

Approved: 2/1/93
Date

MINUTES OF THE SENATE COMMITTEE ON COMMERCE.

The meeting was called to order by Chairperson Alicia Salisbury at 8:00 a.m. on January 14, 1993 in Room 123-S of the Capitol.

Members present: Senators Burke, Downey, Feleciano, Gooch, Harris, Hensley, Kerr, Petty, Ranson, Reynolds, Steffes and Vidricksen

Committee staff present: Lynne Holt, Legislative Research Department
Bob Nugent, Revisor of Statutes
Mary Jane Holt, Committee Secretary

Conferees appearing before the committee: William G. Brundage, President, Kansas Technology Enterprise Corporation, Topeka
Paul E. Clay, Jr., Chief Executive Officer, NIST Mid America Manufacturing Technology Center

Others attending: See attached list

William G. Brundage, President, Kansas Technology Enterprise Corporation, presented an overview of the Kansas Technology Corporation, (KTEC). He stated in 1986 the Kansas Legislature and the Executive Branch created KTEC. The mission of KTEC is to foster technological innovation and the creation, growth and expansion of Kansas enterprises. The complexity of competing globally demands new partnerships between government, academia and the private sector. KTEC has a 20-member board of directors representing the private sector, government and academia. There are over 90 people who serve on the various boards and committees of KTEC. Since 1987, KTEC has established an effective and unique network that capitalizes on scientists, engineers, financiers, accountants, marketers and various academic and government agencies. It is a cost-effective manner in which to achieve KTEC's vision, "To achieve substantial and sustainable growth for the Kansas economy through the advancement of technology". KTEC is funded entirely by appropriations from the Economic Development Initiatives Fund (EDIF), i.e., gaming revenues. In fiscal 1992 the amount was \$7,178,544. He explained KTEC has received \$30.5 million primarily from the lottery since KTEC was started. They have leveraged the \$30.5 million with \$67.5 million from the private sector and the federal government, making a total of \$98 million. They also expect a significant return on investments. In 1991 an evaluation of KTEC, completed by the National Association of State Development Agencies, stated KTEC's accountability systems in place are among the most advanced in the country.

Mr. Brundage explained the KTEC programs: Centers of Excellence, Applied Research Matching Grant Program, Training Equipment Grant Program, Small Business Innovation Research Grants, Industrial Liaison, Special Projects and Ad Astra Fund. KTEC's subsidiary corporations are KTEC Holdings, Inc; The Innovative Technology Enterprise Corporation; and Mid-America Manufacturing Technology Center.

Mr. Brundage explained KTEC has been investigating for three years the feasibility of an industrial agriculture program in Topeka for non-food, non-feed use of agriculture commodities. The Industrial Agriculture Committee and an advisory panel has completed a strategic plan and a business plan. The possibility of combining the Kansas Value Added Center with the Industrial Agriculture idea and making it a KTEC program, is being considered, see Attachment 1.

Mr. Brundage introduced Paul E. Clay, Jr., Chief Executive Officer, NIST Mid-America Manufacturing Technology Center.

Mr. Clay explained Mid-America Manufacturing Technology Center's (MAMTC) mission is to improve manufacturing competitiveness. MAMTC's primary service is hands on consulting to identify and solve problems in the manufacturing process. The services include hands on consulting seminars and workshops, vendor and technology searches, customized training, product/process testing and analysis, and industry cooperatives and networking groups. They are presently holding a 26 week seminar on International Standards Organization Quality Control Procedures in Kansas City and Wichita. The seminar is also

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON COMMERCE, Room 123-S Statehouse, at 8:00 a.m. on January 14, 1993.

scheduled for Garden City and Hays. Twenty companies are participating. The fee for the seminar is \$2,300.

Mr. Clay stated there are 21 field engineers in seven regional offices in Kansas City, Missouri; Manhattan, Wichita, Great Bend, Lenexa, and Pittsburg, Kansas; and Ft. Collins, Colorado. Field engineers charge \$50.00 an hour for their services. They can give away eight hours. The fees charged are used to defray expenses. A typical field engineer has 8 or more years experience, an engineer with 2 years of hands-on manufacturing experience and some sales experience. The field engineers must understand project management and are results oriented people. There are centers in South Carolina, New York, Ohio, Michigan, California and Minnesota. The plan is to have 25 management outreach centers nationwide. The National Institute for Standards and Technology (NIST) expects to have 170 regional offices nationwide in the next three or four years, see Attachment 2.

The Committee meeting was adjourned at 9:00 a.m.

The next meeting is scheduled for January 15, 1993.

GUEST LIST

COMMITTEE: SENATE COMMERCE COMMITTEE

DATE: 1/14/93

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**TESTIMONY TO
THE
SENATE COMMERCE COMMITTEE**

JANUARY 14, 1993

BY:

WILLIAM G. BRUNDAGE

PRESIDENT

KANSAS TECHNOLOGY ENTERPRISE CORPORATION

*Commerce
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Attachment 1-1*

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WHAT IS KTEC?

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KANSAS TECHNOLOGY ENTERPRISE CORPORATION (KTEC)

112 West Sixth, Suite 400, Topeka, KS 66603-3869; (913) 296-5272

MISSION:

"Foster technological innovation and the creation, growth and expansion of Kansas enterprises."

HISTORY:

- 1983 Kansas Advanced Technology Commission (KATC)
Established within the Department of Economic Development
 - 1986 Kansas Technology Enterprise Corporation (KTEC)
Created by the Kansas Legislature; established as a state-owned corporation
 - 1987 KTEC became operational
-

BACKGROUND:

In 1986 the Kansas Legislature and the Executive Branch joined forces to create KTEC. This bipartisan initiative was undertaken to expedite development of the Kansas economy to assure it a secure place in the global economy of the 21st Century.

ADMINISTRATION:

KTEC is administered by eight staff members and a 20-member board of directors representing the private sector, government and academia. Effectiveness has been enhanced because enabling legislation allows KTEC to operate like a business, yet maintain all of the controls necessary when utilizing public funds.

PUBLIC/PRIVATE PARTNERSHIPS:

The complexity of competing globally demands new partnerships between government, academia, and the private sector. These partnerships allow us to leverage our resources and proceed with a common goal.

Since 1987, KTEC has established an effective and unique network that capitalizes on scientists, engineers, financiers, accountants, marketers, and various academic and government agencies. It is a cost-effective manner in which to achieve our vision, "To achieve substantial and sustainable growth for the Kansas economy through the advancement of technology."

FUNDING:

KTEC is funded entirely by appropriations from the Economic Development Initiatives Fund (EDIF), i.e., gaming revenues. In FY 1992 that amount was \$7,178,544.

ACCOUNTABILITY:

According to a 1991 evaluation of KTEC, completed by the National Association of State Development Agencies (NASDA), KTEC's "accountability systems in place (comprehensive tracking system, use of the State's procurement and budget offices, annual independent audits, extensive use of peer review, and an independent board of directors) are among the most advanced in the country."

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Accountability mechanisms include:

- 20-member board of directors representing specific sectors of the Kansas economy;
- audits performed by the Division of Post Audit at their discretion;
- annual audit by private accounting firm;
- evaluation criteria for all KTEC programs;
- peer review by some of the nation's best managers of technology development programs;
- oversight by Kansas Inc;
- a business plan and a strategy document;
- all funds process through Division of Accounts and Reports;
- annual budget prepared as requested by Division of Budget; AND
- regular reports to the Legislative Economic Development committees.

Other activities which demonstrate accountability:

- Return on Public Investment (ROPI) - KTEC is developing a Return on Public Investment Model. Initial testing is underway to evaluate the impact of KTEC's programs on the State's economy.
- Committees - Advisory committees comprised of experienced individuals from business and government, assist KTEC with reviewing and making recommendations concerning its grant and center programs.
- Tracking System - KTEC has implemented a computerized system that enables it to manage information pertaining to the Centers of Excellence and grant programs—including the capability to track a company's progress long after completion of a project.

KTEC PROGRAMS:

- Centers of Excellence—Advanced Manufacturing Institute, Kansas State University; Center for Technology Transfer, Pittsburg State University; Center of Excellence in Computer-Aided Systems Engineering, University of Kansas; Higuchi Biosciences Center, University of Kansas; National Institute of Aviation Research, Wichita State University.
- Applied Research Matching Grant Program
- Training Equipment Grant Program
- Small Business Innovation Research Grants
- Industrial Liaison
- Special Projects
- Ad Astra Fund

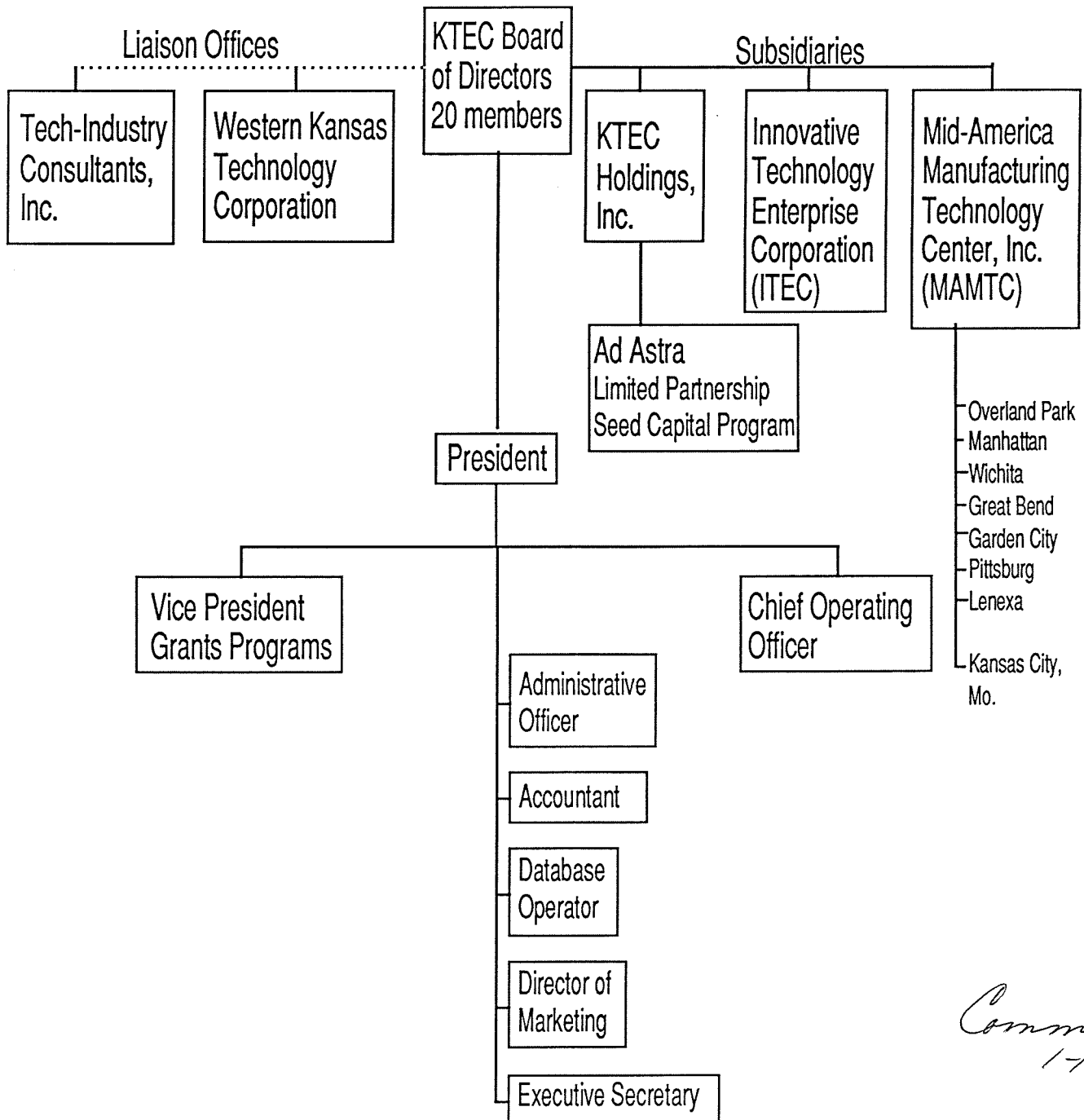
SUBSIDIARY CORPORATIONS:

- KTEC Holdings, Inc., was established in 1988 expressly to act as KTEC's nominee for the purpose of holding title to various seed capital investments acquired through the Ad Astra Fund.
- The Innovative Technology Enterprise Corporation (ITEC) grew out of a Special Project funded by KTEC. In 1991, ITEC became KTEC's first subsidiary corporation, serving the needs of inventors and entrepreneurs with a variety of fee-based services and seminars.
- The Mid-America Manufacturing Technology Center (MAMTC) was established in 1991 following KTEC's receipt of a \$12.9 million, six-year grant from the National Institute of Standards and Technology. MAMTC works closely with more than 2,600 small and mid-sized manufacturers in Kansas and the Kansas City metropolitan area.

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BOARDS AND COMMITTEES ASSOCIATED WITH KTEC

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*There are currently five
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JANUARY 11, 1993

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October, 1992
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KTEC/
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- Rochelle Chronister, State Representative
- Carol Wiebe, Hillsboro Development Corp.
- Bill Brundage, KTEC

ADVISORY PANEL

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- David Bodde, Midwest Research Institute
- Kurt Mueller, Ernst & Young, Inc.
- Sam Campbell, Campbell-Becker, Inc.
- Bob Sherwood, Center for Business Innovation
- Dick Hahn, KVAC
- Ray Burns, Kansas Board of Agriculture
- Eldon Fastrup, Kansas Board of Agriculture
- Bob Mead, Kansas House of Representative (R) (Pawnee Rock)
- Dave Heineman, Kansas House of Representative (R) (Garden City)
- Jerry Karr, Kansas Senate (D) (Close)
- Janis Lee, Kansas Senate (D) (Kensington)
- Ladd Seaberg, Midwest Grains
- Steve Graham, Kansas Wheat Commission
- Les Mitscher, Chairman, Medicinal Chemistry, KU
- L.T. Fan, Department of Chemical Engineering, KSU
- Lloyd T. Silver, LSC, Inc.
- Lee Reeve, Reeve Agri Energy
- George Ham, Assoc. Dean of Agriculture, KSU
- Sheila Frahm, Kansas Senate (R) (Colby)
- Jerry Moran, Kansas Senate (R) (Hays)
- Richard R. Reinhardt, Kansas House of Representative (D) (Erie)
- George Teagarden, Kansas House of Representative (D) (LaCygne)
- Charles Warren, Kansas Inc.

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WHY DOES KTEC EXIST?

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In 1987, KTEC was created
by the Legislature
to help existing Kansas businesses
and
to foster start-up businesses.

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"The economic future of any state or nation
is dependent upon a solid foundation
of scientists and engineers."

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KTEC's Role Is Technology Economic Development

As the State's technology economic development arm, KTEC has the responsibility to assure the establishment of this foundation for Kansas.

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WHAT IS KTEC'S PLAN FOR KANSAS?

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KTEC's VISION

"To achieve substantial and sustainable
growth for the Kansas economy
through the advancement of technology."

Amended 1/14/93
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KTEC's MISSION

"Foster technological innovation
and the creation, growth and expansion
of Kansas enterprises."

Completed 1/23/93

KTEC's GOALS

1. Stimulate technological innovation
2. Develop a formal process to commercialize technologies
3. Generate new and/or improved career and job opportunities in technical fields
4. Establish measurement systems for return on investment
5. Enhance effective communication among the private sector, academia and government
6. Promote technical education and training

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WHAT IS KTEC DOING?

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KTEC Is An Investment
Not An Expenditure.

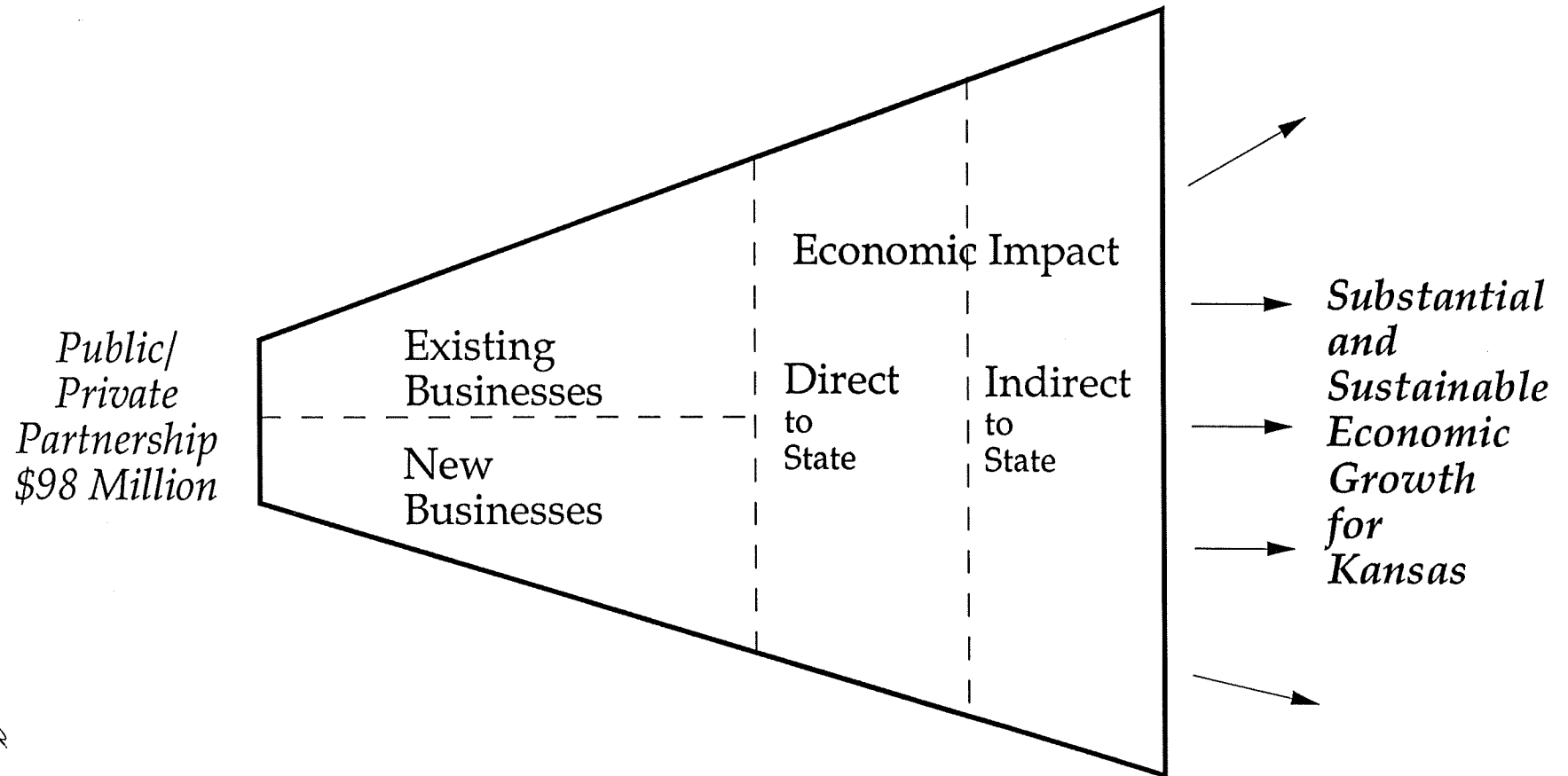
Commence 1/14/93
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Leverage of State's Investment through KTEC

Lottery EDIF	Leverage	Industry Federal	Total Economic Development
\$30.5 M.	→	\$67.5 M.	→ \$98 M.

Commenced 1/14/93-27

KTEC Is An Investment Not An Expenditure.



*Commenced 1/14/93
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**Total funding for KTEC and All Programs
Summary Report,
FY 1984-FY 1992***

Investments:

\$30.5 million in state funding

Leveraged with:

\$30.9 million in industry funding

\$20.7 million in federal funding

\$15.6 million venture capital

\$.3 million institutional funding

Results:

\$32.6 million in increased sales

66 company startups

25 company expansions

3,446 jobs created

1,163 industry employees trained

112 new technologies

64 patents issued

193 inventors assisted

\$30.5 Million in state funding
+ \$67.5 Million leveraging

**\$98 Million in technology economic
development for Kansas.**

By Program:

KTEC Centers of Excellence

FY 1984-FY 1992*

\$12.13 million in state funding

\$13.83 million in industry funding

\$18.33 million in federal funding

Applied Research Matching Grant

Fund, FY 1984-FY 1992*

\$8.45 million in state funding

\$14.8 million in industry funding

250 grants awarded

125 projects completed

**Mid-America Manufacturing
Technology Center**

FY 1992 (est.. Oct., 1991)

\$1 million in state funding

\$9,000 in industry funding

\$.5 million in federal funding

760 manufacturing plant visits

148 technical assistance projects

36 seminars and workshops

\$700,000 increased sales

\$318,000 cost reductions

16 jobs created

**Includes activities of KTEC's predecessor, the Kansas Advanced Technology Commission.*

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Existing Businesses
Need:

Affordable and Accessible
Research & Development

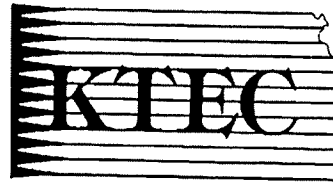
Technology

Management

Finance

Marketing

Training



Programs

Centers
Applied Research
Matching Fund
Training Equipment
Grants
Special Projects
Seed Capital
MAMTC
ITEC
Industrial Liaison
Referrals

Extended Enterprise
Private Sector
Federal Labs
SBDC
KDOC
Others

Entrepreneurs
Need:

Affordable and Accessible
Research & Development

Technology

Management

Finance

Marketing

Completed
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WHAT ARE KTEC'S PROGRAMS?

- Centers of Excellence
- Applied Research Matching Fund
- Seed Capital
- Special Projects
- Training Equipment Grants
- Industrial Liaison
- Innovative Technology Enterprise Corporation
- Mid-America Manufacturing Technology Center

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Centers of Excellence

Five Centers of Excellence at four state universities are the focal point for KTEC's goal to provide affordable and accessible research and development for Kansas businesses. Each of the centers has its own technology focus, and provides applied and fundamental research, product development, networking programs, training, seminars and technical consulting for client companies.

Each center is expected to meet three objectives:

1. To build high quality, focused and comprehensive research programs;
2. To develop and transfer technology to industry, and to commercialize technology; and
3. To assist in the expansion of existing companies and the formation of new companies.

Annually, KTEC reviews the Centers of Excellence and measures their achievements by a comprehensive set of quantitative and qualitative criteria. Every other year, the Centers undergo a peer review by a team of nationally recognized individuals with expertise that matches the various Center's research focus.

In FY 1992 KTEC provided core funding in the following amounts:

- \$725,000 to the Advanced Manufacturing Institute, Kansas State University;
- \$300,000 to the Center for Excellence in Computer-Aided Systems Engineering, University of Kansas;
- \$360,000 to the Center for Technology Transfer, Pittsburg State University;
- \$1,050,000 to the Higuchi Biosciences Center, University of Kansas; and
- \$780,000 to the National Institute for Aviation Research, Wichita State University.

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Applied Research Matching Fund

Affordable and accessible are the words most often used by businesses when discussing research and development of new products, processes and technologies. The Applied Research Matching Fund is the program KTEC offers to meet the "affordable" part of that equation.

To be eligible, projects must apply current scientific and technological knowledge, and lead to new developments that can have a positive impact upon the Kansas economy. Proposal review includes more than simply an examination of the research and the budget, it also looks beyond the completion date to the impact the project might have in the marketplace.

The Applied Research Matching Fund Committee draws upon the expertise of a wide network of technical and business experts in making its recommendations as to which projects should receive funding. The KTEC Board of Directors has final approval on all projects requesting more than \$15,000. KTEC funds 40 percent of the research with the participating company providing the remaining 60 percent of costs.

In FY 1992, 68 proposals were submitted to KTEC for their potential to lead to innovation, new knowledge or technology. Based upon staff evaluation, and committee recommendations, 41 projects received funding. KTEC invested \$1,349,684 in these research projects. The industry match of \$2,734,113 created a total investment of over \$4 million in new research and development for businesses in the State of Kansas.

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Seed Capital -- Ad Astra Fund

When opportunity knocks, the State of Kansas has to be ready to answer--that's the belief that preceded the creation of the Ad Astra Fund in 1988.

In anticipation, the State appropriated \$1.8 million in seed capital to invest in companies whose technology has broad market appeal and has highly motivated, capable, and dedicated management. Then, in 1988 KTEC formed a limited partnership called the Ad Astra Fund, L.P. Private sector investors were approached, and their investments increased the Ad Astra Fund to \$2.5 million. The management team of Campbell-Becker in Lawrence has administrated the fund since its inception.

The companies selected for Ad Astra investment include:

- BioCore, Inc., Topeka;
- Crescendo Systems, Inc., Overland Park;
- Cypress Systems, Inc., Lawrence;
- Diagnostics Concepts International, Inc., Shawnee Mission;
- Interactive Concepts, Inc., Lawrence;
- Midwest Superconductivity, Inc., Lawrence;
- Novatech, Inc., Kansas City;
- Oread Laboratories, Inc., Lawrence;
- Sitback Technologies, Inc., Lenexa;
- 3D Biomedical Imaging, Inc., Shawnee.

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Special Projects Fund

KTEC utilizes the Special Projects Fund to take advantage of those unexpected opportunities that could spell success in the economic development arena.

Special projects in the past have included the protection of intellectual properties, the purchase and installation of coder/decoders for a statewide telecommunications network, establishment of the patent depository library, and developing the proposal for the Mid-America Manufacturing Technology Center (MAMTC).

See complete list following.

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Special Projects by Name and Project Number

(This report details the expenses of only those projects considered "grants" or "contracts". It does not reflect funds spent on Other Operating Expenses (OOE) budget items. In addition, it does not reflect the annual expenses of the Kansas State Fair in Hutchinson, nor the contribution KTEC makes to the operation budget of the Governor's Satellite Office in Wichita.)

250001 Candidates for the position of Managing General Partner of \$5,000 FY88
the Kansas Seed Capital Fund

KTEC contracted with ExecuSearch, Inc. of Kansas City, Mo. to conduct a national search for a managing general partner for the Kansas Seed Capital Fund, now known as the Ad Astra Fund. The contract period ran from June 6, 1988 through Sept. 30, 1988. The firm submitted 9 candidates, none of whom were selected.

Further advertising and review of applicants was undertaken by the KTEC Board. More than 90 applications were received.

250002 Strategic Plan for Biotechnology Development \$34,401 FY88

In June 1988, KTEC's Board of Directors approved a proposal to develop a strategic plan for biotechnology in Kansas. The board committed \$45,000 from the Special Projects Fund. Ultimately, only \$34,401 was expended.

It appeared that a modest investment in biotechnology research and development by the State of Kansas could be leveraged with significant grants from federal agencies and the private sector. The National Science Foundation and the National Institutes of Health both continue to increase their funding of biotechnology research. Additionally, it was anticipated that the private sector would invest billions of dollars in the commercialization of biotechnology discoveries. This has proven to be true.

The plan targeted specific areas, and by logically assessing current and potential strengths, establishing goals, and setting priorities, it appeared that Kansas could achieve success.

More than 60 people representing 20 businesses, four universities and three state agencies joined to together in this analysis. Dr. Charles Decedue, then director and senior scientist for the University of Kansas Biochemical Research Laboratory, jointed KTEC as the Biotechnology Program Director and completed the strategic plan in early 1989. The plan is entitled, "Bio-Tech, Ks."

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FY89

The system, named "CareerPath", was completed in the Fall of 1989 by Professional Resource Centers in Leawood. KTEC's Executive Committee approved the expenditure from Special Project Fund in June 1989.

FY89

In 1989 the Center for Bioanalytical Research (CBAR) in cooperation with other research groups at the University of Kansas sought KTEC's support in preparation of a proposal for a Science and Technology Center. The proposed center National Science Foundation would inject \$3 million into the Kansas economy each year over a five year period. Kansas was not a recipient of the award.

FY90

While in Scotland in 1990, Dr. Anthony Redwood of the Institute for Public Policy and Business Research at the University of Kansas committed 25 days to investigate agencies, institutions and programs that contribute to university-industry liaison in Europe. Specifically he sought to identify the broad public policy approach undertaken in the United Kingdom and West Germany. He reviewed the science and technology foundations of the private sectors, the program elements, perceptions of relative effectiveness and the problems and issues as perceived by both policy makers and universities. KTEC agreed to fund these research expenses in advance of special project #250006.

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250006	Technology Transfer Study	\$7,000	FY90
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In the spring of 1990 the Institute for Public Policy and Business Research at the University of Kansas completed a lengthy report entitled, "Technology Transfer and Industrial Liaison for Kansas Economic Development". It offered a comprehensive model of technology transfer and higher education-private sector liaison for Kansas economic development, taking into account the nature and characteristics of Kansas industry, the capacity of Kansas higher education, the experience of other states with similar programs, and Kansas' own economic development goals. This study was the basis for KTEC's implementation of the Industrial Liaison program in mid-1990.

250007	Telecommunications Special Project	\$40,571	FY90. FY91
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In 1988 KTEC embarked upon the process of evaluating the need for a statewide teleconferencing network. The envisioned network would make national and international teleconferencing facilities accessible to Kansas researchers and small businesses. The goal was world class technology development and enhanced worldwide marketing efforts.

In August 1989, KTEC's Executive Committee approved \$53,885 from the Special Project Fund for the management of the Kansas Telecommunications Consortium of providers and users. This money would fund preparation of a strategic plan for the state of Kansas and hire a part-time director. The executive committee tentatively earmarked another \$250,000 for future use by the telecommunications consortium.

Initially, four demonstrations stemmed from KTEC's involvement. The first demonstration, held in November 1989 linked Interactive Concepts, Inc., a Lawrence-based software company and the Government of Hong Kong.

The second demonstration occurred with Kansas became the first state in the continental United states to hold legislative hearings by two-way interactive video. The hearings were conducted on February 15, 1991 and connected legislators via two-way interactive video to their constituents in Girard and Ulysses.

The third demonstration was a joint effort between the Department of Economic Development in Oklahoma and the Kansas Telecommunications Consortium. A two-way interactive video teleconference was held between the Mid-America World Trade Center in Wichita and London, England.

The fourth demo connected the Bureau of Information Systems, AT & T, and Compression Labs, Inc., between Wichita and Topeka State agencies to evaluate its application state-wide.

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250008 Intellectual Property Rights Program

\$75,910

**FY90
FY91**

The protection of intellectual property through copyrights, trademarks and patents is a vital concern to innovators. To address this need, KTEC initiated a proposal to develop a comprehensive strategy for assisting innovative Kansans.

In August 1989, KTEC's Executive Committee approved a range of \$68,385 to \$79,885 for hiring a full time director of the program and the program's expenses. Ultimately, \$71,865 was expended to establish this program.

During the summer of 1990, the KTEC Board of Directors committed an additional \$25,000 to the intellectual property effort, specifically for an assistance program called "Invention Development Assist Program". During Fiscal 1990, \$4,044 was expended from the IDAP funds. Thus the Intellectual Property Rights program was funded by \$71,865 plus the \$4,044 for a total of \$75,910.

By February 1991, it was evident that the intellectual property program established by KTEC would spin off and become a subsidiary of KTEC, called the Innovative Technology Enterprise Corporation (ITEC). When this occurred, the balance of the \$25,000 IDAP money was transferred to ITEC for continuation of the IDAP program.

25009 Proposal to NIST for Manufacturing Technology Centers

\$9,000

FY91

A technical writer was employed from August to November, 1990 to assist with drafting the Kansas NIST proposal. The KTEC Board of Directors approved the expenditure from Special Projects at their September 5, 1990 meeting.

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250010 Application and Entrepreneurship in the Electronic Heartland \$2,500 FY91

The Docking Institute of Public Affairs at Ft. Hays State University solicited \$2,500 from KTEC as a co-sponsor of a proposal submitted to the U.S. Department of Labor. The proposal was to encourage the western Kansas workforce to address the training implications of the information age technology, especially fiber optics, two-way interactive video and telecommunications. Education and training of human resources is essential if effective use of the technology is expected.

Some of the aspects of the proposal promoted delivery of educational programs, applications of telemedicine, job creation through global networking and access to worldwide databases. In addition, the proposal advocated the creation of user groups, cooperatives and support systems designed to facilitate telecommunications in business.

The request was approved by the KTEC Board of Directors at the December 1990 meeting.

250011 Polymer Science Project \$11,750 FY91

At their December 1990 meeting the KTEC Board of Directors earmarked \$11,750 from the Special Project Fund for the development of a collaborative polymer plastics research proposal. Participants in the program include, KTEC, the Center for Technology Transfer, Pittsburg State University, and the University of Southern Mississippi. The proposal led to development of a consortium between the two universities toward engineering of plastic prototypes using advanced techniques.

250012 Kansas Quality Improvement Network Plan \$25,000 FY91

In December 1990, KTEC's Board of Directors approved a plan to implement the Kansas Quality Information Network (KQIN). Following a six-month planning period, a mechanism will be in place to support a program giving Kansas an international reputation as a source of knowledge and experience in the practice of Total Quality Management.

KTEC will receive identification of at least six locations as regional quality resource centers; a mechanism for support for local areas; identification of customers and their needs in each region; a mechanism for the coordinated flow of information to the central state office; and an organizational structure for KQIN and the best mechanism for coordination of the activities around the state.

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250013 Patent Depository Library
250014

\$52,000

FY91

The 1990 Kansas Legislature directed KTEC to recommend to the U.S. Patent and Trademark office a location for the first Kansas Patent Depository Library. Proposals were due in November 1990, with KTEC's Board of Directors making a final decision in January 1991. Kansas' Patent Depository Library will be established at Wichita State University's Ablah Library by late 1991.

KTEC provided \$52,000 from its Special Projects Fund to meet one-half of the one-time expenses necessary for the document collection and related equipment.

Proposals were received from both Wichita State University and Kansas State University. A four-person evaluation team reviewed the proposals, conducted site reviews and established a rating system for the proposals including a review of capabilities, services offered, facilities and operating conditions, user access, linages to support network and other factors.

250015 - Telecommunications
250019

\$200,000

FY91

The Kansas Telecommunications Consortium has as its goal to demonstrate the benefits of two-way interactive video to Kansas industry--in other words, show businesses how the technology could make them more competitive. The main focus is business-to-business connections through state-wide conferences, business-to-business meetings, and other appropriate means.

Over a two-year trial period, the project would place coder/decoder units (codecs) in as many as 16 locations for use by businesses, KTEC organizations, communities, academic institutions, and hospitals.

Four codecs have been purchased and will be located at the following sites:

Southeast Kansas Education Service Center, Greenbush
University of Kansas Medical Center, Kansas City
Western Area Health Education Service Center, Hays
Advanced Manufacturing Institute, Manhattan.

The funding for the Telecommunications project was approved by the KTEC Board of Directors via conference call on January 15, 1991.

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250020 Innovative Technology Enterprise Corporation for the Intellectual Property Rights \$115,955 FY91

The activity and interest generated by the Intellectual Property Program has been phenomenal. In addition, the initiative demonstrated by the program's director, provided the KTEC Board of Directors with the plan to make the program a spin-off company and eventually it will be self-supporting. The Innovative Technology Enterprise Corporation became a subsidiary of KTEC in in early 1991.

ITEC's goal is to assist entrepreneurs and inventors in moving new ideas and products into the marketplace.

The KTEC Board approved \$95,000 of Special Projects Fund to establish the new corporation. In addition, the \$20,955 remaining in the Invention Development Assist Program was transferred to ITEC for continuation of that program.

250021 Kansas Association of Inventors Newsletter \$5,000 FY91

The Kansas Association of Inventors requested a one-time grant of \$5,000 to assist in the establishment of a monthly or bi-monthly publication. KTEC agreed citing that a publication of this type is an effective means of promoting inventions to manufacturers, promoting chapter meetings and interest, and circulating articles on assistance that might be available to inventors.

250022 National Science Foundation, Experimental Program to Stimulate Competitive Research (EPSCoR) \$5,000 FY91

EPSCoR is a program offered to states that have in the past not received much research funding from NSF. KTEC agreed to assist with funding to prepare the initial proposal. The proposal will analyze the current state of science and technology in Kansas.

The EPSCoR planning grant from the Special Projects Fund was approved by the KTEC Board of Directors at its June 1991 meeting.

Funding for two grants was actually approved--one each of \$5,000 to come out of FY 91 and FY 92 Special Projects Fund.

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250023	Mid-America Manufacturing Technology Center	\$58,069	FY91
	<p>In November 1990 KTEC submitted a proposal to establish a Manufacturing Technology Center with a grant from the National Institute of Standards and Technology, an arm of the U.S. Department of Commerce.</p> <p>In February 1991, Kansas became a finalist for the award, and in March, KTEC was notified that it had been named a recipient of \$12.9 million award over the next six years.</p> <p>KTEC's commitment to this project included \$100,000 from the Special Projects Fund in addition to other in-kind match through its programs and services.</p>		
250024	National Science Foundation, Experimental Program to Stimulate Competitive Research (EPSCoR)	\$5,000	FY92
	<p>This commitment from the Special Project Fund is a continuation of Project number 250022. The preparation period ends January 1992.</p>		
250025	Public Information Director	\$45,750	FY92
	<p>Individual attends community and civic organization meetings throughout the state, presenting a colorful and dynamic look at KTEC.</p>		
250026	Kansas Inc.	\$25,000	FY92
	<p>The National Association of State Development Agencies (NASDA), of Washington, D.C., was selected by the Governor and Kansas Inc. to conduct KTEC's evaluation.</p>		
250027	Industrial Agriculture	\$100,000	FY92
	<p>Expanded opportunities for agricultural resources through new technology, processing or manufacturing are the focus of this special project.</p>		
250028	Commercialization	\$100,000	FY92
	<p>Establishing the network necessary to move technologies quickly and efficiently from the Centers to the marketplace.</p>		
250029	Innovative Technology Enterprise Corporation	\$50,000	FY92
	<p>On-going funding of KTEC's subsidiary.</p>		

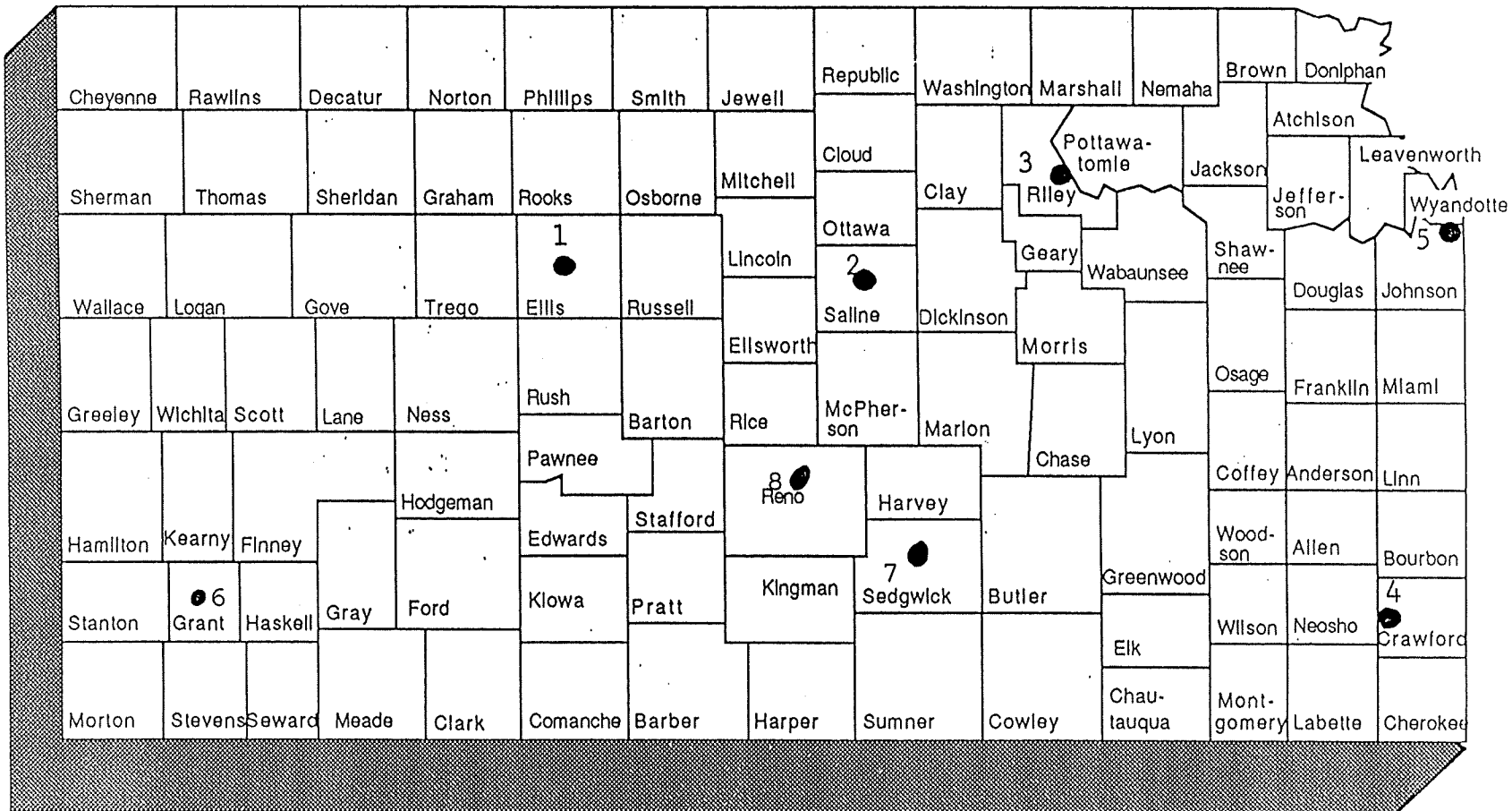
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250030	National Science Foundation, Experimental Program to Stimulate Competitive Research (EPSCoR)	\$5,500	FY92
	Phase II proposal preparation to seek additional monies from the National Science Foundation for Kansas Researchers.		
250031	Kansas Quality Improvement network	\$30,000	FY92
	Establishment of a network designed to assist Kansas businesses and MAMTC in quality improvement initiatives.		
250032	Kansas Association of Inventors	\$8,500	FY92
	KTEC assisted in funding a new educational program for entrepreneurs entitled, "At the Crossroads."		
250034- 250035	Telecommunications	\$70,000	FY92
	Coder/decoder units purchased and installed at the Media Resources Center, Wichita State University; Southwest Plains Regional Service Center, Ulysses; a third site at Hutchinson Community College was recommended FY 1993.		

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COMPRESSED VIDEO NETWORK

KTEC, January 1993



1. Western Area Health Education Center
2. Kansas College of Technology
3. Advanced Manufacturing Institute
4. Southeast Kansas Education Center
5. University of Kansas Medical Center

6. High Southwest Plains Network, Ulysses
7. Wichita State University, Wichita
8. Hutchinson Community College, Hutchinson

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Training Equipment Grants

Going into partnership with industry to provide state-of-the-art equipment for training students and manufacturing employees is the purpose of Training Equipment Grants. The goal is to supply the Kansas workforce with skills to operate modern production equipment used by Kansas industry.

Community colleges and area vocational technical schools can offer their communities the tools for training and retraining the workforce for advanced technology fields. KTEC funding has assisted in training skilled machinists, aircraft powerplant mechanics, and employees in the meat-packing industry of southwest Kansas.

In FY 1992, KTEC awarded \$150,000 in three training equipment grants from a field of five proposals. The proposals were reviewed in cooperation with the State Board of Education and MAMTC.

The award recipients and amounts:

- **\$50,000 to Garden City Community College** to educate and retrain potential workers in a new technical program entitled Power Plant Technology. Purchases of new electronics and Computer Numerical Controlled (CNC) teaching equipment also supports existing courses in Drafting and Industrial Production Technology at the college. Sunflower Electric Power Cooperative, Hays, and Electron Weigh, Inc., Garden City, contributed \$65,250 in-kind to match KTEC's award. The partnership includes the use of Sunflower's coal-fired generating station at Holcomb as a classroom for students, as well as the smaller plant located in Garden City.
- **\$38,000 to Hutchinson Community College** for the purchase and installation of a simulated computer integrated manufacturing laboratory. The new equipment will allow for an inter-disciplinary approach to training persons for a multitude of new jobs in the manufacturing process, i.e., technicians who will be able to design mechanical parts for industry, process the designs through SMART CAM software, determine manufacturing specifications, program computer-based machines, and assemble these parts in a computer supported assembly line. Master Machine Tools, Inc. of Hutchinson, contributed \$50,000 as in-kind match.
- **\$62,000 to Wichita Area Vocational Technical School** to purchase equipment essential to manufacturing in the Wichita community, including two conventional lathes, two conventional mills and one computer numerically controlled mill. This award expands the ability of the school to provide education that addresses a critical labor shortage in the area. A number of Wichita businesses and professional associations joined WAVTS in this partnership.

Industrial Liaison

Retention and expansion of current Kansas businesses is the priority of KTEC's Industrial Liaison program. Industrial Liaison offices were established in 1990 primarily to help firms identify and solve production or other technical problems, improve production processes, and capitalize on advanced production techniques and technologies.

Tech-Industry Consultants, Inc. (TIC), located in Lenexa, operates under contract with KTEC to serve eastern Kansas. The Western Kansas Technology Corporation (WKTC) with offices in Great Bend, Garden City, and Dodge City, serves KTEC in western Kansas.

During FY 1992 each office received seed funding from KTEC in the amount of \$150,000. In addition, each office serves as a regional office for the Mid-America Manufacturing Technology Center (MAMTC).

Tech-Industry Consultants, Inc.

TIC interacted with more than 300 companies and entrepreneurs providing technical, management, financial and marketing assistance to more than 200 companies this year.

Highlights for TIC included:

- achieved an 80% growth in corporate revenues over the previous year.
- provided management and administrative support to the Mid-America Manufacturing Technology Center's during its first seven months of operation.
- established as KTEC-MAMTC regional office.
- addition of two engineers to support MAMTC project.
- assisted regional companies in obtaining \$1.2 million in KTEC Applied Research Matching Funds.
- acquired an equity position in an exciting new company.
- presentations made to 20 service organizations and civic groups.

Western Kansas Technology Center (WKTC)

WKTC operations cover a total of 48 counties and 41,546 square miles in western Kansas. In spite of this logistical problem, the engineers of WKTC managed to contact nearly 100 companies and to provide technical assistance to 30 percent of those companies.

Highlights for WKTC included:

- addition of one engineer.
- notification that Mize Wire Company, Kingman, was issued a patent on a PVC plastic electrical wire connector for which WKTC provided the patent application drawings.
- testing and market research completed by WKTC for a cardboard pallet project for TransPac Inc., Garden City.
- organizing an outreach session that brought scientists from the Higuchi Biosciences Center and the Center for Computer-Aided Systems Engineering, both at the University of Kansas, to Great Bend.
- established as a KTEC-MAMTC regional office.

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Innovative Technology Enterprise Corporation (ITEC)

Assisting entrepreneurs and inventors has been a high priority of KTEC for several years. In 1991 the Innovative Technology Enterprise Corporation was created as a subsidiary corporation of KTEC.

In FY 1992, ITEC provided assistance to more than 100 inventors. In addition, an equity position was taken in several projects to generate future revenues. Seminars, lectures and public speaking opportunities are an important aspect of the inventors program. In addition, a new marketing seminar was pilot-tested for implementation in FY 1993.

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Mid-America Manufacturing Technology Center (MAMTC)

KTEC received a six-year \$12.9 million federal contract from the National Institute of Standards and Technology to establish the Mid-America Manufacturing Technology Center (MAMTC). KTEC formed MAMTC as its wholly-owned subsidiary. MAMTC's mission is to improve manufacturing competitiveness in the region. Through KTEC, MAMTC also received \$1 million in state funding in FY 1992.

Officially started in October, 1991, MAMTC has accumulated an impressive list of accomplishments in its first year. MAMTC assists small- to medium-sized manufacturers in improving quality, eliminating production bottlenecks, and increasing productivity. The primary mechanisms for assistance are consulting, training, workshops and seminars, equipment and software demonstrations, industry networking groups, product testing, vendor and technology searches, and product testing.

During this first year, considerable effort was devoted to establishing a management team. In addition, 16 field engineers and 9 technical specialists were employed. Regional offices were networked throughout the state to provide better access to services. The regional offices are located at: the Advanced Manufacturing Institute, Manhattan; the Center for Technology Application, Wichita; the Western Kansas Technology Corporation, Great Bend, Dodge City and Garden City; the Missouri Center for Manufacturing Technology, Kansas City, MO; Tech-Industry Consultants, Inc., Lenexa; and the Center for Technology Transfer, Pittsburg. Multi-state regional offices in Oklahoma and Colorado are planned for FY 1993.

The MAMTC headquarters is located in Overland Park.

Commence
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MAMTC

Giving manufacturers the edge.

MAMTC's Presentation to Senate Commerce Committee January 14, 1993

Paul Clay

- I. What Does MAMTC Do?
 - A. Mission Statement
 - B. Description of Services/ Products
 - C. Technical Focus Areas
 - D. Sample Problem Areas

- II. How Does MAMTC Do It?
 - A. Connection to KTEC
 - 1. Proposal
 - 2. Award
 - 3. Subsidiary
 - 4. Funds Flow
 - B. NIST and the MTC Program
 - 1. Metalworking Changes
 - 2. Productivity Growth
 - 3. Small vs. Large Company Productivity
 - 4. Crosscut Diagram (government/business/university partnership)
 - 5. Map of MTC's
 - C. Organizational Chart
 - D. Regional Offices - locations and company density
 - E. Field Engineers
 - 1. Functions
 - 2. Typical Profile
 - F. Other Resources Available

- III. What Has MAMTC Done?
 - A. Client Interaction Numbers with Map
 - B. Other FY 93 Accomplishments

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Presentation to
Senate Commerce Committee

January 14, 1993

Paul E. Clay, Jr.
Chief Executive Officer
NIST/ Mid-America Manufacturing Technology Center

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Kansas Technology Enterprise Corporation



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MAMTC's Mission:

Improve Manufacturing Competitiveness

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MAMTC's Product

Primary service is hands-on consulting to identify and solve problems in the manufacturing process. Services include:

- Hands-on consulting
- Seminars and workshops
- Vendor and technology searches
- Customized training
- Product/ process testing and analysis
- Industry cooperatives and networking groups

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General Technology Focus Area

- **Process Design**
- **Quality Improvement**
- **Computer Aided Design / Manufacturing (CAD/CAM)**
- **Electronic Data Interchange**

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Sample Problem Areas

- **Quality**
- **Product Design**
- **Plant Layout**
- **Cost Measurement**
- **Equipment and Software Selection**
- **Meeting Environmental Standards**
- **Inventory Control**
- **Materials Handling**
- **Scheduling**
- **Inspection**
- **Electronic Communication**
- **Statistical Process Control**

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National Institute for Standards and Technology

Kansas Technology Enterprise Corporation

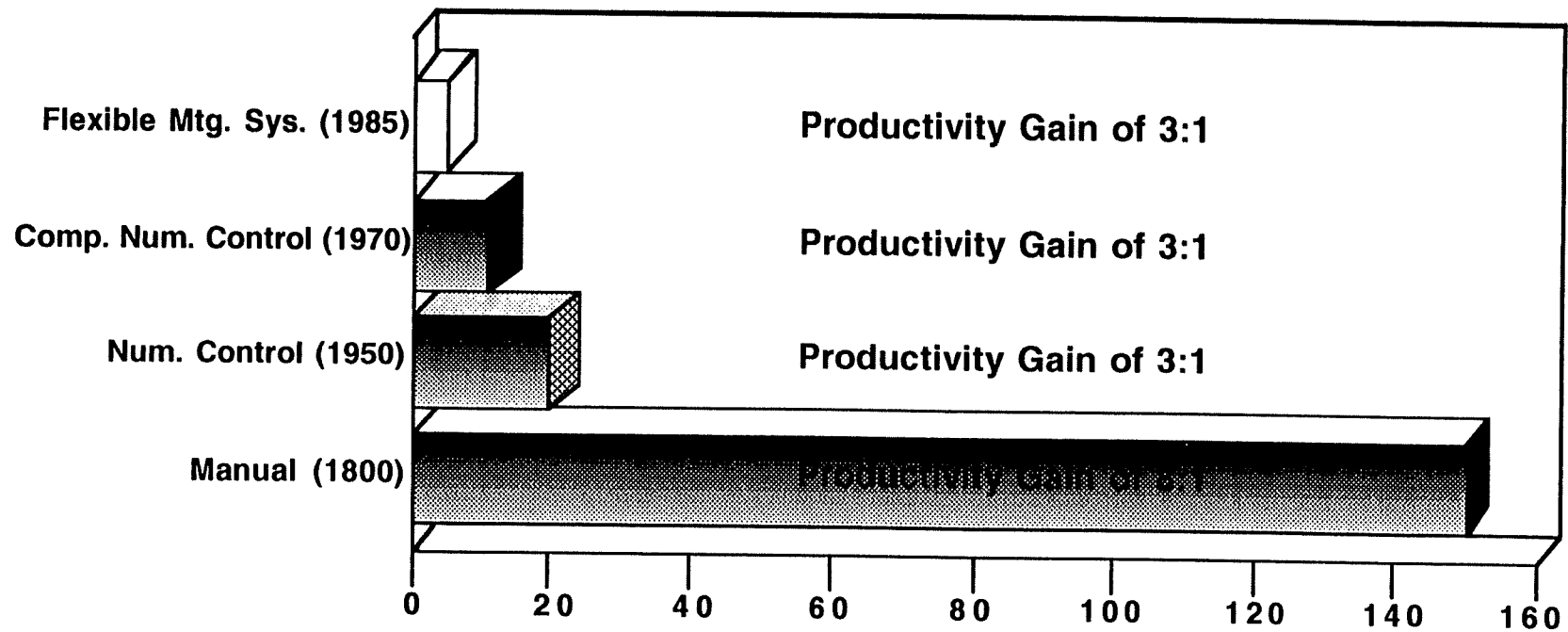
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Advances in Metalworking Technology



R. Jaikumar
Harvard Business School, 1988

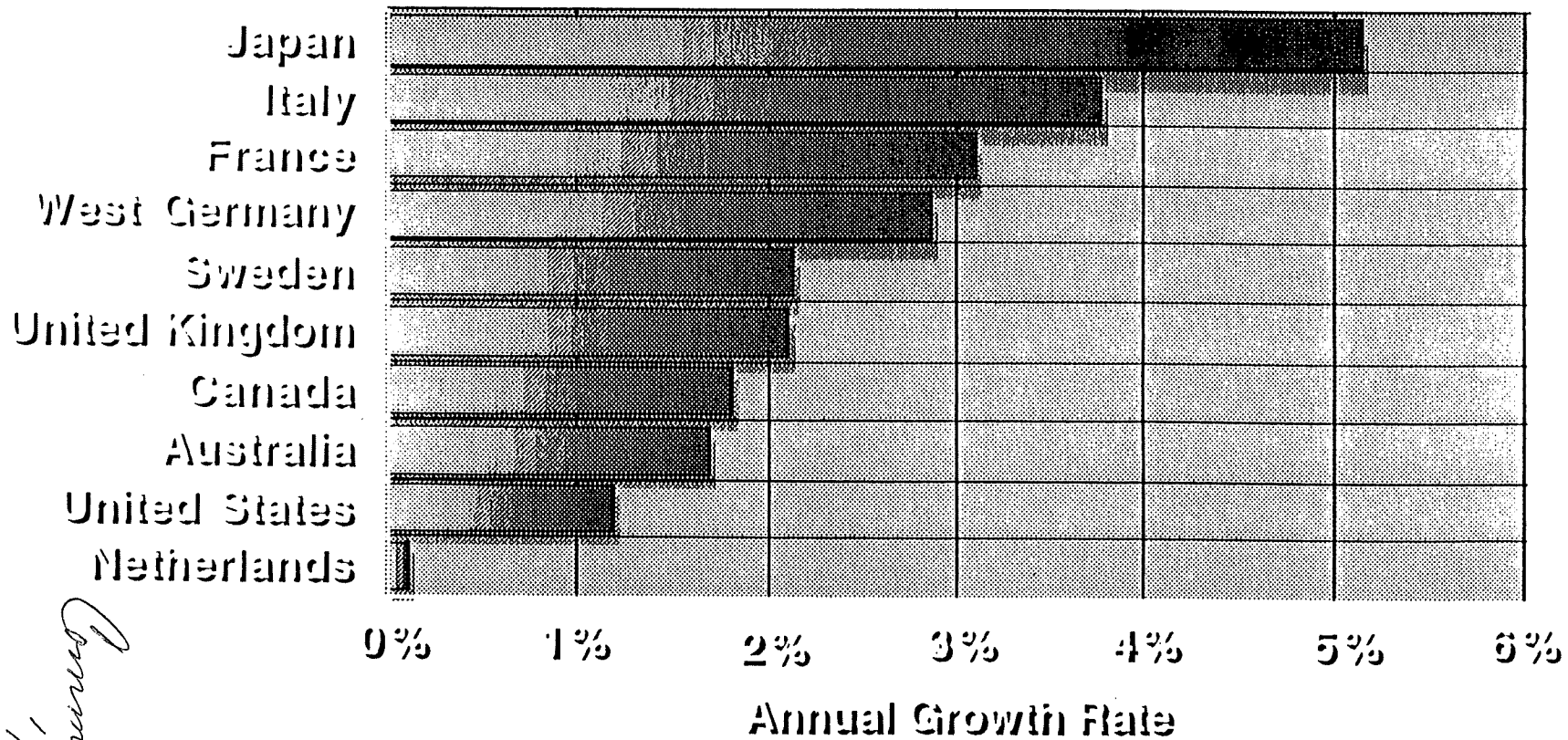
Years as Technology Leader

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Manufacturing Productivity Growth 1960-1990

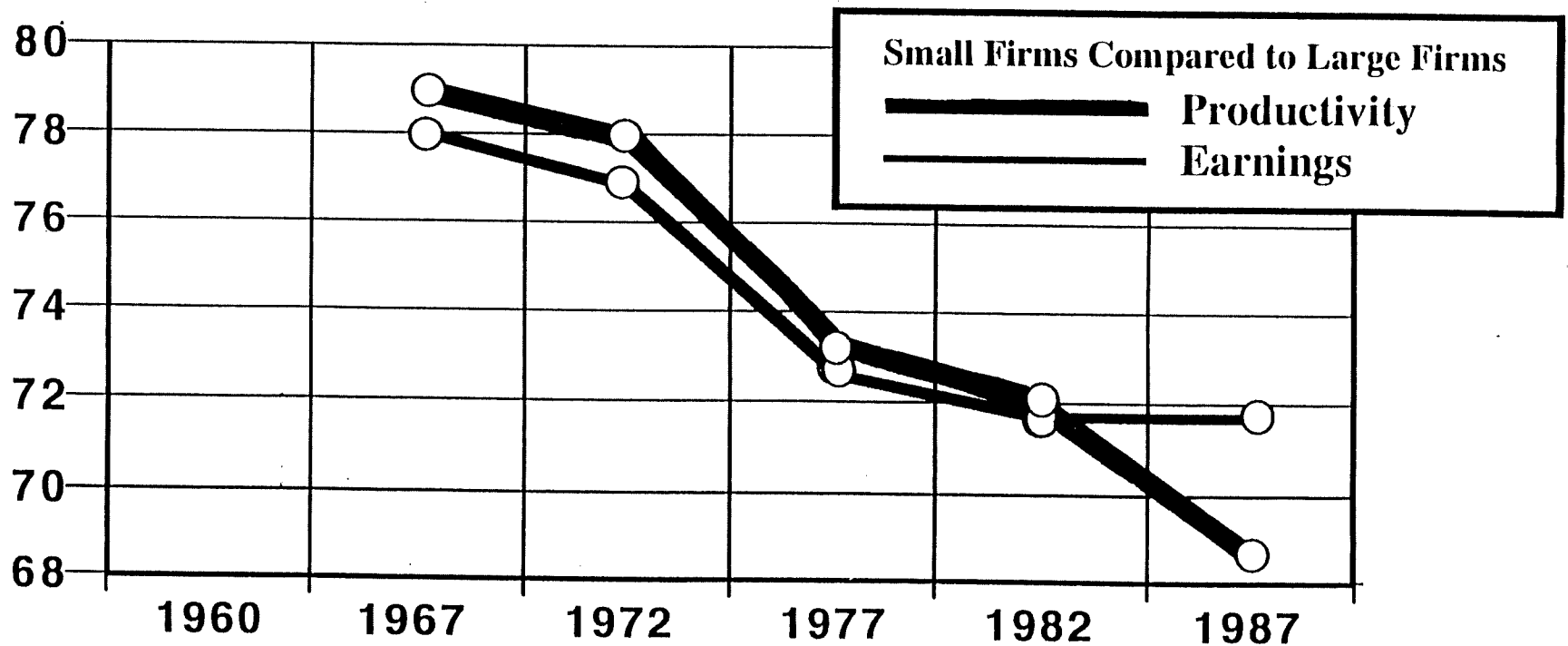


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Lower Productivity Holds Down Wages of Manufacturing Workforce



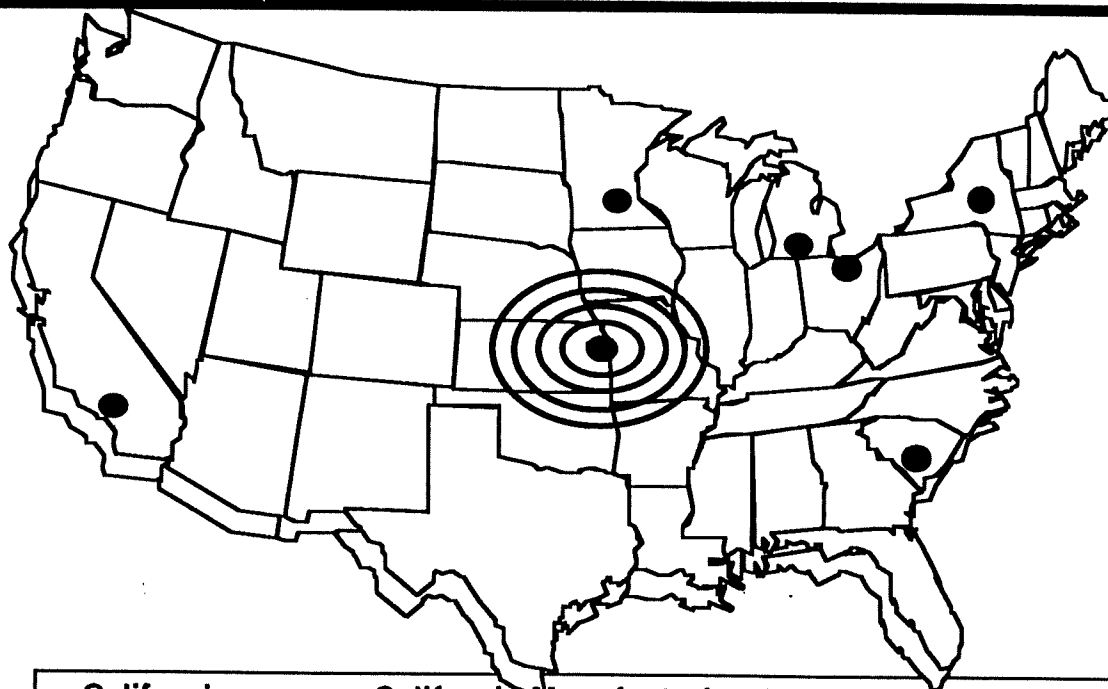
Source: Industrial Technology Institute

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NIST Manufacturing Technology Centers



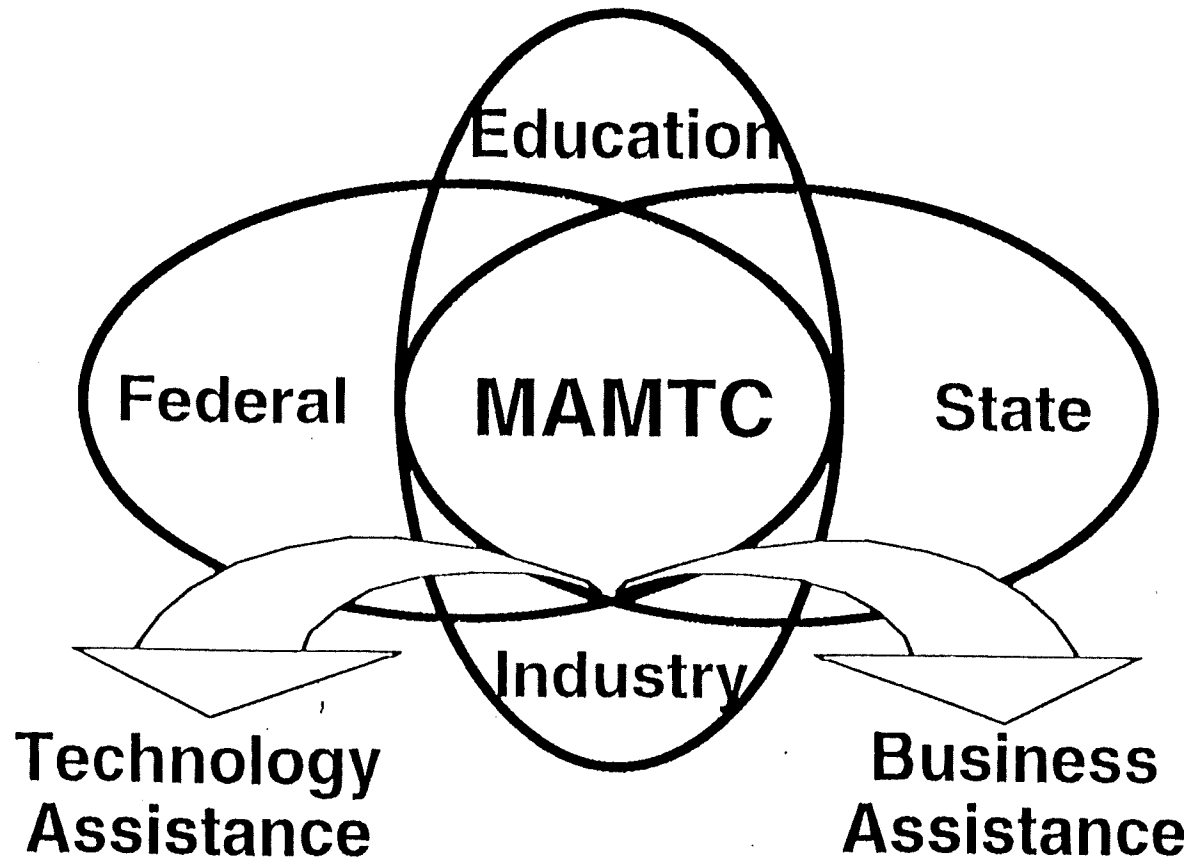
California
Kansas
Michigan
Minnesota
New York
Ohio
South Carolina

California Manufacturing Technology Center
Mid-America Manufacturing Technology Center
Midwest Manufacturing Technology Center
Upper Midwest Manufacturing Technology Center
Northeast Manufacturing Technology Center
Great Lakes Manufacturing Technology Center
Southeast Manufacturing Technology Center

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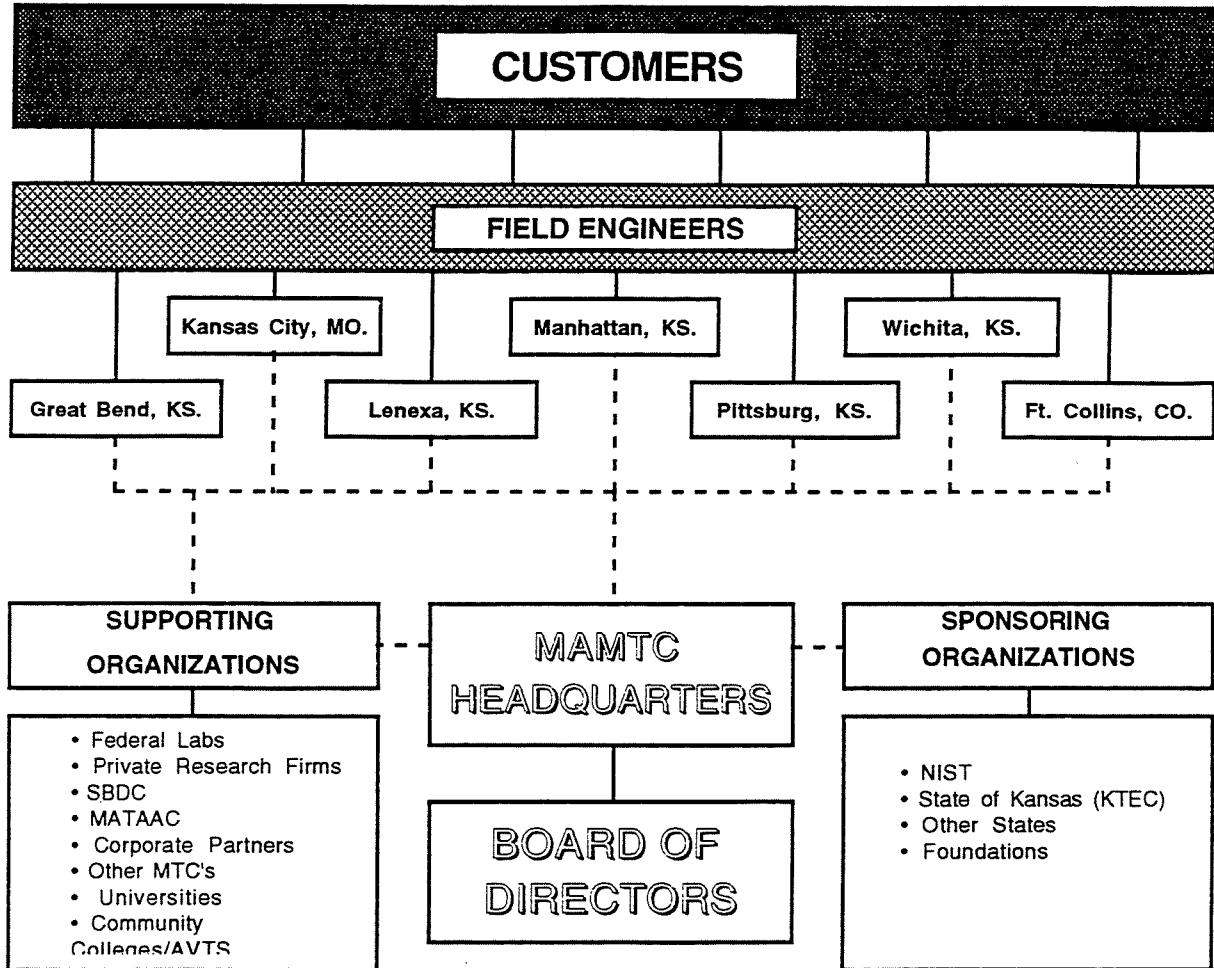
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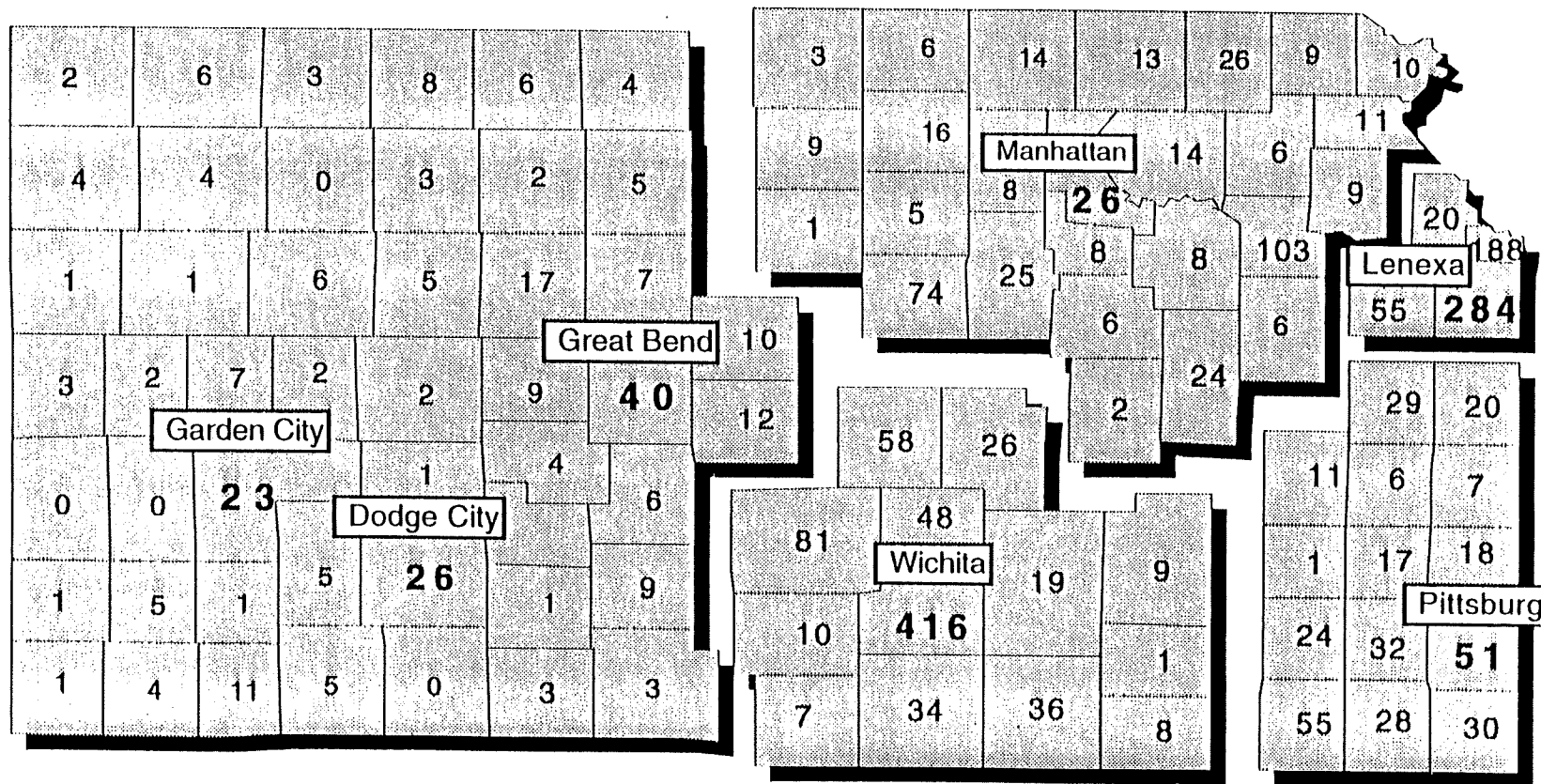
MAMTC ORGANIZATIONAL CHART



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NIST/Mid-America Manufacturing Technology Center

Kansas Service Area



* Figures indicate number of Manufacturers in each county-KDOCH 2/92

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Field Engineer Functions

- Respond to Manufacturers' Requests
- Analyze Problems - Need Analysis
- Develop Proposals
- Identify Resources
- Project Management & Implementation
- Establish Networking Program
- Customer Service

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Profile of Typical MAMTC Field Engineer:

- **Eight or more years of experience**
- **Engineering degree**
- **Two years hands-on manufacturing experience**
- **Two years sales experience**
- **Understanding of project management**
- **Results oriented**

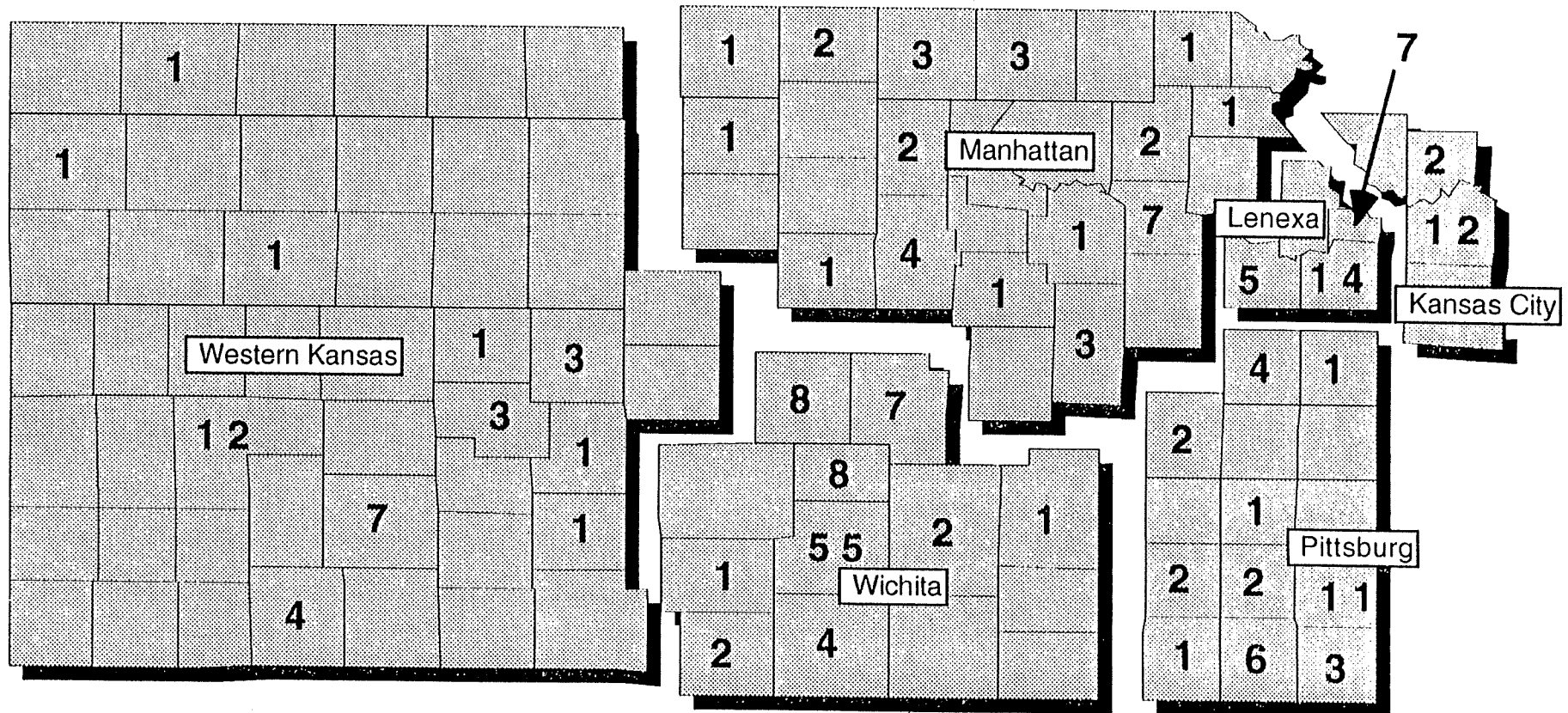
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Resources Available to MAMTC and Manufacturers:

- **Small Business Development Center**
- **Agricultural Extension**
- **Industrial Extension**
- **Small Business Administration**
- **Community Colleges**
- **Area Vocational-Technical Schools**
- **Department of Commerce**

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Clients Served in ^{FL}1992



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FY 1993 ACCOMPLISHMENTS

Customer Results

- Increases in annual sales	\$316,000
- Annual cost reductions	\$700,000
- New employees	16
- New products on the market	3

Interactions with Small Manufacturers (or Activity Measures)

- Visits to manufacturing plants	1,053
- Technical assistance projects	
- client contracts	97
- informal technical assistance projects	162
- Seminars and workshops held	57
- Attendance at seminars and workshops	1,375
- Active industrial networking groups	5

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