants at all, wanting to do everything in-house.

KANSAS CITY, MO

- Compliance with environmental regulations was an issue for these companies.
- A number of firms have headquarters or offices elsewhere and use these other offices as consultants on many problems.
- The focus group participants had found it hard to follow through on management training; they felt that changes in behavior were very short-lived and were not assimilated.

ST. LOUIS

- There appeared to be a need for assistance to smaller companies; for example, universities in the area were said not to be interested in projects under $25,000.
- Companies seemed unsure they would get the quality of expertise they needed from MAMTC.
- Managers had little time for direct approaches or "cold" sales calls.

WICHITA

- Wichita firms were used to working with Wichita State University for technical assistance, and had made an easy transition to using MAMTC.
- Executives wanted to be approached in person or by telephone.

WYOMING

- Companies appeared to be interested primarily in highly specialized consultants with expertise specific to their industries or computerization.
- Firms were not likely to contract consultants or training for broader issues, such as productivity or general business management.
- Many companies had had bad experience with business consultants, particularly ISO 9000 consultants. They did not like strong-arm tactics.

  "They offer you a really good deal. For only a couple of hundred bucks, they will come in and spend two days evaluating your business, talking to every single employee. Then if you want to take it any further than that, that is when you see the real price tag" (Wyoming)

KNOWLEDGE AND IMPRESSIONS OF MAMTC

Had you heard of MAMTC prior to this focus group?
What impressions do you have of MAMTC?
What is your reaction to MAMTC's printed materials?

The focus groups were designed to include a majority of non-MAMTC users. In most of the focus groups there was at least one executive who had used or was currently using MAMTC services. Overall, about 40% of the participants were somewhat familiar with MAMTC, primarily through mailings, prior to the focus groups.

Companies that had not used MAMTC expressed the following concerns:

- The term "Mid-America Manufacturing Technology Center" was often interpreted as meaning that services were primarily related to broad-based manufacturing. Some companies thought they were not in MAMTC's target market because they did not define themselves as manufacturers. These included printing firms, distributors (who nonetheless had some assembly or maintenance operations), and power generating plants.

- Some companies thought that MAMTC's services were too broad, were only for smaller companies (less than 100 people), or were too basic to be of interest.

- After learning more about MAMTC, and particularly after hearing from MAMTC users, almost all the participating executives seemed interested in using MAMTC.

- About half of the participants had received the MAMTC fliers, newsletters, or seminar announcements.

- Very few participants had seen MAMTC's full-color brochures or seminar schedules**,** which were shown to them in the focus groups.

- Some companies were concerned that MAMTC appeared to market itself on price.

  "I'd probably be more interested if they tried to compete more against the other consultants out there, instead of just selling price. With commodity pricing...they don't appear to want to consider themselves to be a specialty-type consultant." (Kansas City, KS)

Overall, the focus groups were very favorably impressed with the quality of the MAMTC information packets.

- Almost all thought the quality of the printing was excellent and lent credibility to MAMTC. (However, one individual said the high quality would dissuade him from using MAMTC, as the cost seemed excessive.)

- Features of the promotional literature that participants especially liked were 1) testimonials from MAMTC users 2) the tabs which facilitated filing, 3) use of color.

- Some were surprised by the variety of areas covered by MAMTC, such as the independent testing laboratory.

The amount of information in the packets was extensive. (Note: the information packet given to participants included all of the MAMTC promotional materials. This is more than MAMTC would initially provide to a prospective client.)

- The areas of MAMTC expertise appeared too broad to be believable to many.

  "I've looked at this thing for three or four minutes and I'm still not sure what they're trying to do for me...It says, 'quality, manufacturing process, business systems, marketing,' so they can do everything, and so I don't really understand if it's a service organization, or what other type of organization it is. Does it have some area of expertise that they're really good at? That doesn't jump out at me looking through this." (Wyoming)

"My feeling is that they probably provide a good general overview, and make an earnest effort to do so for some of the basic manufacturing industries, but, specific to my situation...I don't think they'd know what they were looking at, and that's why we have to get into specific industries and specific consultants." (Kansas City, MO)

- Many participants found it difficult to assimilate the information.

  "I'm sure there's a lot of information in here, but I'm not sure at what point I would be ready to look at all this information...If I was aggressively wanting to find something, then I would go through here and try and find a match to what I was looking for, but if it was something that was coming around to try and get my attention, at first glance I might just say, 'Well, this will take me some time to look through it all, so I'll put it aside until I have some time.'" (St. Louis)

  "As an introductory thing, it's way too wordy. You need, 'who are we, what do we do, where can you get in touch with us." (Kansas City, MO)

- To get their attention, some participants thought a more dramatic approach was needed.

  "It's got to be something that jumps out at you, and it has to be the right need. I know what our company's needs are..there are three or four that really jump out, and if I were to get something, or somebody were to call me and say, 'Hey, I can help you do one of the following things,' I would really jump on it." (St. Louis)

  "Just getting this probably wouldn't do it unless there's something on the cover that said 'Do you have this problem? Solution inside.' Then I might open it and look at it. Otherwise, I probably wouldn't take the time to do it." (St. Louis)

Participants would have liked more information, or more prominent information on the following:

- Qualifications of seminar leaders and MAMTC engineers
- More concrete examples of work done by MAMTC
- Clearer definition of how MAMTC is funded.

  While some participants were initially skeptical about MAMTC's government ties, during the course of the discussions, many began to see positive aspects to the government affiliation. Thus, MAMTC has an opportunity to make a strength out of what could be perceived as a weakness.

"It took me a while to figure out exactly whether this is a government agency, for-profit corporation or non-profit. It's in the fine print right on the very bottom down here. I always like to know who I'm dealing with." (Denver)

"MAMTC might want to tout its federal connection, e.g., 'There is a pro to do this job for me, and I want it done, and I can get it done for (less) cost if I go outside.' Why not use the federal grant money and my tax money that I've already paid for?" (Wichita)

- Emphasis on the availability of a **national network** of expertise.

- More specific information about MAMTC should be presented before the more general information.

  "I would look at a consultant from the specific to the general...I would put things like 'manufacturing processes' first, and 'product development' second. Things like general business or marketing plans, where you could open up the yellow pages and get 8000 consultants, put them down on the lower end." (Denver)

MAMTC users spoke very favorably about their experiences with MAMTC.

- As technically competent

  "The people I deal with have been where I've been. They came straight out of manufacturing, which is not always a given with consultants. They have a lot of technical expertise." (Kansas City, KS)

- As a valuable extension of one's own business

  *"I don't call these people consultants...this is an **extension of my business** offered to me by the State of Kansas and the federal government. In every aspect of my business, from accounting to computerized design to marketing, they've got a staff person on to come down and help you if you're having a problem in any of those areas...I mean, guys who are past presidents of APICS and have spent their whole lives doing nothing but nailing the problem of why you can't get that (plant flow) program to work for you. I mean, that's all they do, that is their profession, and they're there. If I had that problem, I would reach for one."* (Wichita)

- As a facilitator

  "We're working with them right now on a program on marketing. We've gone to several of their seminars on ISO 9001. They've been very helpful on the manufacturing...came out and gave us some ideas on how we can improve, then going out and getting (us) another consultant, writing up a proposal...They're more of a facilitator, manufacturing oriented. They facilitated us getting some

more sophisticated help that we wouldn't have been able to find on our own." (Denver)

- As approachable

  "When I came into town he (the MAMTC representative) was one of the first people to come and visit with me and see if there was anything he could do to help...The price tag was right in the beginning, but I find out that (he) is good people...He came to Casper and he made a copy of a database of all patterns on the equipment that we have. I get floored by that kind of stuff. He went out of his way to do that...I found out that the other people attached to MAMTC that I have had interaction with are good people, so I've had a good experience with them." (Wyoming)

MAMTC's reliance on state and federal funding was seen both as a positive and as a negative.

- In general, the smaller companies seemed attracted to MAMTC because the costs were partially subsidized.

  "The first time I heard about them, what impressed me was that they were not necessarily just motivated by making a profit." (Kansas City, KS)

- Some companies, primarily the larger ones, thought that government ties made MAMTC less attractive.

  "My perception is that somebody that is on their own is going to have more practical experience than somebody working on a government grant.." (Wyoming)

  "*First, there is the question of bureaucracy. How much goes along with MAMTC? Second, if these people are so good, why aren't they on their own?*" (St. Louis)

- Overall, most participants indicated that if MAMTC could demonstrate its competence they would look at it as they would any other consultant or service provider.

  "It's never bothered me to use my tax dollars. I've got to get my money back some way. I've found that the few people that I've dealt with (at MAMTC) are pretty professional. Pretty pro. And if they have the knowledge of what you're after, I think they can be very helpful." (Wichita)

DENVER

- Users viewed MAMTC as a facilitator to find more specialized assistance.

- MAMTC seminars had led to subsequent consulting arrangements with MAMTC.
- Companies were pleased with the discounted and cost-shared services.

KANSAS CITY, KS

- MAMTC was viewed favorably as a resource that did not have a hidden agenda.
- MAMTC was seen as a low-price service provider.
- Those who had used MAMTC were impressed with the technical expertise.
- MAMTC users had learned about it through word of mouth, at local meetings, or in the *Kansas City Business Journal.*

KANSAS CITY, MO

- Companies that knew of MAMTC had a favorable impression.
- Participants thought MAMTC should be more aggressive about obtaining referrals.
- The Kansas City, MO participants were shown a series of proposed ads being developed by the national NIST/MEP headquarters. The ads were seen as bland and needing more "punch."
- Participants said they were unlikely to be swayed by any advertisement for consulting services.

ST. LOUIS

- About half the group had received bulletins from MAMTC.
- Companies did not have a clear picture of MAMTC, possibly because of its relative newness in St. Louis.
- The impression was that MAMTC was geared towards small business.

WICHITA

- There was some confusion about the difference between WSU and MAMTC.
- MAMTC's booth at the Wichita industrial trade show was a good idea.
- Wichita participants remembered receiving fliers or mailers from MAMTC, but would like to have more frequent information about seminars.

WYOMING

- Participants had received few mailings from MAMTC.

  "I haven't gotten anything other than what I think is a real simple little newsletter. I mean, I even know this guy (at MAMTC office), and so I would know if I had ever received this before. " (Cheyenne)

"I have never received anything like this (brochure)...I just get the newsletter." (Casper)

- Participants in Cheyenne were aware of MAMTC, although none had used it.

  "I think it's interesting that all of us already know of MAMTC, so from my marketing schooling they have already done all of the advertising that they need to do. Now they have to go meet with the people..and sell them on using their business..it seems to me that they are waiting for us to call them. I don't know, in my business that does not work."

- At least one participant saw MAMTC as a free service provider.

  "I get more service out of small business development and out of MAMTC than I get out of the people I've paid for."

PRICING ISSUES

How important is price in selecting a consultant/service provider?
What is your impression of MAMTC's prices and guarantee statement?
How much would you typically pay, per employee, for a day-long seminar on a topic such as plant operations or inventory control?

Most companies looked at pricing of services from a cost-benefit perspective.

"I'd say it's value driven, rather than price. Just knowing that you're getting a good value for what you're paying for." (Wyoming)

- Smaller companies appeared to find price more of a consideration in choosing a service provider than did the larger companies.

- Larger companies tended to feel that cost was only 3rd or 4th in importance, since wasting time on a less expensive consultant could ultimately end up costing more.

- The hourly rate was not as important as the total cost to complete a project.

Too low a price could cause suspicion.

"I think somehow an entrepreneur has kind of an instinctive feel for what he thinks a service is worth. I'm willing to pay X amount to get this result. If they are more than that, then they have to convince me that they are worth more than that. If they are less than that, I guess I become a little bit suspect as to why. Am I really going to get what I'm asking for? (Wyoming)

- If MAMTC's federal and state subsidies cause the price of their services to be lower, this needs to be communicated strongly to prospective clients.

- In some areas, such as prototyping, or short-run production, low price wouldn't raise a red flag.

The groups were concerned about paying for overly general approaches.

> *"If I were to bring somebody in, they'd say 'OK, we're going to help you be more profitable.' I think I already know how to be more profitable. The problem is, how do I actually make that happen? I am not sure a consultant, unless they have experience in the same industry, same place, same thing, can tell you how that happens... So yes, increase your efficiencies, yes..... but I don't want to pay for that kind of advice."* (Wyoming)

> *"If a company wished to gain our business, to try to help us, they need to come in and take a look at our business a little bit, and our people, because I think every small business has a unique personality, and general approaches really, bother me, really scare me."* (St. Louis)

Companies sometimes felt they were paying for the training of inexperienced individuals (referring to consultants other than MAMTC).

> *"Most of them will be hiring some new blood who they are training, and charging you to train that person."* (Wyoming)

Companies that had used MAMTC as consultants found their prices to be less than half what they would have cost from another organization.

> *"We bid out for a time study and we had quotes at $40,000 and $30,000. MAMTC said they could do it for $8400 and that's guaranteed. Because they're state funded, if they're there four weeks or three months, the price won't change."* (Kansas City, KS)

Groups found MAMTC's guarantee interesting and positive.

> *"I never heard that statement, but that's one hell of a statement. You won't get many consultants to say that...One of the biggest problems with computer programmers and consultants is so much an hour, and it's an open-end. They can't tell you how long it's going to take...If MAMTC says, 'Well, it looks like 60 hours,' and they guarantee it, and they take 80, so be it. The bottom line is, you got your task done. So the statement's great."* (Wichita)

- However, there was skepticism about how this guarantee would actually be enforced.

> *"That wouldn't be enough to push me over the edge. It could end up costing me even if I don't pay for the consulting service. For example, in the painting*

process, if the consultant isn't good I have to pay for rework. The consultant would also have to protect you from the consequences. I would want to be sure someone would be there until the problem was fixed. I don't believe it would be an actual warranty." (St. Louis)

Participants expected to pay an average of $100 to $200 for a day-long seminar.

- Seminars in **DENVER** typically cost $80-$100, with an average of $400-500 for more specialized ones.

- In **KANSAS CITY,** the cost was typically $100-$200, although there were some seminars available for $50-$75.

- **ST. LOUIS** firms expected to pay from $75 to $875: one participant commented there was no rhyme or reason for these rates. For generalized seminars the average was about $100 a person. Companies were willing to pay more for name speakers.

- **WICHITA** firms were accustomed to paying $200 a day, although they said Wichita State puts on excellent ones at $75 to $80.

- In **WYOMING**, day-long seminar prices were $99-$149, or even up to $200. Companies were not willing to pay for high-priced seminars ($500 and up) that also involved travel and overnight lodging. Wyoming participants appreciated the fact that MAMTC seminars were being offered in their region, although these appeared not to be well publicized there.
  "I would like to receive the calendar of seminars. If I never see it, I'm never going to send anybody."

MARKETING SUGGESTIONS FOR MAMTC

If you could give advice to MAMTC, what would you tell them?

Increase direct personal contact with potential MAMTC users.

"To my knowledge I have never been contacted personally by MAMTC. I don't even know if there is a representative in Central Wyoming."(Wyoming)

"I thought they had a marketing problem back then (when MAMTC was formed) and they still do. That's why we're here. I told them then, and I'm telling you again: you can take a horse to water but you can't make him drink. And they've done a lot of great work. Why they can't reach the entrepreneur in this community with the fact that they're an extension and they're there to help them, when they've got an issue, at a reasonable price, I don't know... I think MAMTC ought to hire some sales people and put them on the road. I think they ought to go and visit, just like we sell. You know, selling is selling is selling.

Manufacturing is manufacturing. I don't care if you're making a brick or if you're making something else. The problems are the same, and MAMTC's got a problem, they've got a hell of a factory and no sales people. I'd just hire some, and send them out to see all the manufacturers... How long would it take their sales people to cover 1800 possible customers?" (Wichita)

Show a strong and sincere interest in the potential client's business.

"You want to make a friend out of me...Don't come in with your agenda... Don't come in and give me a bill and tell me all the great and wonderful things that you can do. Show an interest in my business. Show me that you're here to help me do what I want to do with this business. And if you can't, tell me that you can't do it. If you don't know the answer, tell me that you don't know the answer." (Wyoming)

Company visits and telephone calls are more effective than mailings.

- MAMTC representatives should introduce themselves with a referral from another company.

  "When I take a telephone call, I am still trying to do whatever I was doing when the phone rang. But if he came in and told me what John Doe did and how he helped him in his town, I can call John and say, 'Is this guy telling me the straight scoop? Did he really do all these great things?'" (Wyoming)

- Visits to companies could be done by professionals other than MAMTC engineers.
  "Generally speaking, most engineers are not good sales people...you only bring the engineer in after the door has been opened, and you've defined the subject that you need answered technically." (Wichita)

  "Some of those guys are engineers and are not really geared for sales per se. They don't really sell themselves very well as far as their capabilities when you see them face to face." (Kansas City, KS)

- Executives who would not make time for phone calls or personal visits said that a mailing with a letter can be effective, if it gets to the right person at the right time.

  "This product with the right letter, if it doesn't get in, certainly a phone call or stopping by isn't going to work. If this came in with a letter, 'I'd like to meet you and spend a half hour of your time,' that puts the ball in my court." (Kansas City, KS)

- Personal contact followed by mailing is more effective than unsolicited mailing.

  "I think if I knew who it was coming from, and I had been forewarned as to what I might be receiving, I might be more likely to follow up." (St. Louis)

MAMTC faces the perception that it is too broad, and resources are stretched too thin.

> *"This looks like, 'We'll tell you everything you ever wanted to know about manufacturing. We can show you how to market, we can show you how to hire people, we can show you how to do new product development, we can show you prototyping.' To me, they lost credibility by doing that. Either that, or I just don't know the resource very well, because that looks like the be-all, the end-all of manufacturing. If I thought there was an organization that had all that expertise in one place, I probably would have heard about it before."* (St. Louis)

> *"When I read in here, 'We have people that have experience in your area,' my cynicism is, 'You don't have anybody in my area that has experience in what I am doing.' Maybe I'm wrong, but I'm not going to find that out unless I call, and that is going to be a lot tougher than if they call me...the current method, I guess, is they are waiting for me to decide that I need them and contact them, versus them to come and contact me."* (Wyoming)

> *"One thing that I think is important in business is you can't be a master to everybody..The impression that I think most people would get from this is that they can do anything for anybody, you know, the generalist. There's a credibility question there. How can you be so great, and so specialized, to everything? You just can't do it."* (Kansas City, MO)

Offering a free initial assessment could be a useful way for MAMTC to attract clients.

> *"I know what would work for me. If MAMTC came to one of my operations, and just surveyed the operation and came back to me with a proposal, based on what they saw, that would be a way to capture me. They would have a better opportunity of doing business with our company that way than just handing me a brochure or having a sales person call on me or whatever. If they were willing to come in, take a look, say 'We've looked, we can't help you,' or, 'we've looked, we can help you in this area, and here's what we can provide. Here's how long it would take, here's how much it would cost, based on what we've seen.'"* (St. Louis)

> *"The one thing I'm going to look for from this point forward, is somebody that is actually going to come in, free of charge the first couple of days and look at our business, and actually sit down and tell me how they are going to help my business improve."* (Wyoming)

Consider some changes in seminars, and publicize them more actively.

- Some executives wanted more advanced seminars.
- A basic seminar on beginning manufacturing might be of use for new manufacturers.
- A seminar to train maintenance people on how to keep a plant running could be useful.
- A half-day seminar on MAMTC itself, preferably with participation of satisfied MAMTC clients, would help attract new clients.
- Technical seminars were seen as a good way to introduce MAMTC to potential clients.

Active networking is an effective way for MAMTC to reach potential clients.

- MAMTC representatives should be active in local trade and service associations, and make presentations at these wherever possible.

  "You're already a receiver then, because you're there, the phone's not ringing, and you're there for that reason." (St. Louis)

  "Trade associations, all that takes is someone's time, and $50 a year...but that guy's got to be willing to spend his nights out there." (Wichita)

  "Encourage the people that work for MAMTC to get out and get involved in those service organizations in the local community. That's how you start meeting people, and then you get on the agenda to speak." (Kansas City, KS)

- MAMTC should make itself known to small business agencies, county government, incubator programs, chambers of commerce, local banks and accounting firms that work with manufacturers.

  "If somebody that they trust calls the company and says, 'Hey, you ought to be using MAMTC because they can help do this, this, and this,' that makes a lot more sense than reading an advertisement in the Post Dispatch, which nobody's going to pick up on.'" (St. Louis)

  "If you called me and said, "Arlene told me that I should be giving you a call, then I'll listen to you. If somebody that I know referred you, I'll listen. I've got some time for that." (Wyoming)

  "Consulting is sold on relationships. You've got to have people that are willing to pass your name along." (Kansas City, KS)

DENVER

- Companies are receptive to an external organization such as MAMTC.
- An initial perception of MAMTC as a manufacturing-oriented service can lead to broader consulting opportunities.
- Shop floor management and supervision seminars should address the needs of a multi-cultural workforce.

KANSAS CITY, KS

- Kansas City companies were generally aware of MAMTC, but felt it should enhance its marketing efforts.

  "We go to their seminars and they don't even promote themselves. They're missing something there." (Kansas City, KS)

- Most companies favored mailings over telephone calls or visits, but agreed that mailings had to differentiate themselves in some way from others.
- Networking was seen as the best way for MAMTC to attract new business.

KANSAS CITY, MO

- Participants suggested MAMTC provide information about other state or US government programs, in addition to providing consulting services.
- It was suggested that brochures be simplified and telephone number be made easier to find on MAMTC's printed materials.
- Companies felt MAMTC needed a more tangible focus to get their attention.

  "The only way to find out what you really need is to have someone probe and find out exactly. It would help to have a focus, to get someone in the door. Maybe it's honing down processes, or workers' comp insurance, or whatever, just some kind of thing that gets the attention, and then you can go from there."

ST. LOUIS

- Getting access to executives requires an "in" to the person involved.
- MAMTC should consider starting with a more closely defined target market in St. Louis.

  "To me it seems like you're just too broad ranging, and so, again, I may be wrong, but I automatically say they're just too diluted and they don't really have any true expertise in any of these areas. Maybe they're just trying to help companies that are getting started, to give them a general knowledge in all of these areas, but not have a detailed expertise in any one or ten areas."

- Providing audio tapes about MAMTC that executives could listen to in their cars was suggested.
- St. Louis firms preferred more advanced seminars than what MAMTC advertised.

  "That looks like cycle accounting 101, and if we weren't already past 101 and 201 and 301, we probably wouldn't be in business anyway, so we're needing a graduate course in cycle accounting."

- MAMTC staff need to be able to gear their approach to the geographic area as well as to corporate personality.

  "The approach you would use for the people in southern Missouri would be dramatically different from the people in mid-town St. Louis. You have to learn how to talk differently; it's just a different mentality, a different approach to doing business."

WICHITA

- Wichita firms were emphatic about the need for MAMTC to make direct personal contact with potential customers**.**

  "I don't know any other way of sales but to hoof it...I'd suggest that MAMTC read their own material, because I believe I'm quoting Ben Franklin and I believe I got that out of some of MAMTC's printed material. It says, 'Get eyeball to eyeball with the customer.' If you want the order, go and see them. If you don't want the order, mail them the information. I'm sure I read that in MAMTC materials, but I like it, and that's why I've been sharing it with our own salesmen! If you want the order, go! Ben said 'Go!' "

- There are many networking opportunities in Wichita through trade and manufacturing associations that MAMTC should exploit.
- Customers need to be continually reminded about what MAMTC can do, both for large and small jobs.

  "I can sit here and tell you right now that there's things that I've done in the last six months that MAMTC could have helped, and I didn't even think about them. Maybe I think about them, not for little problems, but for a major problem...Maybe I ought to put up a big sign that says 'Call MAMTC for all your problems, major or minor.' I'm sitting here tonight saying, 'I need to get hold of MAMTC tomorrow, because I've got some flow problems'..So, you've got a sale tonight!"

WYOMING

- Some wondered about the need for six offices in such a small state, while some were worried about resources being stretched too thin.
- Wyoming participants said they would meet with anyone who came through the door for at least five minutes.

  "I think that may be something that may be overlooked. Certainly in Cheyenne it wouldn't take long; you could go visit every manufacturer in town, in person."

- People in Wyoming do business based on relationships.

  "If they can sell one guy they've got a straight shot right down the list, because if they did a great job, it's not going to take any time at all to have everyone find out about it."

CONCLUSION

Overall, the focus groups demonstrated the importance of personal contact and face-to-face interaction in the marketing of services such as those provided by MAMTC. Within the focus groups, MAMTC users became advocates that encouraged non-users to try MAMTC, illustrating that MAMTC's satisfied customers are an invaluable asset. Focus group participants appeared to enjoy the discussions and to learn from each other, and they were supportive of MAMTC's efforts to strengthen its market position.

At the conclusion of one of the focus groups, a participant summarized this positive attitude towards MAMTC's regional market assessment:

> *"I would like to go on record saying I really appreciate what MAMTC is trying to do, which is to help American manufacturers become better at what they're doing. The government has got a lot of programs out there…I like what I see with MAMTC, in terms of really trying to help the economy. It's a good use of our tax dollars."* (Kansas City, KS)

Appendix I - Survey

DIRECTIONS - If your firm is part of a larger corporation, please answer questions as they pertain to your company operations in this state.

SECTION I - COMPANY PROFILE

1. *How many years has your company been in operation in this state?* _____

2. *How many people are employed at your facility?*

   1 to 19 ☐ 20 to 49 ☐ 50 to 99 ☐ 100 to 249 ☐ >250 ☐

3. *What is your projected level of total gross sales for 1997?*

   <$500,000 ☐ $500,000 to $999,999 ☐ $1.0 M to 4.9 M ☐ $5.0 M to $9.9M ☐ > $10.0 M ☐

4. *Indicate the markets where your company recorded sales in 1997. (Check all that apply)*

   Local ☐ Statewide ☐ Regional ☐ National ☐ International ☐

5. *Which best describes your company's expansion plans in the next three years?*

We plan to build additional facilities	☐	We will purchase additional facilities	☐
We will renovate current facilities	☐	We will not expand our current facilities	☐
We will rent or lease additional facilities	☐	We will reduce the size of our facilities	☐

SECTION II - CRITICAL ISSUES

1. *How important are each of the following issues to your company's advancement?*

	Critical	Important	Somewhat Important	Not Important
Hiring and retaining qualified employees	☐	☐	☐	☐
Marketing – promotion, analysis, research	☐	☐	☐	☐
Availability and cost of financing	☐	☐	☐	☐
Adapting to technology changes	☐	☐	☐	☐
Meeting quality standards	☐	☐	☐	☐
Cost control – including product liability	☐	☐	☐	☐
Training of employees	☐	☐	☐	☐
Addressing government regulations	☐	☐	☐	☐
Improvements in manufacturing and production	☐	☐	☐	☐
Development of new products	☐	☐	☐	☐
Maintaining and upgrading computers	☐	☐	☐	☐
Ability to offer price competitive products	☐	☐	☐	☐
Availability of quality suppliers	☐	☐	☐	☐
Selecting and implementing computer software	☐	☐	☐	☐

2. *Check which of the following best describes your company's business activity. (Check only one).*

We have too much business: capacity is strained	☐	We have too little business: excess capacity	☐
Business activity is just right	☐	Wide seasonal or cyclical variations in demand	☐

3. *Indicate the amount of change your company has incurred in the last three years in the following areas:*

	No Change				Significant Change
Manufacturing processes	1	2	3	4	5
Continuous quality improvement	1	2	3	4	5
Information systems	1	2	3	4	5
Market development	1	2	3	4	5
Business and financial systems	1	2	3	4	5
Management systems/human resources	1	2	3	4	5

SECTION III - COMPANY COMPETENCIES & MODERNIZATION PLANS

Please indicate the areas where your company plans to develop or improve its competencies. Please also indicate whether you will perform this work internally or use outside help.

1. *Continuous Quality Improvement*

	About your current competencies....			*If you plan to develop...*	
	Does not apply to our company	Our company already does this	We plan to develop in this area	We may use outside help	We will perform this work internally
Formal quality programs	☐	☐	☐	☐	☐
Implement Just-in Time production	☐	☐	☐	☐	☐
Quality assurance teams	☐	☐	☐	☐	☐
Statistical process control system	☐	☐	☐	☐	☐
ISO 9000 certification or equivalent	☐	☐	☐	☐	☐
CE Mark	☐	☐	☐	☐	☐

2. *Management Systems/Human Resources*

	About your current competencies....			*If you plan to develop...*	
	Does not apply to our company	Our company already does this	We plan to develop in this area	We may use outside help	We will perform this work internally
Dealing with government regulations	☐	☐	☐	☐	☐
Assessment of competencies/opportunities	☐	☐	☐	☐	☐
Setting and implementing goals	☐	☐	☐	☐	☐
Team building	☐	☐	☐	☐	☐
Incentive based pay systems or programs	☐	☐	☐	☐	☐
Locate assistance for short-term projects	☐	☐	☐	☐	☐
Formal employee development program	☐	☐	☐	☐	☐

3. *Market Development*

	About your current competencies....			*If you plan to develop...*	
	Does not apply to our company	Our company already does this	We plan to develop in this area	We may use outside help	We will perform this work internally
Updated market plan/strategy	☐	☐	☐	☐	☐
Customer communications/service	☐	☐	☐	☐	☐
Improve existing products	☐	☐	☐	☐	☐
Develop a new product	☐	☐	☐	☐	☐
Expand U.S. sales	☐	☐	☐	☐	☐
Begin or expand international sales	☐	☐	☐	☐	☐
Web site development and maintenance	☐	☐	☐	☐	☐
Develop and use new marketing methods	☐	☐	☐	☐	☐

4. *Business and Financial Systems*	*About your current competencies....*			*If you plan to develop...*	
	Does not apply to our company	Our company already does this	We plan to develop in this area	We may use outside help	We will perform this work internally
Business or strategic plan	☐	☐	☐	☐	☐
Inventory control systems	☐	☐	☐	☐	☐
Computerized accounting systems	☐	☐	☐	☐	☐
Cost systems	☐	☐	☐	☐	☐
Financing current operations	☐	☐	☐	☐	☐
Financing improved equipment and facilities	☐	☐	☐	☐	☐
Business re-engineering	☐	☐	☐	☐	☐
Financing expansion plans	☐	☐	☐	☐	☐

5. *Information Systems*	*About your current competencies....*			*If you plan to develop...*	
	Does not apply to our company	Our company already does this	We plan to develop in this area	We may use outside help	We will perform this work internally
Management Information System	☐	☐	☐	☐	☐
Electronic data interchange (EDI)	☐	☐	☐	☐	☐
Software/hardware selection	☐	☐	☐	☐	☐
Computer Aided Design/Manufacturing	☐	☐	☐	☐	☐
Access to and use of the Internet	☐	☐	☐	☐	☐
Computer systems maintenance	☐	☐	☐	☐	☐

6. *Plant Operations/Manufacturing*	*About your current competencies....*			*If you plan to develop...*	
	Does not apply to our company	Our company already does this	We plan to develop in this area	We may use outside help	We will perform this work internally
Effective production floor layout	☐	☐	☐	☐	☐
Automated material handling	☐	☐	☐	☐	☐
Environmental compliance program	☐	☐	☐	☐	☐
Safety program	☐	☐	☐	☐	☐
Cellular manufacturing	☐	☐	☐	☐	☐
Materials Resource Planning	☐	☐	☐	☐	☐
Computer Numerical Control	☐	☐	☐	☐	☐
Information on new techniques	☐	☐	☐	☐	☐
Setup reduction/quick changeover	☐	☐	☐	☐	☐
Bar coding	☐	☐	☐	☐	☐

SECTION IV - EXTERNAL ASSISTANCE ISSUES

1. *When you use outside help which methods do you use for identifying management or technical assistance resources? (Check all that apply.)*

Referrals from other users of the service	☐	Telemarketing call	☐
Internet	☐	Ad in trade/business publication	☐
Ad or article in a newspaper	☐	Trade show exhibit	☐
Telephone book or directory listing	☐	Article in trade/business publication	☐
Introductory materials by direct mail	☐	Personal contact with company	☐

2. *Which of the following would be your preferred method for receiving information or the help?*

Group instruction	☐	Promotional literature	☐
Confidential consultation	☐	Communications with peers	☐
Other _____	☐		

3. *Rate the importance of the following factors in identifying and selecting external management or technical consulting services.*

	Important				Not Important
Referrals from other users of the service	1	2	3	4	5
Personal recommendation from trusted source	1	2	3	4	5
Cost of service	1	2	3	4	5
Academic credentials of personnel	1	2	3	4	5
Experience in my specific industry	1	2	3	4	5
Close to my location	1	2	3	4	5
Time to complete project	1	2	3	4	5

4. *How often has your company used the following outside sources of assistance in the past five years?*

	More Than Four Times a Year	One to Four Time a Year	Seldom	Not at All
Private consulting firm	☐	☐	☐	☐
University or community college program or faculty	☐	☐	☐	☐
Suppliers/vendors	☐	☐	☐	☐
Trade associations	☐	☐	☐	☐
Business incubator	☐	☐	☐	☐
Small Business Administration	☐	☐	☐	☐
Small Business Development Center	☐	☐	☐	☐
Mid-America Manufacturing Technology Center	☐	☐	☐	☐
State or local agencies	☐	☐	☐	☐

5. *Check your level of satisfaction with each type of assistance that you have used in the past five years.*

	Satisfied			Not Satisfied
Private consulting firm	1	2	3	4
University or community college program or faculty	1	2	3	4
Suppliers/vendors	1	2	3	4
Trade associations	1	2	3	4
Business incubator	1	2	3	4
Small Business Administration	1	2	3	4
Small Business Development Center	1	2	3	4
Mid-America Manufacturing Technology Center	1	2	3	4
State or local agencies	1	2	3	4

6. *Indicate which statement best represent your company's opinion about professional service fees: (Check only one)*

We usually ask for bids and take the lowest price	☐
Getting the job done right is more important than cost of service	☐
We often look for free advice or rely on low cost government assistance programs	☐
We expect to pay a fair market rate	☐
We do not use outside consultants because we cannot afford to pay them	☐
We ask for bids and take the best value for the price	☐

SECTION V - STAFF DEVELOPMENT AND ORGANIZATIONAL NEEDS

1. *What classifications of employees do you have difficulty recruiting: (Check all that apply).*

Production employees	☐	Engineers	☐	Sales/marketing staff	☐
Technicians	☐	Production supervisors	☐	Clerical/office staff	☐
Information systems staff	☐	Business managers	☐	Other_____	☐
We seldom have problems finding help	☐				

2. *Check each area where your company might use external providers of educational programs for staff development: (Check all that apply).*

Adult basic education (reading, writing, arithmetic etc.)	☐	Quality programs	☐
Workplace skills (communication, teamwork, decision making, etc.)	☐	Management training	☐
Computer programming or maintenance	☐	Environmental compliance	☐
Advanced manufacturing techniques	☐	Other_____	☐
Shop floor management processes	☐		

3. *Check your <u>three</u> most preferred formats for staff training from outside providers:*

Customized off-site training	☐	Self-study printed material	☐	Internet	☐
Customized on-site training	☐	One day seminar	☐	Series of daily classes	☐
Multi-day conferences	☐	Cable or satellite TV	☐	Series of weekly classes	☐
Partial day workshops	☐	Video or CD-ROM	☐	We seldom use external sources	☐

Thank you for completing this survey. Please return in enclosed postage paid return envelope.

If you have questions please contact
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Campus Box 420
Boulder, CO 80309-0420
Phone: 303.492.8395
Fax: 303.492.3620

PLEASE RETURN COMPLETED SURVEYS BY FEBRUARY 27, 1998

Survey of Manufacturing Companies

Please take a few minutes to complete and return this survey as it relates to your business in 1997. The questions ask about your company's current competencies, your plans to modernize and expand, and areas where you will need to draw on expertise outside your own firm. The purpose of the survey is to identify the needs and enhance the competitiveness of small and mid-size manufacturers in Kansas, Missouri, Colorado, and Wyoming.

All responses will be kept completely confidential. The results of this survey will be used in aggregate form to help identify and target resources to best help small and mid-size manufacturers in their four-state service area.

This four-state survey is being conducted by a joint research team from the *University of Colorado, Business Research Division and the University of Kansas, Institute for Public Policy and Business Research.* You will be able to easily return your information following the mail instructions in the back section.

Thanks in advance for returning this survey. We know your help will lead to resources that can better meet your needs.

PLEASE RETURN COMPLETED SURVEYS BY FEBRUARY 27, 1998