

INSTITUTE FOR PUBLIC POLICY AND BUSINESS RESEARCH
THE UNIVERSITY OF KANSAS

EXECUTIVE SUMMARY

WORK FORCE TRAINING:
THE CHALLENGE FOR KANSAS

A Report to

Kansas, Inc.
Kansas State Department of Education

by

Charles E. Krider, Principal Investigator
Professor of Business, Director of Business Research

M. Elizabeth Stella
Research Associate

Genna M. Ott
Research Associate

Ron Ash
Associate Professor of Business

Research Assistants:
Stuart Michelson
Jim Smith
Jordan Yochim
Anne Foley

Anthony L. Redwood
Executive Director

November 1989

Report No. 168

EXECUTIVE SUMMARY

TABLE OF CONTENTS

	<u>PAGE</u>
I. INTRODUCTION	1
II. BACKGROUND: THE VOCATIONAL-TECHNICAL TRAINING CHALLENGE	5
A. Emergence of a World Economy	6
B. Impact of Technology	7
C. Change in Management Style and Expectations	8
D. Changes in U.S. and Kansas Economy	9
E. Changes in Labor Supply	11
F. Change in Labor Demand	14
G. Implications for Kansas Economic Development	16
III. TECHNICAL AND VOCATIONAL TRAINING FROM THE PERSPECTIVE OF KANSAS BUSINESSES	27
A. Introduction	27
B. Procedures	28
C. Results	28
D. Implications	35
IV. KANSAS' POSTSECONDARY VOCATIONAL-TECHNICAL TRAINING SYSTEM: SURVEY OF KANSAS INSTITUTIONS THAT PROVIDE TRAINING	42
A. Introduction	42
B. Procedures	42
C. Results	43
D. Conclusion	53
V. THE ROLE OF ADVISORY COMMITTEES IN VOCATIONAL EDUCATION	56
A. Introduction	56
B. Procedures	56
C. Results	56
D. Quality of Programs	59
E. Quality of Students	59
F. Summary	60

Table of Contents (Continued)

VI.	THE JOB TRAINING PARTNERSHIP ACT	64
	A. Introduction	64
	B. JTPA Background	64
	C. Procedures	65
	D. Findings	65
	E. Implications	72
VII.	INNOVATIVE PROGRAMS IN OTHER STATES	72
	A. Innovative Funding Approaches	72
	B. Innovative Customized Training Efforts	75
	C. Innovative and Integrated Information Systems	78
	D. Innovative Curriculum Development Efforts	78
	E. Interagency Coordination	78
	F. Conclusion	79
VIII.	POLICY OPTIONS FOR CONSIDERATION AT STATE AND LOCAL LEVELS	80
	A. Basic Academic Skill Training	80
	B. Secondary Technical Skill Training	83
	C. Postsecondary Technological and Technical Skill Training	86
	D. Coordination of Technical Education Programs Across Training Institutions	88
	E. Coordination of Technical Education and Training Programs Across Agencies	92
	F. Program Funding	96
	G. Equipment Funding	100
	H. Customized Training	101
	I. Innovative Technical Programs	104
	J. Program Information and Evaluation	105
	K. Faculty/Staff Development	107
	L. Job Training Partnership Act	110
	M. Planning for Training Programs	114
	N. Business Commitment and Partnership	117

ACKNOWLEDGEMENTS

This research study was funded by Kansas, Inc. and the Kansas State Department of Education. The authors gratefully acknowledge the assistance of Charles Warren, President, Kansas, Inc. and Lee DrogemueLLer, Commissioner of Education, Kansas State Department of Education. We would like to thank Kansas, Inc. and the Kansas State Board of Education.

We would also like to express appreciation to the survey respondents from the Kansas business community, the advisory committee members for vocational programs, the community colleges, areas vocational technical schools and other vocational institutions, and the Kansas State Department of Education. We appreciate the willingness of over 600 businesses in Kansas to be interviewed. We would also like to recognize that the nineteen community colleges and sixteen AVTS', Washburn University, Pittsburg State University and the Kansas College of Technology gave generously of their time for interviews. We would like to thank Ferman Marsh, Assistant to the Commissioner, Ann Harrison, Director of Planning, Kansas State Department of Education, and other staff who gave generously of their time in assisting with the collection of data needed to describe and analyze the state's vocational and technical training system. Special thanks to the Kansas Department of Human Resources for their assistance with the Business Survey.

We would like to recognize the members of the advisory committee for this study, who provided valuable suggestions and insights for the study. They are:

Bud Anderson, Personnel Manager, Hallmark Cards, Inc.;
Denise Apt, Education Aide, Office of the Governor;
Bill Berry, Director, Manhattan Area Vocational Technical School;
Fred Braun, President, Zephyr Products;
David DePue, Executive Director, Kansas Council of Vocational Education;
Representative Diane Gjerstad, Wichita
Richard Hedges, President, Fort Scott Community College;
Steve Jack, Job Training Coordinator, Kansas Department of Commerce;
Ferman Marsh, Assistant Commissioner, Vocational Education, Kansas State Department of Education;
Senator Alicia Salisbury, Topeka;
Charles Warren, President, Kansas, Inc.; and
Rita Wolf, Director, Research and Analysis, Kansas Department of Human Resources.

Special thanks to Linda Bennett whose compilation of this report contributed greatly to its quality. We also wish to thank Steven Maynard-Moody, Larry Hoyle, Arlene Slocum, Karen Ye and John Luthold for their assistance with the conducting and processing of the Business Survey.

The findings and views presented in this report are those of the authors and do not necessarily reflect those of Kansas, Inc., the Kansas Department of Education, the Advisory Committee, or the University of Kansas.

I. INTRODUCTION

The availability of a well educated, skilled work force is crucial for Kansas' economic development in the 1990's. The most important incentive the state can offer companies to affect their location or expansion decisions is a trained work force to meet their current needs and a training system that is responsive to needs for work force training and retraining. Firms will be more likely to locate or expand in Kansas if a sufficient number of employees with the appropriate skills are available. Consequently, a major policy objective for Kansas should be to ensure that the technical training system remains a competitive advantage for economic development in the 1990's. The purpose of this report is to assess the strengths and weaknesses of that system and to identify policy options to ensure that the training and retraining needs of business will be met in the next decade.

The education challenge in Kansas, and in the United States, is substantial. Basic academic skill training must be emphasized at the primary and secondary education levels (K through 12) so new entrants to the labor force arrive with adequate reading, computation, communication, and problem solving skills. The education system has not given as much attention to secondary (high school) students who do not plan to pursue a four-year baccalaureate program. Not all jobs require a four-year university degree, but more jobs in the 1990's will require higher skill levels in reading, writing, computation, problem solving and other basic academic skills, as well as higher levels of technical skills. Thus, the state and its educational institutions that provide basic academic and technical training must focus on meeting the needs of this population if Kansas' work force is to meet the needs of business in the 1990's.

Because 75 percent of the work force has already graduated from the secondary education system, adult education has also become a critical issue. Those already in the work force or adults seeking to enter the work force need to acquire or upgrade academic and technical skills. The technical and vocational education system was designed to address the needs of secondary and postsecondary students (those seeking additional training immediately after high school graduation). It was not designed to meet the needs of large numbers of adult learners. Thus, the system faces serious challenges in meeting the training needs of adults who return in increasing numbers every year.

This report focuses on postsecondary technical education that is primarily offered through community colleges and area vocational technical schools. These are the public education institutions that are increasingly required to meet the needs of postsecondary and adult students who need training and retraining. Their training needs go beyond technical skill training. Increasing numbers of postsecondary students and adults also need training and retraining to improve reading, computation, communication, and other basic academic skills.

The demands on the technical education system will increase in the 1990's for several reasons:

1. Demographic changes indicate that the growth in the labor force will slow and labor shortages, not unemployment, will be the major concern.
2. The composition of the labor supply will change as most of the growth will come from minorities and women.
3. The skill requirements of business have been increasing because of technological advances.
4. Changes in management practices indicate that workers will have a greater responsibility for how their work is performed and for the quality of their work.

5. International competition, particularly from Japan and Europe, will continue, and this competition will increase the importance of technical education in the state's economic development efforts.

One of Kansas' major strengths is its work force. Kansas ranks higher than the national average in work force quality. The quality of the work force is due in part to the quality of educational institutions and the use of technical training institutions to maintain a competitive work force. A strong educational system that is responsive to business' needs is critical in maintaining the state's ability to offer industry a well trained work force. Thus, the key question is what should the state do over the next few years to position the training system for the 1990's? The major goals of this study were to:

1. Develop a database describing the current training system that could underpin policy development;
2. Propose policy options.

To achieve these goals, six broad areas of research were undertaken:

1. An analysis of the changes in the world, U.S., and Kansas economic environment and labor supply and the implications for technical training (Chapter 2).
2. A survey of Kansas businesses assessed training-retraining needs and determined how those needs were being met by institutional training-retraining providers (Chapter 3).
3. A survey of institutional training-retraining providers assessed how effectively the state's human capital needs are met. This included on-site visits, surveys, and examination of statistics collected for all state supported educational institutions that provide vocational and technical training (Chapter 4).
4. A survey of vocational-technical institutions' advisory committees assessed how business advisors impact the system (Chapter 5).

5. The Job Training Partnership Act (JTPA) and Carl Perkins Act in Kansas were examined to determine ways that federal funding could be utilized to enhance existing state training programs and benefit state economic development plans. Literature reviews and interviews provided information for this analysis (Chapter 6).
6. An assessment of other states' training-retraining programs examined strategies used to strengthen the impact training has upon state economic development. Information was collected through on-site visits to key states and review of literature describing state programs (Chapter 7).

Based upon the results of the research, policy options (Chapter 8) are proposed. These policy options do not attempt to identify specific areas of skill shortages or to identify what particular training programs should be expanded. Rather, the policy options focus upon improvements in the system that, if implemented, would enable the state to address skill shortages on a continuing basis throughout the 1990's. The policy options address the following major areas:

1. Training Programs - integration of basic academic skill training with technical skill training, competency based training;
2. Funding - modernize funding systems to provide incentives for competency based training and encourages program development and expansion in areas having greatest economic development impact;
3. Customized Training - encourage mechanisms that enable community colleges and AVTS' to respond more effectively to the growing need for customized training;
4. System Coordination - encourage program coordination between secondary and postsecondary institutions in the form of credit transfer and program planning, and encourage program coordination between different types of postsecondary institutions so a well-coordinated system develops;
5. Business Role - encourage business-technical education partnerships to ensure meaningful business input in such important areas as defining competency levels for training, faculty development, equipment decisions, training program focus and content.

II. BACKGROUND: THE VOCATIONAL-TECHNICAL TRAINING CHALLENGE

Human capital is a key element of Kansas' economic strategy. Kansas has recognized several pillars for economic development: human capital, infrastructure, financial capital, innovation/technology, capacity, the business environment, and quality of life. Traditionally, Kansas has been strong in human capital and, consequently, this area has not received priority attention in the economic development initiatives passed by the legislature since 1986. There were more serious deficiencies in the other economic development pillars that required immediate attention. The opportunity now exists to address the human capital component of the state's economic development strategy so that this current strength will not erode in the 1990's.

Training and retraining is a vital part of any effort to improve the state's human capital. A well trained work force makes the state more competitive by increasing productivity, allowing firms to lower costs of products, improve product quality, and increase sales. Training and retraining increases the basic academic and technical skills of workers, and provides a flexible work force that is more adaptable to changes occurring in the work place.

The vocational-technical training system in Kansas, and other states, must adjust to changes that are occurring in the U.S. economy, particularly in manufacturing and services. First, products and processes are changing rapidly in an era of innovation based on science and technology.¹ Experts predict a

¹ Brody, Michael. "Helping Workers to Work Smarter," *Fortune*, June 8, 1987, pp. 86-88.

shift from homogeneous product, assembly-line mass production to customized, job batch, human-capital-intensive processes.² Second, increasing internationalization of the U.S. economy and intense global competition places a high premium on productivity growth.³ Third, in the context of a relative, though not absolute, decline in manufacturing employment, remaining manufacturing jobs require greater skills and higher levels of basic education and training.

This chapter will identify and explore the following changes in the economic environment and their implications for technical training: 1) the emergence of a world economy; 2) the impact of rapid changes in technology; 3) changes in management style and management expectation of employees; 4) the shift from goods to services; and 5) changes in labor supply. The basic conclusion is that the skill requirements of business are increasing at a time when demographic changes insure increasing shortages of labor.

A. Emergence of a World Economy

While there still may be local markets for some goods and services, there is only one economy: the global economy. Kansas' firms must compete on cost and quality both nationally and internationally. Internationalization is changing the very nature of political and business institutions, economic policy making, and even how day-to-day business is conducted. The United States, like other high-wage nations, will be forced to concentrate on management systems, technology, human resources development, and an alignment of regulatory

² Birch, David L. "Is Manufacturing Dead?" *Inc.*, June 1987, pp. 35-36.

³ Reidenbach, R. Erik; and Festervand, Troy. "A Strategic Marketing Planning Approach to Economic Development and Industrial Policy Decisions," *American Business Review*, January 1987, pp. 13-21.

pressures with businesses' ability to operate efficiently.

B. Impact of Technology

Developments in science, technology, and industrial organization are rapidly changing the structure of the international economy. Developments include:

1. the introduction of new products and process in the microelectronics industry which are changing methods of industrial production. An important example of this is information storage and processing;
2. the establishment of high-speed global communications network enabling instantaneous worldwide communication, thereby integrating markets and enabling centralized management of globally dispersed industries;
3. the establishment of new patterns of industrial organization allowing new producer/supplier relationships such as just-in-time inventory systems;
4. the development of new advanced materials replacing traditional raw materials, due to the materials' hardness, resilience, and durability;
5. bioengineering advances promising better health and freedom from disease and birth defects, and the potential for an oversupply of agricultural commodities.

Kansas' firms must rapidly update process and products. Internationalization and technological change enables Japanese manufacturers to bring new products to market more quickly than Kansas' manufacturers (and in many cases with higher quality and lower costs) thereby gaining market share. The state has already taken steps to assist Kansas manufacturers to become more competitive by establishing the Kansas Technology Enterprise Corporation (KTEC) to foster innovation in existing and developing businesses.

C. Change in Management Style and Expectations

Skilled employees, skillful management, and innovation must be combined to improve productivity and quality in the work place. The United States has had a management system that emphasized two parts - sophisticated equipment and processes - and neglected the third - workers. In the traditional mass production system, technology was stable and allowed long production runs. Workers needed few skills since their tasks were so narrow, often broken down into the smallest possible activity. Management assumed that workers needed to be forced to work and closely supervised.

The traditional mass production system has given way to a more flexible production system. Rapid technological changes have created a new production system that is characterized by short runs of relatively few products. This system requires workers to take initiative and solve problems. The worker must consider not only the machine at the work place, but also the preceding and following parts of the process. This requires information and with information goes responsibility. To handle the responsibility, workers need flexible training in many tasks and are often required to work in teams or "work groups." In short, a workers' job provides information about what is going on "out there," what place their position occupies within the system, and allows the independent thought necessary to take action in response to unusual events.

The Japanese and some U.S. companies have established systems that depend on high quality human resources, and require a high degree of employee involvement. Taking a cue from noted quality expert W. Edwards Deming, business thinking has begun to evolve. It is not sufficient to find and hire good people to work in a firm. Businesses constantly require new information and new skills to deal with new methods of production and changes in the work place.

Investment in people through education and training is a prerequisite for long-term planning and survival.

D. Changes in the U.S. and Kansas Economy

Services have also become a more significant part of the economic pie as Kansas' economy has modernized. Services have provided an increasing portion of personal income in Kansas (Figure 1).⁴ Services also employ many millions of Americans (Figure 2). The proportion of manufacturing employment to employed workers has fallen from 25 percent in 1950 to 17 percent of the U.S. total.⁵ At the high-point of the American age, 26 percent of all personal income was derived from manufacturing; now it is 15 percent.⁶ Services, once less than ten percent of personal income, now exceed manufacturing.

Manufacturing will remain a significant element of the U.S. economy. In 1947, manufacturing accounted for roughly 22 percent of GNP; it still does.⁷ Part of the reason for this success despite lower employment overall has been increases in manufacturing productivity through the 1950s and 1960s, as well as the later 1980s. However, for the United States, and for a less-intense manufacturing state such as Kansas, to rely on manufacturing as a major provider of jobs would not be wise. Further increases in productivity in the manufacturing sector will come at the expense of total proportional employment.

⁴ U.S. Bureau of Economic Analysis. "Local Area Personal Income: 1981-86," 1988.

⁵ Bureau of Labor Statistics. Proportion is calculated by dividing manufacturing employment by the number of employed persons.

⁶ U.S. Bureau of Economic Analysis. "State personal income: 1929-1982," 1984.

⁷ *The Economist*, August 23, 1986; McCracken, Paul W., "The Rust Belt's Coming Revival," March 30, 1987.

Indeed, noted business author Peter Drucker predicts that by 2010, industrial workers will compose no more than 5 or 10 percent of the American work force, following the path begun in the nineteenth century by agricultural workers.⁸

New jobs have been provided primarily by the service sector. While the "labor" part of much of business is increasingly easy to automate, the jobs which require imagination, learning ability, or interpersonal interaction are not. Subsequently, these jobs are an increasing fraction of total employment.

In 1950, the service sector (excluding finance, retail, transportation, and public utilities) accounted for approximately 9 percent of employed civilians, by 1970 for 15 percent, and by 1988, 22 percent.⁹ The service-producing sector, including finance, retail, transportation and public utilities, now accounts for 70 percent of American employment, up from 45 percent in 1950. By 1988, the service sector in Kansas employed 18 percent of workers, service-producing industries (includes transportation and public utilities, wholesale and retail trade, finance, services, government), 49 percent, and manufacturing, 15 percent.¹⁰

Many of the new jobs fall into unfamiliar categories. This is particularly true where information as a commodity is playing an increasingly important role, by changing production processes and management approaches. Awkward terms such as "para-professional" are used to designate these new,

⁸ Drucker, Peter F. "The New Realities: in government and politics, in economics and business, in society and world view," 1989, p. 188.

⁹ Bureau of Labor Statistics. Employment in services divided by number of employed.

¹⁰ Fourth quarter 1988 figures quoted from *Kansas Business Review*, Spring 1989, vol. 12, no. 3. Derived from the Bureau of Labor Statistics and the Kansas Department of Human Resources.

unfamiliar roles.

E. Changes in Labor Supply

An examination of changes in the work force through the remainder of the century revealed that several key changes are occurring. First, the growth rate of the labor supply will slow for the U.S. (Table 1), and for Kansas (Table 2). This is the result of a decline in new entrants into the work force. New entrants into Kansas' work force - those of ages 15-24 - peaked in 1980 (19 percent of the Kansas population) and will decline to below 14 percent of the Kansas population by the year 2000 (Table 3). Similar trends will also occur for the U.S. work force. Already small manufacturers report they are having difficulty filling job openings. Table 4 shows they are having more difficulty filling skilled labor and mid- to senior-level executive positions and less difficulty filling unskilled labor and clerical positions.

To fill labor shortages caused by the decline in white male entrants into the work force, businesses are turning to other, previously neglected populations for new entrants. There is a growing participation of women in the work force. Two-thirds of labor growth in the U.S. over the last two decades has been due to women, and this growth will continue (Table 5). Table 6 shows that women's participation in the Kansas work force has grown and is projected to grow to 47.5 percent of the total work force by the year 2000.

Minorities will also become a larger share of new entrants into the U.S. labor force. Non-whites will make up 29 percent of new entrants between now and the end of the century (Table 7). While projections of minority participation are not available for Kansas, Table 8 shows that minorities' participation has increased in Kansas.

Women and minorities will make up 62 percent of the work force by 2000. Immigrants, women and minorities will account for 85 percent of the U.S. labor force by 2000. Figure 3 shows that in 1985, native white males comprised the largest proportion of the labor force, and the native white females group was the second largest. White males will comprise only 15 percent of the net additions to the labor force between 1985 and 2000.

Depending upon women and minorities to fill jobs raises serious training issues. Women and minorities have composed a disproportionate share of those with poorer quality education and skill-training. There are major problems in the American educational system. Every year in the United States, one million young people drop out of high school. In some inner cities, this can approach 50 percent of all young people. Of the 2.4 million who graduate each year, perhaps as many as one quarter cannot read or write at the eighth grade level - the "functionally literate" level. Indeed, most seventeen year old persons cannot summarize a newspaper article, write a good letter requesting a job, solve real life math problems, or follow a bus schedule.¹¹

But what about new entrants over the next several decades? The Hudson Institute projects that more than three-quarters of the nation's new workers will have limited verbal and writing skills - that is their reading vocabulary will not exceed 6,000 words, their reading rate will not exceed 215 words per minute, and their writing ability will not exceed writing compound sentences. Indeed, the Hudson Institute estimates that only 22 percent of new employees

¹¹ Ehrlich, Elizabeth. "America's Schools Still Aren't Making the Grade," *Business Week*, p. 129.

will be able to function at a level higher than this.¹²

The Bureau of Labor Statistics estimates that, during the 1980s, some 2.3 million workers were displaced each year. Approximately 30 percent of the displaced workers lacked the most basic skills - reading, writing and arithmetic. As a result, about one-third of them never found new jobs. Others found jobs, but at much lower pay.¹³

At the other end of the spectrum there are also problems among highly trained workers, particularly scientists and engineers. The actual percentage of students who choose to enter these fields has remained roughly constant. In the past thirty years, only four percent of all 22-year old persons acquiring bachelor degrees chose science or engineering, according to the National Science Foundation.¹⁴

How does Kansas compare with the rest of the United States on the basis of educational achievement? One can sum up Kansas' relationship to nine states most similar to Kansas (North Dakota, South Dakota, Nebraska, Colorado, Oklahoma, Missouri, Iowa, Indiana, and North Carolina) as exceptional. The percentage of adults 25-64 in the United States who have completed high school is 66.5 percent. In Kansas, it is 73.3 percent. Most states comparable to Kansas rank roughly equal to or below Kansas (Table 9). Kansas also compares well with the nine comparison states in percentage of adults with one to three years of college. The percentage of adults in the United States age 25-64 who have completed between one and three years of college is 31.9 percent. In

¹² Bernstein, Aaron. "Where the Jobs Are Is Where the Skills Aren't," *Business Week*, September 19, 1988, p. 104.

¹³ Ibid., p. 108.

¹⁴ Ibid., p. 108.

Kansas, that figure is 34.2 percent. All other states except Colorado and North Dakota rank below. For adults aged 25-64 in the United States who have four or more years of college, the U.S. average is 16.2 percent. In Kansas, it is 17 percent.

When ranking states by the educational attainment of populations over the age of 25, Kansas ranked fourth in the nation in the percentage who completed high school (Table 10). This exceeded all nine comparison states. Kansas also ranked thirteenth in the nation in quality of available work force. Available work force is measured by the percentage of adults over 25 years with a high school education and with four year of college education; the number of engineers and scientists as a percentage of the civilian labor force; the ratio of employed adults to total adult population; and the ratio of workers employed in advanced technologies to total employed workers. For the comparison states, only Colorado exceeded Kansas in this category.

F. Change in Labor Demand

In 1980, approximately 7.1 percent of the U.S. civilian labor force was unemployed. At this same time, approximately 4 percent of the Kansas civilian labor force was unemployed.¹⁵ Moreover, the participation rate - that is, the number of people in the labor force divided by the total population - has been increasing in Kansas. In 1970, 58.2 percent of all Kansans were in the labor force. In 1980, this had increased to 63.8 percent.¹⁶ The *Kansas Business Review* published figures for employment in Kansas for high technology workers. Between 1970 and 1980, there were increases in the number of high technology

¹⁵ U.S. Department of Labor, *Employment and Earnings*, January 1981.

¹⁶ Bureau of the Census, *General Social and Economic Characteristics: Kansas*, 1970, 1980.

workers employed. The number of computer personnel employed rose 442.9 percent, and the number of scientists rose 60.5 percent. Employment projected from 1980 to 1990 predicts increases of 49.7 percent for engineers and 64.3 percent for computer personnel.¹⁷

Important challenges in the quality of labor face the nation. More than half of all jobs created before the end of this century will require post-secondary education; nearly one-third will require college graduates (compared with 22 percent today).¹⁸ Most new jobs will require more education (Table 11). A closer look at skills required for employment at the end of the century shows a direct correlation between level of skills required and the rate of growth of employment in the occupation. The faster growing jobs require much higher math, language, and reasoning capabilities than slower growing and declining jobs.¹⁹

When language, reasoning and mathematics skill requirements are averaged, 4 percent of the new jobs in 2000 will be filled by workers with the lowest level skills, compared to 9 percent of jobs requiring such low skills today (Figure 4). In 2000, 41 percent of the new jobs will require skills ranked in one of the top three categories compared to the current 24 percent (Figure 4).

Looking at employment projections for specific labor groups, the most notable growth in Kansas will occur in the areas of skilled crafts, managers and officials, clerical and sales workers (Table 12). The most notable decline will occur for farmers and farm workers.

¹⁷ Sexton, Richard. "The Kansas High-Tech Labor Force: Trends and Projections," *Kansas Business Review*, 1983.

¹⁸ Johnston, *Workforce 2000*, p. 97.

¹⁹ Johnston, *Workforce 2000*, p. 99.

Until recently, workers with limited academic skills could still succeed in America. Many jobs simply required motions of a regularized process or a repetitive interaction with machines. Today, workers are increasingly required to have reading, computation, and problem-solving skills. The economy of the future will not produce or sustain high-wage, low-skill jobs. The individuals with good jobs in the future will be those who are well-trained, well-educated, and can be productive in a high-skill, service economy. The state that prepares its work force for this future will be more successful in maintaining a high-productivity, high-wage economy.

G. Implications for Kansas Economic Development

To summarize, changes are underway in Kansas and the U.S. that have important implications for the Kansas economy:

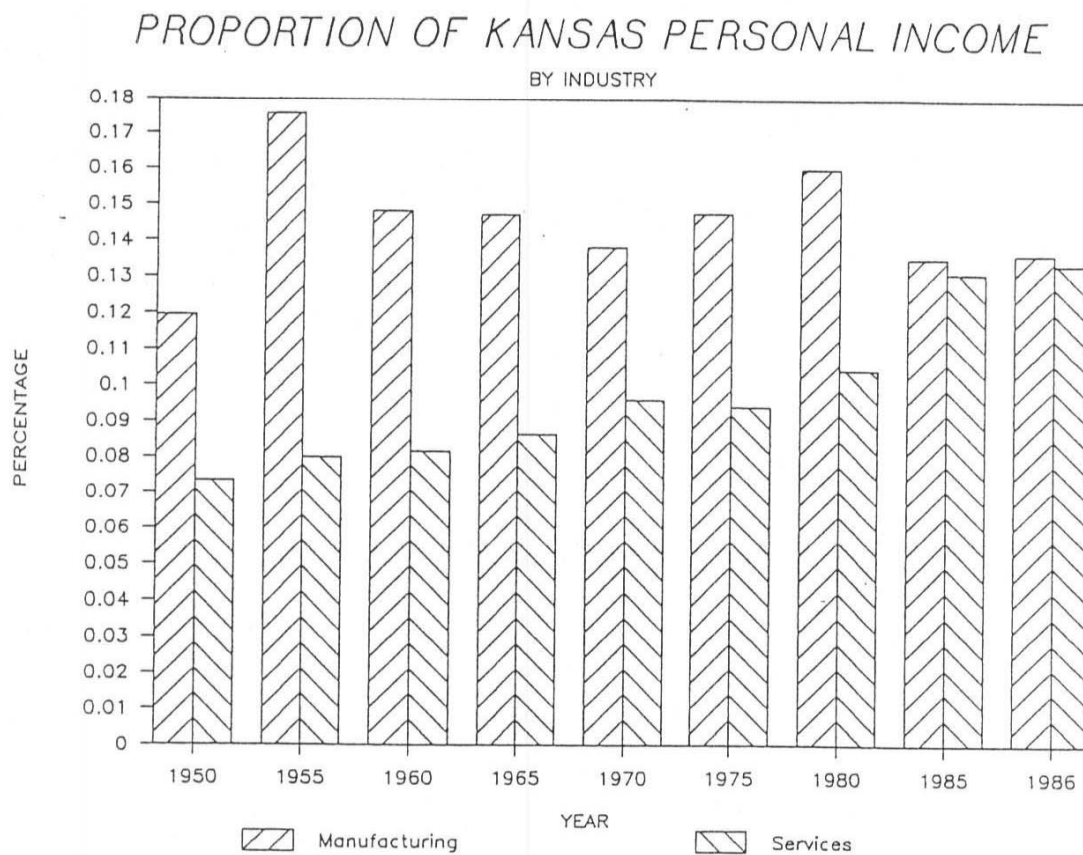
1. Skill requirements are rising and will continue to do so. A more complex world demands more complex skills.
2. Change is occurring more quickly. Because of rapid technological change, technical skills become outdated more quickly. The work force must be committed to life long learning to be able to adapt to this change. To be flexible, the work force must have a good foundation in basic skills, must know how to learn, must communicate effectively, think creatively, and solve problems.
3. A shortage of traditional new workers (white males) will require Kansas to retrain existing workers, and to bring non-traditional workers such as women and minorities into the work force in occupations requiring technical skills.
4. Because work force shortages are predicted nationwide, a state's competitiveness will be determined in part by the policies it adopts to deal with the shortage, particularly for skilled employees.

Kansas can meet the demands of restructuring its economy to be more competitive internationally by lowering wages (and therefore lowering real income) or by initiating a major effort to improve management and production

systems, stimulate innovations in advanced technologies, revise outdated public policies that hamper international competition, and above all, upgrade the skills of workers through better education, labor adjustment policies, and job training.

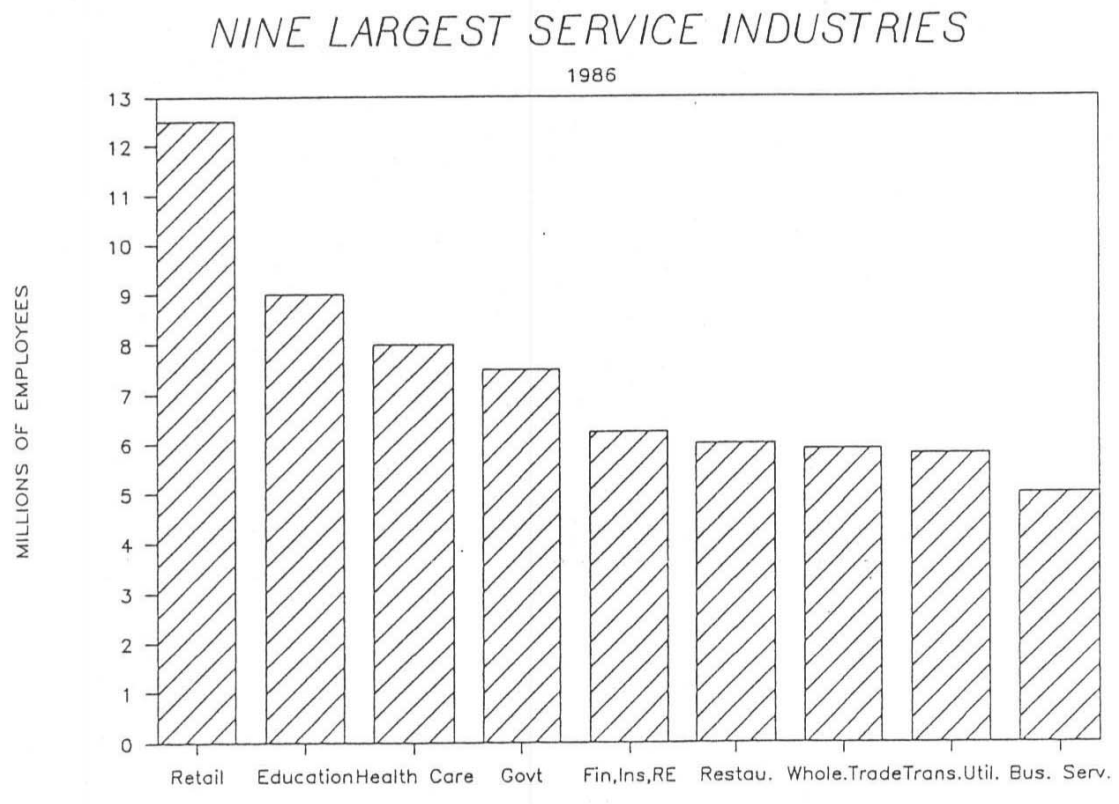
Improving the quality of education (raising the math, language, and reasoning skill levels of entry-level workers) and retraining (giving older workers new, more marketable skills) should be at the center of any economic development plan for the state of Kansas. Evaluating Kansas' ability to do this through its vocational-technical education system is the focus of this report.

Figure 1



Source: derived from U.S. Bureau of Economic Analysis, State Personal Income, 1929-82, 1984; and Local Area Personal Income: 1981-86, Volume 3, 1988.

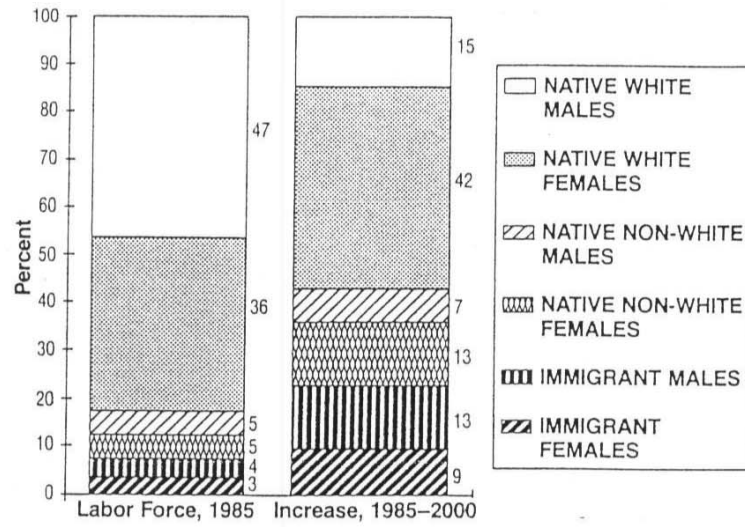
Figure 2



Source: derived from U.S. Bureau of Labor Statistics, Employment and Earnings, 1987.

Figure 3

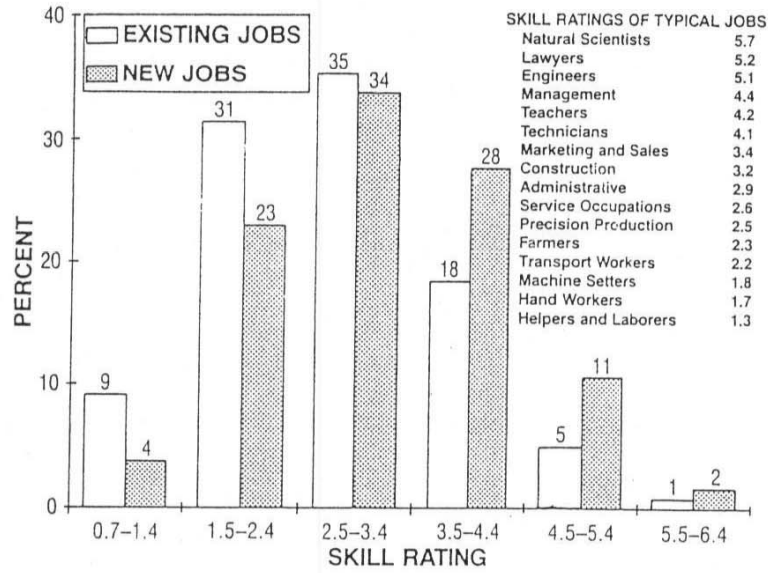
MOST NEW ENTRANTS TO THE LABOR FORCE WILL BE NON-WHITE, FEMALE OR IMMIGRANTS



Source: Hudson Institute

Figure 4

LOW SKILLED JOBS ARE DECLINING



Source: Hudson Institute.

TABLE 1

U.S. LABOR FORCE, 1950-2000

<u>Year</u>	<u>Gains From Labor Force</u> (millions)	<u>Previous Period</u> (millions)
1950	62.2	9.5
1960	69.6	7.4
1970	82.8	13.2
1980	106.9	24.1
1990	124.6	18.0
2000	140.5	15.6

Source: Bureau of Labor Statistics, *Handbook of Labor Statistics*, 1985, Table 4, and Hudson Institute.

TABLE 2

KANSAS TOTAL EMPLOYMENT, 1950-2000

<u>Year</u>	<u>Labor Force</u> (thousands)	<u>% Gain from Previous Period</u>
1950	724	X
1960	828	14
1970	885	7
1980	1131	28
1990	1338	18
2000	1470	10

Source: Historical data - Kansas Department of Human Resources, Research and Analysis Section. Projections - U.S. Department of Labor, Bureau of Economic Analysis Regional Projections.

TABLE 3
AGE GROUP AS A PERCENT OF THE KANSAS POPULATION
(1960-2020)

Age Group	1960	1970	1980	1990	2000	2010	2020
15-24	13.31	18.06	19.06	13.62	14.53	13.99	12.33
25-44	24.99	22.30	26.41	32.24	29.29	25.89	26.63
45-54	10.88	11.00	9.79	9.66	13.75	15.50	11.47
55-64	8.93	9.42	9.56	8.28	8.45	12.25	14.01
65 and Over	11.03	11.85	12.96	12.95	12.69	13.01	16.77
Total*	2,179	2,247	2,364	2,497	2,601	2,699	2,780

* Total population in thousands.

Source: U.S. Bureau of the Census and IPPBR Population Projections for 1990-2020.

TABLE 4
SMALL MANUFACTURERS REPORT OF WORK FORCE SHORTAGES
DEGREE OF DIFFICULTY FILLING POSITION:

Position	Very diff.	Fairly diff.	Not too diff.	Not at all diff.	Have no jobs of this type	No response
Unskilled labor	4%	23%	42%	19%	8%	4%
Skilled labor	35%	38%	18%	0%	5%	4%
Clerical workers	4%	27%	50%	15%	0%	4%
Mid-level executives	8%	34%	26%	5%	18%	9%
Senior-level executives	17%	22%	14%	4%	34%	9%

Source: National Association of Manufacturers Small Manufacturers Operating Survey, 1989.

TABLE 5
THE CHANGING ROLE OF WOMEN IN THE WORK FORCE
(numbers in thousands, except for percent)

Category	1950	1960	1970	1980	1990	2000
Women in the Work Force	18,389	23,240	31,543	45,487	57,230	66,670
Participation Rate	33.9	37.7	43.3	51.5	57.5	61.1
Share of Work Force	29.6	33.4	38.1	42.5	45.8	47.5

Source: U.S. Bureau of Labor Statistics, *Handbook of Labor Statistics*, 1985, Tables 4 and 5; and unpublished data.

Table 6

WOMEN IN THE LABOR FORCE AS A PERCENTAGE OF TOTAL EMPLOYED CIVILIANS

Women	1976	1980	1986	2000
U.S.	39.7%	42.4%	44.4%	47.0%
Kansas	39.1%	43.1%	44.6%	47.5%

Source: U.S. Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, 1976, 1980, and 1986.

TABLE 7
NON-WHITES SHARE OF THE U.S. WORK FORCE
(millions)

Category	1970	1985	2000
Working Age Population (16+)	137.1	184.1	213.7
Non-White Share	10.9%	13.6%	15.7%
Labor Force	82.8	115.5	140.4
Non-White Share	11.1%	13.1%	15.5%
Labor Force Increase (Over Previous Period)	X	32.7	25.0
Non-White Share	X	18.4%	29.0%

Source: Bureau of Labor Statistics, *Handbook of Labor Statistics*, 1985, Table 4 and 5; and Hudson Institute.

TABLE 8

MINORITIES IN THE WORK FORCE AS A PERCENTAGE OF TOTAL EMPLOYED CIVILIANS

	1970	1976	1980	1986
U.S.	10.7%	10.8%	11.2%	16.4%
Kansas	5.2%	4.7%	5.0%	6.8%

Source: U.S. Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, 1976, 1980, and 1986; U.S. Census of Population, 1970.

TABLE 9

COMPARATIVE POST-SECONDARY EDUCATION, ADULTS 25-64
U.S., Kansas and Comparative States
1980

State	Median Years School	High School Completed	1 - 3 Years College	4 or More Years College
Colorado	12.8	78.6	44.1	23.0
KANSAS	12.6	73.3	34.2	17.0
UNITED STATES	12.5	66.5	31.9	16.2
Nebraska	12.6	73.4	32.8	15.5
Oklahoma	12.5	66.0	31.2	15.1
North Dakota	12.5	66.4	35.1	14.8
South Dakota	12.5	67.9	31.7	14.0
Iowa	12.5	71.5	28.6	13.9
Missouri	12.4	63.5	27.2	13.9
North Carolina	12.2	54.8	27.0	13.2
Indiana	12.4	66.4	24.6	12.5

Source: 1987 Educational Statistic Digest and Bureau of the Census, 1980 Census.

TABLE 10
COMPARATIVE STATE RANKINGS, POPULATION OVER 25
Completed High School 1984 and 1985
Available Work Force 1986 - 1987

State	% of Population 25 and over who have completed High School		Available Work Force*	
	1984	1985	1986	1987
Colorado	6	6	9	6
KANSAS	7	4	16	13
Missouri	29	29	21	17
Indiana	33	30	34	25
Iowa	13	8	39	26
Nebraska	2	10	32	27
Oklahoma	26	22	33	29
North Dakota	12	9	37	38
North Carolina	43	41	29	39
South Dakota	18	17	38	40

*Available Work Force - Percent of adults over 25 with a high school education, and with four years college education; number of engineers and scientists as a percent of civilian labor force; ratio of employed adults to total adult population; and ratio of workers employed in advanced technology industries to total employed workers.

Source: Grant Thornton Manufacturing Climate Studies, 1985-1988.

TABLE 11
REQUIRED SCHOOLING FOR CURRENT AND NEW JOBS

Category	Current Jobs	New Jobs
Total	100%	100%
8 Years or Less	6%	4%
1-3 Years of High School	12%	10%
4 Years of High School	40%	35%
1-3 Years of College	20%	22%
4 Years of College or More	22%	30%
Median Years of School	12.8	13.5

Source: Bureau of Labor Statistics, Hudson Institute.

TABLE 12
KANSAS EMPLOYMENT PROJECTIONS

Category	1982	1990	Percent Change
Clerical	186,670	235,030	25.91%
Service	214,850	258,950	20.53%
Professional, Technical	156,080	197,670	26.65%
Skilled Crafts	109,810	142,100	29.41%
Managers and Officials	89,450	113,070	26.41%
Sales Force	60,850	75,050	23.34%
Farmers and Farm Workers	66,480	61,940	-6.83%

Source: Department of Human Resources, Outlook 1990.

III. TECHNICAL AND VOCATIONAL TRAINING FROM THE PERSPECTIVE OF KANSAS BUSINESSES

A. Introduction

Traditionally, Kansas has been strong in human capital. Because of this tradition, developing the state's human capital, particularly in the areas of increasing labor force participation rates and in providing skill training and retraining, has not received priority attention in the state's economic development initiatives. Thus, the state lacks an up-to-date strategy for developing the current and future skilled work force. However, before such a strategy can be developed, the needs of business and industry must be defined.

National surveys of business and industry indicate skill requirements are rising and will continue to do so. Because of rapid technological change, technical skills become outdated more quickly, requiring the work force to be committed to life long learning to keep pace with change. Nationally, employers are saying the work force must have a good foundation in basic academic skills, must know how to learn, must communicate effectively, think creatively, and solve problems. The demand for a more sophisticated work force coincides with decreases in the number of new traditional workers (white males), which necessitates using nontraditional workers (women, minorities) in the work force.

To determine if trends reported nationally exist in Kansas, a survey of Kansas business and industry was conducted. The purpose of the survey was to:

1. Determine how extensively Kansas employers utilize the state's technical and vocational training system and what their evaluation of the system is;
2. Determine skill areas in which Kansas' work force needs improvement;
3. Determine the level of Kansas employer's interest in customized training;

4. Determine what the technical and vocational training system needs to do to meet the training and retraining needs of the Kansas work force.

B. Procedures

Using a data base furnished by the State Department of Human Resources, 618 firms completed a telephone survey. The sample included businesses judged to be more likely to utilize the technical training system. Firms NOT included were firms having less than five employees and firms with certain SIC classifications (personal services, miscellaneous retail, eating and drinking places, food stores, membership organizations). The sample was over weighted for manufacturing firms. Table 13 presents a break down of firms who participated by number of employees, setting, and manufacturing/nonmanufacturing categories.

Firms were scheduled for a 30 minute telephone interview. The director of human resources or the president of the firm was interviewed in most companies. An initial phone call explained the purpose of the survey and established an appointment for a second call during which the survey was administered. A letter was sent after the first call confirming the survey appointment time listing several of the more complicated survey items for the respondent to complete prior to the appointment time.

C. Results

1. Source and Evaluation of Training

Fifty-four percent of firms surveyed intentionally employed community college and AVTS trainees. Forty-nine percent of the firms utilized technical or vocational training programs to retrain (upgrade the skills) their current employees. For those firms investing in human capital (retraining employees),

professional association seminars, vendor training, and community colleges were used by most firms (Table 14). Firms more likely to obtain training for their employees included large and medium size firms, firms expecting technology impact (technology-driven firms), and firms using customized training. Small firms and firms who are not technology driven do not utilize the training system as much.

Those hiring trainees from the public technical and vocational institutions were satisfied with the skills of those employees (Table 15). High levels of satisfaction would be expected of firms who intentionally hire trainees from these institutions, so all firms were asked to evaluate the quality of technical and vocational training from all available external sources (those listed in Table 14). On average, firms rated all sources as adequate. The only exception was training offered at local high schools which was rated midway between "needs improvement" and "adequate." Manufacturers rated training received from high schools, community colleges, private colleges/universities, and consultants/commercial trainers lower than did nonmanufacturers.

For the 51 percent who did NOT utilize the technical and vocational training system within the last five years, on-the-job training and in-house training programs were most frequently used (Table 16). Manufacturers and technology-driven firms were less likely to say that their employees did NOT need training. These types of firms reported that the lack of training designed to meet their needs was a barrier to utilizing external training sources. Technology-driven firms also utilized external training sources less because training was too expensive.

2. Work Force Skill Improvement

Sixty-five percent of firms surveyed reported that technology changes will

increase the level of skills needed by their employees over the next five years. Because of the impact of rapid technological change, Kansas employers (like employers nationally) report gaps between the skill of newly hired and existing employees and the skill levels needed by the firm.

When asked to describe their problems in finding skilled employees, the majority of firms reported a moderate to severe gap between the skills of newly hired employees and the needs of the firm (Table 17). The problem of finding skilled employees is serious, more serious than two or three years ago, and is projected to become more severe in the near future.

On average, Kansas firms perceive (and expect in the future) moderate problems in finding skilled workers. These perceptions were analyzed for different types of firms. Probably because large firms can attract better trained employees, small and medium sized firms perceived the gap between qualification of newly hired workers and the needs of their businesses to be significantly larger than did large firms. Overall, medium sized firms perceived a greater problem with the availability of skilled employees than did large and small firms. Manufacturing firms reported a larger gap between the qualifications of newly hired workers and the firm's skill needs than did non-manufacturing firms. Availability of skilled workers was a significantly greater problem for firms which were technology driven than for firms which were not.

To further define improvements needed in the Kansas work force, firms were asked to indicate areas in which newly hired employees and current employees needed improvement. Table 18 shows that Kansas firms, like firms around the country, are more concerned about their employees' basic academic skills and general work skills than about their technical skills. However, when analyzed

by various subgroups, improvement in technical, machine, and trade/craft skills were important for manufacturing and technology-driven firms.

Similar analysis for areas needing improvement showed that current employees will need retraining to cope with technological changes. Again, areas needing retraining were basic academic skills and general work skills (Table 19). Manufacturers and technology-driven firms predicted current employees would also need retraining in technical and microcomputer skills.

These results show that, at a time when work force skill requirements are increasing and predicted to increase further as technology changes, the work force's motivation, attitudes toward work, work habits, and goals are judged to need improvement. Thus, the next logical question is what should the training system do to ensure the work force is prepared to meet the needs of Kansas' employers.

3. Work Force Training Needs

Several issues must be addressed if the vocational-technical training system is to meet the training needs of Kansas business and industry. Areas of particular concern include customized training, funding, quality of programs, equipment, and instructors.

Customized Training. As reported earlier, nearly 40 percent of firms who had not used technical and vocational training for their employees reported that training that met their needs could not be found. This suggests that customized training is needed. Customized training is designed and tailored specifically to meet the needs of a particular client. The training may be designed to present specific information or teach particular skills of interest. Likewise, the training may be scheduled at times and delivered in a time frame suited to the particular needs of the client.

Thirty-six percent of firms surveyed reported using customized training in the past five years (Table 20). More large firms (62 percent) use customized training than small (21 percent) and medium sized firms (40 percent). Manufacturers used customized training more than non-manufacturers and firms in urban and mid-sized counties used it more frequently than firms in rural counties. Thus, smaller firms and firms in rural areas did not have access to customized training as much as other firms. Lack of utilization was not due to a bias against customized training. Firms which did not use customized training reported that they considered customized training to be more cost effective than other forms of training (Table 21). Lack of utilization must be due to other variables.

Promotion or marketing of customized training is one way firms find out about customized training. Since community colleges and AVTS' do not, for the most part, have well organized mechanisms for marketing customized training (and may actually choose not to aggressively market due to funding risks involved with customized training), it is not surprising that most firms reported they were not contacted over the last three years about these institutions providing customized training. Sixty-five percent reported never being contacted by community colleges and 70 percent were never contacted by AVTS' (Table 22). Also, large and medium-sized firms were more likely to be called upon by community colleges and AVTS' than were small firms.

Sources of training which have established mechanisms for informing firms about customized training are receiving a larger share of the customized training market. Table 23 shows that consultants/commercial trainers and vendors (suppliers of equipment and systems) are sources of customized training used most frequently by the largest number of firms. Twelve percent of firms

using customized training worked most frequently with community colleges, while nine percent utilized AVTS' most frequently.

Funding. Sixty-eight percent of the firms surveyed reported that they paid the total cost of employee training, 20 percent used a combination of firm and public funds, 19 percent used Job Training Partnership Act (JTPA) funds, and seven percent used Kansas Industrial Training (KIT) funds. Firms which are solely Kansas firms (those whose Kansas operations are not part of a larger non-Kansas corporation) spent a median amount of \$1,000 on employee training. The median amount for Kansas plus non-Kansas owned firms was \$2,000. Since the median number of employees for the entire sample (Kansas plus non-Kansas owned firms) was 60 employees, firms spent an average of \$33.33 training each employee.

Clearly, investment in human capital is low. Large firms spent significantly more on training than small firms and reported using KIT funds more than medium size and small firms. Large and medium size firms used JTPA funds as well as a combination of firm and public funds to a significantly greater extent than small firms. Thus, large firms were more successful than small and medium-sized firms in accessing external funding sources to support training. To promote small and medium-sized firms (the backbone of the Kansas economy) investment in human capital, these firms need access to external funding sources to help support training costs. Without this support, small and medium-sized firms will not remain competitive. If they do not invest in their employees because of funding difficulty, they will lose their competitive edge. If they invest in employee training and do not have external funding sources similar to those obtained by large companies, they cannot compete with large companies in operating costs.

Quality of Training. Generally, firms rate the quality of technical and vocational education in Kansas as adequate. However, 22 percent reported that programs and courses needed improvement, 15 percent reported instructors needed improvement, and 25 percent reported equipment needed improvement. In addition, 83 percent of all firms agreed that it was important for community colleges and AVTS' to train using technically advanced equipment. These results suggest that providing adequate equipment for training may become an important issue as technological changes make it increasingly difficult for schools and instructors to keep up with increasingly sophisticated equipment. When asked what changes would increase the likelihood of the firm using training services from community colleges or AVTS', a large percentage of the firms reported moderate interest in receiving: 1) more information about what training programs were available; 2) state assistance in reducing the cost of training; 3) greater flexibility in scheduling of training; 4) greater relevance of training to firm's training needs, 5) more up-to-date equipment; and 6) more highly qualified instructors.

4. Private-Public Partnership in Meeting Work Force Training Needs

While firms reported that the state's vocational-technical training system needed to customized training to fit business training needs, needed to improve equipment, and needed to improve instructors' qualifications, firms were limited in what they were able or willing to do to help make the system more responsive to their needs. Executives of large firms, of firms who intentionally employed community college and AVTS trainees, and of manufacturing firms who were technology driven or used customized training were slightly to moderately interested in serving on advisory boards. Firms of all types had only slight interest in donating equipment for programs or donating staff time to assist with teaching courses. However, large firms and manufacturing firms were

moderately interested in assisting with development of new community college and AVTS training programs. Results also indicated that firms which intentionally employed community college and AVTS trainees, were technology driven, used technical and vocational training, and/or used customized training had a significantly greater interest in working with community colleges and AVTS.' Likewise, large and medium-sized firms and firms located in mid-sized and urban counties were significantly more interested in some degree of interaction with vocational and technical education institutions.

D. Implications

These results indicate a willingness on the part of business to participate in the development and improvement of training programs. Mechanisms to encourage meaningful participation need to be developed to facilitate business input into the vocational and technical education system. Increased business commitment and partnership in postsecondary technical education would ensure that the system would be more market driven and responsive to work force training needs.

While firms judge the current technical education system to be adequate, signs of strain or contradiction were detected. Business and industry need training designed to meet their work force training needs. Those needs have and will continue to move toward more emphasis upon basic academic skills, work habits and attitudes, and increased technical skills. A more diversified population will need to be served. Adults will continue to utilize the system in increasing numbers to obtain basic literacy and technical skills as well as upgrade academic and technical skills. The system may be on the brink of having programs, instructors, and equipment which are able to keep up with the pace of these changes.

TABLE 13
TYPES OF FIRMS PARTICIPATING IN SURVEY

Category	Total Sample	Manufacturing	Nonmanufacturing
Number of Firms	618	320	298
Number of Employees			
Mean	189	174	206
Median	60	67	56
Std. Dev.	510	395	610
Low	2	3	2
High	7500	400	7500
Firm Size Category			
% Small (5-49)	42.6	39.4	46.0
% Medium (50-250)	39.5	42.8	35.9
% Large (251+)	18.0	17.8	18.1
Setting**			
No. of Counties	88	65	69
% Rural	20.4	16.2	24.9
% Mid-Sized	31.2	36.3	25.8
% Urban	48.4	47.5	49.3

** Chi Square Index Significant at $p \leq .01$

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

Table 14
SOURCES OF TECHNICAL AND VOCATIONAL TRAINING

Source:	% of Total Sample
Professional association seminars	76%
Vendors (equipment & system suppliers)	71
Community college	64
Consultants/other commercial trainers	62
Area vocational technical school	61
State university	47
Local high school	23
Private college/university	22
Apprenticeship training (union training)	20
Private vocational technical school	17
Pittsburg State University	15
Other	13
Washburn University	10
Kansas College of Technology	10

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

Table 15
SATISFACTION WITH TECHNICAL OR VOCATIONAL SKILLS OF TRAINED EMPLOYEES

Intentionally Hire:	Level of Satisfaction:	
	% Dissatisfied	% Satisfied
Community College	9%	91%
AVTS	11	89
Pittsburg State	1	99
Washburn University	8	92
Ks. College of Tech.	9	91

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

TABLE 16
REASONS FIRMS DO NOT INVEST IN HUMAN CAPITAL

Reason:	Percentage of Firms:
Do on-the-job training	88%
Developed in-house training	75
Employees haven't needed training	41
Can't find training that meets needs	38
Training is too expensive	25
Other	13

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

TABLE 17
EVALUATION OF WORK FORCE QUALITY AND QUANTITY

Evaluation:	Percentage of Firms:
Moderate to severe gap between skills of newly hired employees and needs of firm	58%
Moderately to extremely difficult to find skilled employees	51%
Slightly to much more difficult to hire today than two to three years ago	69%
Slightly to much more difficult to hire in the next two to three years	70%

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

TABLE 18

SKILL IMPROVEMENTS NEEDED BY NEWLY HIRED EMPLOYEES

Area Needing Improvement:	Total Group Percentage:	Percentage of Subgroups:		
		Manuf.	Non- manuf.	Technol. Driven*
Goal setting and personal motivation	79%	77%	82%	84%
Proper attitudes toward work & work habits	77	79	75	81
Organizational effectiveness & leadership	75	73	77	79
Listening & oral communication	72	70	74	78
Problem solving	70	73	66	76
Teamwork	70	71	70	76
Adaptability/flexibility	66	63	69	71
Interpersonal relations	60	57	63	63
Comprehension/understanding	60	60	60	68
Writing	60	55	66	63
Business/management	57	53	61	62
Computation	52	54	49	58
Microcomputer	47	47	48	54
Reading	43	45	42	46
Technical	42	50	32	51
Skilled trades/crafts	40	50	30	48
Mechanical	38	46	28	43
Machine operation	37	50	22	40
General labor	31	34	27	35
Clerical	29	25	33	32
Electrical	25	32	18	31
Mainframe computer	22	21	24	27
Other	8	9	7	9

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

*Technology driven firms are those firms that responded that technology changes will increase the level of technical or vocational skills needed by their employees over the next five years.

TABLE 19

SKILL IMPROVEMENTS NEEDED BY CURRENT EMPLOYEES
TO COPE WITH TECHNOLOGICAL CHANGE OVER THE NEXT FIVE YEARS

Area Needing Improvement:	Total Group Percentage:	Percentage of Subgroups:		
		Manuf.	Non- manuf.	Technol. Driven
Problem solving	72%	72%	71%	80%
Adaptability/flexibility	72	70	75	79
Teamwork	71	72	70	77
Goal setting and personal motivation	71	69	72	77
Proper attitudes toward work & work habits	70	71	69	76
Organizational effectiveness & leadership	68	67	70	75
Comprehension/understanding	68	67	68	75
Microcomputer	67	66	69	75
Listening & oral communication	65	64	66	70
Business/management	58	53	65	65
Interpersonal relations	56	53	60	62
Technical	56	63	48	66
Computation	56	59	54	64
Reading	51	52	49	57
Writing	49	45	54	53
Machine operation	44	56	30	49
Skilled trades/crafts	41	46	34	48
Mechanical	40	47	33	46
Clerical	35	31	40	39
Mainframe computer	35	34	36	38
Electrical	33	39	25	38
General labor	30	33	27	33
Other	8	9	7	9

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

TABLE 20

UTILIZATION OF CUSTOMIZED TRAINING

Portion of Sample:	Percentage of Firms:
Total sample	36%
Subsamples:	
By Size	
Small	21
Medium	40
Large	62
By Type	
Manufacturing	68
Nonmanufacturing	61
By Setting (County)	
Rural	28
Mid-size	37
Urban	38

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

TABLE 21

PERCENTAGE AGREEING THAT CUSTOMIZED TRAINING IS COST EFFECTIVE

Total sample	82%
Firms using customized training	88%
Firms NOT using customized training	78%

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

TABLE 22

EXTENT OF PROMOTION OF CUSTOMIZED TRAINING BY
COMMUNITY COLLEGES AND AVTS' IN KANSAS

	Never	Once in 3 Years	Once Per Year	Twice + Per Year	Mean	N
Community College	65%	10%	12%	13%	1.7	596
AVTS	70%	12%	10%	8%	1.6	594

Source: Instiute for Public Policy and Business Research, Business Survey, 1989.

TABLE 23

MOST FREQUENTLY USED SOURCE OF CUSTOMIZED TRAINING

Source:	Percentage of Firms:
Consultants/commercial trainers	25%
Vendors	19
None. Developed in-house training	14
Community colleges	12
Area vocational technical schools	9
Kansas College of Technology	6
Apprenticeship training	5
Private vocational technical school	4
Other (high schools, university, etc.)	6

Source: Institute for Public Policy and Business Research, Business Survey, 1989.

IV. Kansas' Postsecondary Vocational-Technical Training System: Survey of Kansas Institutions that Provide Training

A. Introduction

Kansas' postsecondary vocational and technical training system consists of 16 area vocational and technical schools (AVTS) and 19 community colleges. Two AVTS' are located at community colleges. In addition, postsecondary vocational-technical training programs are offered at Pittsburg State University (PSU), Washburn University (WU), and Kansas College of Technology (KCT). These institutions are scattered throughout the state and each serves a specific region. Services include:

1. Providing complete training programs for secondary and postsecondary students in technical skills (this can include basic skill training in reading and math);
2. Providing adult education courses; and
3. Providing customized training for business and industry.

To determine how the system works, how services are provided to postsecondary, adult, and business-industry clients, and how well the system meets the state's needs for a well-trained, adaptable work force, a thorough analysis of the system was done.

B. Procedures

Because of the size and complexity of the vocational-technical education system in Kansas, information was collected from all institutions through written surveys and on-site visits to obtain enrollment, budgetary, and curriculum statistics. Each institution was asked to complete written surveys to be returned by mail or during on-site interviews.

C. Results

1. Programs

Program Description. The 19 community colleges offer 297 training programs in 76 occupational or career areas. Some programs are offered by only one college and other programs (e.g., office education) are offered by as many as 18 colleges. The 16 AVTS' offer 439 training programs in 98 career areas. Thus, a total of 736 programs are available. This diverse range of programs provides training for most business and industry sectors.

The vocational education system offers a wide range of programs designed to train the work force for jobs in each institutions' service region. In this regard, the system is meeting its mission of providing access to opportunities to acquire skills that will lead to employment. Key points regarding programs include:

- * Programs are market driven. Student demand is the greatest determinant of what is offered.
- * Business and industry influence the system by providing input into curriculum.
- * Programs serving the service sector have grown and now comprise 68 percent of programs offered. Less growth has occurred in manufacturing-related programs, which now comprise five percent of programs offered.
- * More programs were added than dropped in five of the last six years.
- * Educators think their programs are keeping pace with changing job skill requirements.
- * Educators think they need to improve their programs by producing more graduates, increasing business input, and improving customized training.
- * Technological changes are predicted to increase technical skills and academic skills (reading, communication, math, reasoning, problem solving) required of students.

2. Funding

Program Funding. Area vocational and technical schools rely on state and federal aid programs, payments by school districts on behalf of secondary students, student tuition for postsecondary students, and local resources for their support. The formula that provides funding from school districts for secondary students is driven by enrollment and measures of need which include local ability to pay (assessed valuation per pupil), percentage of low income families, and unemployment rate. The formula for postsecondary students is also enrollment driven and is prescribed by state statute. State aid is distributed to schools on the basis of postsecondary student enrollments, computed at 85 percent of the local cost per instructional hour of vocational students. (Student tuition charged is equal to 15 percent of the local cost per instructional hour.) The local cost per enrollment hour is determined separately for each institution by subtracting area vocational technical school program aid and capital outlay aid from the operating budget and dividing the result by the total number of enrollment hours²⁰. Allocation of state funds is based upon actual student attendance. Amount of state funds distributed to an institution decreases if students are absent from class or drop out of a program. Thus, the amount of state aid can decrease although the cost of delivering the program (e.g., instructor salary, equipment, etc.) remains stable. This practice makes it imperative for AVTS' to keep students in class for the duration of a program and makes it impossible for them to reward and release exemplary students who achieve competency prior to the completion of training (competency-based training). Competency-based training combined with

²⁰Task Force on Business Training, 1986.

open entry/open exit, under the current funding practices, would result in decreased state aid. Eight AVTS' have no access to supplemental funding. If enrollment exceeds levels planned for in the budget process, AVTS' cannot apply for supplemental funding from the state. Instead, AVTS' must go to the local school district for additional funds.

Community colleges rely mostly on property taxes, state aid, and student tuition for support. Formulas for state aid to community colleges are linked to credit hours of enrollment. The current rate of state aid for approved vocational programs is 1.5 times higher than that of academic programs because of the recognized higher cost of vocational programs. Community colleges receive \$39.375 per vocational credit hour in state aid for all vocational programs. This amount is not affected by student absences. Two community colleges which operate area vocational schools (Cowley County and Pratt Community Colleges) receive credit hour state aid at 2.0 times that of academic courses (\$52.50). Community colleges are reimbursed at the academic credit hour rate (\$26.25) for remedial courses. Reimbursement is limited to 18 hours of remedial training per student, with a limit of 12 hours per category (e.g., math, English, etc.).

These multiples are not based upon specific program costs. No verification of these weights based on an analysis of actual costs has been done. Based upon instructional program cost data received from Johnson County Community College, the average cost per credit hour for vocational-technical programs was \$141.85 (without capital; \$146.39 with capital) for FY 1987-88. Program cost per credit hour ranged from \$35.48 (Business Administration) to \$376.52 (Nursing). Based upon these data, the state's \$39.375 covers approximately 28 percent of the \$141.85 average cost per credit hour. With the

state aid equal to or only slightly less than the cost of some programs (e.g., Business Administration, Paralegal, Accounting), colleges experiencing financial difficulties may feel some incentive to offer less costly programs and not add more costly, highly technical programs (e.g., Biomedical Equipment Technology, Computer Systems Technology, Metal Fabrication, Manufacturing Technology, etc.) that would benefit local industry.

Out-district state aid is paid to a community college whenever a Kansas student enrolls who lives outside the college's district. In addition to out-district state aid, the out-district student's county of residence must also pay the community college at the same rate per credit hour. State and local administrators expressed strong dissatisfaction with this method of funding, and would like it eliminated.

The vocational education capital outlay aid program funds maintenance and instructional equipment. Funds appropriated for it are distributed on the basis of State Board of Education priorities. These funds are not always available. Since 1982, funds were appropriated for only three of the last eight fiscal years. During interviews, institution administrators emphasized the need for a stable or predictable funding base to allow planning for capital improvements and equipment purchase.

Eight institutions, or about 24 percent, felt that equipment needs were being met with Carl Perkins grants, capital outlay, and local funding. However, as one institution mentioned: "...in the future with the growth of high technology and demand by industry for highly trained employees, problems will become evident. Present equipment will become obsolete at a more rapid pace, and the demand to replace present equipment will cause budgeting problems. The state will have to increase funding for equipment through larger capital outlay

expenditures."

Key Findings. To summarize, key findings regarding funding include:

1. State aid to AVTS' is computed at 85 percent of the local cost per instruction hour. Schools lose state aid when students are absent or drop out, even though program costs remain constant.
2. Competency-based training requires an AVTS funding system that recognizes skill acquisition in addition to enrollment or attendance.
3. State aid for community college vocational programs is set at a flat rate, regardless of program cost. Highly technical programs are more expensive to offer. The current funding formula makes it difficult for colleges to offer programs that serve highly technical industries that are so important to the state's economy.
4. Out-district tuition creates tensions between community colleges and their neighboring counties and should be eliminated.
5. Capital outlay appropriations are used for maintenance and equipment. Appropriations have been too sporadic to allow schools to do long-term planning.
6. Schools believe training equipment is adequate, although they are struggling to maintain adequacy. Rapid technological changes are likely to strain the system's ability to provide adequate equipment. Funding will be a critical issue in the near future.

4. Expenditures

Kansas ranked twentieth in dollars spent per capita for education and twenty-third in dollars spent per \$1,000 of personal income. Audited expenditures for education increased 40.7 percent from 1983 to 1987 and vocational education expenditures at AVTS' and community colleges increased 27.6 percent. However, vocational education expenditures at AVTS' and community colleges decreased from 42.4 percent of total expenditures in 1983 to 38.4 percent in 1987.

According to administrators, equipment budgets are low. The Kansas Technology Enterprise Corporation (KTEC) equipment grant funds (\$250,000) are viewed as an excellent way to provide funds for programs which have economic development impact and which support jobs in new and/or existing business and industry.

Key Findings. Key findings regarding expenditures include:

1. Kansas ranks twentieth in dollars spent per capita for education.
2. Vocational education expenditures as a percentage of total education expenditures have decreased in recent years.
3. KTEC Equipment Grants have the potential to be an important source of funding for programs that contribute to economic development.

5. Enrollment

Vocational-Technical Programs. System wide, enrollment from 1983 to 1988 in vocational-technical programs increased 6.3 percent. AVTS' had large enrollments in services and strong enrollment in manufacturing-related programs. Community colleges main strength was in service related programs, with strong growth also occurring in manufacturing related programs.

A dramatic increase occurred in the number of adults enrolling at AVTS' and community colleges from 1984 to 1987 (Table 24). Adult enrollment increased dramatically across all program areas. Adult enrollment increases were particularly large in program areas where the rural economy was depressed (e.g., agriculture, construction) or where the economy as a whole showed growth (services). AVTS' had large enrollments in construction, business, and service areas. Community colleges also had large enrollments in business and health-education-social service areas.

Table 25 shows combined postsecondary and adult enrollment by career area. Total enrollment nearly doubled from 1984-85 to 1987-88 for schools whose program enrollment data were obtained. Areas that accounted for the largest percentage of total enrollment (services) showed little change in the proportion or percentage of total enrollment. In service areas, health-education-social service programs showed the greatest change across time (135 percent). Other areas (mining, construction, manufacturing) showed large changes, but they comprised a much smaller percentage of total enrollment.

Key Findings. Key findings about enrollment in vocational-technical programs were:

1. Enrollment in vocational-technical programs has increased 6.3 percent from 1983 to 1988.
2. Programs training skills used by the service sector have the largest enrollments at AVTS' and community colleges.
3. Manufacturing-related program enrollments represent a very small percentage of total enrollments. Manufacturing is a key industry in the state, yet enrollment represents only 2.8 percent of the total.
4. Adult student enrollment increased dramatically across all programs, creating a significant shift in the population served by vocational education institutions.

6. Remedial Training

In addition to providing technical training, AVTS' and community colleges provide training in basic academic skills for under-prepared students. These courses provide students with the basic reading, writing, and computational skills necessary to develop the higher order skills needed for survival in a changing and highly technical society. Currently, AVTS' do not receive state reimbursement for remedial education courses, although two programs are currently being piloted using federal funds at Southeast Kansas AVTS and Liberal

AVTS. Remedial credits do not count toward graduation. More than 3,000 students enrolled in remedial math, almost 2,500 took a remedial English course, and more than 1,400 enrolled in remedial reading. About 28 percent of all entering vocational student require remedial and developmental courses according to the survey.

Key Findings. Because more students are entering postsecondary institutions under-prepared for the training occurring there, remedial training has become a very important issue. Key findings include:

1. The number of students requiring remedial training in basic academic skills (reading, math, writing, etc.) is increasing.
2. The largest proportion of under-prepared students are young. Twenty-eight percent of entering students need remedial training and over half of them are 18 to 21 years of age.
3. Most institutions offer remedial training and generally encourage (but rarely require) under-prepared students to enroll in remedial courses.
4. Lack of funding discourages schools from requiring remedial training.
5. Eighty percent of the vocational education institutions rank entering students command of basic academic skills as fair to poor. Fifty-five percent rate exiting students as only having fair command.
6. Basic literacy training for existing work force is a need that vocational education institutions are facing.

7. Customized Training

To customize something is to alter it to the tastes of the buyer (Webster's Dictionary). Strictly speaking, customized training is designed and tailored specifically to meet specific needs of a particular client. Training that is customized is available only to the client or business contracting for the service and is not open for enrollment to the general student population.

Thus, if a firm pays for its employees enrollment in regularly scheduled programs or courses (e.g., word processing), that training is not customized.

Customized training provided employees of business and industry has grown substantially. Growth in this area has been rapid for some institutions, and the need to develop training quickly enough to meet the needs of businesses has strained the system. To provide the system with the mechanism to be more responsive to the need for customized training, the State Board of Education recently approved the Department of Education's request for a Business and Industry Training Program for each institution. Under this program, schools can submit requests for customized training, be assured of quick processing by the Department of Education, and, with approval, gain state aid for all customized training. Funding is frequently obtained through supplemental funds approved by the legislature. Community colleges are assured of receiving state aid for customized training through supplemental appropriations, while AVTS' are not. AVTS' do not have access to supplemental funds, making customized training a financial burden since funding is not guaranteed.

The most frequently used customized training marketing method is a reactive one - 97 percent of the institutions responding to the survey said they respond to company requests. Only 15 institutions, or 48 percent of all institutions responding, have a business and industry coordinator position. However, often the person responsible for coordinating business and industry is also responsible for continuing education, instruction, and/or admissions.

Key Findings. Customized training is a cost effective form of training for business and industry. Vocational education institutions are struggling to provide customized training. Key findings regarding customized training include:

1. Amount of customized training has increased, especially at community colleges.
2. The recently approved Business and Industry Training Program provides an excellent mechanism for meeting businesses' need for customized training. This program allows for efficient oversight by the Department of Education, making state aid available for approved courses.
3. Few institutions have a person dedicated to organizing and promoting customized training resources at vocational education institutions. Although most recognize the need for such a position as interest in customized training increases, few have resources available for funding.
4. With increased interest and demand for customized training, institutions are not always able to meet the demand due to difficulty in obtaining resources (staff, space, equipment).

8. Faculty Recruitment and Faculty Development

Key Findings. The key to quality vocational-technical training is well-trained faculty and instructors. Key findings regarding faculty recruitment and faculty development include:

1. Seventy-seven percent of the vocational education institutions have had some difficulty attracting adequately skilled faculty and instructors, especially in disciplines where industry salary levels and/or work force shortages exist.
2. Faculty development (retraining and skill upgrading) is voluntary at 73 percent of the institutions, largely because little or no funds are available to support faculty development.
3. An important faculty development mechanism is summer employment in industry. Industry can play an important role in subsidizing faculty development, especially in fields experiencing rapid technological change.

9. Articulation Agreements

The State Board of Education has promoted articulation of students from one level of education to another. The primary motivation is a concern for the student and an interest in allowing students to progress toward educational goals. Articulation agreements between postsecondary institutions exist at the

community college-regent institution level and at the area vocational technical school-community college level. Although most community colleges have an articulation agreement for at least one program with an AVTS, competition for students, differences in program quality, and differences in funding formulas were cited as barriers to cooperation.

Articulation agreements also exist at the secondary-postsecondary level. Technical preparation programs help bridge secondary technical training with postsecondary training by broadening the scope of technical and academic skill training. Tech-prep programs often include courses in applied math, applied science, principles of technology, as well as specific skill training. The benefit to students is a more rigorous program linking secondary and postsecondary education.

Key Findings. Articulation agreements are important in enabling persons wishing to obtain training to move through the system without undue repetition of course work. The key findings included:

1. Kansas has prepared the foundation upon which to develop a well-coordinated vocational-technical education system by establishing guidelines for articulation agreements. Attention must now focus upon encouraging more coordination across institutions to expand student access to advanced training with minimum course duplication.
2. Coordination is critical at the secondary-postsecondary level as well as at all levels of postsecondary training.
3. Pilot tech-prep programs are underway to broaden the scope of secondary vocational education by integrating technical, technological, and academic training.
4. State leadership is needed to promote cooperation and coordination among secondary institutions who currently compete for students.

D. Conclusion

The vocational education schools in Kansas ranked access and cooperation

with businesses as the most important issue facing them. This was followed by recruiting and attracting quality students and better funding for vocational education. For the future, these educators would like to see a better relationships with their business community. They also see the nature of the vocational student changing from the traditional student to the non-traditional adult student who seeks training to enter the work force or retraining to improve skills. Those seeking retraining to improve basic academic and/or technical skills will be served through customized training with increasing frequency.

Table 24

AREA VOCATIONAL-TECHNICAL SCHOOL AND COMMUNITY COLLEGE ADULT ENROLLMENT

	1984-85	1987-88	% Change
AVTS	4,256	16,165	280%
Comm. College	590	10,763	172%
TOTAL	4,846	26,928	456%

Source: Institute for Public Policy and Business Research, Vocational Institution Survey, Spring, 1989.

Table 25

AVTS AND COMMUNITY COLLEGE ENROLLMENT BY CAREER AREA:
POSTSECONDARY AND ADULT COMBINED

Career Area	1984-85		1987-88		% Change 1984-1987
	No.	% Total Enrollmt.	No.	% Total Enrollmt.	
Agriculture	974	4.25%	1,008	2.22%	3%
Mining	16	0.07%	75	0.17%	369%
Construction	895	3.90%	3,788	8.34%	323%
Manufacturing	403	1.76%	1,273	2.80%	216%
Transp./Util.	896	3.91%	1,298	2.86%	45%
Retail	402	1.75%	624	1.37%	55%
Financial/Ins.	475	2.07%	363	0.80%	-24%
Business Serv.	8,510	37.10%	16,829	37.07%	98%
Hlth,Ed,Soc.Serv.	4,918	21.44%	11,552	25.44%	135%
Legal Serv.	217	0.95%	315	0.69%	45%
Other Serv.	4,060	17.70%	6,395	14.09%	58%
Public Admin.	981	4.28%	1,735	3.82%	77%
Others	191	0.83%	146	0.32%	-24%
TOTAL	22,938		45,401		98%
MEAN	1,764		3,492		

Source: Institute for Public Policy and Business Research, Vocational Institution Survey, Spring, 1989.

V. THE ROLE OF ADVISORY COMMITTEES IN VOCATIONAL EDUCATION

A. Introduction

Every approved vocational-technical training program has a committee of technical advisors to provide input on issues pertaining to each program. In addition, some vocational education institutions also have an institution-wide advisory committee. These technical advisors are recruited from regional business and industry to meet with program faculty/instructors to ensure that programs train students to meet the needs of regional businesses. Advisory committee members should have considerable influence on vocational curriculum, since they were identified by vocational administrators and educators as the most important link between the business community and the educational institutions.²¹ To determine if advisory committee members are providing this critical link, their role in advising vocational programs was evaluated.

B. Procedures

To determine the role and impact of advisory committees on vocational and technical training programs offered in the State of Kansas, a survey was sent to a randomly selected sample of 325 advisory committee members. Surveys were returned by 116 committee members for a 36 percent response rate.

C. Results

1. Organization and Role of Advisory Committees

Program advisory committee members are selected from persons employed in the industry in which program graduates seek employment. Committee members are

²¹Institute for Public Policy and Business Research, Vocational Institution Survey, Spring, 1989.

generally nominated by one of four sources: current advisory committee members, school administrators, program faculty/instructors, or business and industry. About 50 percent of the committee members surveyed were nominated by faculty. Over half of the advisory committee members reported that their committee met either quarterly or semi-annually, with less than 9 percent meeting annually.

To determine major areas of responsibility, committee members were asked to rate their committee's current level of responsibility in several areas. The majority reported having some to considerable responsibility in the following areas: course/program change, course/program design, course/program review, suggest new equipment, and course/program evaluation. The majority reported having little or no responsibility for equipment fund raising, faculty evaluation, or observing teaching in progress. Most would like to see their level of responsibility increase in most areas except equipment fund raising, faculty evaluation, and observing teaching. Most wanted little or no responsibility in those three areas.

Members were asked to rate their current level of influence on decisions pertaining to several aspects of the programs they advised (Table 25). The strongest area of influence was in type of courses/programs offered. However, 18 percent reported they had little or no influence. When asked to rate the amount of influence on individual course and program content, 37 percent reported having considerable or full influence, while 29 percent reported they had little or no influence. Forty percent of the committee members reported they have little or no influence in determining equipment needs.

When asked what they think their level of influence should be in the future, the trend was toward considerable influence in most areas. The majority believe their role should be increased so they have considerable influence in

courses or programs offered, program content, job placement, and equipment purchase. They also indicated that they could assist in student and faculty recruitment.

The next area of concern in the survey dealt with the current level of involvement in equipment decisions and course and program content. Thirty-two percent of program advisory committee members reported that they review more than 50 percent of all new equipment proposals (Table 27). Almost 30 percent reported they review less than 50 percent of the new equipment proposals, and an additional 30 percent review none. New equipment proposals are rarely initiated by committee members, and committees rarely raise funds for equipment. Course/program changes are often not reviewed by advisory committees. Over half reported they did not review a majority of the proposed changes. Course/program changes were also rarely initiated by committees. Thus, committees initiated or reviewed less than half of all equipment proposals and course/program changes, but reported that their recommendations, when given, were often implemented.

Sixty-four percent of all members reported their level of involvement in program activities was about right, while 33 percent said they had too little involvement (Table 28). Community college program advisors were less satisfied with their level of involvement than AVTS advisors.

Fifty-nine percent of respondents would like to see the role of their committee increased, while 40 percent would like to see involvement stay the same (Table 29). In addition, many committee members commented that they felt their committee existed merely to fulfill a requirement. Many respondents commented that business and industry should become more involved as program advisors.

D. Quality of Programs

Advisory committee members evaluated the quality of the program they advised on several dimensions. Most rated the content of their program's courses and training as good (Table 30). Nineteen percent of community college committee members felt courses and training needed improvement. Instructors were rated good by the majority of members surveyed.

Adequacy of equipment was an issue that was very important to business and industry and to vocational institution administrators. Advisory committee members also reported that it was very important to train on the most technically advanced equipment. Over 75 percent of all members surveyed reported the equipment used by the program they advised was good or adequate. Again, a sizeable proportion (22 percent) of community college members said equipment needed improvement.

E. Quality of Students

Committee members were asked if students should be evaluated on their skill or competency level with business and industry participating in developing the standards. Ninety-two percent of the respondents favored business and industry's participation in the setting of standards. Seventy five percent of members are at least satisfied or very satisfied with the skill level of students completing the programs they advise, and only 17.4 percent were dissatisfied or very dissatisfied. When asked if committee members would hire a graduate of the program they advise, 89 percent responded yes.

To determine exactly what deficiencies exiting students have, committee members were asked to rate the degree of improvement needed in many areas. A substantial percentage (24 percent) reported no improvement needed in technical skills, while a similar percentage reported graduates need considerable

improvement in writing (28 percent), listening and oral communication (22 percent), problem solving (21 percent), goal setting and motivation (29 percent), organizational effectiveness and leadership skills (22 percent), and work attitudes (25 percent). These results indicate that vocational education institutions face considerable challenges in providing students with job-related skills that go beyond technical skill training.

F. Summary

Program advisory committees perform a critical function in the vocational education system. These committees are the most important link that institutions have to business and industry. Key findings from the survey of committee members are:

1. Program advisory committee members are utilized primarily to review program and equipment needs. Most reported they have some or considerable influence in these areas.
2. Even though oversight of programs was reportedly their primary function, committees often do not review program changes and equipment proposals.
3. Committees would like to be utilized more effectively. They would like to be more involved and have more responsibility and influence in program design, review, and change and in equipment decisions.
4. Quality of instructors and programs was generally rated good, although 19 percent of community college members reported that programs needed improvement.
5. Almost all committee members (87 percent) believe training should occur on the most technically advanced equipment. Over 75 percent rated training equipment adequate to good. Twenty-two percent of community college members said equipment needed improvement.
6. Advisory committees strongly favor competency-based student evaluation, with business and industry participation in defining competency standards.
7. Students exiting programs were described as having some deficiencies in technical, basic, academic, and other work-related skills (e.g., teamwork, problem solving, etc.).

8. Programs were rated as generally accessible in geographic and scheduling terms. Accessibility must be maintained, since employee access to retraining will be important over the next three to five years. Retraining needs will be driven by the substantial impact of technological change.

TABLE 26

CURRENT LEVEL OF ADVISORY COMMITTEE INFLUENCE AND LEVEL RECOMMENDED FOR THE FUTURE

AREA	CURRENT LEVEL			
	Full or Considerable	Some	Little or None	Don't Know
Course/Prog Offered	39%	38%	18%	5%
Program Content	37	31	29	4
Faculty Recruitment	6	11	67	16
Student Recruitment	10	29	53	8
Job Placement	21	34	39	5
Equipment Purchase	28	26	40	5

Source: Institute for Public Policy and Business Research, Advisory Committee Member Survey, June, 1989.

TABLE 27

DEGREE OF UTILIZATION OF ADVISORY COMMITTEES

	100%	> 50%	< 50%	NONE	DON'T KNOW
% Equipment Proposals Reviewed	10%	25%	29.5%	29.5%	9%
% Equipment Proposals Initiated	1	13	41	34	11
% Equipment Funds Raised	1	2	17	72	9
% Proposed Course Change Reviewed	15	27	38	15	5
% Proposed Course Change Initiated	0	15	54	23	8
% AC Recommendations Followed or Implemented	5	45	31	4	15

Source: Institute for Public Policy and Business Research, Advisory Committee Member Survey, June, 1989.

TABLE 28

INVOLVEMENT OF ADVISORY COMMITTEE IN PROGRAM ACTIVITIES

INVOLVEMENT	CC	AVTS	ALL
Too Little	42%	18%	33%
About Right	57	75	64
Too Active	1	7	3
Don't Know	0	0	0

Source: Institute for Public Policy and Business Research, Advisory Committee Survey, June, 1989.

Table 29

SEE THE ROLE OF YOUR ADVISORY COMMITTEE CHANGING

	CC	AVTS	ALL
Greatly Decreased	0%	2%	1%
Slightly Decreased	0	0	0
Stay the Same	35	48	40
Slightly Increased	45	48	46
Greatly Increased	20	2	13

Source: Institute for Public Policy and Business Research, Advisory Committee Member Survey, June, 1989.

Table 30

CONTENT OF COURSES/TRAINING OFFERED

RATING SCALE	CC	AVTS	ALL
Very Poor	4%	0%	2.5%
Needs Improvement	19	9	15.5
Adequate	21	18	20
Good	50	73	59
Don't Know	6	0	3

Source: Institute for Public Policy and Business Research, Advisory Committee Member Survey, June, 1989.

VI. THE JOB TRAINING PARTNERSHIP ACT

A. Introduction

The federal Job Training Partnership Act (JTPA) has been designed to provide employment assistance to the economically disadvantaged and the unemployed. Its primary goal is to educate and train the disadvantaged and unemployed for productive participation in the work force. Because the pool from which business and industry draws a significant portion of labor will grow slowly in the 1990's, JTPA will play an increasingly important role as states utilize all resources available to prepare the disadvantaged to meet business and industry work force requirements. Unfortunately, there are many disparities between the present educational and vocational condition of the disadvantaged and the projected needs of business and industry. Nevertheless, today's disadvantaged can overcome barriers to employment through education and training to become tomorrow's work force.

To determine how JTPA contributes to work force training and economic development in Kansas, two issues were examined:

1. The extent to which JTPA emphasizes short-term versus long-term placement of trainees - in short the extent to which JTPA invests in human capital;
2. How JTPA is coordinated with the rest of the work force training system in the state.

B. JTPA Background

JTPA was started in 1982. In establishing JTPA, Congress's intent was to invest in human capital and to increase employment opportunities for disadvantaged groups. States were given primary responsibility for managing the funds and services allocated and outlined in the act. Federal involvement

was limited to evaluation of states' programs.²² This approach provides states with the opportunity to use federal funds to achieve state economic development and human capital objectives. JTPA funds can be used by each SDA for remedial education, on-the-job training (OJT), customized training, classroom training (CRT), coordination projects with other social, training and education services, and a variety of special projects.

C. Procedures

Information concerning the state's utilization of JTPA funds was obtained through interviews with officials in each service delivery area (SDA) in Kansas, as well as an examination of Kansas state publications. Training and placement data were collected from each SDA and from the state Departments of Human Resources, Education, and Commerce. Communication with persons in other states, at the National Alliance of Business, and the National Governor's Association, as well as a literature search provided information concerning JTPA administration in other states. State overview reports were examined to collect data from SDAs outside of Kansas.

D. Findings

1. Short-Term vs. Long-Term Employment Goals

Federal evaluation of state JTPA programs have emphasized the short-term goal of job placement. This emphasis obscured the need to consider long-term goals such as earnings and long term employment opportunities. Because of the changes occurring in the work place, jobs in the 1990's that will offer long-term employment and advancement opportunities are those that will require higher

²²*The Job Training Partnership Act: A report by the National Commission for Employment Policy, September, 1987.*

skill levels. Those that hold jobs will need to have good technical skills, basic academic skills (reading, computation, communication, problem solving, etc.), and the motivation and ability to continue to learn and be trained. Thus, the strategy for long term gain in JTPA participation should be an emphasis on basic academic skills and the development of both academic and technical skill competencies.

Because of changes occurring in demographics, the labor force of the 1990's will have to rely more heavily upon the most disadvantaged portion of the labor force (e.g., minorities, women, hard core unemployed). These groups, more than other groups, need training in basic academic skills as well as technical skills. JTPA, as part of the state's job training system, needs to focus upon and train those not served by other segments of the system - the economically disadvantaged and unemployed. JTPA should focus upon providing the economically disadvantaged with basic academic and technical skills. Once competency has been demonstrated, JTPA participants can then be referred to other parts of the training system and to employers for further training (e.g., classroom training at community colleges and AVTS' and on-the-job training)

On-the-Job Training. Most on-the-job training served adults who were not on welfare. This suggests that on-the-job training is a short term mechanism that focuses on preparing those who are essentially job ready.

Classroom Training. Classroom training is the largest segment of JTPA funded training in Kansas. There is some feeling among JTPA administrators that educational services - not JTPA - should be addressing the problems associated with the disadvantaged. They favor the short term emphasis that would use JTPA to put people to work, not through school. Because putting people to work can no longer be separated from educating people, Kansas is presently involved in

the Project of the States pilot program, which is an encouraging step toward work force improvement. Because those with the most barriers to employment often possess the least number of skills, JTPA should focus on developing competencies so that employers are assured of a labor force which possesses an adequate level of basic academic and vocational skills. JTPA can insure that every participant has achieved adequate reading, computation, reasoning, and technical skills if the program uses demonstrated performance standards, not attendance records or placement quotas.

SDAs I and V (both administered by the state) are making a concerted effort to use competency-based training to improve the skill level of JTPA clients. SDAs II and V are using the educational system to provide remedial types of education for their clients. More than just a training provider, the system is used to link remedial education with practical job skills in these two SDAs.

2. Competency-Based Training

Competency-based training is an important element in guaranteeing that the work force is prepared to perform the jobs required by business and industry, because such training focuses on outcome rather than on process. The Kansas Department of Education is moving vocational and technical training institutions toward competency-based training and JTPA sponsored training needs to be included in this movement. One way that Kansas is moving JTPA in the direction of competency-based training is through participation in the Project of the States.

The Project of the States is a national demonstration project conducted by the Center for Remediation Design and the Center for Human Resources at Brandeis University in association with select state and local Job Training

Partnership Act entities.²³ Participating States include California, Connecticut, Kansas, Michigan, Nebraska, Oregon, and Washington. The Project of the States has four goals:

1. To develop criterion-referenced basic skills assessment tools and curriculum management system, using the criteria of the work place, in collaboration with the Comprehensive Adult Student Assessment System (CASAS);
2. To build and enhance the capacity of the state and local staff to provide training and technical assistance;
3. To restructure the way services are delivered to youth and adults in JTPA service delivery areas; and
4. To establish partnerships between employment and training, education and welfare which result in common identification of indicators of employability and common assessment approaches.

Development and implementation of assessment strategies which define an integrated approach to instruction between work-related skills and basic skills are needed if labor market needs are to be met. The Project of the States is based upon the belief that traditional basic skill assessment tools do not work in assessing functional literacy, because they focus on processes not outcome. The purpose of this demonstration is to develop appropriate assessment tools and a curriculum management system which can be used by the employment and training system to restructure service delivery. The program focuses upon those basic skills needed by the "generic worker," i.e., the skills needed by all entry level workers which are similar across various industries but within a specific job market.

²³Project of the States information provided by Rita L. Wolf, Director, Division of Policy and Management Analysis, Department of Human Resources.

3. Interagency Coordination

JTPA should not be regarded as a self-contained program but as part of the state's overall strategy to prepare workers for skilled positions. Thus, interagency coordination is needed to ensure that JTPA is part of the state's human capital strategy and to leverage state funds to accomplish state objectives.

Coordination With KIT. New and expanding firms are eligible for KIT grants to fund training. To encourage these firms to hire disadvantaged workers, JTPA funds can be added to KIT grants. JTPA can subsidize 50 percent of a client's salary for up to six months of on-the-job (OTJ) training. The company gains financially and the disadvantaged gain access to jobs in new and expanding business, where job retention and advancement may be more likely. All five of the SDAs in Kansas reported some JTPA/KIT coordination in the past. The limited involvement of JTPA (through OJT) with new business in Kansas may in large part be due to the overwhelming task of coordinating the increasing number of Kansas Industrial Training (KIT) contracts. Kansas employs one person to perform the linkage between economic development and JTPA, while other states employ entire offices of personnel to perform this coordination.

To summarize, the overwhelming success of the KIT program has overshadowed the importance of involving the disadvantaged in Kansas as part of an economic development plan. JTPA was first designed to aid in the placement of the disadvantaged. It is therefore understandable that Kansas' SDAs emphasize placement. Most of the effort in every SDA is directed towards arranging on-the-job training for clients. The effect has been that in order to meet the needs of new and expanding businesses, KIT assists those who are job ready or nearly so; in order to link into economic development JTPA has provided

assistance to the same population. The result has been that the hard-core disadvantaged are being placed in less attractive positions, or are not placed at all. Federal amendments to the JTPA may mandate a narrower targeting of JTPA clients as well as more competency-based training and educational services.

Other Government Agency Coordination. Section 102(a)(2) of the Job Training Partnership Act requires that "representatives of educational agencies (representative of all educational agencies in the service delivery area)..." must serve on the Private Industry Council for the particular SDA. While coordination occurs throughout the state, SDAs I and V, those administered by KDHR, have a higher degree of coordination between JTPA and other social service, training, and placement programs than in the other three SDAs. SDAs I and V also coordinate efforts and services more often with the Kansas Department of Education, as well as the Kansas Department of Commerce. In an effort to reduce service overlap and to create a "one-stop" situation for the client, many states are encouraging and sometimes mandating coordination between education, human resources, labor, and commerce sections of government and private services and funds.

Educational Institution Coordination. JTPA coordination with community colleges and AVTS' is important. The purpose of JTPA is to meet the training needs of the disadvantaged. More and more, those needs include the correction of basic educational deficiencies. By using community colleges and AVTS', these needs can be met. These schools are designed to provide remedial and occupational education. Rather than "reinvent the wheel," as one SDA official put it, JTPA staff should make use of these services to help the disadvantaged populations. Coordination with educational institutions opens avenues for advancement by showing clients how to develop a real career path through more

advanced training opportunities.

4. Assessment and Tracking

Because there is a serious shortage of client tracking data in Kansas, it is difficult to determine if JTPA participants are indeed being placed in long-lasting jobs. While there is an abundance of client information available on JTPA participants, little is collected on whether employment of participants was a result of JTPA's intervention or what specific types of jobs were obtained following completion of training. All JTPA staff interviewed indicated that data collection, exchange and coordination by the various Kansas agencies involved will need to improve before placement and retention statistics are known.

5. Trends in Other States

The situation of JTPA in other states is varied and complex, although general trends are emerging. Almost all the states which were studied recognize the importance and necessity of incorporating disadvantaged populations into the work force. Most states are beginning to understand and address the need to assist the disadvantaged segments of the population through education and competency-based programming. Whether federal dollars are used throughout or not, most states have instigated some type of client-based, intake-to-placement approach. In other words, the client has the opportunity to proceed from initial system intake and assessment to employment without constantly re-entering the system at each step. Most states are beginning to encourage, if not mandate, coordination between service providers to reduce the amount of service and funding overlap. Finally, all the states which were studied have developed written plans for economic development which address the strengths and weakness of state resources, including human resources.

E. Implications

Kansas' administration of JTPA is successful as indicated by performance reports which consistently exceed federal standards. However, discrepancies were observed between the various approaches the SDAs took in providing services; between the needs of business and the skill and education level of Kansas' disadvantaged; between the state trend towards placement and the federal trend towards preparation; and between the coordination of state as opposed to local services. If Kansas is to remain a competitive contender for its share of business and industry, economic development and work force development must be linked. The disadvantaged must be a viable part of the state's work force because they will be an important source of new employees for business and industry in the near future. If Kansas is to gain cost efficiency in delivery of training and services, it must better coordinate the efforts of the wide variety of training service providers available to it.

VII. INNOVATIVE PROGRAMS IN OTHER STATES

An analysis of the vocational technical training system in Kansas would not be complete without some comparison to what other states are doing. Therefore, several states were targeted to help identify options for Kansas policy, and to gather information on work force training and retraining programs. States visited were: Illinois, Michigan, California, Missouri, Nebraska and Oklahoma.

A. Innovative Funding Approaches

California. The Employment Training Panel (ETP) in California is a program that provides funding for retraining and is financed by unemployment

insurance. ETP represents the first use of unemployment insurance funds for a purpose other than providing benefits to the unemployed. This program is different from other government retraining efforts in that it primarily focuses on experienced workers who are either unemployed or soon-to-be-displaced, rather than on training the hard-core unemployed and new entrants to the work force. Panel membership represents labor and management and has two charges: 1) to reduce unemployment insurance costs by providing funds to retrain currently employed workers who are threatened by displacement and to train employment recipients or recent "exhaustees" for existing jobs; and 2) to foster economic development by helping businesses train workers in the skills demanded by new technologies.

Several criteria exist for participation in the program. Employers are eligible if they pay the Employment Training Tax of their state Unemployment Insurance and employ persons covered by the Unemployment Insurance system. To qualify for training, new applicants for employment must be receiving unemployment insurance or have exhausted unemployment insurance benefits and remain unemployed. Current employees must need retraining to cope with technological changes in work environment, introduction of new work methods, required changes in job duties, or possible layoff should training not be instituted.

Illinois. Illinois has differential funding for vocational education courses. The community colleges' eight cost centers include: 1) baccalaureate transfer courses; 2) technology; 3) business; 4) health; 5) remedial; 6) general studies; 7) adult basic education; and 8) adult secondary education. The Illinois Board of Community Colleges calculates the actual average cost of producing a credit hour in each of the cost centers. If it costs more to

produce a credit hour in technology, then there is a higher credit hour grant from the state. The actual costs of each program are used in determining the credit hour reimbursement. There is a two year lag in this process, because the determination of the credit hour cost is quite complicated and involves considerable time.

Illinois also has an economic development grant program in which the state provides \$3 million to the community colleges for economic development purposes. The program funds business assistance centers to provide services for business and industry. Each recipient community college creates a business assistance center and staffs it with at least one person. Each community college is awarded a minimum grant of \$30,000. Additional funds are dependent upon how many credit hours are generated in vocational education courses. The average college received approximately \$60,000 per year.

Michigan. Michigan has a new program called the Michigan Training Initiative Fund (MTIF) that started operation in 1989. This program assists firms with training, but goes beyond the traditional manufacturing base that historically has been the target of training programs in Michigan. The program does not target a specific industry; service companies as well as manufacturing companies may participate. The intent is to use state funds as an incentive for companies to invest in training. MTIF uses state funds to cover the interest on bank loans that are used for company training programs. The state will pay up to the prime rate for no more than five years. This program uses an interest subsidy rather than grants because the state wants to have employers view training as a standard cost of business that the company should pay for. Moreover, the state does not have sufficient funding to give grants to firms in all Michigan industries. The long-term objective is to have training be part

of the regular budget process of firms.

B. Innovative Customized Training Efforts

Michigan. Quik Start is a Michigan Department of Education program that uses Carl Perkins funds for a job training program. This program is operated separately from other departments, but there is close cooperation with state-funded training programs. A company will contact the business training office at a local community college. If the college cannot help the company, the college will refer them to a different community college or possibly the Quik Start program in Lansing. Eighty percent of the Quik Start funds go to community colleges. It is estimate that Quik Start funds less than 20 percent of the community colleges customized training. Most of the training in Michigan is paid for by the companies.

Missouri. The most interesting aspect of Missouri's Customized Training program is the amount of money that Missouri is spending on customized training. Based on interviews with staff at the Department of Elementary and Secondary Education and the Department of Economic Development, which jointly administer Missouri's Customized Training Program, in the upcoming year Missouri has budgeted \$5 million for customized on-the-job training through the Department of Economic Development and another \$5 million for classroom skill training through the Department of Elementary and Secondary Education (this does not include JTPA money for on-the-job training or local PIC money). These agencies subcontract to each other if a business' customized program utilizes both aspects of customized training.

A company is eligible for Missouri's Customized Training Program if: 1) the business is new or expanding and creating new jobs in Missouri; 2) the business needs to retrain existing employees as a result of substantial new

capital investment; and 3) the business needs to retrain existing employees without substantial new capital investment, but as a result of the introductions of new products or services or to upgrade quality and/or to improve productivity.

Oklahoma. The Training for Industry Program (TIP) in Oklahoma is a state-wide program that provides training for new/expanding industry. All training costs are paid by the state, as part of the state's effort to get business to locate in Oklahoma. TIP training provides both technical and basic skills training. Basic skills training is not general, rather it focuses upon actual reading and math required for the job. When management training is required, courses designed by private vendors are usually used.

Oklahoma's strength in their customized training program is in using vocational technical education as an incentive for businesses to locate in Oklahoma. Vocational education is part of the negotiation team for business recruitment. The vocational-technical system in Oklahoma can play any role in the employment picture - assessment, instruction, accessibility, and follow-up support. They are versatile.

For firms who do not qualify for the TIP program (not new or expanding), customized training is defined as industry specific training that is not open to general enrollment, with costs paid by the employer, not the employee. The state reimburses AVTS' \$15 per class contact hour for each class offered under Industry Specific Training. The State Department of Vocational Technical Education uses money to provide AVTS' incentives for marketing Industry Specific Training. The state pays for one-half of the Industrial Coordinator's position at an AVTS if the school generates 600+ hours of industrial specific training. Industrial coordinators are trained and certified by the state to ensure good

service to the business. Thus, 24 industrial coordinators are out in the field contacting business and recruiting customized training contracts.

C. Innovative and Integrated Information Systems

Michigan. On January 31, 1989, Michigan launched a pilot test of the Michigan Opportunity Card. The intent of the Opportunity Card is to make the training/education system user friendly. The Michigan Opportunity Card is a "smart" card, a wallet-sized plastic card embedded with a computer chip that stores and retrieves information. Information about a person's skill levels, employment history, aptitude test results, participation in previous programs, eligibility screening for funding and personal career goals is stored on the card. The card enables service providers to guide customers to the most appropriate programs services within the System.

A companion initiative to the Michigan Opportunity Card is the Automated Resource Directory. This directory provides easy access to information on a wide array of programs available in the job training/adult education area. The program will operate like an automatic teller at a bank; it is actually an IBM compatible computer with information on a hard disk. Two systems will be placed in each county - one at a public location, such as a community college or JTPA office, and one at a private location, such as a shopping mall, drug store, or a union hall. The program directory will have information in four categories: 1) education; 2) job training; 3) job placement; and 4) supportive services.

Oklahoma. The Oklahoma State Department of Vocational Technical Education has a division called Supportive Services which provides data-based planning. They provide all schools with demographic data so they can provide training to fit the needs of their population and business in their area. The state also works with local community leaders, giving them demographic information and

analysis of training required to help with local economic development problems and establish goals.

D. Innovative Curriculum Development Efforts

Illinois. Under a new Illinois plan called Education for Employment, the state will provide funding for vocational schools only if they offer programs in job areas where workers are needed. They have invited companies to look at curriculum and it has resulted in many obsolete courses being dropped.

Michigan. The Department of Education in Michigan is developing an innovative program to assess eligibility skills of high school graduates. Included will be such areas as the student's ability to solve problems, to work as a team member, or to have management skills. Ultimately, these assessments will be integrated into the Michigan Opportunity Card.

Oklahoma. The State of Oklahoma takes a strong leadership position in curriculum development. Their view is that teachers do not have the time to develop curriculum so the state has curriculum development staff working with industry experts to produce curriculum. Industry does the task analysis to identify the skills needed to do a job. The state staff then create the training materials (manuals, videos, tests, etc.). All training is competency-based, individualized, teacher facilitated-student centered, and media supported.

E. Interagency Coordination

Michigan. A Human Investment Fund was formed and its board appointed by the governor as a "joint venture of state agencies committed to integrating the state's job training and adult education programs into one coordinated system. The board has 14 members and includes the top person in each state agency with operational responsibilities in education or training. Thus, the Superintendent

of Public Instruction, Director of the Department of Labor, and the Director of Social Services are members. There are also representatives from the SDA's, community colleges, and five business-labor-public members. A separate board above the Human Investment Fund does the technical work, while the fund board members operate at the policy level.

The board will be the driving force behind Michigan's efforts to coordinate and reshape the 70 job training and adult education programs to meet state policy objectives. The board is a strategic planning policy group; it does not operate programs. The group is chaired by the Director of the Office of Management and Budget, who reports directly to the Governor.

F. Conclusion

To summarize, several interesting ideas or concepts were obtained from visits to other states. While states take different approaches to meeting their work force training needs and developing an integrated delivery system, the element common to all innovative programs is that of leadership from the state. When the state is willing to try a new approach and back it with commitment - commitment through funding and commitment through high-level leadership - those approaches lead the way to innovation. While the states provided leadership, the programs often relied upon partnerships. The partnerships generated were partnerships between the private and public sectors, business and education, or management and labor. Working partnerships resulted in synergism, a cooperative action of discrete agencies such that the total effect is greater than the sum of the effects taken independently.

VIII. POLICY OPTIONS FOR CONSIDERATION AT STATE AND LOCAL LEVELS

A. Basic Academic Skill Training

GOAL: All students in postsecondary vocational-technical programs should acquire basic academic skills as well as technical skills.

POLICY OPTIONS:

1. Vocational-technical programs should integrate training of basic academic skills, such as reading, computation, communication, reasoning and problem solving, with technical skill training.

Rationale: The skills that employees must have are changing as the work place changes. Because the time it takes for half of a worker's skills to become obsolete is short (perhaps as short as one year), business and industry must have workers who are able and willing to learn new skills. However, many workers do not have the basic academic skills essential for acquiring more sophisticated technical skills needed to adapt to the demands of increasingly complex jobs. Employers want employees with a broad set of work place skills or at least a strong foundation of basics that enables them to learn on the job as technology and products change.

Foundations in basic academic skills (reading, math, science, communication, problem solving, etc.) should be formed at the elementary and secondary level. The importance of this for work force preparation has been abundantly documented by numerous surveys of job skill requirements and business work force needs. These surveys also document the serious deficiencies that currently exist in these areas in today's work force. State and national data clearly support the need for improved basic academic skill training. A 1989 national survey of small manufacturers conducted by the National Association of

Manufacturers revealed that those surveyed were having difficulty with their employees' education and training in the following areas: ability of employees to understand math concepts (37 percent), ability to understand, read and write English (30 percent), ability to be trained in operations (25 percent), and ability to resolve problems independently (50 percent). A survey of Kansas business and industry conducted for this report revealed areas in which many firms reported employees need improvement: reading (43 percent of firms), writing (60 percent), computation (52 percent), listening and oral communication (72 percent), problem solving (70 percent), comprehension/understanding (60 percent), interpersonal relations (60 percent), teamwork (70 percent), goal-setting and personal motivation (79 percent), adaptability and flexibility (66 percent), work habits (77 percent). These results strongly support the need to integrate basic academic skill training with technical skill training.

Since 75 percent of the work force that will provide labor in the 1990's has already entered the work force, the problem extends beyond elementary-secondary education into postsecondary and adult education. If students enter the postsecondary level or adults re-enter the training system under prepared in basic academic skills, the vocational-technical programs must address the problem by incorporating training in basic academic skills in the technical skill training.

2. Students entering vocational-technical programs should be tested on basic academic skills at the time of entry and at the time of completion of their program. Certain predetermined competency levels should be demonstrated by students prior to entering a program and prior to obtaining a degree or certificate.

Rationale: About 80 percent of the institutions rated students' academic

skill performance level as poor to fair upon entry in postsecondary vocational-technical programs and 54 percent rated them as only fair upon completion of programs. To ensure that instructors have students who are ready to learn, students must enter vocational-technical programs with certain prerequisite academic skills. To ensure that employers are hiring employees with reading, computational, communication, reasoning, and problem-solving skills, competency should be demonstrated before a degree or certificate is issued. By testing for and requiring basic academic skill competency for acceptance into and completion of vocational-technical programs, work force quality and adaptability will improve.

Requiring students to demonstrate competency in basic academic skills decreases the dichotomy between vocational and academic programs. High school teachers, counselors, students, and parents will recognize that vocational-technical training students must be better prepared. Requiring the students to be better prepared academically will also broaden their options for postsecondary training upon graduation from high school or at a later date when skill upgrading or career goals make re-entry into the educational or training system necessary.

3. Students who do not meet course or program prerequisites in basic academic skills, particularly reading, computing and communicating, should be placed in a remedial education program.

Rationale: Ninety-four percent of vocational education institutions offer remedial course work and 58 percent feel that students should be required to demonstrate minimum competency in basic academic skills for entry into programs. However, students who demonstrate deficiencies are strongly encouraged but not necessarily required to enroll in remedial programs. Deficiencies should be

corrected before students begin training in vocational-technical programs.

AVTS' do not collect state funding for the time students spend in remedial training. The State Board of Education encourages remedial education at community colleges by allowing state reimbursement for up to 18 hours of remedial training per student. Because community colleges have a funding mechanism and academic disciplines to cover remedial training (e.g., English and math faculty), AVTS' should enroll their students in remedial courses at community colleges rather than setting up their own programs to minimize duplication of programs.

4. Adults in all Kansas communities should have access to open-entry/open-exit basic education in literacy, math, and communication.

Rationale: Adults already in the work force and those wanting to enter the work force are finding that skill requirements are increasing. Adults in the work force or seeking to enter the work force are finding they must return for training to upgrade literacy, math and communication skills to obtain or retain jobs, or to obtain promotions. This trend will continue as technological changes and other changes in the work place force workers to adopt a strategy of life-long learning. Basic adult education in Kansas is grossly under funded, with one million dollars in federal funds and \$50,000 from the state. The support needs to be increased to meet the literacy and basic academic skill needs of the adult population.

B. Secondary Technical Skill Training

GOAL: Secondary vocational-technical students should learn the principles of technology, applied math, applied science, etc. in preparation for occupational training at the postsecondary level.

POLICY OPTIONS:

1. Technical Preparation Programs should be established and funded in secondary schools to provide secondary vocational-technical students with more rigorous training in principles of technology, applied math, and applied science.

Rationale: Tech-prep programs do not replace existing vocational education programs, but rather broaden the scope of vocational education by preparing students in at least one mechanical, engineering, industrial, or practical field; providing students with a high level of competence in mathematics, science, and communication through applied courses in these areas; and making students more employable. Broadening vocational-technical training at the secondary level to include basic academic skills (math, communication, etc.) provides students with skills necessary to survive in an age where rapid technological and product changes make workers skills obsolete quickly. Thus, it makes sense to provide 17 year old students with skills that will enable them to learn new technical skills quickly. Teaching narrow, job-specific skills introduces the risk that those skills will be obsolete by the time the student is 20 years old. For example, a program in North Carolina shows students the relationship between printing technologies and math and science skills. Using an offset printing press requires mathematical computations to align layers of images printed, and the composition of inks used involves chemistry. Students must also figure how many sheets of a certain size of paper can be cut from a larger sheet and must calculate the cost per page. A research project on the history and production of paper teaches them scientific information and how to develop that information into a good written form.

Technical preparation programs may soon have federal support through amendments to the Carl D. Perkins Vocational Education Act. The state has one pilot program underway that should be evaluated and expanded if it broadens the scope of training as described above. Implementation of programs should be supported by the Department of Education in the form of curriculum development, teacher training, equipment, and materials.

2. Technical Preparation programs should be coordinated with postsecondary technical programs at community colleges or AVTS' by providing acceptance of credits or advanced placement in programs.

Rationale: Tech prep programs should link the final two years of secondary education with the first two years of postsecondary education, giving students an option to obtain a two-year degree or certificate. Jobs of the future will require workers at all levels to be engaged in lifelong learning. While it is unrealistic to expect everyone to graduate from high school and then complete two to four years of postsecondary education in the traditional uninterrupted sequence, the educational system must encourage people to enter and leave according to their needs. The system must be flexible without compromising academic standards.

At one tech-prep program in North Carolina, the public schools, local community college and business community joined together to prepare students. The curricula were planned jointly by the public school system and the community college, with heavy input from the business sector. This approach makes secondary training a part of the advanced technical training system, and makes it easier for students to move toward more advanced training as the need arises.

C. Postsecondary Technological and Technical Skill Training

GOAL: All students in postsecondary vocational-technical programs should demonstrate competency in technical skills and underlying principles of technology specified by business as appropriate for the particular occupation.

POLICY OPTIONS:

1. Technical courses/programs should be based upon the demonstration of competency in the principles of technology underlying a discipline or field and competency in technical skills, rather than the accumulation of credit hours or clock hours.

Rationale: The State Board of Education favors performance-based curricula and evaluation systems (competency-based training). The Department of Education has developed occupational profiles for vocational-technical programs. These profiles list skills needed for each occupation and encourages schools to use the profiles to guide instruction. This is an important step in the direction of competency-based curricula. Training and evaluation based upon performance of job skills are more responsive to business needs and produces students who are job ready.

Because rapid technological changes render workers' skills obsolete within a few years, programs should provide students with an understanding of principles of technology underlying a discipline or field as well as providing specific technical skills. Training that is directed toward a broader discipline or field rather than toward narrowly focused job-specific skills produces a work force that is more adaptable to technological- and market-induced changes in job requirements. Programs must prepare students who are ready to do jobs today and who can adapt to job requirements in the future.

While the Department of Education can encourage technical education institutions to move toward competency-based training, a change in state funding methods is needed before training can be truly competency-based. As long as state funding is based upon student clock hours at AVTS', training cannot be competency-based without creating financial difficulty for AVTS'. If a student finishes a program early or stops attending, the AVTS receives less state support, even though the cost of offering the program remains constant. Competency-based training should allow for more individualized instruction where students progress through and complete programs based upon demonstration of skills, with funding also tied to demonstration of skills. Thus, the exemplary student should be able to complete training in less time than the average student.

2. Competencies for each program/course should be based upon skills identified by business and industry that are needed today, as well as upon the development of capacities that will enable students to adapt both in the job and among similar jobs over time.

Rationale. Business and industry representatives should identify the skills and principles that should be taught to ensure that the needs of the market place are met. In addition to teaching specific technical skills, a broader, discipline-oriented approach should be included so students can perform more than one job. Employability is improved by providing the student with knowledge and capability to perform skills across a broader range of closely-related jobs.

3. The State Department of Education should coordinate competency standards for all approved programs to insure statewide consistency and to maintain standards.

Rationale: The State Department of Education has provided a profile of tasks identified by business and industry that need to be trained for each approved vocational education instructional program to encourage statewide consistency in training. The profile is intended to provide a base for programs at secondary and postsecondary levels. It helps identify skills needed by workers in specific occupations and provide a guide upon which to base instruction. These profiles are an important step toward minimum program consistency and standards across institutions. Minimum standards need to be maintained across the state to assure that every program produces workers with minimum competencies in basic academic skills and technical skills.

D. Coordination of Technical Education Programs Across Training Institutions

GOAL: A well coordinated training system should minimize duplication of training and should allow technical students to progress through multiple levels of training, receiving recognition for courses-hour-competencies already attained in the form of credit or advanced placement.

POLICY OPTIONS:

1. Coordinate secondary with postsecondary technical programs so students who obtain training at both levels receive credit or advanced placement (e.g. 2 + 2 programs).

Rationale: A well coordinated technical training system should encourage people to enter and leave as appropriate to their individual needs. This means that students should not have to repeat training received at another institution or time if competency is demonstrated. A well coordinated system is one that

minimizes duplication of material taught and builds upon what students already know.

To build a well coordinated system, vocational education institutions should link the final two years of secondary education with the first two years of postsecondary education, giving students an option to obtain a two-year degree or certificate. Students who have received training at the secondary level in a technical area should be able to progress through postsecondary training in the same field more rapidly by receiving advanced placement or credit for demonstrated competency than students who had not had secondary level technical training. This makes secondary vocational-technical training more attractive because the cost of postsecondary training is less because less time is spent in postsecondary training.

2. Require articulation agreements between all community colleges and AVTS' for post-secondary students in a service area.

Rationale: Because of competition for students and differences in program standards, AVTS' and community colleges are not always willing to grant credit or advanced placement for students receiving training at another institution. To improve coordination at the postsecondary level, to reduce duplication, and thus reduce cost of the system, AVTS' and community colleges should act as part of one well integrated system by entering into articulation agreements that enable students to move between the two types of schools and receive credit or advanced placement for prior training. Such coordination is important in attracting quality students into vocational-technical training by changing the "dead-end" image to one of open possibility for advanced training. Program quality issues must be addressed to enable receiving institutions (institution to whom student applies to have courses/program accepted for credit) to accept

the students' prior training.

3. Establish mechanisms for AVTS' and community colleges to do joint regional planning to reduce number of duplicated programs and upgrade the level of remaining programs.

Rationale: To achieve a well coordinated system, AVTS' and community colleges must do joint regional planning. Planning should be based upon knowledge of current and expected needs of the population and businesses in the service region. Unnecessary duplication should be eliminated based upon analysis of which programs are exemplary and which are weak, and based upon which programs will best serve the needs of a changing population and changing business-industry base. Schools should retain programs that are strong in quality of instruction and current and future work force need, and consolidate or eliminate duplicated programs that are weaker in academic quality and current-future work force need.

4. Encourage community colleges and Regents institutions to enter into articulation agreements covering students in technical programs.

Rationale: The expanding need for technologists requires that every avenue for advanced technical training be available as the need for life long training and learning increases. The technical training system must take advantage of Regents institutions to provide access to more advanced technical training, and ensure that students receive credit or advanced placement for previous training at community colleges. Thus, high school students should receive training in technical skills, basic academic skills, and technological principles that prepare them for current jobs and/or postsecondary training. Students at AVTS' and community colleges should be able to coordinate training between these institutions to add an Associate degree after receiving a

certificate from an AVTS or to receive more technical training at an AVTS after receiving an Associate degree at a community college. Students attending community colleges should have the option to progress into baccalaureate programs at universities and receive credit for community college courses. All community colleges and Regent institutions have signed an articulation agreement that enables individual institutions and programs to apply to universities for acceptance of their credits, and community colleges should pursue articulation agreements for specific technical programs.

5. Broaden the availability of the Associate degree in Applied Engineering by linking institutions with such capability with community colleges and AVTS' to increase accessibility of training in major manufacturing and metropolitan centers.

Rationale: Manufacturers are being pressed to improve efficiency and are investing in new technology to do that. Kansas manufacturers, 55 percent of whom are located in metropolitan areas, report their employees need to acquire technical skills to cope with technological changes. Programs that train the work force to cope with technological changes must be available. The availability of manufacturing-related programs at community colleges and AVTS' is very low (5 percent of all programs). However, enrollment in these programs has increased dramatically from 403 in 1984-85 to 1,298 in 1987-88, indicating the growth in demand for this type of training. One way to increase availability is for institutions to expand programs aimed at serving manufacturers training needs. Institutions, such as Kansas College of Technology, which have the capability to provide higher-level technical programs should cooperate closely with community colleges and AVTS' in major manufacturing and metropolitan centers to meet the need for business work force

training. For example, the Kansas College of Technology could use Wichita AVTS facilities to offer high-level technical training needed by the aviation industry work force.

Kansas College of Technology, which is currently serving central Kansas around the Salina area, should expand to serve major metropolitan areas to fulfill its state-wide mission.

E. Coordination of Technical Education and Training Programs Across Agencies

GOAL: The work force training programs of all state agencies should be coordinated to facilitate use by employees and employers and to ensure that all agencies are meeting state objectives.

POLICY OPTIONS:

1. The staff of the current KIT/KIR Training Program should be expanded and renamed as the Office of Work Force Training. This office should report to the Secretary of Commerce and should coordinate the training efforts of the Department of Human Resources, the Department of Education, the Department of Commerce, and SRS. This office should be the primary clearinghouse for firms with work force training needs.

Rationale: Coordination of training efforts of various state departments is currently the responsibility of the manager of the KIT/KIR training program, which is part of the industrial recruitment division of the Department of Commerce. Because the coordination functions are difficult, if not impossible, to perform because of the expansion of KIT and addition of KIR, more administrative resources must be provided to ensure the coordination function is performed. An office should be established with sufficient staffing levels to be responsible for coordination and training program operation. Because work force training issues go beyond industrial recruitment but are critical to

retention and growth of all businesses, the office should report directly to the Secretary of Commerce.

More than half the businesses surveyed for this study reported they were moderately to substantially interested in more information about available training programs and in state assistance in reducing the cost of training. A sufficiently staffed office dedicated to work force training in the Department of Commerce would be more visible as a clearing house for "one-stop shopping" for businesses seeking information regarding training resources in the state.

2. KTEC should coordinate with the Office of Work Force Training to insure that employee training/retraining is available to all companies introducing new technology or new products.

Rationale: Firms introducing new technology or new products often need work force retraining. When KTEC works with companies in this situation, the Office of Work Force Training should be informed and/or the firm should be introduced to the Office of Work Force Training to ensure training resource information is received. Likewise, community colleges and AVTS' that are working with KTEC to establish Regional Technical Service Centers (centers designed to assist businesses with technical problems and training issues) should coordinate and consolidate training resources.

3. Develop a client-based coordinated information system for all training system participants.

Rationale: A person requiring training or retraining may have contact with more than one state agency in the process of acquiring information about and help with obtaining training. Movement of clients across agencies could be facilitated by having agencies involved in training issues (i.e., Department of Human Resources, Social and Rehabilitative Services, Department of Commerce,

Department of Education) develop a system to coordinate and share information so the client avoids repetition of the assessment and background data collection process. For example, if job skill competency information has been collected by one agency, that information should follow the client in his/her contact with other agencies requiring similar information. The Department of Human Resources currently has a system that does include performance-based assessment that is used to develop an individualized training plan for clients. This information could be useful to other agencies who provide training services. Besides skill competency, the system could include information regarding a clients education attainment, work history, training and employability plan in a readily accessible but confidential form such as Michigan's Smart Card system. This card, the size of a credit card, contains a microchip that stores client information and is carried by the client.

4. Develop a common set of intake and assessment methods for use by all agencies in the state employment and training system.

Rationale: As a starting point in the development of a system that enables clients to move across agencies with little or no repetition of testing or data collection, agencies should continue their efforts to develop a common set of intake and assessment methods for training and employment clients.

5. Develop one oversight body that reports to the Governor and coordinate state human resource and training agencies. Membership should include the heads of agencies as well as representatives from the private sector.

Rationale: Maine and Michigan have taken steps to improve coordination of state human resource activities by forming a group that develops policy and sets goals regarding employment and training. The group answers to the Governor and reviews agency programs and budgets to determine if state goals are being

met. The Director or Secretary of relevant agencies (e.g., Department of Human Resources, Department of Education, Social and Rehabilitative Services, Department of Commerce) and high level representatives from the private sector (CEO, etc.) serve. Private sector representatives provide input on human capital and training needs and help tie the business community to the state's economic development activities.

Numerous state agencies (Department of Education, Department of Human Resources, Social and Rehabilitative Services, Department of Commerce) are involved in training services in some form in the state of Kansas. The most recent addition, KanWork, has developed its own structure to deliver training services. Coordination is needed at a high level to ensure the state has a consistent strategy and does not develop duplicate systems that are not necessary.

6. The State Council on Vocational Education should be merged with the State Employment and Training Council to the extent allowed by federal law.

Rationale: To increase communication and coordination between the vocational-technical education system and JTPA, the State Council on Vocational Education (appointed by the State Board of Education) and the State Employment and Training Council (appointed by the Governor) should be merged, perhaps through overlapping membership. Currently, these two groups are separate, with no formal mechanism for coordination. Thus, the potential exists for the two major components of training in Kansas to be moving in different directions and have different priorities. The Governor and State Board of Education should work together to ensure that at least one member overlaps on each board with either full voting or *ex officio* status.

F. Program Funding

GOAL: State funding of technical education should provide incentives for community colleges and AVTS' to provide programs needed by employers and students throughout their service areas.

POLICY OPTIONS:

1. Provide incentives for community colleges to offer technical programs by basing state aid for technical programs upon relative costs.

Rationale: The current state reimbursement formula funds community colleges' vocational programs at a rate that is 1.5 times higher than that of academic programs in recognition of the higher cost of offering vocational programs. Since highly technical programs (e.g., nursing, biomedical equipment technology) cost much more per credit hour than other programs (e.g., paralegal, accounting, business administration), colleges gain more financially by offering lower cost programs. This creates a disincentive for colleges to offer expensive programs even though such programs might contribute significantly to the economic development of the region and state.

By funding programs on a continuum defined by relative cost, colleges would have more incentive to continue offering or implement more costly, highly technical programs that could have a significant impact upon regional economies. For example, at Johnson County Community, the cost per credit hour for Interior Merchandising is approximately \$40.00, while the cost for Biomedical Equipment Technology is approximately \$373.00. State aid to community colleges for vocational enrollment is \$39.375 per credit hour, meaning the cost of the interior decorating program is almost totally covered by state aid and state aid covers only 10.5 percent of the biomedical equipment program. Undoubtedly the cost of equipment and perhaps of instructors accounts for the difference in

program cost. State funding should reflect differences in program cost to ensure that costly programs that have positive economic impact are adequately funded. Illinois has differential funding of vocational education based upon the average cost of producing a credit hour in each of eight cost centers (baccalaureate transfer courses, technology, business, health, remedial, general studies, adult basic education, adult secondary education).

2. Support the increased cost of funding technical courses according to relative cost with a phased increase to 40 percent in the proportion of state funding for community colleges.

Rationale: State aid to community colleges was increased in FY 90. Community colleges serve a statewide training need. Therefore, phased increases in state aid should continue until 40 percent of operating costs of technical programs are covered. The level of state funding for school year 1988-89 was approximately 28 to 30 percent of operating budgets or \$38,336,590. Because 1989-90 enrollments at community colleges are up by over 10 percent, the Department of Education is requesting supplemental funding for 30.8 percent or operating budgets or \$45,711,457. The average level of state support for other public educational institutions is 40 percent of operating budgets. Thus, the level of support for community colleges should be increased to this average level. The increase would raise funding by approximately 10 percent over the 30.8 percent requested for 1989-90. This increase would offset the loss of approximately \$7.7 million (1988-89 figures based upon \$24 reimbursed per credit hour) in revenues experienced from the elimination of outdistrict tuition (see Policy Option 3 below).

3. Eliminate outdistrict tuition.

Rationale: Outdistrict tuition is a form of taxation that counties outside the "home" county but within a community college's service area pay when persons residing in their county take courses at the community college. Outdistrict tuition creates tension between counties within a community college's service region. Counties paying outdistrict tuition resent this unpredictable obligation as they try to manage budgets. To increase the regional focus of community colleges, eliminate the divisive outdistrict tuition.

4. Extend the taxing authority of community colleges to all counties in their service area.

Rationale: Extending community colleges taxing authority to all counties in their service area will increase the colleges' willingness to serve all counties in their region and will give all counties a sense of ownership in the community colleges. Currently, 16 "home" counties support the community colleges with the other 89 providing support only through outdistrict tuition. By eliminating outdistrict tuition and replacing it with a community college tax, the counties would exchange an unpredictable expense (outdistrict tuition) for a predictable one.

5. State funding of AVTS' should be based upon student acquisition of technical and academic competencies as well as some minimum number of hours of attendance.

Rationale: The current state funding system encourages AVTS' to keep students in a program for the maximum number of hours, rather than individualizing training to enable students to develop competency regardless of the amount of time required. AVTS' are currently reimbursed at 85 percent of

the local cost per instructional hour (i.e., time spent by student in class). This funding system needs to be changed. State reimbursement must be based as much upon the quality of training as upon the quantity (accumulation of hours).

To provide business and industry with employees who are job ready, the vocational-technical education system must be changed from one that is reinforced (paid) for accumulation of hours to one that is reinforced for results - demonstrated competency in technical and academic skills. Because a competency based system is so important to an effective vocational education system, the funding formula must be modified to allow AVTS' to allow a student to complete a course in less than the maximum number of hours and not suffer financial losses that seriously affect their ability to offer programs.

6. Establish a task force with members representing management, labor, and government to explore utilizing the unemployment insurance system in Kansas as a basis for supporting work force training/retraining.

Rationale: The current unemployment insurance system was established to respond to unemployment problems that were cyclical in nature. While unemployment still occurs because of recessions, unemployment is increasingly due to industry reaction to technological changes (e.g., robotics). Workers are not called back when such technological changes occur. In order to return to work, these workers must develop new skills to enable them to re-enter the rapidly changing, highly technical work place. A program based upon the unemployment insurance system could be used to assist worker retraining. Also, firms who do not qualify for KIT/KIR funds but need workers retrained as new technology and/or new products are introduced could use funds to pay for training. A system based upon a wage tax is paid for by the beneficiary of the training and not by the general public, as is the case when general funds are

used.

G. Equipment Funding

GOAL: Funding for equipment at community colleges and AVTS technical programs should be at a level to insure that training occurs on equipment comparable to that used or soon to be used by companies in their service area.

POLICY OPTIONS:

1. Provide state equipment funds consistently and at levels that insure program viability at AVTS'.

Rationale: Businesses report that it is important for vocational education institutions to have the most technically advanced equipment for training. Acquiring and maintaining technically advanced equipment is costly, too costly for the low level of current equipment budgets. Capital outlay funds that support instructional equipment have been appropriated for only three of the past eight fiscal years. Funds should be allocated yearly for equipment so schools can plan for and meet their programs' equipment needs.

2. Extend equipment funds to cover community colleges' vocational-technical programs.

Rationale: Community colleges currently receive no state funding for equipment. This makes it difficult for them to maintain and upgrade technical programs that require equipment. Because businesses report that it is important to have the most technically advanced equipment for training, state funding should be extended to community college vocational programs. In funding community college and AVTS equipment for vocational-technical programs, the Department of Education should not necessarily divide equipment funds evenly across all institutions, but rather should devise allocation procedures that distribute equipment funds on a competitive basis.

3. Continue KTEC Equipment Fund grants with FY91 funding at a level of \$250,000 to provide equipment funds for new, innovative programs that contribute to economic development.

Rationale: In FY 89, \$250,000 from EDIF was allocated for the KTEC Equipment Fund. KTEC was responsible for soliciting proposals from community colleges and AVTS' and allocating funds. KTEC worked with the Department of Education to develop procedures informing eligible institutions and establishing procedures for a Request for Proposal. Sixteen proposals were received, reviewed, and four were funded.

In FY 90, the program was not funded. The KTEC Equipment Fund grants are an excellent mechanism for providing seed money for innovative programs that contribute to economic development and for bringing the business and education sectors together to focus on the economic development needs of the state. Continuation of Equipment Fund grants is important to continue this collaboration and so new, innovative programs have a source of equipment funds. This funding mechanism ensures that business needs are being met because matching commitments from business are required. These grants allow schools to start new programs without depleting funds needed to maintain and upgrade existing programs' equipment.

H. Customized Training

GOAL: Employers should have access to appropriate training for new employees and retraining for current employees that is customized for the needs of each employer. In some instances the training needs of companies can be met by enrolling employees in existing courses either on or off campus. In other instances unique courses designed in cooperation with the employer will need to be developed to train specific skills or capabilities.

POLICY OPTIONS:

1. Provide state support for a work force training coordinator at each community college and AVTS to market and coordinate customized training in a service area. State funds of approximately \$50,000 to \$60,000 per institution should be used to leverage the position with the state paying 50 percent of the salary and a portion of operating expenses. Funds should be provided only if 1,000 or more hours of customized training credit is generated.

Rationale: Businesses report that customized training is more cost effective than other forms of training. Vocational education institutions must meet business and industry's custom training needs, and Directors and Presidents of the institutions must provide leadership in this area. However, a person who is dedicated to marketing customized training is needed at institutions to contact businesses, assess training needs, identify faculty who can provide required training, prepare contracts, and help ensure that training is delivered in a way that meets the client's needs. This person should perform coordination and facilitation duties and would not personally deliver training.

2. Customized training through AVTS' should be financed by a separate state budget allocation.

Rationale: State aid for customized training comes out of allocations for postsecondary student training. AVTS' are currently reimbursed for 85 percent of the cost of customized training, IF sufficient funds are available. Unlike community colleges, eight of the 14 AVTS' have no access to supplemental funds that the legislature provides to cover unexpected expenses when demand for training (enrollment) exceeds levels planned for in the yearly budget. Since reimbursement does not occur until after the training is delivered, AVTS' never

know until after the fact if they will receive reimbursement to cover the training. This makes customized training a risky business for them, because they can easily be left with no state aid for customized training and only the student fees (15 percent of cost) to defray the costs. Thus, schools that are providing a lot of training and retraining to business and industry in their service area have to cover the shortfall from local school district sources (K through 12 budgets). As one AVTS administrator who is trying to meet the needs of businesses in his area said, "We can't afford much more success." For example, the Wichita AVTS cannot meet the needs of businesses in its region because of inadequate funding. Last year, they were \$2 million over budget as they struggled to meet the training needs of business and industry. To cover the cost of training workers for business and industry, funds were taken out of the Unified School District's K through 12 budget.

The current funding system creates a dilemma for AVTS' who are trying to meet the training needs of businesses and industry in their service area. Since business and industry has a significant interest in customized training as a cost effective method of training, AVTS' should be encouraged to provide customized training. A more stable mechanism for funding is needed. The state's cost for funding customized training would probably be recovered through increased sales and income taxes that would result from this investment in human capital.

3. The Business and Industry Service Program should be continued at AVTS' and community colleges as a way of providing partial state financing of customized training.

Rationale: The Business and Industry Service Program recently implemented by the State Department of Education is an excellent mechanism for providing

support for customized training for any firm in the state. This program fills the gap in support for work force training for those firms who do not qualify for KIT-KIR funds. The mechanism for quick state approval provides a method for state oversight of training without hampering schools' ability to provide training quickly. It is a unique program that not only will help existing Kansas industry, but should make Kansas an even more attractive site for firms making location decisions.

4. Establish a two-year pilot program to encourage small companies to participate in customized training ("Small Business Customized Training").

Rationale: Small businesses, the backbone of Kansas' economy, must have access to training for their work force if they are to remain competitive. Unlike large companies, a small business usually does not have enough employees to justify offering a course to meet the needs of that one business. Because a business's size should not preclude participation in or access to customized training, vocational education institutions need to assess and coordinate the training needs of small businesses in their region so overlapping needs can be identified and met. If several businesses need employees trained in a common area, one class designed to meet the needs of the employees of those businesses could be offered. Ensuring that small companies participate in customized training should be an important part of the work force training coordinator (see policy option H.1.).

I. Innovative Technical Programs

GOAL: Facilitate the development of innovative technical programs or courses that address skill shortages in the Kansas labor market.

POLICY OPTIONS:

1. Establish a Kansas Skills Program to provide start-up support for innovative technical courses/programs in emerging technologies, manufacturing, or in areas of skill shortages, with business providing in-kind support.

Rationale: Vocational education institutions cite lack of start-up funds as a major barrier to program development. Schools receive state aid based upon enrollment. Thus, an institution cannot receive state support for a program until after the first term has been completed. No funds are available to help defray the cost of starting a program - staff salary, equipment, supplies. Until a program is up and running, these expenses must be covered internally. This means schools must divert funds from existing programs to fund new programs. Schools currently solicit support from the industry that would gain from the new program. By combining the current practice of recruiting industry support for new programs with state seed money, programs that have important economic impact (e.g., manufacturing-related programs) would have a better chance of being developed and implemented.

J. Program Information and Evaluation

GOAL: Community Colleges and AVTS' should be held accountable for the quality of their programs as determined by (1) the ability of graduates to obtain employment in their area of training and (2) meeting performance standards for skill acquisition.

POLICY OPTIONS:

1. Expand the Training Information Program so wage and placement data are reported for every program at every institution providing postsecondary vocational technical training.

Rationale: The Training Information Program currently provides wage and placement data. Wage data are presented in the form of an average salary that graduates from approved vocational-technical programs earn upon completion of each program. Only state-wide, not school specific, data are reported, so students and parents interested in occupational data for their region have no readily available source of information. Wage and placement data should be reported for every program at every postsecondary vocational education institution to provide important data for students' making education decisions. These data will introduce a new dimension into the system and make it more market driven.

2. The Department of Education should establish a common methodology to be used by community colleges and AVTS' for wage and employment surveys and should ensure that community college and AVTS data are verified.

Rationale: Data are only as good as the methodology used to collect them. Currently, wage and placement data are collected by personnel associated with each vocational-technical programs. The data are difficult to collect, and instructors and schools use many different methods to collect the data. The Department of Education should establish procedures for institutions collecting the data to use. Using common methodology will make valid cross-institution comparisons of wage and placement data possible. The reliability of the data should be also be assessed. To verify the accuracy of the data collected by institutions, a state-wide independent random sample should be conducted by the

Department of Education. Missouri uses their Department of Human Resources to verify employment and wage data based upon random sampling by social security numbers. The Kansas Department of Human Resources could validate wage and employment data.

3. Performance standards for vocational programs should be set by the Department of Education in terms of competencies in basic academic skills, occupational skills and job placements.

Rationale: Having performance- or competency-based training is important in focusing training on skills that employers need in their work force. However, the best designed competency-based training system is only as good as the methods of measuring the quality of that training. Performance standards are used to measure quality. The Department of Education must see that the measurement system is uniform throughout the state. Employers need to know that a graduate of a vocational-technical program really can perform the skills trained, and that every institution defines the skill and measures it with similar rigor. Because of the growing importance of basic academic skills, performance standards should be set for these skills as well as technical skills.

K. Faculty/Staff Development

GOAL: Faculty in vocational programs should have opportunities to upgrade their technical skills and knowledge of business practices on a regular basis.

POLICY OPTIONS:

1. The Department of Education should assess current opportunities and requirements for faculty and career counselor development at all community colleges and AVTS'and set guidelines for such development.

Rationale: Retraining and upgrading of instructors' and counselors' skills is a voluntary activity at most vocational education institutions. Few offer sabbatical leaves as a method for faculty to upgrade their skills. Most encourage faculty to attend professional conferences, although funding is not always available. Some faculty work in industry during the summer, and this link is critical and should be encouraged. The key point is that there is very little funding support and no consistency across the system for faculty development, and this needs to be addressed.

2. Some percentage (e.g., 2 percent) of each AVTS' and community college's instructional budget should be set aside to develop and fund programs for faculty development to be matched by state and business contributions.

Rationale: Only four institutions can afford to offer sabbatical leave programs. Many institutions cannot even afford to support faculty attendance at professional conferences. To ensure that faculty are up-to-date in their field, funds for faculty development should be available. Because upgrading faculty skills is so critical to the quality of training delivered, schools must make a significant effort to support faculty development. Some percentage of each institution's budget should be set aside for this purpose. In addition, matching funds from the state could be used to help support faculty and career counselors during summer internships in industry. Business contributions could provide faculty with opportunities to train on new equipment or other industry specific experiences that would broaden faculty knowledge and understanding of changes occurring in industry. Career counselors would benefit from spending time in Human Resource divisions working with those responsible for hiring AVTS and community college trainees.

3. State funds should be used to encourage technology and knowledge transfer from educational institutions to business and industry and from business and industry to educational institutions through exchange programs.

Rationale: Technology and knowledge are shared when faculty interact with industry, whether through faculty work in industry or industry employees work in educational settings. Programs that provide faculty with industrial experience on a regular basis (Internship Programs) are an excellent mechanism for keeping faculty up-to-date on changes in their field. Programs that encourage utilization of industry experts in education should also be examined. To help meet the growing crisis in faculty recruitment, especially in fields where faculty cannot be recruited because industry salaries cannot be matched by educational institutions, the state should provide a mechanism for allowing industrial experts to teach. While not certified, these experts may be effective as teachers, and the state should have some mechanism that allows technical education institutions to utilize them when needed.

4. Salaries for vocational-technical instructors at AVTS' should be based upon salaries paid to employees with comparable skills in the private sector rather than by school district salary schedules.

Rationale: Schools are facing a crisis in faculty recruitment, especially in highly technical fields (e.g., electronics) and fields where labor shortages exist (e.g., nursing). Since these are the very fields where training of the highest quality is crucial, the state cannot afford to let the programs collapse due to low faculty standards or lack of faculty because of noncompetitive wages. Salaries must be freed from salary schedules and allowed to reflect the value of the skill in the marketplace. If this is not done, programs that are essential to the state's economy will lose faculty to the private sector, will

not be able to recruit qualified faculty, and will either be without instructors or will have to hire applicants whose skills are not sufficient for employment in industry. Low salaries are disastrous for the maintenance of quality in vocational-technical programs. At a time when industry needs a better trained work force, the quality of instructors of vocational-technical programs must be high.

L. Job Training Partnership Act (JTPA)

GOAL: Programs funded through the Job Training Partnership Act (JTPA) should be an integral part of the state's economic development program. In particular, JTPA can expand the supply of labor by preparing disadvantaged persons for meaningful employment through technical training.

POLICY OPTIONS:

1. On-the-job-training (OJT) contracts should be coordinated with customized training contracts funded by KIT.

Rationale: JTPA can subsidize a client's salary (50 percent) for up to six months of training. This is an especially powerful incentive to new businesses which do not have a large human resource pool and are unfamiliar with Kansas labor market trends. Also, expanding businesses that prefer to do in-house training (a form of OJT) will find it economical to use JTPA funds. In either case, opportunities are created for the disadvantaged to make their way into new and expanding business. All five of the service delivery areas in Kansas have reported some JTPA/KIT coordination in the past, but the projects have not always involved new or expanding business/industry.

The Job Training Coordinator located in the Department of Commerce plays a vital role in the link between JTPA and economic development for Kansas. The still limited JTPA involvement (through OJT) with new business in Kansas is in

large part be due to the overwhelming task of coordinating the increasing number of Kansas Industrial Training (KIT) contracts. Whereas Kansas employs one person to perform the linkage between economic development and JTPA, other states employ entire offices of personnel to perform this coordination. Adequate staffing in the Office of Work Force Training is needed to ensure that OTJ contracts are coordinated with customized training contracts funded by KIT.

2. All JTPA services should target development of technical job skill and basic academic skill competencies to prepare the person for meaningful employment.

Rationale: Meaningful employment results in economic self-sufficiency. Often those with the most barriers to employment also possess the least number of skills. Rather than offering remedial education with no guarantee of job placement, JTPA should focus on developing competencies so employers are assured of a labor force with levels of educational and vocational skills sufficient for today's jobs. JTPA can insure that every participant has achieved a given reading and reasoning level if the program uses demonstrated performance standards, not attendance records or placement quotas. This will reduce the tendency to cream, the practice of enrolling and placing participants who are nearly job-ready. Also, it can contribute to the effort to provide a flexible work force, one that can be trained and upgraded whenever necessary.

3. JTPA services should train for long-lasting jobs in new or expanding industries.

Rationale: To provide JTPA clients with long-term employment, training skills that result in placement in new or expanding industries increases the odds that these people will not lose jobs due to industry lay-offs, and will be better positioned to advance to higher level jobs as the industry grows.

Because there is a serious shortage of client tracking data, it is difficult to determine if JTPA participants are indeed being placed in long-lasting jobs. Data gathered from Occupational Training Reports for Program Year (PY) 88 and PY 89 suggests that most JTPA participants are trained in clerical, sales, service oriented (waiters/waitresses, janitors, hospital personnel, repairs) and light manufacturing jobs which may not lead to economic self sufficiency. Generic educational training was by far the largest single category. Even though these reports are not necessarily indicative of actual participant placement, the types of training necessary for placement in new business and industry, advanced technological training, computer training, reasoning skills and problem solving training, etc., were inadequately provided during these years.

4. Each SDA should establish an economic development set aside of \$50,000 to \$75,000 that can be committed by the Department of Commerce in connection with KIT for JTPA eligible individuals.

Rationale: Coordination of KIT and JTPA would enable firms that hire JTPA eligible persons to finance training with KIT funds and pay for half of the persons salary for six months. Enabling more complete training packages that cover initial training (KIT) and on-the-job training (JTPA) to be offered in a more efficient manner to prospective businesses and industries will benefit both the state and JTPA eligible individuals who are less job ready and need both types of support. Businesses willing to hire the disadvantaged could be more aggressively persuaded to locate in Kansas. Kansas SDAs II and V practice a formal set aside, while SDAs I and IV will provide funds if an appropriate project arises. All SDAs should set aside funds that can be committed to economic development. For example, these funds could be used to provide

training for businesses willing to hire JTPA eligible persons during expansion phases.

It is very important for JTPA eligible persons to obtain job placements in new or expanding basic industries where prospects for long term employment and adequate earnings are often greatest. Such placements should have long term benefits to the JTPA client.

5. JTPA coordination with community colleges and AVTS' should be increased to insure JTPA clients can advance to higher level training programs.

Rationale: The purpose of JTPA is to meet the training needs of the disadvantaged. More and more, those needs include the correction of educational deficiencies. There are two populations of consequence: those who have not received fundamental, remedial education, and those who have not received occupational or professional education. These two populations are by no means mutually exclusive; JTPA serves them both. (A third population - those who have received both remedial and occupational education but require upgrading to retain their employment, cannot be served by JTPA due to the prevailing placement orientation of the act.) By using community colleges and AVTS', the needs of these disadvantaged populations can be met. These schools are designed to educate both remedially and occupationally. Rather than "reinvent the wheel" as one SDA official put it, JTPA staff should make determined use of these institutions to help the disadvantaged populations.

6. JTPA staff or PIC members should serve on advisory committees for vocational/technical programs.

Rationale: Using PIC members on vocational institutions' strategic planning advisory committees would ensure increased coordination between JTPA and vocational education institutions. Close contact is needed to promote

discovery of ways that the needs of JTPA clients can be met by training institutions.

M. Planning for Training Programs

GOAL: Strengthen strategic planning for vocational education at the state and local levels to better anticipate and meet the needs of students and the business community.

POLICY OPTIONS:

1. The Department of Education's strategic plan for vocational-technical education should identify changing needs for skill training and how those needs can best be met as part of a statewide system.

Rationale: Programs in the current vocational-technical education system are enrollment driven. According to vocational education administrators and educators, student demand is the greatest determinant of what is offered. While student demand is an important variable in program definition, student demand may or may not reflect what jobs will be available in the near and/or distant future, especially if students do not have good information upon which to base career choice and training decisions. The Department of Education must create an awareness of the business and employment trends in Kansas and the relationship between business and employment trends in Kansas and the world economy. Thus, the Department of Education should draw upon state, national, and global research data to identify emerging or changing occupations, and target businesses and industries that are undergoing rapid changes in technology and use this information to modify the training system. The system must anticipate and plan for these changes so programs that train for emerging or changing occupations and technologies are in place in time to meet the need. This may require the state to establish priorities for resource allocation.

More programs may need to be phased out.

The state should also develop a plan to cope with the decreasing population in rural areas so the system can continue to provide adequate services. For example, the plan might address how to expand rural business-oriented programs such as new marketing and market research services, expanded small business management programs, and expanded farm business management programs. Planning efforts should also explore alternatives to make rural-based vocational education accessible and cost-effective. In an effort to increase class size, reduce overhead and travel costs, and to increase program diversity in rural areas, alternatives might include home-based education programs (video), in addition to the current development of telecommunication systems used to deliver programs.

2. Each vocational education institution's strategic planning process should position programs to anticipate and respond to population and industry changes in their service area.

Rationale: The Department of Education should provide regional research data needed to identify demographic changes, to identify emerging or changing occupations, and target regional businesses and industries that are undergoing rapid changes in technology for use by vocational education institutions within each region. Schools should use these data to guide program planning: what programs to phase out, what programs to implement, what programs to up-grade. Schools should extend services to industries undergoing changes in technology, redirect program offerings to reflect changes in technology, and delete programs that are projected to become obsolete or low-demand.

3. Each vocational education institution should have a strategic planning advisory group consisting of top level business and industry leaders from the school's service region who would participate in strategic planning for the entire vocational program.

Rationale: Discussions with business leaders suggests that, in some regions, vocational education administrators and business leaders are developing independent plans for coping with current or anticipated labor shortages and skill deficits. Each education institution should include owners, CEO's, and top management-level people from key industries in their region on the school's strategic planning advisory group. The business advisors should participate in decisions regarding funding priorities for programs so the school is positioned to provide an adequately trained work force for current and anticipated needs of regional business and industry.

Existing program advisory committees are not in a position to do institution-wide strategic planning. The members of these committees are chosen for their technical skills and are not in positions that require strategic planning. Their positions on program advisory committees require them to focus on a single program, and does not require them to plan for multiple programs. The strategic planning advisory group, on the other hand, must have a broader view of training requirements. They should also be positioned within their firm to be able to commit their firm's resources or support to work with the institution in areas of program development, faculty development, equipment, etc.

4. The Department of Education should ensure that data collection systems support planning and accountability efforts by providing uniform measures across all vocational education institutions.

Rationale: The Department of Education should develop an evaluation process which measures and documents a program's quality and then analyze program evaluations to determine common needs for program improvement.

5. The Department of Education should establish a statewide program to provide information on technical career opportunities to students, their parents and the general public.

Rationale: Public awareness and appreciation of the vocational education system needs to be improved. The public is not well informed about how the system contributes to the economy and well-being of the state. The system needs to improve its marketing so the public is aware of labor market information, the purposes and goals of vocational education, the accomplishments of vocational education graduates, and the potential for coordination and extension of training within and across regions, levels, and institutions. Students, parents, counselors, employees, and employers need to be informed that vocational education is not a dead-end track for those who cannot meet college entrance requirements, but rather a step in a life long learning process. The Department of Education should work closely with the State Occupation Information Coordination Committee in obtaining and disseminating career opportunity information.

N. Business Commitment and Partnership

Goal: Business-industry commitment and partnership in postsecondary technical education in Kansas should be increased to ensure that the system is market driven and responsive to work force training needs.

POLICY OPTIONS:

1. Businesses should play a substantial role in upgrading technical education by serving on high-level advisory committees, guiding the development of competencies, assisting with equipment decisions and acquisition, facilitating faculty development, and assisting with program design and evaluation.

Rationale: Each education institution should include owners, CEO's, and top management-level people from key industries in their region on the school's strategic planning advisory group. The business advisors should participate in decisions regarding funding priorities for programs so the school is positioned to provide an adequately trained work force for current and anticipated needs of regional business and industry.

2. Kansas businesses should be encouraged, through business organizations such as KCCI and Chambers of Commerce, to place a high priority on assessing the training needs of their employees and providing skill upgrade training directly or in cooperation with technical training institutions. Each firm should develop a human capital strategy that plans for employees' skill upgrading.

Rationale: In a climate of impending labor shortages and rapid technological changes, human resource development can no longer be ignored or neglected by top-level managers. Because of labor shortages, companies will no longer be able to discard employees whose skills are obsolete. In addition, productivity payoffs from investment in new technology may be lost if companies under invest in training people. American businesses have not had a long-term commitment to human resource development, but that will have to change.

3. Kansas business and industry should keep vocational education institutions informed of anticipated labor force expansion and skill changes so program adjustments can occur in a timely fashion.

Rationale: Business and industry has not always had to do medium- or long-range planning in order to secure an adequate work force. However, with labor shortages anticipated in the 1990's, more preparation regarding human resource needs is important. Firms need to predict the number of employees needed in each skill area, as well as plan for retraining of current employees so they can cope with technology or production changes. Once firms have an idea of their human resource needs, sharing that information with regional vocational education institutions would help schools plan for and provide training in areas where it will be needed in a timely fashion. Such coordination would increase the probability that a work force prepared to meet the firms needs will be available when the firm needs it.

4. The role of program advisory committees should be strengthened to ensure meaningful responsibilities for program review and evaluation, equipment proposals, and faculty selection.

Rationale: A survey of program advisory committees revealed that these groups are not utilized as effectively as possible. While school administrators regard these committees as an important link for input from the business community, the committees need to be more involved and have more responsibility and influence in program design, review, and change, and in equipment decisions. Committee members should be in charge of meetings, not passive listeners to educators reports of program news.