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ABSTRACT

For the past 8 years, Minnesota technical colleges have been offering customized training services to the state's employers. To gather data on what kinds of organizations use custom training (CT) programs, the State Board of Technical Colleges surveyed 600 public and private employers that had used CT services through at least one of the system's six colleges during the 1993 academic year. Study findings, based on a 71% response rate, included the following: (1) CT clients employed more than 400,000 Minnesotans, with a total payroll exceeding $10 billion and total capital expenditures of $1.4 billion; (2) nearly two-thirds of private CT clients were part of larger corporations and operated as either branch plants, affiliates, or headquarters; (3) compared to Minnesota as a whole, CT clients employed a significantly larger proportion of professionals, technicians, precision production workers, and laborers; (4) CT clients exhibited faster employment growth, lower rates of employee turnover, and greater levels of investment and output per worker than their counterparts; (5) more than 4 million hours of training were provided at a cost of more than $100 million; (6) one of every seven training dollars was invested by respondents in CT, with 43% of respondents indicating that CT was the largest component of their training investment portfolio; and (7) 60% of clients reported that their use of CT was associated with the introduction or improvement of existing procedures. (MAB)

MINNESOTA CUSTOM TRAINING:

WHO IS BEING SERVED AND WHAT ROLE DOES CUSTOM TRAINING PLAY IN THE WORK ENVIRONMENT?

Findings From The Minnesota Work Environment Pilot Survey

Prepared For

Minnesota State Board of Technical Colleges

HUMAN CAPITAL RESEARCH CORPORATION

August 10, 1994

MINNESOTA CUSTOM TRAINING: WHO IS BEING SERVED AND WHAT ROLE DOES CUSTOM TRAINING PLAY IN THE WORK ENVIRONMENT?

Key Findings

- In 1993, custom training clients employed more than 400,000 Minnesotans, with a total payroll exceeding $10 billion and total capital expenditures of $1.4 billion.

- Nearly two-thirds of private custom training clients are part of larger corporations and operate as either branch plants, affiliates or headquarters. The remaining 35 percent are independently owned single-site establishments.

- Compared to the state of Minnesota as a whole, custom training clients employ a significantly larger proportion of professionals, technicians, precision production workers and laborers.

- Custom training clients exhibit faster employment growth, lower rates of employee turnover and greater levels of investment and output per worker then their industry counterparts.

- In aggregate, custom training clients annually provide more than 4 million hours of training at a cost of more than $100 million -- more than 1 percent of total payroll. On average, 47 percent of all workers employed by CT clients received eight or more hours of formal training in 1993.

- CT clients report a relatively high incidence of training among front-line (production/administrative) workers as well as among managers and professionals. With the exceptions of production supervisors and managers, CT clients consistently rank job-specific training as the their highest training priority for all major occupational groups.

- For CT clients, one of every seven training dollars is invested in custom training. For 43 percent of all CT clients, custom training is largest component of their training investment portfolio.

- 60 percent of all CT clients report that their use of custom training was associated with the introduction or improvement of existing work processes or procedures. Nearly 50 percent of all private sector clients and 82 percent of all public sector clients use custom training to help meet government regulatory requirements. Half of all private sector clients and 43 percent of all public clients report that custom training is an integral part of their strategic plan.

- Nearly half of all custom training clients plan to introduce new productivity/quality initiatives in 1995 or have recently established new initiatives.

MINNESOTA CUSTOM TRAINING: WHO IS BEING SERVED AND WHAT ROLE DOES CUSTOM TRAINING PLAY IN THE WORK ENVIRONMENT?

Findings From the Minnesota Work Environment Pilot Survey

INTRODUCTION

To adequately prepare for and invest in our future, Minnesota educators and employers need to establish stronger linkages between college curricula and the work environment. To achieve that objective, Minnesota educators must collaborate with industry to establish channels of communication and a shared understanding of critical workforce skills. Although the success of educators and employers are inextricably tied together, there is surprisingly little dialogue to ensure that what is taught in the classroom not only meets standards of entry into the labor force but leads organizations at all levels to be world class competitors and all participants to fulfill the promise of their own potential.

Beginning eight years ago, Minnesota's technical colleges engaged in a quiet revolution to more effectively serve the training needs of industry and government. Under custom training services, technical colleges and employers have developed an active partnership to meet the specific training needs of individual organizations. Last year alone, more than 2,000 public and private establishments worked with technical colleges to design and deliver custom training programs.

Despite the scale and scope of custom training, our collective understanding of how custom training fits in to the larger training and work environment puzzle has been limited. To better understand what kinds of organizations use custom training and the role of custom training in the high performance work environment, the Minnesota State Board of Technical Colleges piloted a survey of 600 public and private employers that used custom training during the 1993 academic year at one or more of six technical colleges. Seventy one percent of all employers in the sample responded to the survey. (Exhibit 1)

EXHIBIT 1

Number of Survey Respondents, By College
N=427

	Alexandria	Anoka	Duluth	Hennepin County	Riverland	Southwest
Custom Training Clients	46	92	10	83	104	92

PURPOSE

The purpose of this research is not to provide definitive "bottom-line" numbers concerning the economic return of custom training -- although that is clearly a long-term research objective--but rather to answer three basic questions:

1. **Who uses custom training** -- What kinds of organizations and industries do custom training clients represent?

2. What are the key characteristics of the custom training client's work environment -- To what extent, if any, are custom training clients high performance work organizations?

3. What role does technical college custom training play in the employer's investment in human capital and the advancement of the employer's competitive position?

WHO USES CUSTOM TRAINING?

Custom training (CT) serves a highly diverse population of businesses and **government agencies.** That diversity is reflected in terms of economic activity, establishment size, organization control, and employment staffing patterns.

Industry Composition, Employment and Payroll

Exhibit 2 compares the distribution of respondents by establishment size and sector[1]. Survey respondents are almost evenly divided between state and local government, goods producing and service providing industries. Although government represents the largest number of respondents, the public sector is dominated by small establishments. More than three-fourths of all public clients have fewer than fifty employees compared with 38 percent for goods producing clients and 53 percent for those in the service sector. In aggregate, custom training clients employed more than 400,000 workers in Minnesota in 1993.

Consistent with the variation in establishment size, 1993 payroll for custom training clients ranged from under $20,000 to $50,000,000. For private establishments, median payroll was approximately $1.5 million. For public sector clients median payroll was approximately $303,000. In 1993, custom training clients represented a combined Minnesota payroll of more than $10 billion. On average, payroll per CT client employee is $23,740 which closely matches the average worker payroll for all Minnesota employees.

EXHIBIT 2

Distribution of CT Clients By Major Sector and Employment Size Class
(Each Row Adds To 100%)

	1-49 Employees	50-99 Employees	100-249 Employees	250-499 Employees	500+ Employees
Government Agencies (N=159)	77%	8%	6%	3%	6%
Goods Producers (N=144)	38%	13%	24%	12%	14%
Service Sector (N=120)	53%	18%	18%	5%	8%

[1] See Appendix C for a detailed discussion concerning the industry mix and establishment size of custom training clients.

Organization Control

Among private custom training clients, nearly two-thirds are part of larger corporations and operate as branch plants, affiliates or headquarters. (Exhibit 3). The remaining 35 percent are independent single-site establishments which are typically smaller and less capitalized.

The extent to which employers invest in training is strongly related to organization control. Branch operations, for example, are often subject to outside corporate policies and may be constrained in their ability to initiate changes in certain work practices. While independent establishments may have greater latitude, they may also have fewer resources to invest in training.

EXHIBIT 3

Distribution of Private Sector Respondents, By Organization Control

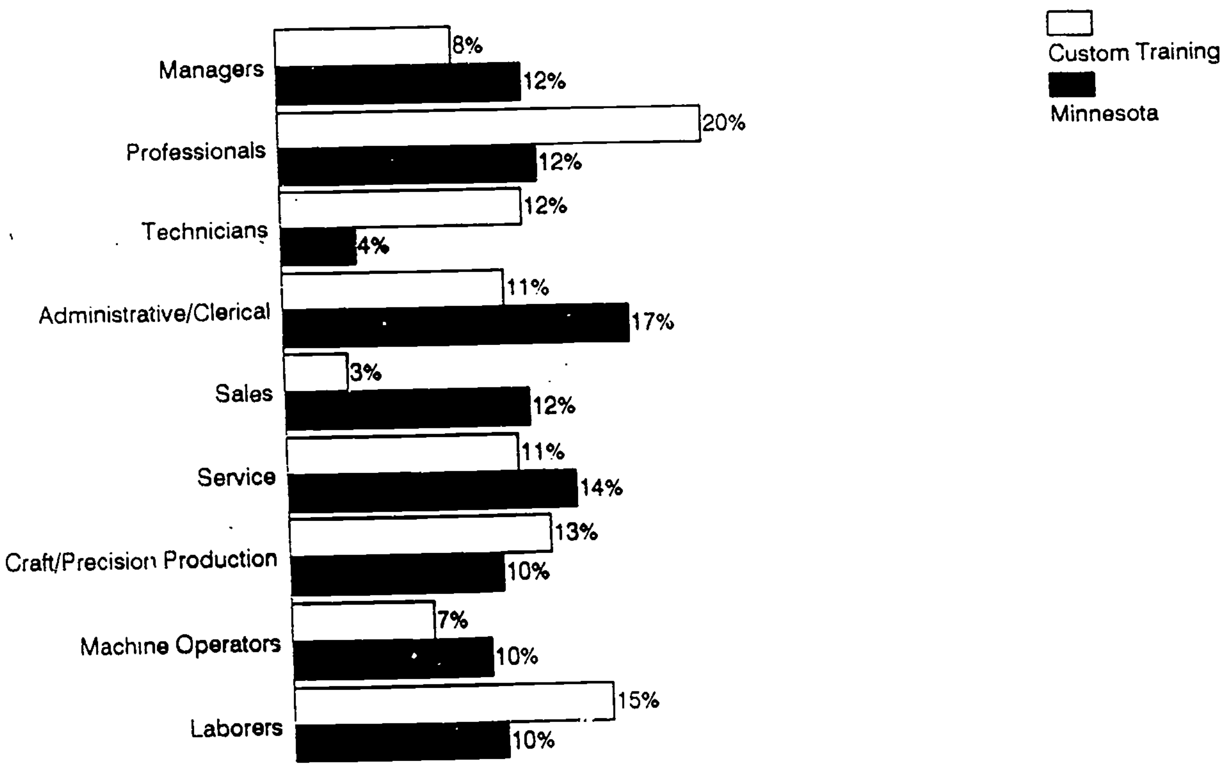
	Single Site Independent Establishment	Single Site Corporate Affiliate	Branch Location of Multi-Site Company	Corporate Headquarters, Administrative, Auxiliary or Other
Share of Total Sector Clients	35%	12%	31%	22%
Median Number of Employees	39	65	111	31

Employee Staffing Patterns

Custom training client staffing patterns vary with industry and establishment size. Employment staffing patterns significantly affect the total investment organizations make in training because the incidence of training varies substantially by type of occupation. In aggregate, custom training clients employ workers in all major occupational groups. Compared with the state as a whole, CT clients, in aggregate, employ a significantly larger proportion of professionals, technicians, precision production workers and laborers.[2] By contrast, Minnesota's employed labor force has a greater proportion of sales, service and clerical workers and machine operators. Exhibit 4a compares the distribution of employment by major occupational group for custom training clients and the state as a whole. Exhibits 4b and 4c compare the employment distribution of small and large employers by sector.

EXHIBIT 4a

Distribution of Employment by Occupational Group: Minnesota and Custom Training Clients



[2] Bureau of Labor Statistics. 1993 - Geographic Profile of Employment and Unemployment.

EXHIBIT 4b

Employment Distribution by Occupational Group and Size Class for Public Sector Clients

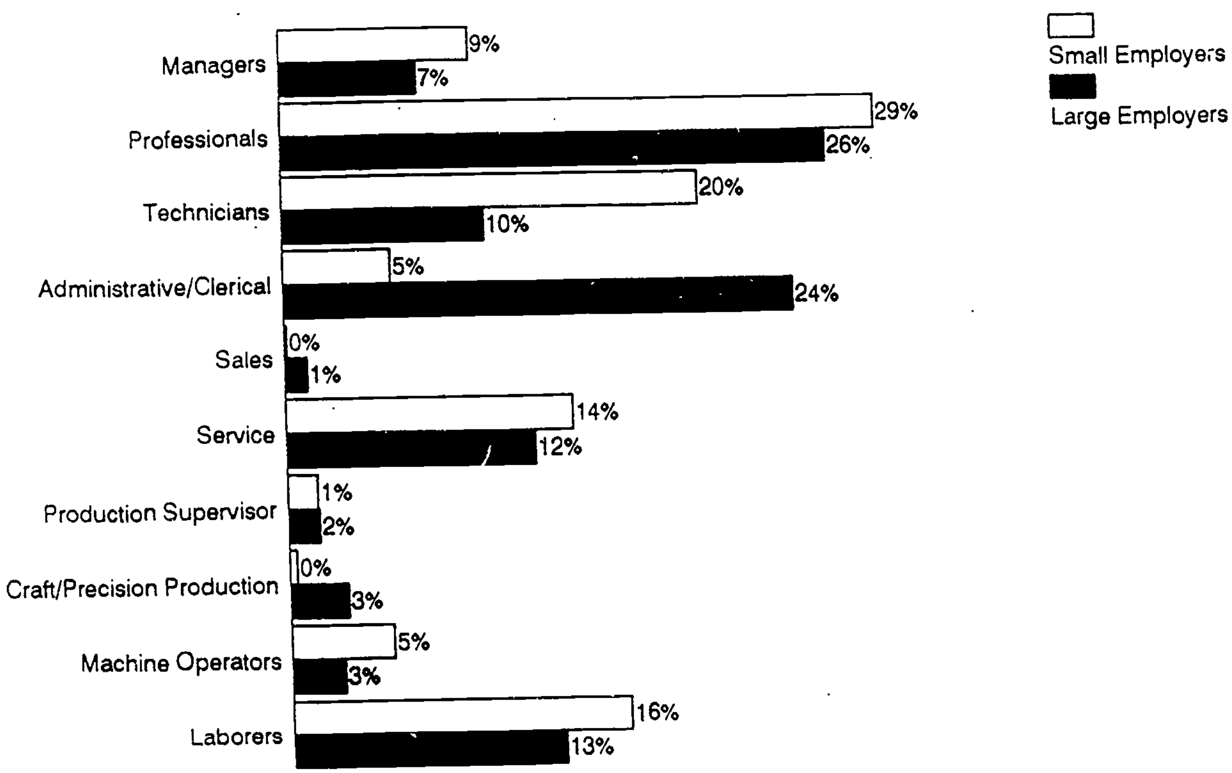
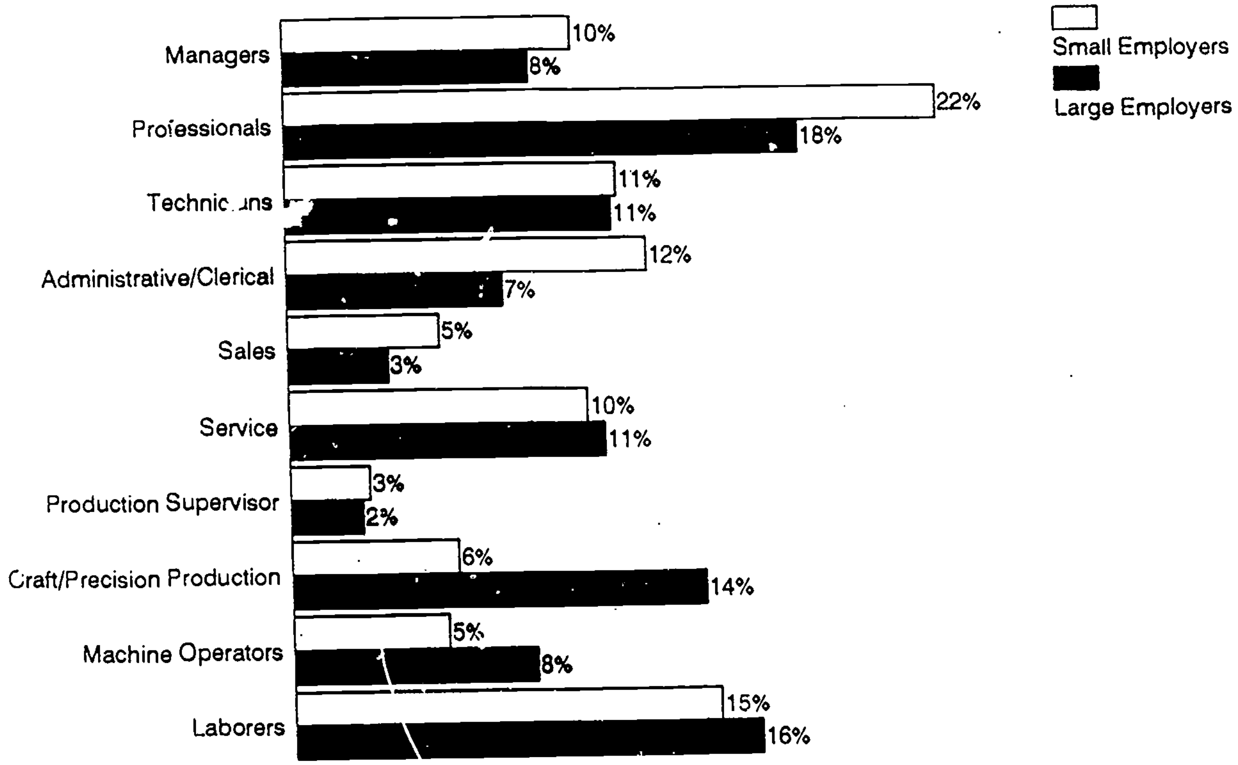


EXHIBIT 4c

Employment Distribution by Occupational Group and Size Class for Private Sector Clients



KEY CHARACTERISTICS OF CT CLIENTS' WORK ENVIRONMENT

While custom training clients are representative of Minnesota's economic base in terms of industry composition and establishment size, as a group these employers exhibit staffing, investment, and performance traits that place them in leadership positions relative to the state economy as a whole.

To better understand how the work environments of custom training clients vary, we have developed a non-evaluative framework that differentiates CT clients based on their involvement with various productivity/quality initiatives including progressive compensation practices, teams, quality programs, formal and on-the-job training practices, job redesign and re-engineering. Under this framework, CT public and private clients can be categorized as "progressive," "moderate," and "less progressive."[3] Exhibit 5 shows the distribution of CT clients and median number of employees by type of work environment.

EXHIBIT 5

Distribution of CT Clients and Median Number of Employees By Work Environment

Economic Sector	Less Progressive	Moderate	Progressive
Private	68	71	64
Public	63	62	54
Median Number of Employees	Less Progressive	Moderate	Progressive
Private	61	72	98
Public	30	25	29

[3] See Appendix A for a detailed description of the work environment performance framework and criteria.

Exhibit 6 compares utilization of productivity-quality activities using the above framework. For the twelve practices identified, progressive employers consistently show a higher incidence than their moderate or less progressive counterparts. On average, progressive employers were from two to three times as likely to use continous improvement teams, employee skills/needs assessment and total quality management programs. Progressive employers are also more than three times as likely to engage in job redesign and pay for knowledge initiatives as their counterparts. While CT clients exhibit a wide variation in work environments, it is important to recognize that 96 percent of all organizations in our sample are engaged in two or more key productivity/quality related practices.

EXHIBIT 6

Utilization of Selected Quality/Productivity Practices By Type of Work Environment (Percent of Employers Who Use Practice Throughout The Organization)

	Less Progressive	Moderate	Progressive
On-the-job training and instruction	59%	76%	89%
Formal training and instruction	41%	71%	83%
Employee skills/Needs assessment	19%	43%	68%
Continuous Improvement Teams	19%	28%	62%
Total Quality Management	10%	32%	57%
Self-managed work teams	13%	18%	31%
Job redesign/re-engineering	10%	13%	34%
Semi-autonomous work teams	7%	13%	27%
Pay for knowledge compensation	0%	7%	26%
Employee Ownership	1%	9%	13%
Risk/Reward (Productivity-based) compensation	3%	4%	13%
ISO-9000	1%	4%	8%

Relationship Between Employer Work Environment and Organization Performance

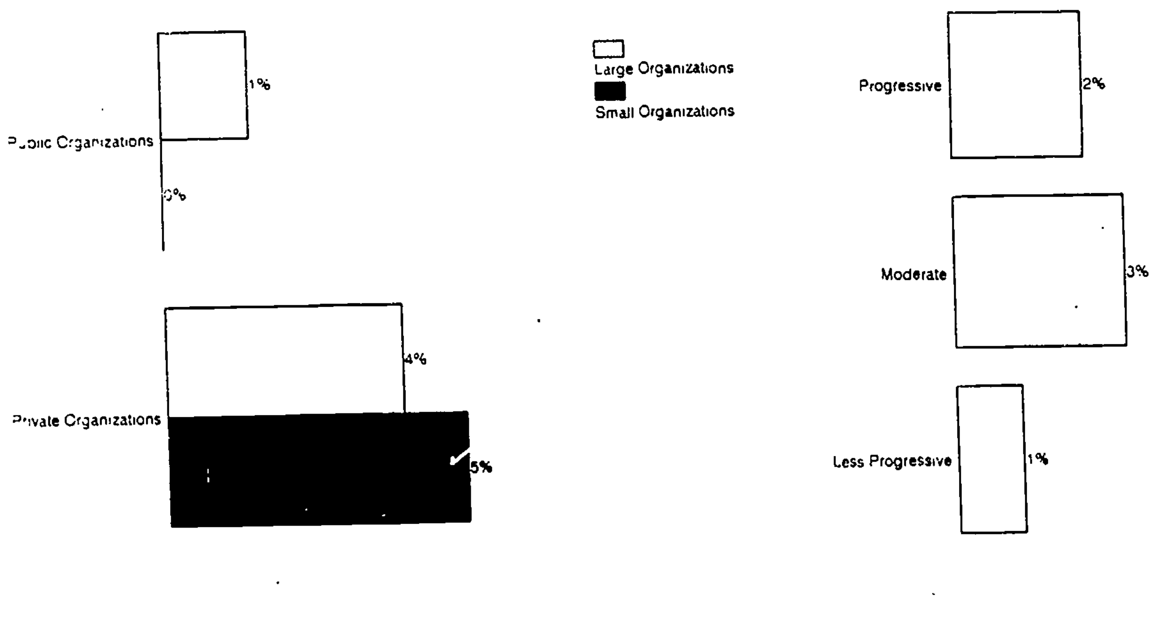
To further understand custom training, Exhibits 7 through 10 compare CT clients in terms of employment growth, employment turnover, capital investment and geographic markets served. As a group, custom training clients, exhibit faster growth, lower rates of turnover and greater levels of investment and output per worker than their industry counterparts. Because a substantial share of their revenues come from out of state sources, custom training clients also represent an important source of export income for Minnesota. To the extent that these various characteristics are reflected by the larger population of custom training clients, this "sector" of Minnesota's economy represents a significant source of state economic growth.

Employment Growth

Between 1988 and 1993, employment for private sector CT clients increased at an average annual rate of 4 percent compared with 2.2 percent for Minnesota's private sector as a whole. For public sector CT clients, employment remained virtually unchanged during this period, while Minnesota state and local government employment increased at an annual average rate of 2 percent. In general, progressive employers in the private sector reported faster rates of growth than their moderate or less progressive counterparts. By contrast, progressive clients in the public sector were more likely to report smaller employment increases. (Exhibit 7).

EXHIBIT 7

**Annual Percent Change in Employment from 1988 to 1993
By Sector and Type of Work Environment**

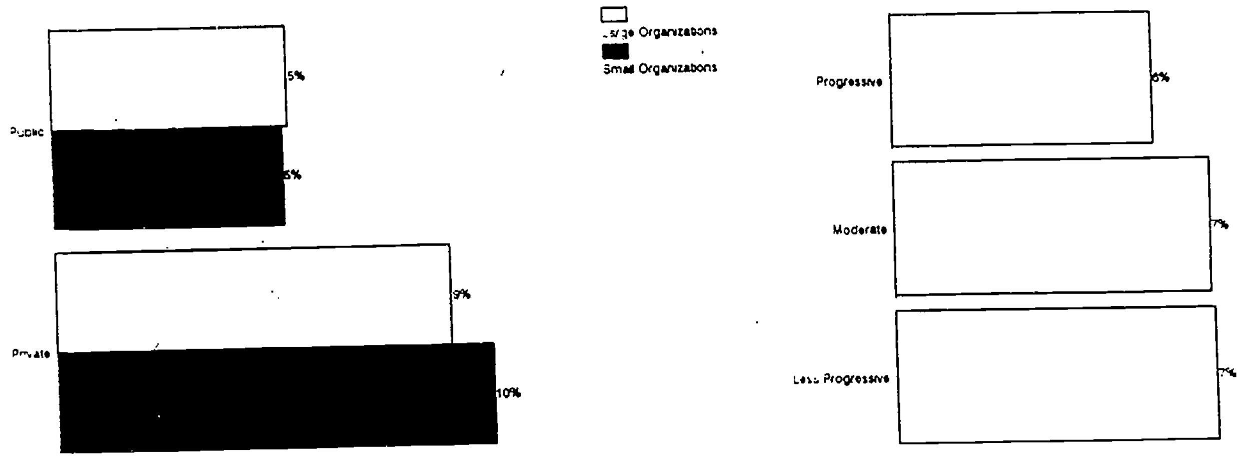


Employment Turnover

Retention of employees is crucial if employers are to realize the return on their training investment. For 1993, CT clients reported an average turnover rate[4] of 7 percent (Exhibit 8). This rate compares favorably with national turnover estimates (Minnesota data is not available) which typically range from 11 to 19 percent depending on the industry and establishment size[5]. Expressed in terms of job tenure, employment turnover for CT clients implies an average job tenure of 14 years which is approximately double the national average.

EXHIBIT 8

Employer Turnover Rate by Sector, Employment Size Class and Work Environment



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4 Number of permanent workers who separated from the organization divided by the total number of permanent employees

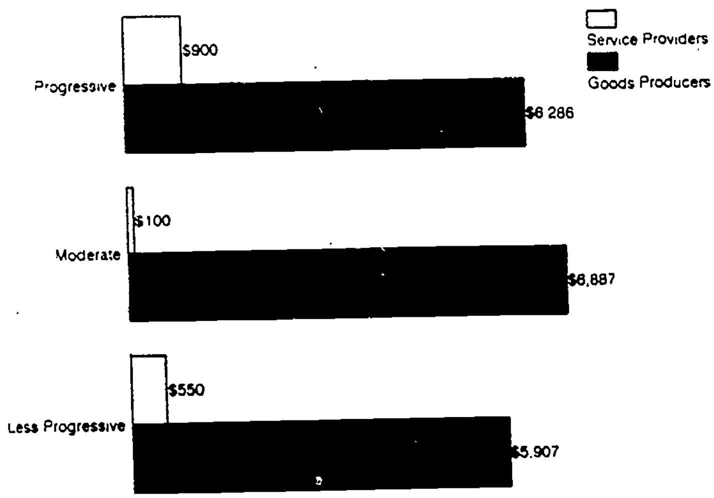
5 Bureau of Labor Statistics, Francis Horvath, U.S. Occupational Tenure Statistics, Unpublished Data, 1992, Bureau of Labor Statistics, U.S. Labor Turnover Rates, Monthly Labor Review, November 1980; Administrative Management Society; Industry Turnover Statistics, 1986;

Capital Investment

Capital expenditures for new equipment vary widely depending on industry and establishment size. In manufacturing, custom training clients invest an average of $6,340 per employee for new capital equipment compared with $5,300 for all Minnesota manufacturers. For service industries, CT clients invest an average of $830 per employee. Comparable state data is not available.[5] (Exhibit 9) In aggregate, CT clients invested more than $1.4 billion in new capital expenditures in 1993.

EXHIBIT 9

Private Sector Capital Expenditures Per Employee by Major Industry Group



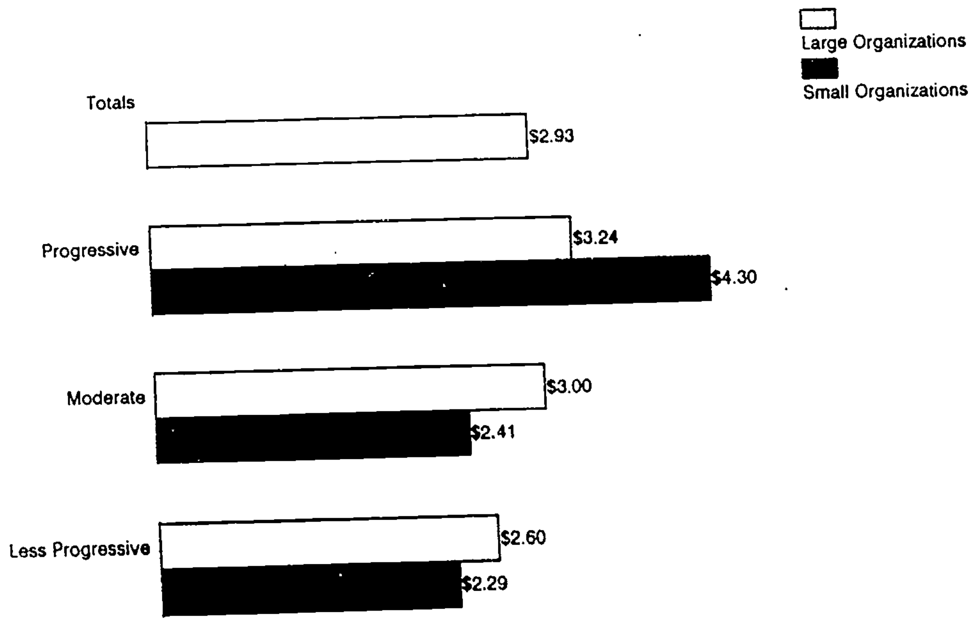
[5] U.S. Department of Commerce, 1992 Annual Survey of Manufacturers, State Series Data.

Revenue Per Dollar of Payroll

On average, private sector clients report $3 dollars in revenue per dollar of payroll with progressive employers reporting greater revenues per dollar of payroll than their moderate or less progressive counterparts. Because revenues do not represent value added, this ratio is not a valid measure of worker productivity. Nonetheless, greater revenues per dollar of payroll is a characteristic of a healthy competitive position, (Exhibit 10)

EXHIBIT 10

Revenue Per Dollar of Payroll



Markets Served

For state and national economies, export income represents a fundamental source of economic growth. On average, custom training clients in manufacturing derive 60 percent of total industry revenues from outside Minnesota with 5 percent serving foreign markets. For service provider clients, out-of-state revenues represent 14 percent of total income. In general, progressive clients serve a wider market range than less progressive companies. (Exhibits 11a and 11b).

EXHIBIT 11a

Distribution of Industry Revenues By Geographic Market

Market	Goods Producers	Service Providers
Minnesota	40%	79%
Mid-West	23%	16%
Rest of U.S.	32%	5%
Foreign	5%	0%
Total Revenues	100%	100%

EXHIBIT 11b

Distribution of Industry Revenues By Type of Work Environment

Market	Less Progressive	Moderate	Progressive
Minnesota	71%	71%	58%
Mid-West	9%	14%	15%
Rest of U.S.	19%	13%	23%
Foreign	1%	2%	3%
Total Revenues	100%	100%	100%

THE ROLE OF TRAINING

Directly or indirectly, all productivity and quality initiatives require additional skill development and hence the necessity to invest, in one form or another, in worker training. For custom training clients, skill development is an integral part of the work environment. In aggregate, custom training clients provided more than 4 million hours of training to Minnesota employees in 1993 at a cost exceeding $100 million or more than 1 percent of total client payroll.

The level of investment employers make in employee training varies by industry, organizational control, establishment size and staffing. Overall, training investments are strongly correlated with the type of work environment employers provide. For our sample of CT clients, progressive employers, as a group, provided 33 percent more hours of training per worker and invested almost twice as much per employee than their moderate or less progressive counterparts. (Exhibits 12a and 12b)

EXHIBIT 12a

Median Training Hours Per Employee By Sector and Type of Work Environment

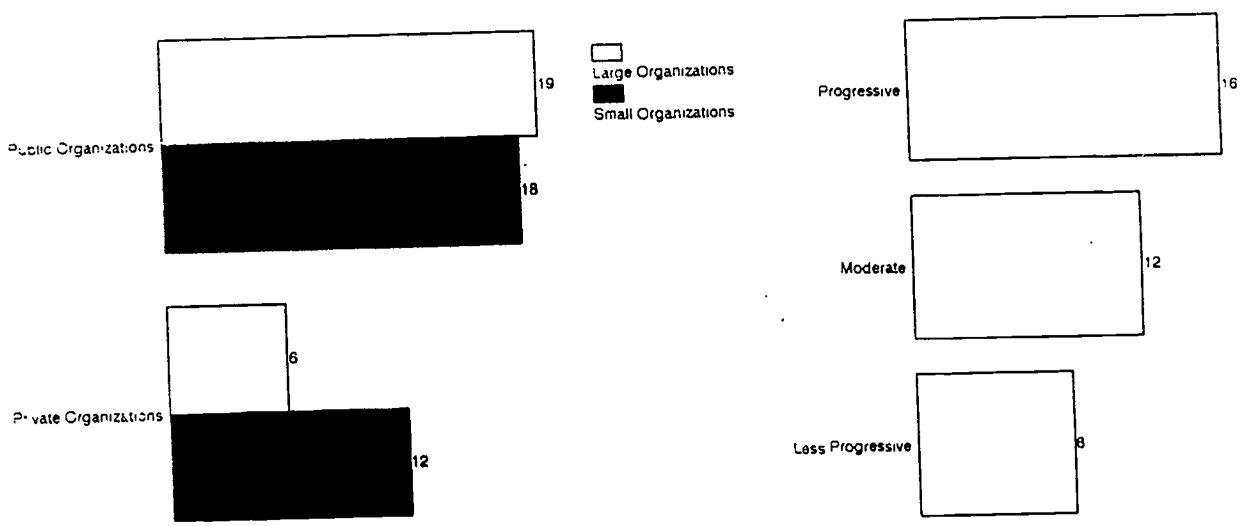
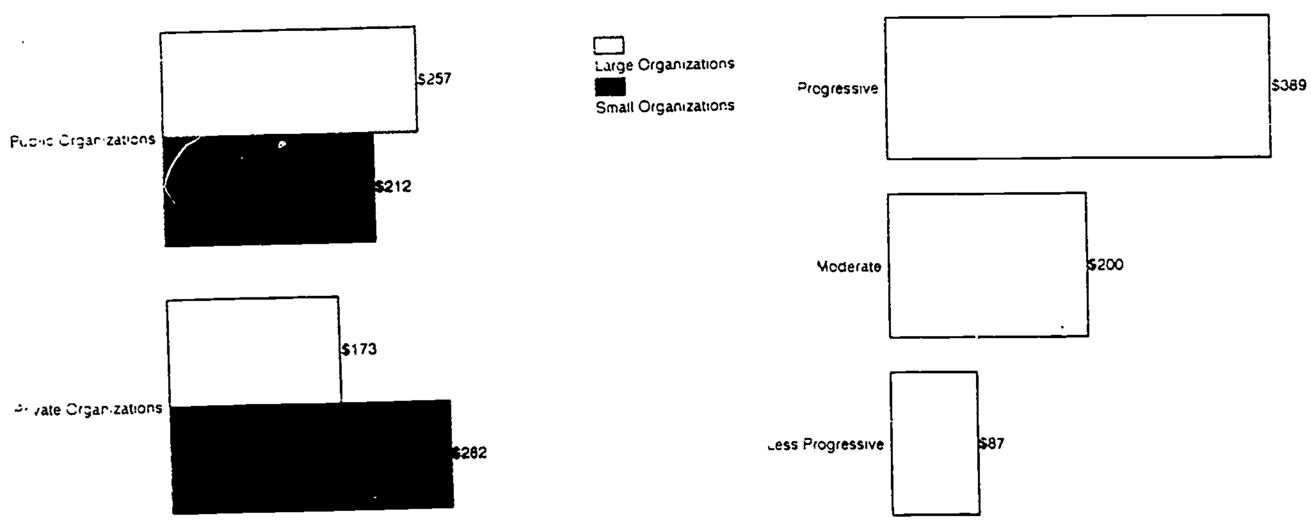


EXHIBIT 12b

Median Training Expenditure Per Employee By Sector and Type of Work Environment

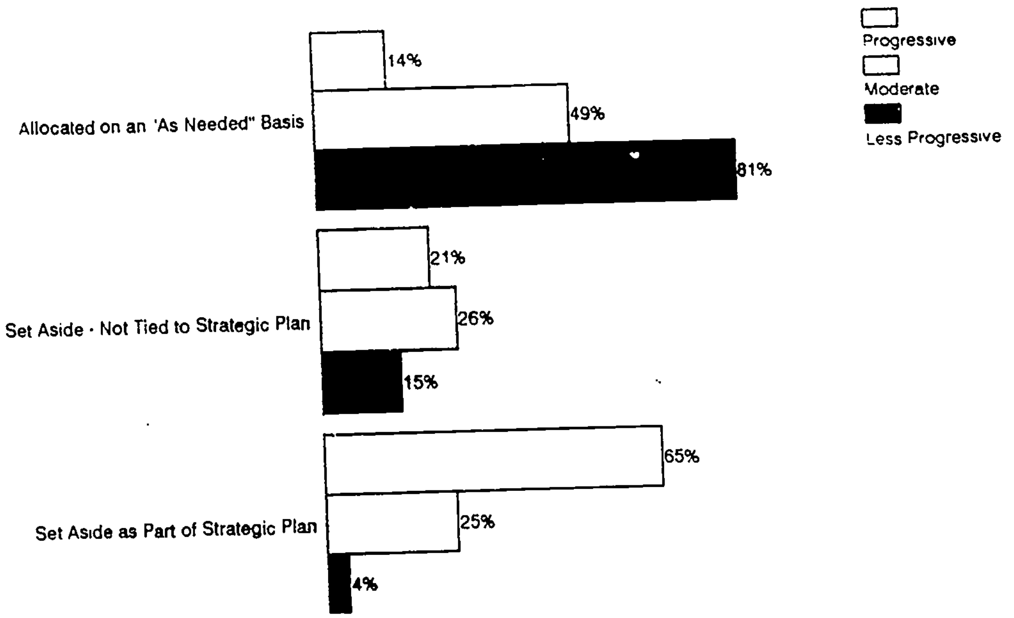


How Training Resources Are Allocated

How training resources are allocated is as significant as an employer's level of investment. By linking training resources to strategic objectives, employers are better able to direct resources to their highest possible return. By contrast, training investments which are not linked to strategic objectives are less likely to serve long-term critical needs and may not reach those workers who would benefit the most. Among the sample of CT clients surveyed, nearly one-third of all employers allocate training dollars as an integral part of their strategic plan. Another 21 percent annually set aside resources specifically for training, but do not tie the investment to a strategic plan. Finally, 47 percent of CT employers allocate training dollars essentially on an "as needed" basis. On average, progressive employers are nearly three times as likely to allocate resources as part of a plan as their less progressive counterparts. (Exhibit 13)

EXHIBIT 13

Employer Basis for Allocation of Training Resources By Type of Work Environment

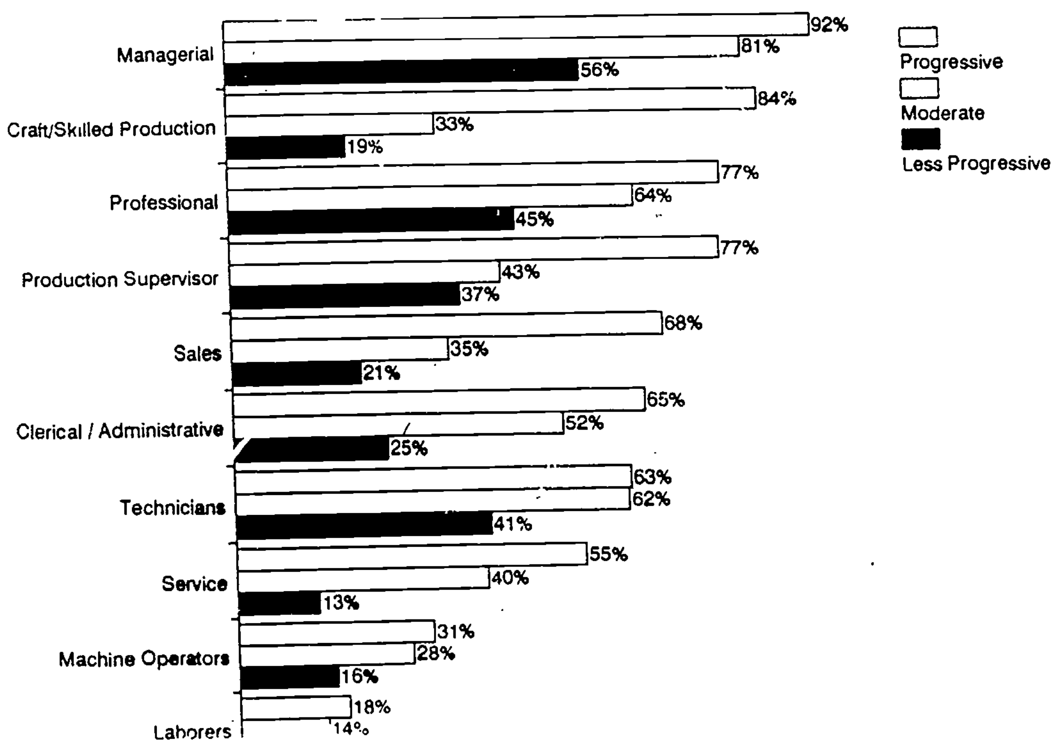


Who Receives Training

Consistent with several national training studies, including a widely cited 1991 benchmark survey conducted by the U.S. Bureau of the Census,* occupations that typically require higher levels of education attainment such as managerial and professional specialty positions are the most likely recipients of employer sponsored training. In contrast with national data, however, technical college custom training clients report a relatively high incidence of training among front-line workers as well. On average, 47 percent of all workers employed by CT clients receive eight or more hours of formal training, but for those workers employed in progressive work environments, the incidence of training is more than double the group average. Precision production, sales, and clerical workers employed in progressive work environments are from two to four times as likely to receive training as their moderate or less progressive counterparts. (Exhibit 14) Investing in all workers represents one of the most distinguishing features of the higher performance work environment.

EXHIBIT 14

Proportion of Employees Who Received Eight or More Hours of Formal Training in 1993 By Major Occupational Group and Type of Work Environment



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* U.S. Department of Commerce, Bureau of Labor Statistics, How Workers Receive Their Training, 1992

The challenges educators face in meeting industry training needs and the necessity for a sustained dialogue is reflected by the proportion of employers that identify occupation specific training as their top training priority. With the exceptions of production supervisors and managers, job specific training consistently ranks as the highest training priority for all other major occupational groups. (Exhibits 15a and 15b). This employer focus on meeting the specific needs of individual occupations reaffirms the importance of custom training as a provider of user-defined services.

EXHIBIT 15a

CT Client Highest Ranking Training Priorities, By Major Occupational Group

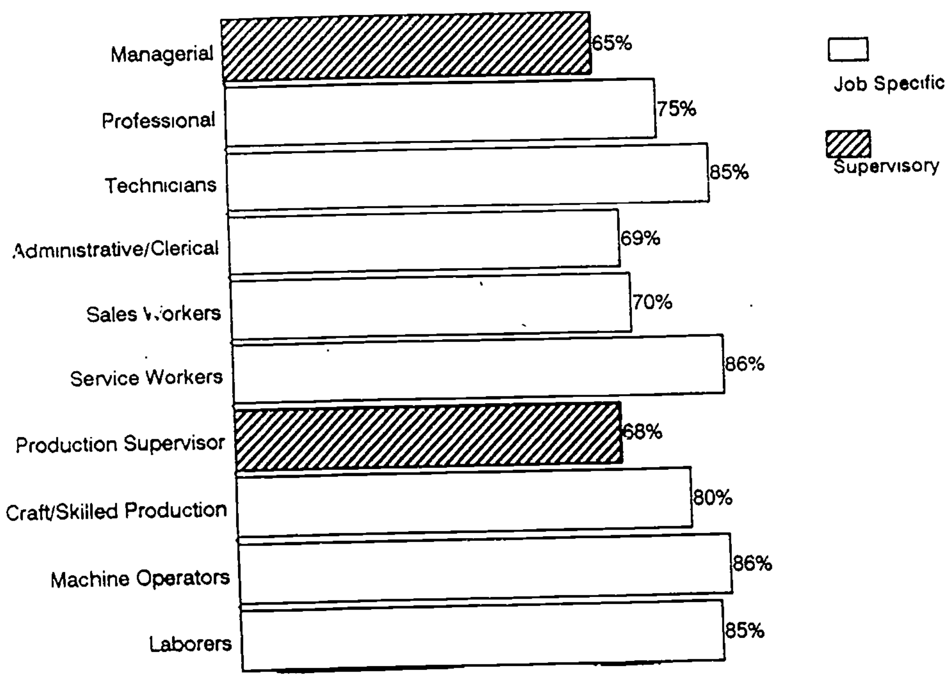
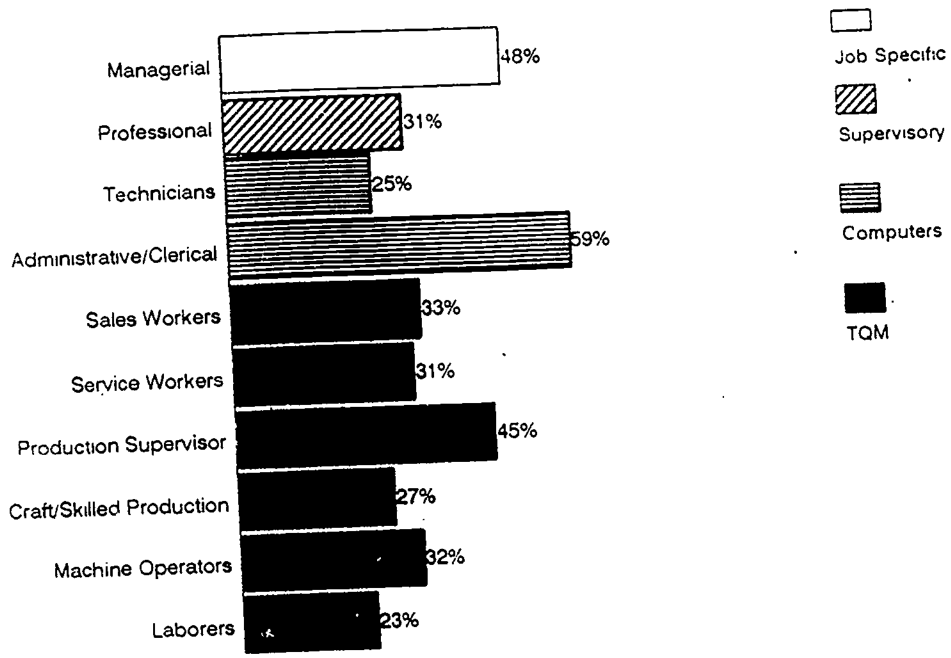


EXHIBIT 15b

CT Client Second Highest Ranking Training Priorities, By Major Occupational Group



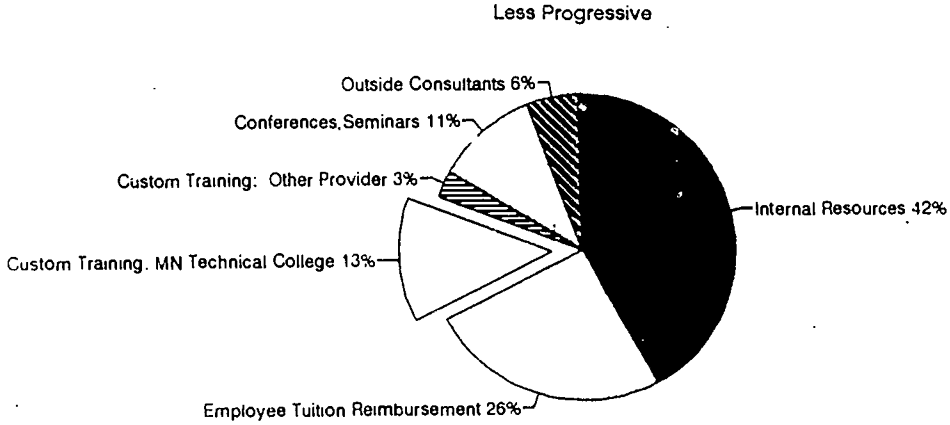
THE ROLE OF CUSTOM TRAINING

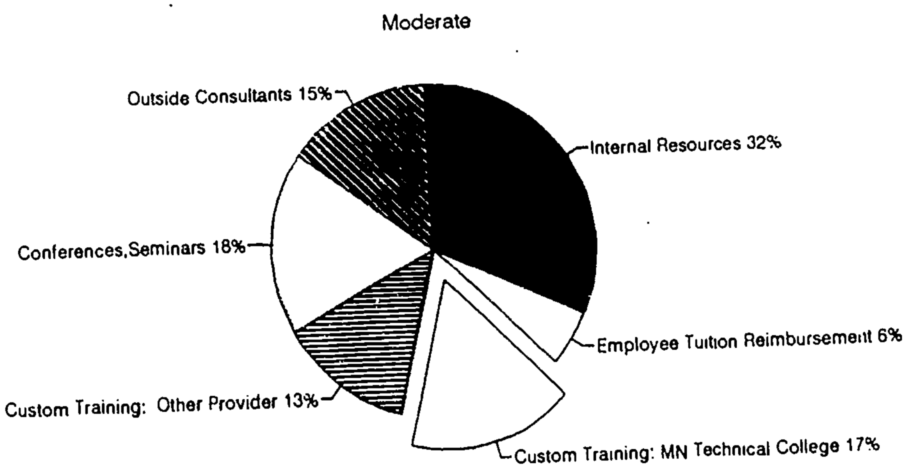
Minnesota employers potentially benefit from a wide range of external training providers including conferences and seminars (increasingly delivered on-line), private consultants and more than 100 post-secondary institutions. To help meet their diverse training needs, custom training clients tend to draw on all of these resources. Remarkably, however, Minnesota post-secondary education represents one-third of total training expenditures with custom training representing the largest share of that segment (more than 40 percent). On average, custom training accounts for one seventh of total client training expenditures.

While in-house training represents the largest share of total training expenditures, reliance on different training resources varies depending on establishment size, industry and work environment. Large employers, for example, typically utilize the full range of training sources including, in some cases, more than one technical college. By contrast, small establishments more often rely on only one or two sources of worker training. Exhibit 16a compares the distribution of training dollars by type of work environment. Exhibit 16b shows the proportion of custom training clients that utilize other sources of training by type of work environment.

EXHIBIT 16a

Distribution of Employer Training Expenditures, By Type of Work Environment





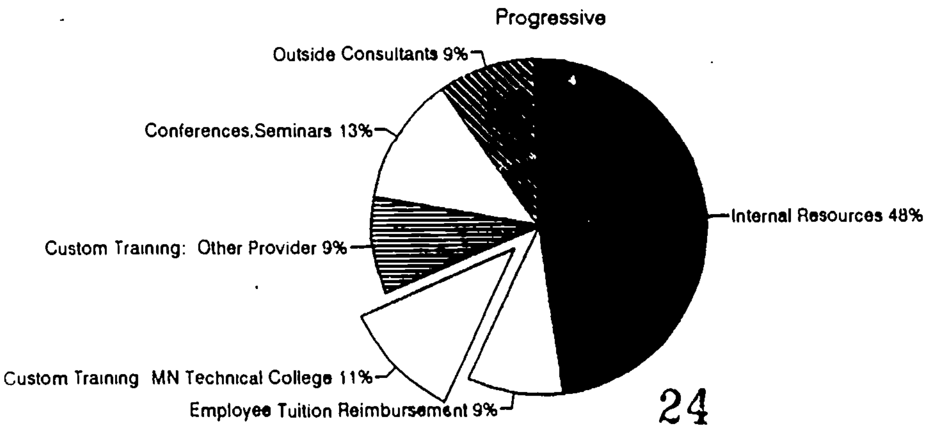
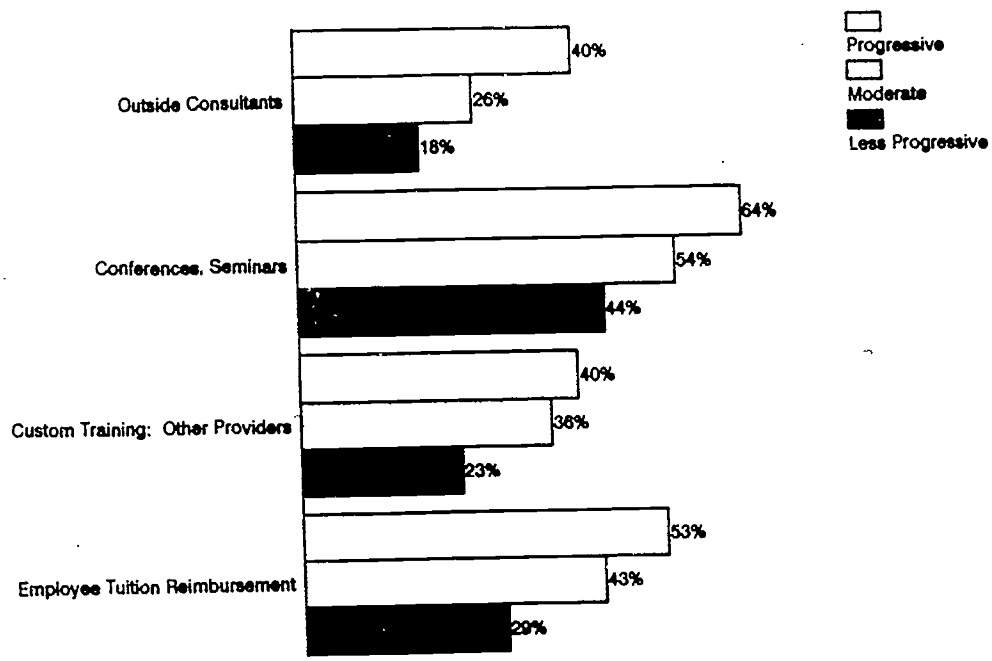


EXHIBIT 16b

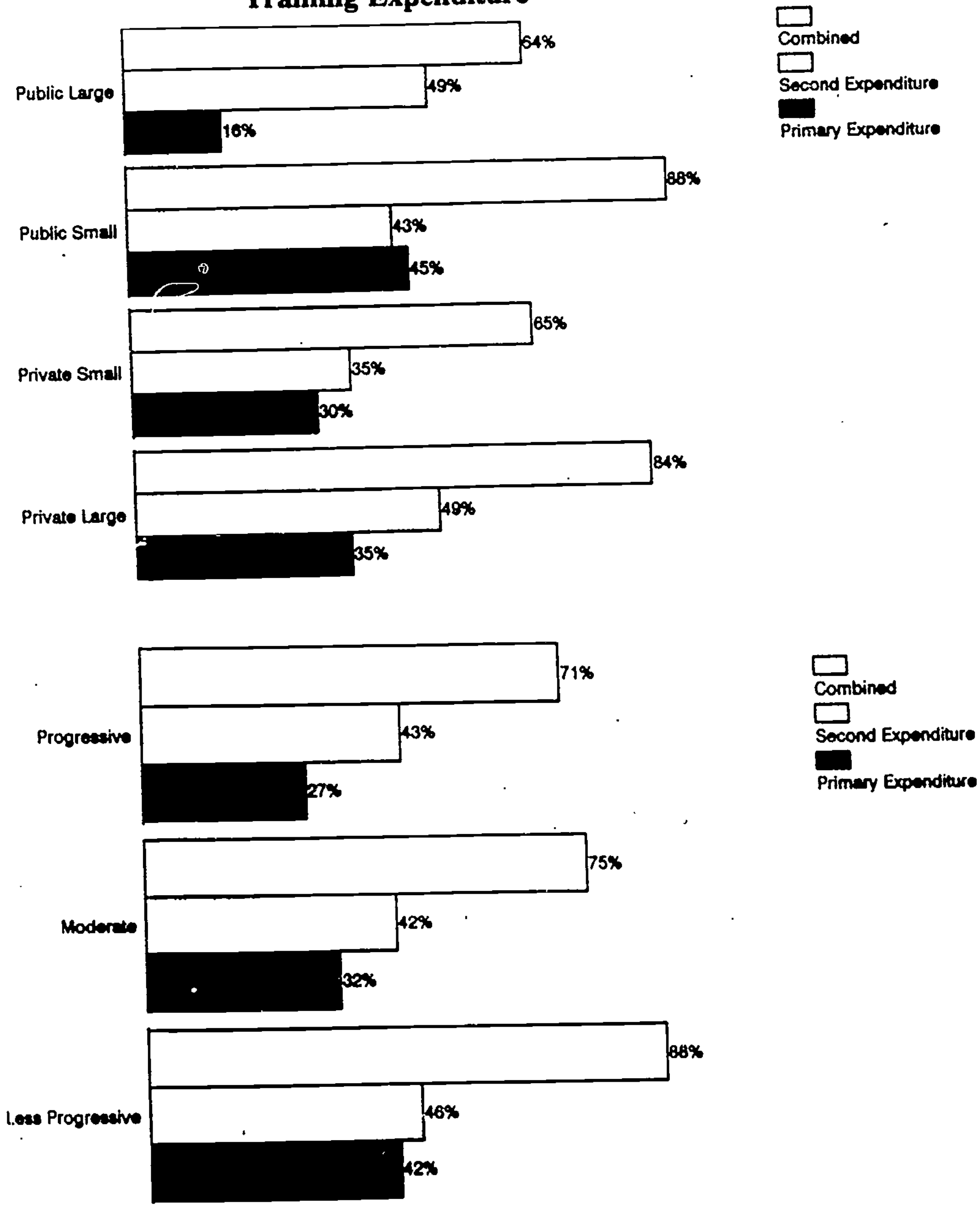
Percentage of Custom Training Clients That Use Other Training Resources, By Type of Work Environment



In light of the high priority employers assign to job specific training, it is not surprising that custom training represents a major part of the client's training investment portfolio. For more than 43 percent of all public and private clients, it is the largest training component, and for more than 30 percent it is the second largest component (Exhibit 17). In general, custom training's share of total expenditures increases as establishment size decreases.

EXHIBIT 17

Percent of Client Organizations With CT As Primary or Secondary Training Expenditure



Why Employers Use Technical College Custom Training

The reasons employers use technical college custom training are as diverse as the mix of economic activities and work environments these clients represent. In broad terms, employers use custom training to improve productivity and sustain or improve their competitive position. (Exhibits 18a and 18b). Irrespective of the type of industry or work environment, at least 60 percent of all clients reported that their use of custom training was associated with the introduction or improvement of existing work processes or procedures. More than half of all employers also associate their investment with the hiring of new employees or changes in employee responsibility. Finally, more than 40 percent of all private sector clients and 80 percent of all public sector clients use custom training to help meet government regulatory requirements.

In addition to serving operational objectives, a significant proportion of clients associate their use of custom training with broader organizational goals as well. Half of all private clients and 43 percent of all public clients indicate that the use of custom training is an integral part of their strategic plan, while more than one-third of all clients use custom training to help change the culture of their work environment. On average, progressive employers were 50 percent more likely to cite these two reasons than their moderate or less progressive counterparts.

For multiple reasons, custom training represents an integral part of the client's operational and strategic environment. With one out of seven dollars invested in custom training, this service represents an important part of Minnesota's business and government infrastructure.

EXHIBIT 18a

Reasons Employers Use Custom Training Services By Sector

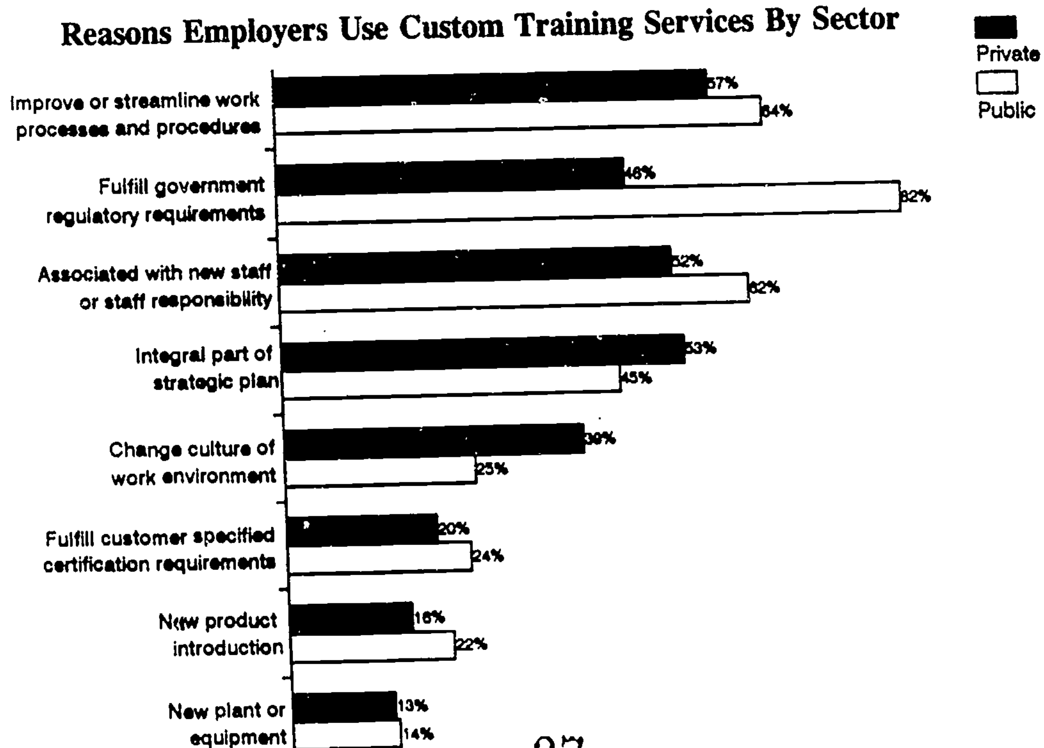


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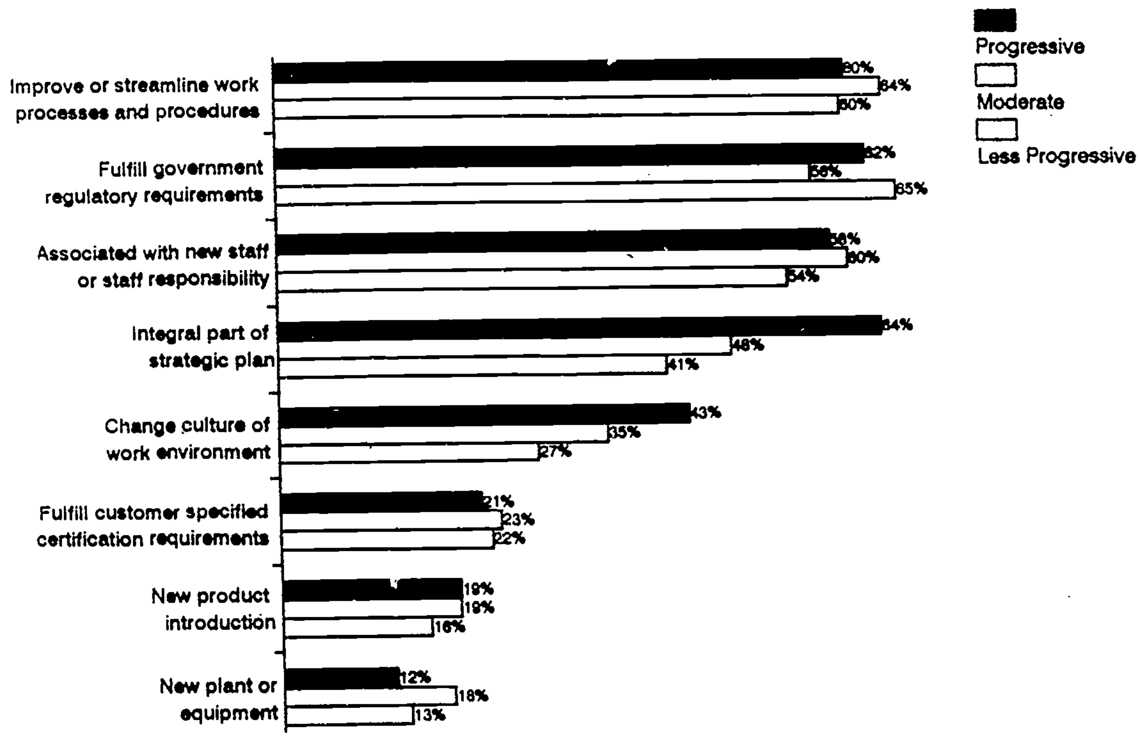
EXHIBIT 18b

Reasons Employers Use Custom Training, By Type of Work Environment



Future Initiatives

In aggregate, nearly half of all custom training clients plan to introduce new productivity/quality initiatives in 1995 or have recently established new initiatives. Irrespective of the productivity/quality initiatives pursued by other Minnesota employers, the sample of employers responding to this survey are engaged in continous improvement of the work environment and regard investment in human capital as a central part of that effort.

Future productivity/quality initiatives depend critically on what employers have already accomplished and defined as the work environment. For our sample of progressive employers, top ranking future initiatives include ISO-9000 certification (an increasingly critical certification for companies engaged directly or indirectly in foreign trade) as well as job redesign and reengineering. For moderate progressive employers, leading initiatives include job redesign and self-management. For less progressive employers, lead priorities include continous improvement teams and total quality management programs -- activities that are already common place in the progressive work environment.

Although it is unknown how employers will meet these future initiatives, it is virtually certain that training will play an important role. The assurance that employer training needs are fulfilled, whether by technical colleges or Minnesota's other training providers begins by asking the question of who is being served and how. This study offers a first look at this highly complex and important issue.

EXHIBIT 19

Top Ranking Productivity Quality Initiatives in Early Stages of Development or Planned for 1995, By Type of Work Environment

Planned Productivity Practices of Less Progressive Organizations	
Total Quality Management	19%
Continuous Improvement Teams	17%
Self-managed work teams	15%
Employee skills/Needs assessment	13%
Job redesign/re-engineering	10%

Planned Productivity Practices of Moderate Organizations	
Job redesign/re-engineering	19%
Self-managed work teams	18%
Total Quality Management	17%
Continuous Improvement Teams	15%
Semi-autonomous work teams	13%

Planned Productivity Practices of Progressive Organizations	
ISO-9000	17%
Job redesign/re-engineering	16%
Total Quality Management	12%
Self-managed work teams	11%
Pay for knowledge compensation	10%

APPENDIX A

Sample Frame and Survey Methodology

Survey Methodology

The Minnesota Work Environment Survey was administered to the universe of 600 public and private sector employers who used custom training services at one of six Minnesota technical colleges during the 1992-93 academic year. Using client records from each of the six participating colleges, a liason for each custom training client was targeted as the survey respondent. Survey respondents were asked to complete those parts of the questionnaire concerning their area of expertise and to draw on other individuals within their organization as needed and appropriate. After two separate mail waves and an aggressive telephone follow-up, the work environment survey achieved a 71 percent response rate from all qualified clients. For most of the questions tabulated in this report, survey responses have a sampling margin of error of plus or minus 6 percentage points with a 95 percent level of confidence.

About Our Survey Respondents

The majority of individuals who responded to the Work Environment Survey serve as the training coordinator or human resource director for their organizations. (Exhibit 20) Survey respondents have worked for their organization a median of 10 years (Exhibit 21) and have served in their current position a median of 5 years. (Exhibit 22)

EXHIBIT 20

Percent of Survey Respondents With The Following Job Responsibilities

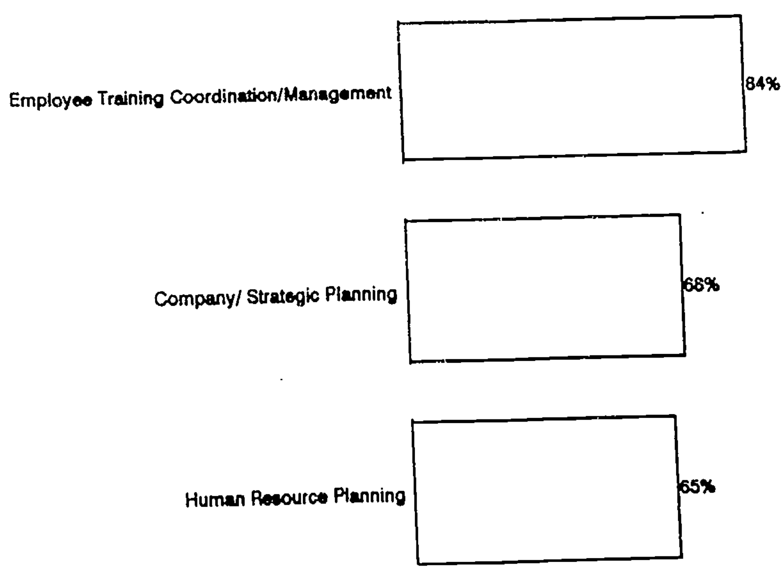


EXHIBIT 21

Number of Years Survey Respondents Have Worked At Their Current Location

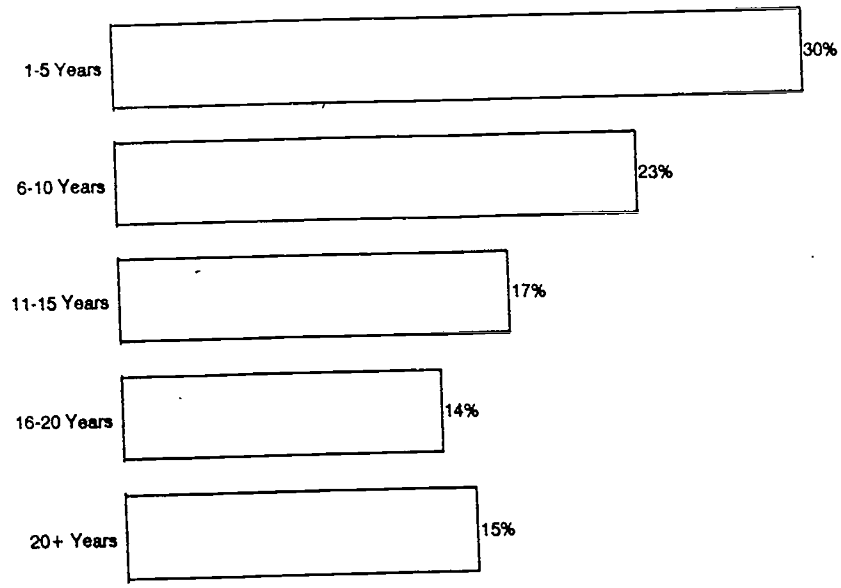
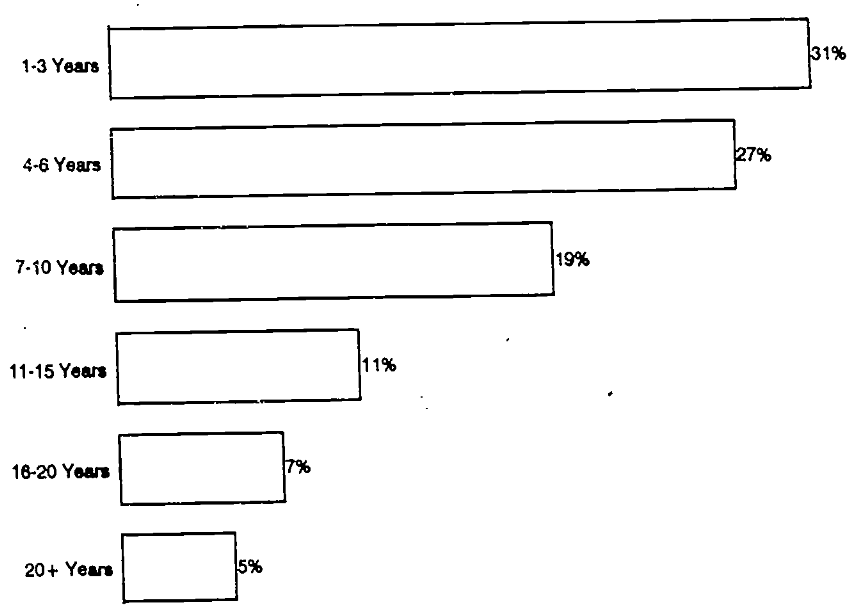


EXHIBIT 22

Number of Years Survey Respondents Have Held Their Current Position



The Framework For Classifying Client Work Environments

The classification of employer work environments was based on 10 operational criteria. Custom training clients were assigned points according to involvement with quality and productivity work related practices, strategic planning in human resource development, percent of employees who receive training, and per employee training investment. Employer scores were tabulated and used to classify the clients into the three work environment groups: Progressives, (representing employers with scores in the top 33 percent); Moderates, (representing employers with scores in the middle 33 percent); and Less Progressives (with scores in the bottom 33 percent). Exhibits 23 and 24 show the distribution of respondents by total score and the number of points assigned to each criteria.

EXHIBIT 23

Distribution of Work Environment Scores

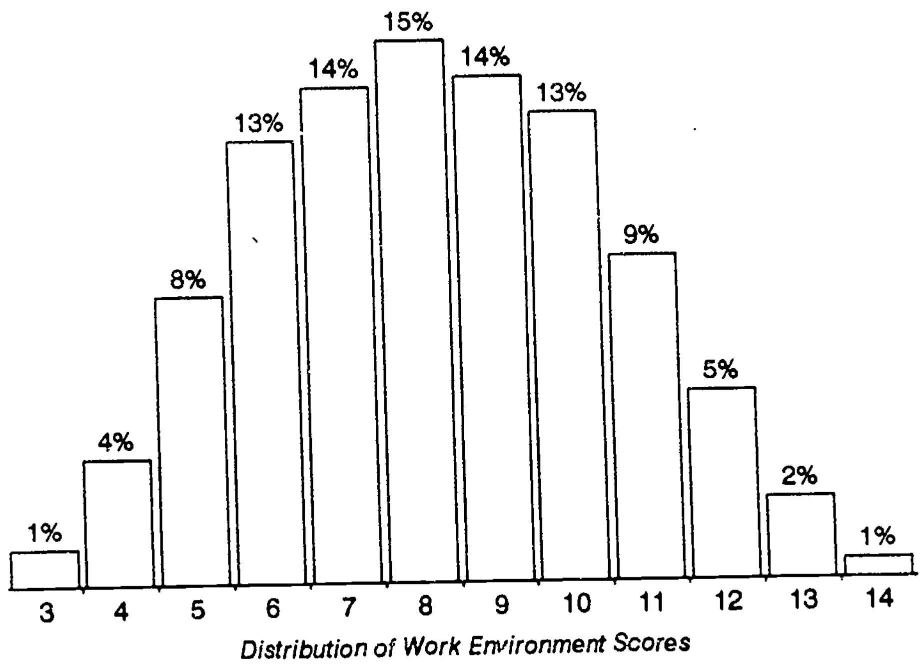


EXHIBIT 24

Criteria For Work Environment Classification

Description of Criteria	Number of Points Assigned
Use of Pay for Knowledge or Risk/Reward Employee Compensation or Employee Ownership or Profit Sharing	1 point if used throughout the organization .5 points if used in parts of the organization 0 points otherwise.
Use of Total Quality Management programs or use of ISO-9000 Certification	1 point if used throughout the organization .5 points if used in parts of the organization 0 points otherwise.
Use of Job Redesign/Job Reengineering or use of Employee Skills or Needs Assessment	1 point if used throughout the organization .5 points if used in parts of the organization 0 points otherwise.
Use of Formal Training and Instruction or use of On-the-job Training and Instruction	1 point if used throughout the organization .5 points if used in parts of the organization 0 points otherwise.
Use of Continous Improvement Teams, Semi-autonomous Work Teams or Self-Managed Work Teams	1 point if used throughout the organization .5 points if used in parts of the organization 0 points otherwise.
Allocation of Resources for Employee Development are....	
routinely set aside as an integral part of company strategic plan.	3 points
routinely set aside, but not tied to a formal strategic plan.	2 points
allocated on an "as needed" or "irregular" basis.	1 point
Training Reach: Percent of employees who receive 8 or more hours of formal training	Greater than 70% = 3 points 33% - 70% = 2 points Under 33 percent = 1 point
Training Investment: Average training expenditure per employee.	$500+ = 3 points $100-$499 = 2 points Under $100 = 1 point

APPENDIX B

The Survey Questionnaire

Minnesota Work Environment Survey

RESPONDENT BACKGROUND

1. **Did this establishment use Minnesota Technical College Customized Training Services anytime during the past 18 months?**

    1 Yes
    2 No
    3 Don't Know

If you answered "No" or "Don't Know" do not complete this survey. Instead, please return this questionnaire (with your answer to question 1) using the enclosed return envelope.

2. **Your Full Name** ______________________________

   Your Title ______________________________

   Number of years you have been employed at this establishment:

   ________ Years

   Number of years employed in your current position:

   ________ Years

   Which (if any) **of the following activities are part of your job responsibility?** (circle all that apply)

    1 Company/Strategic Planning
    2 Human Resource Planning
    3 Employee Training Coordination/Management

   What are your other major job responsibilities? (Specify up to three primary activities. Please be brief.)

   1. ______________________________

   2. ______________________________

   3. ______________________________

BUSINESS PROFILE:

3. **Which category best describes your establishment:** (circle only one)

    1 Single-site company — not controlled by any other company
    2 Single-site company — legally affiliated with another company
    3 Branch location of a multi-site company
    4 Other ______________________________

Personnel

4. **1993 average annual number of permanent non-seasonal employees** (full and part-time)

____

1993 average annual number of part-time employees (under 35 hours/week)

____

1988 average annual number of permanent non-seasonal employees (full and part-time)

____

5. **The total number of permanent non-seasonal employees who separated from your establishment in 1993** (include all voluntary and involuntary job losers and leavers):

____

6. **Total Establishment Payroll in 1993**

$________________

7. **For each occupational group, provide the approximate average annual number of workers employed at your establishment in 1993:**

__________ Managerial
__________ Professional
__________ Technicians
__________ Administrative/Clerical
__________ Sales Workers
__________ Service Workers
__________ Production Supervisor
__________ Craft/Precision Production
__________ Machine Operators
__________ Laborers

Revenue and Markets

8. **Total Sales and Receipts in 1993:**

$________________

9. **Sources of revenue: Approximately what percent of total revenues for 1993 came from markets or sources located in:**

Minnesota	__________	Percent
Mid-West (excluding MN)	__________	Percent
Rest of U.S. (excluding MN and Midwest)	__________	Percent
Foreign Markets	__________	Percent
Total (all markets)	100	Percent

Capital Expenditures

10. **What was your establishment's 1993 total expenditure for plant and equipment including production machinery, office equipment, tools, new construction, alterations and repairs:**

$____________ (to the nearest thousand)

WORK ENVIRONMENT

11. Identify your establishment's involvement with each of the following quality/productivity work related practices:

Previously utilized/discontinued
Utilized throughout the organization
Utilized in parts of the organization
Early stages of development
Plan to begin by 1995

a. Job redesign/re-engineering	1	2	3	4	5
b. Continuous improvement teams	1	2	3	4	5
c. Semi-autonomous work teams	1	2	3	4	5
d. Self-managed work teams	1	2	3	4	5
e. Formal training and instruction	1	2	3	4	5
f. On-the-job training and instruction	1	2	3	4	5
g. Employee skills/Needs assessment	1	2	3	4	5
h. Total quality management	1	2	3	4	5
i. ISO-9000	1	2	3	4	5
j. Pay for knowledge compensation	1	2	3	4	5
k. Risk/Reward (Productivity-based) compensation	1	2	3	4	5
l. Employee Ownership	1	2	3	4	5

TRAINING POLICY AND INVESTMENT

12. **1993 approximate total expenditure for formal worker training:** (include all associated expenditures, excluding loss of hours employees spent in training)

$______________

13. **1993 approximate training expenditures for:**

$______________ Employee Tuition reimbursement:
$______________ Customized training provided by MN Technical Colleges
$______________ Customized training provided by other education institutions
$______________ Conferences, seminars and short courses (not included above)
$______________ Outside consultants (not included above)

14. **Which statement best describes how your company invests in human resource development?**

Company resources for employee development are...
1. routinely set aside as an integral part of a company strategic plan.
2. routinely set aside, but are not tied to a formal strategic plan.
3. allocated on an "as needed" or "irregular" basis.

15. For each of the following occupational groups: 1) identify the approximate number of employees who received at least 8 hours of formal training; and 2) indicate the *highest* training priority for each group (circle no more than two training categories per group)

	Number of employees that received training	Supervisory Training / Computer related training / TQM Training / Job specific training	Other Training Please specify
a. Managerial		1 2 3 4	
b. Professional		1 2 3 4	
c. Technicians		1 2 3 4	
d. Administrative/Clerical		1 2 3 4	
e. Sales Workers		1 2 3 4	
f. Service Workers		1 2 3 4	
g. Production Supervisor		1 2 3 4	
h. Craft/Skilled production		1 2 3 4	
i. Machine Operators		1 2 3 4	
j. Laborers		1 2 3 4	

16. 1993 approximate total number of hours of formal training received by employees:

_______ Hours

USE OF MINNESOTA'S TECHNICAL COLLEGES

17. Which statement(s) best describes the situation underlying your company's use of Minnesota Technical College customized training services (circle all that apply):

1 Training was associated with the acquisition of a new plant or new equipment:
2 Training was associated with newly defined work procedures or processes:
3 Training was undertaken to refine or streamline existing work processes:
4 Training was undertaken specifically to reduce worker error, waste and rework:
5 Training was undertaken to fulfill certain government (regulatory) requirements:
6 Training was undertaken to fulfill customer specified/supplier certification requirements:
7 Training was associated with the introduction of a new product or service:
8 Training was associated with the hiring of new personnel:
9 Training was associated with changes in employee responsibility:
10 Training was undertaken specifically to reduce employee turnover:
11 Training was undertaken as an integral part of a company strategic plan
12 Training was undertaken to help change the culture of the work environment:

APPENDIX C

An Industrial Profile of Custom Service Clients
At Minnesota Technical Colleges for FY 1993

CUSTOM TRAINING BY MINNESOTA'S TECHNICAL COLLEGES:

WHO IS BEING SERVED?

An Industriai Profile of Custom Service Clients At
Minnesota Technical Colleges for FY 1993

Prepared by:
Human Capital Research Corporation
May 25, 1994

MINNESOTA TECHNICAL COLLEGE SYSTEM
Carole M. Johnson, Chancellor

CLIENTS SERVED BY MINNESOTA'S TECHNICAL COLLEGES

To better understand the characteristics and needs of organizations that contract for custom training, the Minnesota State Board of Technical Colleges sponsored a study of six technical colleges: Hennepin County, Duluth, Southwest, Riverland, Alexandria, and Anoka. Initial findings suggest that custom training is relied on heavily throughout Minnesota by a wealth of public and private sector organizations.

<u>Custom training serves over 2000 Minnesota establishments.</u> During the 1992-93 academic year, the six colleges of this study collectively served 911 businesses and government agencies. Using enrollment share as a basis for projecting system-wide custom training services, approximately 2,300 public and private establishments received custom training services during the 1992-93 academic year.

<u>The industries served by customized training are enormously diverse.</u> Eighty percent of the 70 (SIC two-digit) major industry groups that constitute Minnesota's economic base were served by the six Minnesota technical colleges in this study.

<u>Custom training provides service to business establishments of all sizes.</u> The 600 private sector clients included in our sample represented virtually all organization sizes, classes, and forms of control--from sole proprietorships to multinational corporations. A significant proportion of our clients are in high value-added basic industries such as high-technology manufacturing and engineering services, as well as vital human services such as health care and education.

<u>Custom training provides a significant level of service to public sector organizations.</u> More than one-third of the clients in our sample consisted of municipal, county, state and federal government agencies representing such basic activities as police and fire services, public health, elementary and secondary education, and public works.

The widespread utilization of custom training begins to highlight the value produced by Minnesota's technical college programs. In April, 1994 an in-depth survey was sent to all 911 custom training clients to identify where value-added is greatest, where programs can be strengthened to better meet the needs of Minnesota employers, and where student outcomes can continue to be improved. The findings from this analysis will be available in July, 1994.

Custom training serves over 2000 Minnesota establishments.

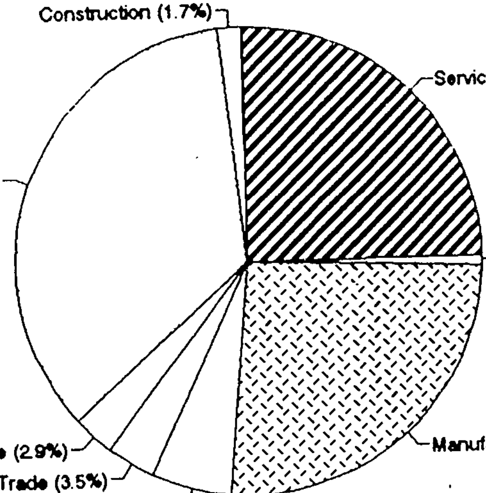
1992-93 ACADEMIC YEAR

	Alexandria	Anoka	Duluth	Hennepin County	Riverland	Southwest
Private Sector Clients	47 companies	118 companies	19 companies	178 companies	107 companies	131 companies
Most Employees	8,300	3019	800	19,000	7600	2000
Least Employees	23	3	11	3	9	14
Public Sector Clients	38 agencies	115 agencies	7 agencies	34 agencies	79 agencies	38 agencies

The sample represents 34 percent of FTE credit based enrollment and 47 percent FTE hour based enrollment. Using enrollment share to project system-wide custom training services, approximately 2300 organizations were served by Minnesota Technical Colleges Custom Training Services.

Minnesota technical college custom training clients are diverse.

The Key Sectors Using CT Are Government, Services, and Manufacturing



Most of Minnesota's Major Industry Groups Are Served

Industries served are in bold

Agriculture Production-Crops
Agr. Production-Livestock
Agriculture Serv.
Amusement & Recr. Serv.
Apparel & Access. Store
Apparel & Other from Fabrics
Automotive Dealers & Serv.
Automotive Repair
Banking
Building Material
Business Serv.
Chemicals
Comb. Real Est., Insur. & Law
Communication
Construction Trade Contractors
Credit Agencies
Eating & Drinking Places
Educational Serv.
Electric, Gas, & Sanitary Serv.
Electrical & Electronic Mach.
Engineering & Mgmt. Serv.
Fabricated Metal Products
Fishing, Hunting & Trapping
Food Stores
Food & Kindred Products
Forestry
Furniture & Fixtures
Furniture, Home Furnishings
Glass & Concrete
General Contractors
General Merchandise Stores
Health Serv.
Heavy Construction
Holding & Other Investments
Hotels
Insurance
Insurance Agencies & Brokers
Leather Products
Legal Serv.
Local & Suburban Transit
Lumber & Wood
Measur./Control.Instruments
Membership Organizations
Metal Mining
Misc. Manufacturing
Miscellaneous Repair
Miscellaneous Retail
Motion Pictures
Motor Freight Transport.
Museums & Zoos
Non-Electric Machinery
Nonmetallic Mining
Oil & Gas Extraction
Paper & Allied Prods.
Personal Serv.
Petroleum Refining
Pipelines, Except Natural Gas
Primary Metal Industry
Printing & Publishing
Railroad Transportation
Real Estate
Rubber & Misc Plastics
Security & Commodity Brokers
Serv., Not Elsewhere Included
Social Serv.
Stone, Clay, Glass, & Concrete
Textile Mill Products
Tobacco Products
Transportation Equipment
Transportation Serv.
Transportation By Air
U.S. Postal Serv
Water Transportation
Wholesale- Durable Goods
Wholesale-Nondurable Goods

ctsumfnl 100

Custom training provides services to private sector businesses of all sizes, and is heavily utilized by manufacturing, human services, and producer services.

CUSTOM TRAINING PRIVATE SECTOR CLIENTS

SECTOR	1-49 Employees	50-99 Employees	100-249 Employees	250-499 Employees	500+ Employees
Manufacturing	42	29	52	42	46
Human Services	61	19	8	4	6
Producer Services	33	2	6	3	3
Transportation	11	10	4	4	7
Wholesale	13	6	4	3	4
Finance	9	5	2	0	2
Consumer	9	1	4	2	2
Mining	3	1	2	3	0

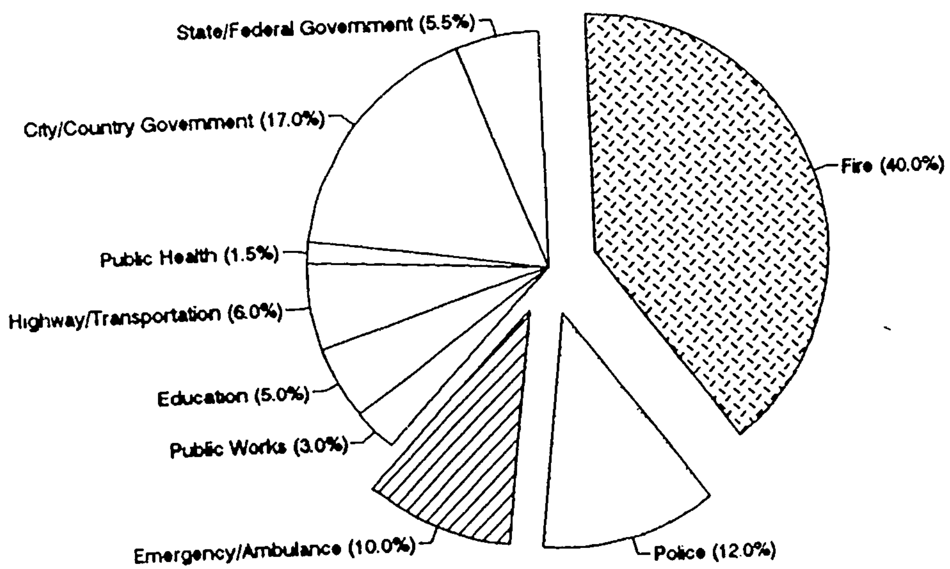
TOTAL NUMBER OF EMPLOYEES

csumfnl 100

Custom Training also provides significant service to the public sector.

PUBLIC SECTOR CT CLIENTS

N=311



The majority of public sector CT clients are in protective and emergency services

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