

MINUTES OF THE SENATE COMMITTEE ON COMMERCE.

The meeting was called to order by Chairperson Senator Brownlee at 8:30 a.m. on January 11, 2001 in Room 123-S of the Capitol.

All members were present except:

Committee staff present: April Holman, Legislative Research Department
Robert Nugent, Revisor of Statutes
Lea Gerard, Secretary

Conferees appearing before the committee: Richard A. Bendis, Kansas Technology Enterprise Corporation. KTEC

Others attending: See attached list.

Chairman Karin Brownlee introduced Richard Bendis to give an overview of the Kansas Technology Enterprise Corporation KTEC. The meeting was turned over to Richard Bendis. Mr. Bendis explained that KTEC is a state-owned corporation to stimulate economic development in Kansas by promoting innovation and development of technology. KTEC receives funding through the Economic Development Initiatives Fund, which consists of revenue from the Kansas Lottery and Gaming Commission. KTEC is comprised of a 20-member board from the public and private sectors. The KTEC university based research centers provide product development, research, networking and training to Kansas companies. The centers are: Advanced Manufacturing Institute, Kansas State University; Higuchi Biosciences Center, University of Kansas; Kansas Ploymer Research Center, Pittsburg State University and the National Institute for Aviation Research, Wichita State University. Rich Bendis reviewed the KTEC annual report (Attachment 1).

The meeting adjourned at 9:30 a.m. The next meeting will be January 16 at 8:30 a.m.

SENATE COMMERCE COMMITTEE

GUEST LIST

DATE: JANUARY 11, 2001

NAME	REPRESENTING
Terry Leatherman	KCCI
Shirley Allen	Botterby Assoc.
K. Bunn	Hern/West
BUD BURKE	CESSNA
Roger Franke	KGC
George Barber	Casher, Braden, Barber
HeAnn M. Schmitt	legislative Post Audit
ERIC Sexton	WSU

Table of Contents

2. **Accomplishments**
4. **Letter from the Governor**
5. **Letter from KTEC**
7. **Recommendations**
8. **Year in Review**
14. **Events Subsequent to Year-end**
15. **Global Outreach**
16. **Board of Directors**
17. **KTEC Staff**
18. **KTEC Committees**
20. **Centers of Excellence**
21. **Advanced Manufacturing Institute**
22. **Higuchi Biosciences Center**
23. **Information & Telecommunication Technology Center**
24. **Kansas Polymer Research Center**
25. **National Institute for Aviation Research**
26. **Innovation & Commercialization**
27. **Kansas Innovation Corporation**
28. **Mid-America Commercialization Corporation**
29. **Wichita Technology Corporation**
30. **Commercialization Offices & AICCs**
31. **Investment Funds**
33. **Applied Research Matching Fund**
36. **Innovation Research**
37. **SBIR & SSBIR**
38. **EPSCoR**
39. **Special Projects**
40. **MAMTC**
42. **KTEC Chronology**
45. **Network Contacts**

What is KTEC?

The Kansas Technology Enterprise Corporation is a state-owned corporation established on January 12, 1987 to stimulate economic development in Kansas by fostering innovation and development of technology. KTEC receives funding through the Economic Development Initiatives Fund, which consists of revenue from the Kansas Lottery and Gaming Commission.

KTEC has the expertise and resources to help turn innovative ideas into marketable products. A statewide network supports entrepreneurs, inventors, scientists, and businesses through each phase of the technology life cycle, from an idea to a successful product.

KTEC has developed specific programs to accelerate the research, development, and commercialization processes of new technologies in Kansas. These programs fall into three basic functional areas: research, investment, and business assistance.

The innovative structure of the KTEC network, and the quality and diversity of its programs, has positioned Kansas as a model for other states. Kansas is recognized both nationally and internationally as a leader in using commercialization of technology as a foundation for economic development.

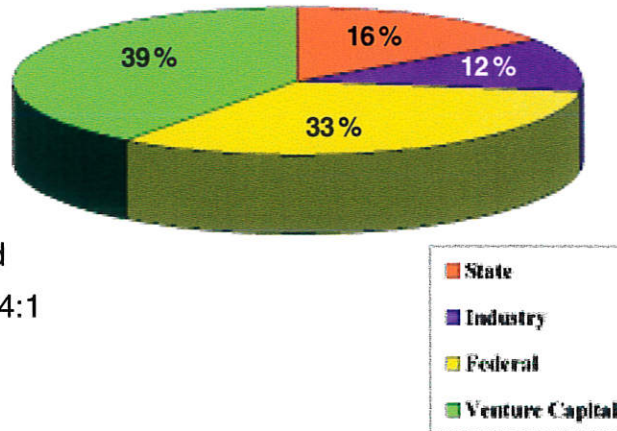
The KTEC network has worked with entrepreneurs, companies, and organizations in all but seven of the 105 Kansas counties. A list is available by contacting the KTEC marketing department at 785-296-5272.

Accomplishments

FY 2000 Percent of Total Investment

FY 2000 Investment:

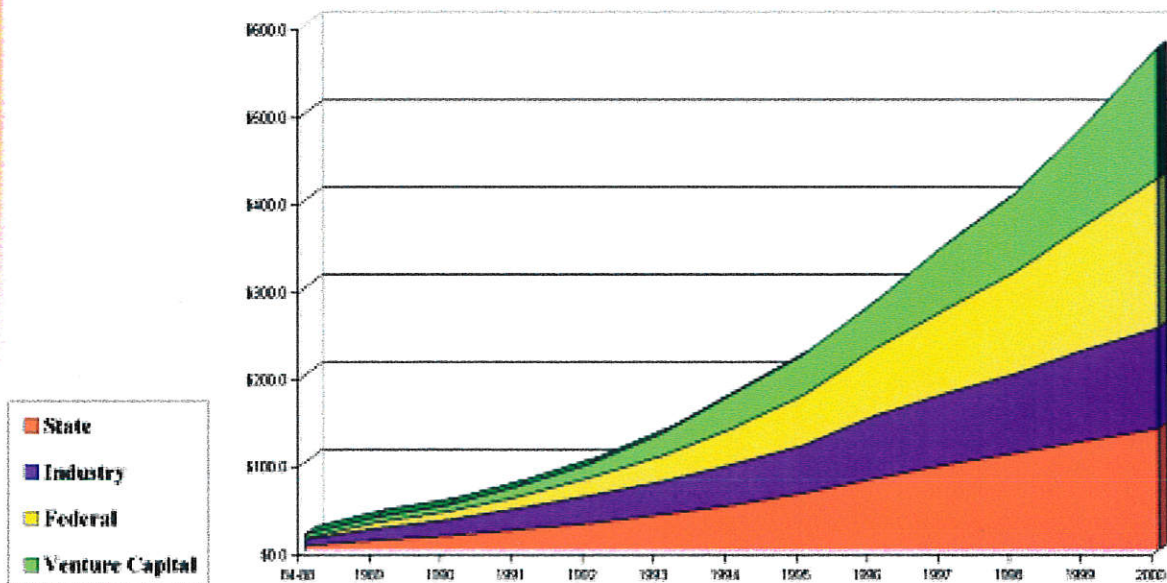
\$13.5 million state invested
 \$10.0 million industry invested
 \$28.8 million federal invested
 \$33.9 million venture capital invested
Total: \$86.2 million Leverage: \$5.4:1



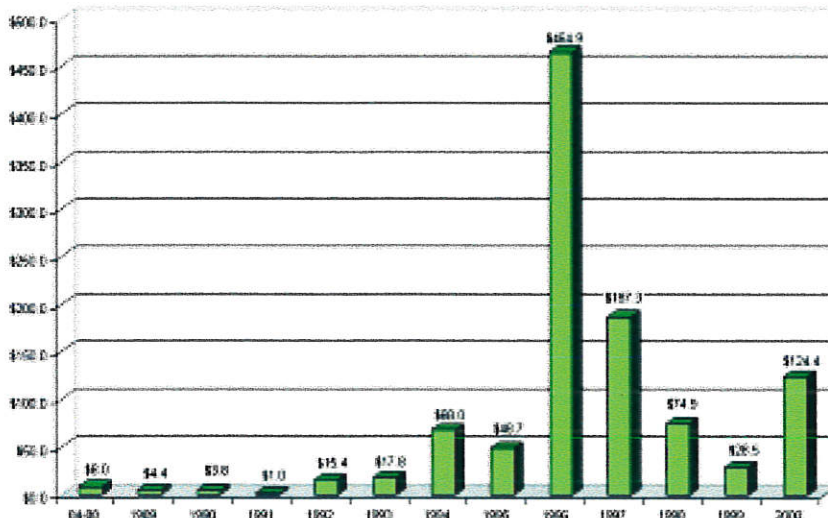
Cumulative Investment 1984-2000:

\$137.9 million state invested
 \$114.9 million industry invested
 \$172.0 million federal invested
 \$148.9 million venture capital invested
Total: \$573.7 million Leverage: \$3.2:1

Cumulative Investment 1984-2000 (millions)



Accomplishments

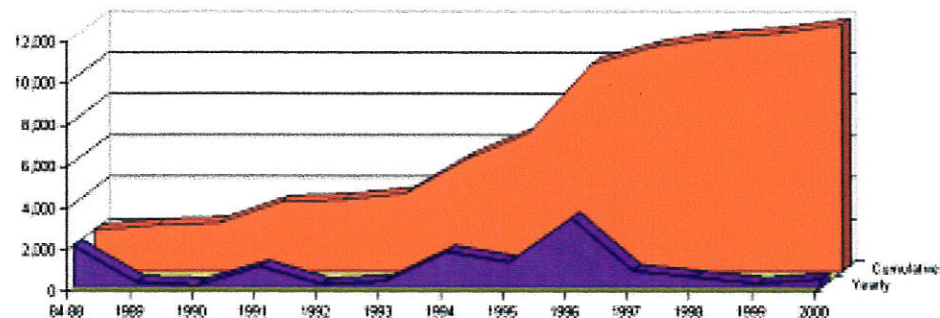


**Increased Sales
1984-2000
(millions)**

FY 2000 Results:

\$124.4 million increased sales	22 patents issued
23 company start ups	390 inventors assisted
384 jobs created or retained	\$875,721 royalty returns
42 technologies developed	\$1.03 million equity returns

Cumulative Jobs Created or Retained 1984-2000



Cumulative Results 1984-2000:

\$1.05 billion increased sales	198 patents issued
268 company start ups	3,010 inventors assisted
11,845 jobs created or retained	\$2.15 million royalty returns
473 technologies developed	\$3.34 million equity returns

Letter From the Governor

BILL GRAVES, Governor
State Capitol, 2nd Floor
Topeka, Kansas 66612-1590



(785) 296-1233
1-800-748-4408
FAX: (785) 296-7973

OFFICE OF THE GOVERNOR

December 18, 2000

Dear Citizens of Kansas:

The Kansas Technology Enterprise Corporation is an important part of an economic strategy that has guided the state to unprecedented economic prosperity. KTEC continues working to position Kansas as a leader in the new innovation economy.

KTEC's 2000 Annual Report shows the progress made and the benefits the state has received since KTEC was created in 1987. In this Annual Report, you can see not only the numbers but also stories behind the numbers. The research projects and small companies highlighted in this report reflect the hundreds of initiatives and thousands of people who have cooperated with KTEC in helping to build a prosperous state economy.

I thank the KTEC staff, Board of Directors, and network affiliates for their hard work, and I congratulate them on their accomplishments. I am confident the continued cooperation and collaboration of government, universities, and industry will keep Kansas strong in the 21st century.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Graves".

BILL GRAVES
Governor



Senate Commerce Committee
January 11, 2001
Attachment 1-4

Letter From KTEC



December 22, 2000

Gov. Graves, Legislators, and Kansas Citizens:

As we approached the close of the 20th century last year, it was with some trepidation for the havoc that technology might wreak on January 1. The Y2K disaster did not materialize, but the threat did cause us to consider the role of technology in our own lives and our society.

Humankind has overwhelmingly benefited from technological advances. Technology eradicated small pox, technology brought information and knowledge to the common person, and technology bridged geography and connected cultures.

Since its inception, the Kansas Technology Enterprise Corporation has been supporting technology and innovation in Kansas. Our partnerships with university researchers, entrepreneurs, and small technology companies have made positive contributions to the health of our state economy. But, even we often forget to look beyond the numbers to see the greater effect of our work.

Our partners are developing technologies that can positively impact the health, welfare, and lifestyle of individuals, and benefit society as a whole. These beneficial projects are numerous. A few examples include:

- The Higuchi Biosciences Center at the University of Kansas has developed drug delivery systems that make possible effective new medications that previously couldn't be absorbed by the body. This technology is being commercialized by CyDex, Lenexa.
- Foodlabs, a spin-out company from Kansas State University, is developing technologies to ensure the safety of the foods we eat.
- Soy-based products, including inks and polymers are being developed at the Kansas Polymer Research Center at Pittsburg State University. These products will open new markets for Kansas farmers and could decrease our reliance on foreign petroleum.
- Flint Hills Scientific, Lawrence, is commercializing technology that was developed at the University of Kansas Medical Center Research Institute which can predict epileptic seizures and may one day lead to prevention of seizures.
- Researchers at the National Institute for Aviation Research at Wichita State University are working with aircraft manufacturers and the Federal Aviation Administration to make air travel increasingly safe and reliable.

The benefits to people and society of these and other technologies developed by our network partners and client companies is immeasurable. What can be measured is the impact these efforts



KTEC President & CEO Rich Bendis, Left; and KTEC Board Chairman Tracy Taylor.



Letter From KTEC

have had on the Kansas economy over the years.

Since 1984, these efforts have resulted in 11,845 jobs created or retained, 268 new companies, \$1.05 billion increased sales, 473 new technologies, and 198 patents issued. In addition, the direct return on investment generated by KTEC programs has been almost \$5.5 million.

The contributions made to the state economy and the benefits to people and society were made possible by funding from the Economic Development Initiatives Fund. There's no doubt that without this funding source dedicated to economic development, Kansas would not have reached the same level of economic prosperity the state enjoys today.

Renewal of the lottery will be a central issue in the 2001 legislative session. It is imperative that the lottery be renewed and that revenue continue to benefit economic development programs. We encourage legislators to examine the contributions that EDIF-funded programs have made to the state economy and the health and welfare of Kansans.

Economic development efforts are quantified in terms of aggregate numbers, but the impact of these programs is felt every day by the fathers and mothers who have jobs, by the small companies that succeed, and by the people whose lives are touched by technological breakthroughs.

KTEC's FY 2000 Annual Report, which we respectfully submit, provides the numbers, but it also includes stories that are representative of the projects and companies that KTEC has been fortunate to be a part of over the past 13 years. With KTEC's continued support, Kansas researchers, entrepreneurs, and small companies will open new frontiers in science and technology.

Sincerely,



Tracy Taylor
Chairman of the Board
1996-2000



Richard Bendis
President & CEO

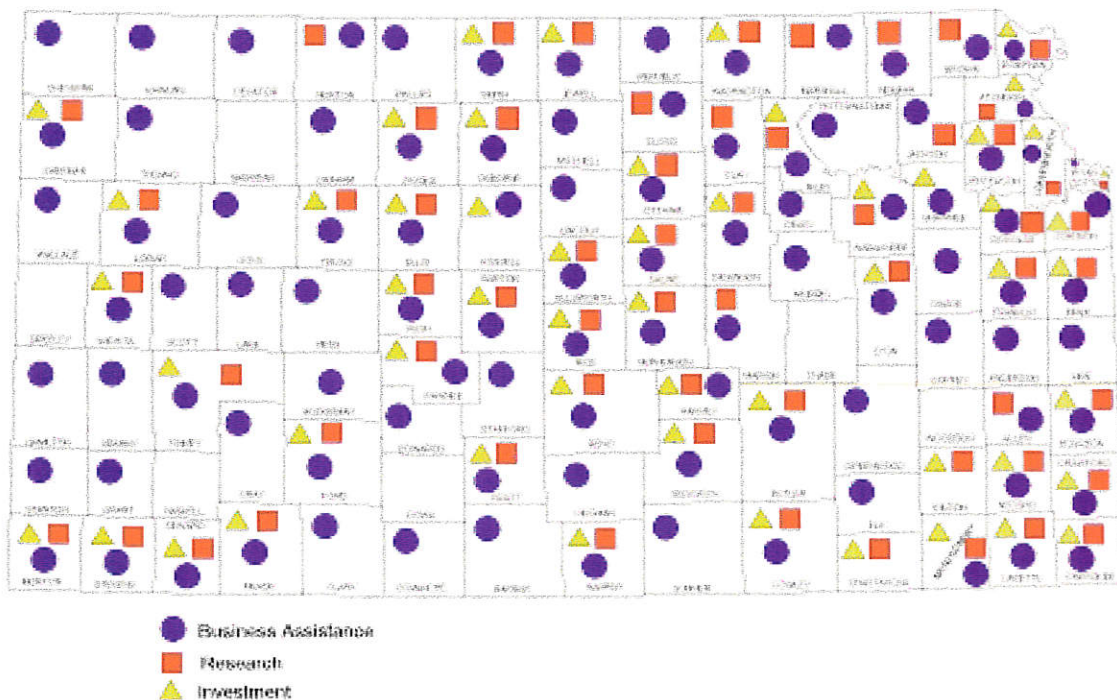
Recommendations



Recommendations for sustainable development:

1. The Kansas Lottery must be renewed and the Economic Development Initiatives Fund must be protected as primary recipient of lottery proceeds. In addition, the \$50 million cap on EDIF should be lifted to provide additional revenue for economic development initiatives.
2. State leaders must catalyze the formation of at least \$100 million in new private seed and venture capital annual investments for emerging Kansas technology companies.
3. A budgetary priority must be funding for research in strategic technologies that are critical to the current and future economy of the state. Without appropriate funding, we risk relenquishing our leadership position to the numerous states that are making major commitments to technology research.
4. Statewide broadband Internet connectivity must be achieved to provide equal access for all Kansans to the new innovation economy.
5. Strategic partnerships between academia, government, and industry must be cultivated to promote and support workforce training and ensure lifelong learning.

Network Outreach



Over the past 13 years, KTEC has strategically expanded existing programs and developed new programs to meet the constantly changing needs of Kansas companies and to keep pace with the evolving innovation economy. KTEC has provided assistance to individuals or organizations in 98 of the 105 Kansas counties.

Senate Commerce Committee
January 11, 2001
Attachment 1-7

Year in Review

Network Initiatives

- Following a concept suggested by Board Member Jim Dahmen, KTEC developed and launched a job website designed to help Kansas companies recruit skilled technical workers. The Home Again website targets graduates from Kansas universities with technology- and science-related degrees who moved away from Kansas but have a desire to return.
- KTEC was a sponsor and exhibitor at Energizing Entrepreneurs 2000 conference. The conference provided entrepreneurs and small companies an opportunity to learn about the resources available to assist and provide services to small businesses.
- KTEC was a sponsor and exhibitor at the second annual Kansas Technology Showcase. The KTEC exhibit included network partners and client companies to showcase how the KTEC network supports technology research and commercialization in Kansas.
- KTEC hosted network partners and client companies in the Kansas Technology Expo Center at the Kansas State Fair. KTEC is partnering with the Kansas State Fair Board to create a technology presence at the fair.
- KTEC added a new twist to its annual golf tournament by using a portion of the player registration fee to benefit the Kansas ElectroRally. KTEC donated \$1,200 to the ElectroRally which provides high school students an opportunity to design, build, and race electric cars.



KTEC and network staff at the Energizing Entrepreneurs conference in March. KTEC's exhibit showcased how KTEC's statewide network infrastructure assists and supports small technology companies in Kansas.

Year in Review



- The Advanced Manufacturing Institute expanded its prototyping capabilities at the Manufacturing Learning Center through a \$336,000 grant from the Society of Manufacturing Engineers. KTEC and Kansas State University each provided \$100,000 in matching funds for the project.

- KTEC helped coordinate the Governor's Economic Innovation Summit at the University of Kansas on October 22. The summit provided opportunities for government, industry, and academic leaders to discuss the future of the Kansas economy.

- KTEC sponsored a Dual Use/Advanced Technology Program conference on Jan. 18 to encourage Kansas companies to apply for these and other federal research grants. Participants learned the rules of each federal grant competition, how proposals are evaluated, what competition judges look for, the dos and don'ts of the application process, how to negotiate a contract after winning a grant, what type of accounting system is needed, and how to find a commercial partner.



At the Capitol Economic Development Showcase, Ray Denton, MAMTC, demonstrates a hospital bed developed by Nelson Manufacturing.

- KTEC hosted an economic development showcase at the Kansas Capitol on March 22. The event provided an opportunity for economic development agencies, partners, and companies to show the positive impact of Economic Development Initiatives Fund on the state economy.

Network Awards and Successes

- Foodlabs, a Mid-America Commercialization Corporation client company and Kansas State University spin-out company, was acquired by STERIS Corporation (NYSE:STE). Foodlabs became a wholly-owned subsidiary of STERIS but remained based in Manhattan.

- HELP Innovations, Lawrence, a Kansas Innovation Corporation client company, was acquired in November by Cyber-Care, Inc. (Nasdaq: CYBR) in a stock deal valued at \$5 million.

- Coach's Edge, Lawrence, a Kansas Innovation Corporation client company, was acquired by New York-based Sportvision, Inc. in a stock-for-stock deal.

- Clyde Engert, KTEC vice president of innovation and research, and president of the Information Research Corp., received the 1999 Tibbetts Award from the U.S. Small Business Administration. Engert received the award for his work in creating the State Small Business Innovation Research program, a method whereby any state and a commercial partner could co-fund an SBIR topic and work together to create high-paying jobs in the state.

- KTEC won a Level 2 Performance in Quality Award from the Kansas Awards for Excellence. This is the second of three levels of recognition in the Malcolm Baldrige-type awards. Last year KTEC won a Level 1 Commitment to Excellence Award.

- Digital Archaeology, Leawood, an ARMF client company, received the Silicon Prairie Technology Association's Information Technology Award. The company received the award for its

Year in Review

c-Discovery application which provides total customer analysis, including e-commerce.

- Cydex, Inc., Overland Park, a spin-out company from the Higuchi Biosciences Center at the University of Kansas placed 6th in the Deloitte & Touche Kansas/Western Missouri Fast 50 competition. Cydex is an Ad Astra Fund portfolio company.
- The Board of Pharmaceutical Sciences in The Hague, Netherlands, chose Ronald T. Borchardt, a Higuchi Biosciences Center investigator and University of Kansas professor, as the 24th recipient of the Host-Madsen Medal. The medal is the International Pharmaceutical Federation's most prestigious scientific award and is given in alternate years to an outstanding pharmaceutical scientist.

Personnel Updates

- Two long-time KTEC employees left to pursue other interests. Mike Wojcicki, vice president of research and COO, accepted the position of president of the Modernization Forum, a manufacturing trade association based in Livonia, Mich. Pam Hefner, operations assistant, was married in May and moved to Kansas City.
- Beth Brough was promoted to vice president of academic programs and legislative affairs. Brough previously was investment manager for the ARMF program.
- Eric Ferrell was named president of the Alliance for Technology Commercialization, a KTEC Affiliate Innovation and Commercialization Corporation in Pittsburg. Ferrell replaced Tony Dellasaga.
- Victor Frost was appointed permanent director of the Information and Telecommunication Technology Center. Frost has served as the center's acting director since January 1998.
- Patricia Brasted was promoted to president and CEO of the Wichita Technology Corporation, a KTEC Commercialization Corporation. Richard West continued as co-manager of the Wichita Technology Ventures Fund, along with Brasted.



KTEC President Rich Bendis, right, congratulates Kevin Carr, vice president of investment and commercialization, for his efforts in helping the ARMF program reach one million dollars in royalty paybacks. Carr has been with KTEC since it was established in 1987.

Investments

- In FY 2000, the Applied Research Matching Fund reached one million dollars in royalty paybacks.
- In April, a new angel investor group was formed in the Kansas City region to help promising young companies find needed capital. The Bi-state Investment Group consists of financially successful individuals, as well as institutional investors, including KTEC Holdings. Joe Kessinger, president of the Enterprise Center of Johnson County, a KTEC Commercialization Office, had a lead role in forming the investment group.
- A new venture capital forum, InvestMidwest, was held in St. Louis in May. The forum provided an opportunity for select

Year in Review



Jeff Tucker, Advanced Manufacturing Institute Operations Manager, shows Jenny Wong, Australian MBA student, one of the latest projects at AMI.

Kansas and Missouri companies to make presentations to 200-250 of the nation's leading venture capitalists, angel investors, bankers, and accounting and legal professionals. The location of the annual InvestMidwest forum will alternate between St. Louis and Kansas City. KTEC partnered with Ernst & Young and the Kauffman Foundation in the Kansas City Venture Forum in March. Companies selected from the Kansas City event were eligible to participate in the InvestMidwest forum.

Global Relations

- The National Institute for Aviation Research at Wichita State University participated with the Kansas Department of Commerce and Housing in the Paris Air Show. NIAR and several Kansas aviation companies partnered with KDOCH to promote the technologies and services available in Kansas.
- Kansas was one of six featured case studies presented at an October European Union conference in Berlin, Germany. The conference topic was "The Stories Behind Growth and Jobs: U.S. and European Regional and Economic Development."
- In October, KTEC President Rich Bendis spoke at the Second Regional Conference of the Americas on Cleaner Production in Bogotá, Colombia. Bendis was part of an invited panel of government experts from around the world.
- Ramesh Agarwal, executive director of the National Institute for Aviation Research, traveled to Italy in December as a guest of the Italian Trade Commission. NIAR was selected to attend the MET Aerospace: International Conference on Aerospace Industry. The goal of the conference was to establish a cooperative relationship among aerospace companies in North America and Europe.
- Jenny Wong, an MBA student at the University of Western Australia, visited KTEC to learn more about how KTEC works and why it has been successful. Wong was one of four students chosen to visit the United States to study business incubators.
- Hirofumi Omori, a researcher from Japan's Nomura Research Institute, visited KTEC during a U.S. tour of regional centers of innovation. Other stops on the tour included organizations in Silicon Valley and Massachusetts' Route 128 region. Following his visit to KTEC, Omori invited KTEC President Rich Bendis to make a presentation to officials of the Ministry of International Trade and Industry in Tokyo.
- In April, KTEC co-chaired a NATO workshop, "Utilizing Technology Transfer to Develop Small and Medium-sized Enterprises," in Sinaia, Romania. The workshop focused on establishing a network of international contacts with the objective of creating collaborative technology partnerships and identifying potential funding sources to promote technology transfer. KTEC

Year in Review

President & CEO Rich Bendis traveled to Romania and spoke as a guest of NATO.

Industry Initiatives & Partnerships

- The Mid-America Commercialization Corporation established the Technology Acquisition Development and Commercialization program to seek out patent portfolios to add to the research and commercialization of new technologies at Kansas State University. Proctor & Gamble and R.J. Reynolds both donated technologies to the program.



QuVIS, Topeka, participated in a town hall meeting at Johnson County Community College on the digital imaging Cyber-Site and the proposed Oz Theme Park near Desoto.

- The Kansas Polymer Research Center was awarded five new contracts totaling nearly \$446,000, demonstrating its growing niche in soybean and vegetable oil-based polymer research. KPRC was awarded contracts by the United Soybean Board, the Missouri Soybean Merchandising Council, the Kansas Soybean Commission, and the U.S. Department of Agriculture.

- Turner Broadcasting Latin America began installation of a state-of-the-art commercial verification system developed by John Gauch at the Information and

Telecommunication Technology Center at the University of Kansas.

- Technology developed by QuVis, Topeka, an ARMF recipient and Ad Astra Fund portfolio company, was used in the production and distribution of several major motion pictures, including "Toy Story II," "Bicentennial Man," and "Titan AE."

- Planet Alumni, Lenexa, a client company of the Enterprise Center of Johnson County, received an investment of \$2.5 million from Jostens, Inc.

- Guilford Pharmaceuticals acquired exclusive worldwide development and commercialization rights to an anesthetic compound developed by ProQuest Pharmaceuticals, Inc., a spin-out company from the Higuchi Biosciences Center at the University of Kansas.

- A diverse group of medical professionals, researchers, legislators, farmers, and others interested in naturopathic medicine has formed the Great Plains Comprehensive Agricultural and Medical Institute (CAMI) to increase awareness about, and support for, naturopathic medicine in Kansas. KTEC contributed \$5,000 to CAMI to support the start-up of pilot projects that will precede research projects funded by outside sources.

National Initiatives & Partnerships

- Aerotech Engineering and Research Corporation, a KTEC client company based in Lawrence, was awarded a \$3 million research grant by the U.S. Department of Defense through the

Year in Review



Dual Use Science and Technology program. Aerotech received the award to design, test, and build two new families of actuators for integration into marine propellers for military and commercial use.

- The U.S. Council on Competitiveness announced that Wichita was one of six metro areas chosen to participate in a national study on industry clusters. Industry clusters are geographic concentrations of competing and cooperating companies. The study by Harvard economist Michael Porter will examine how clusters develop and the differences and similarities among the six cluster regions in the study. The study will be completed in 2001.
- The Information & Telecommunication Technology Center at the University of Kansas was awarded a \$1.44 million research contract. The contract is to examine ways to develop faster, more efficient, and more flexible computer networks for the DOD's Defense Advanced Research Projects Agency (DARPA).
- The National Institute for Aviation Research received more than \$1 million in NASA AGATE funding for Project Year 2000. The areas of research include advanced composite materials, ice protection systems, market analysis, and systems engineering.
- The National Science Foundation awarded a \$1.29 million grant to the Information and Telecommunication Technology Center for its Ambient Computational Environments research project, which will examine how computer resources can be used to create "smart" rooms.

State Initiatives

- KTEC has partnered with the Kansas Department of Commerce and Housing, Kansas Inc., the Office of the Governor, and numerous private sector organizations on the 2001 Comprehensive Statewide Strategic Plan, an update of the 1986 Redwood-Krider report.
- KTEC's FY 2001 budget request included \$19 million from the State General Fund for the Kansas Strategic Technologies Initiative. The initiative would increase the research capabilities at state universities and have a positive impact on the Kansas economy. The request was not included in the FY 2001 budget, but KTEC plans to pursue funding for the initiative in subsequent budget requests.
- The legislature failed to pass H.B. 2688 which would have stimulated private capital in the state by authorizing tax credits for investors in certified capital formation companies. The capital formation companies would, in turn, make investments in qualifying small Kansas companies.
- KTEC was active in supporting the KAN-ED bill which would have provided Internet connectivity for all 304 school districts, 28 district and interlocal cooperatives, and 330 public libraries in Kansas. The bill died in the 2000 legislative session.



The NIAR crash dummy greets visitors to the Kansas Technology Expo Center at the Kansas State Fair.



Events Subsequent to Year-end

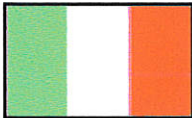
- The Economic Development Committee of the Vision 21st Century Task Force completed work and presented its findings to Gov. Bill Graves. Recommendations included increased funding for economic development efforts, and restructuring of economic development agencies.
- The Legislative Division of Post Audit completed its review of the economic development agencies in Kansas. The Post Audit found that KTEC is fulfilling its main statutory role and that KTEC and its network affiliates have appropriate accountability measures in place for investments.
- Rich Bendis began hosting a weekly radio talk show on KPHN 1190. The show, TEC Talk, features guest panelists and is dedicated to "today's technology, entrepreneurs, and capital availability."
- The Kansas City Area Development Council and the Kansas City Civic Council have launched an area-wide initiative to make the Kansas City region a national hub for biomedical research and development. The Life Sciences Institute envisions state-of-the-art research facilities staffed by world-class scientists and top graduate students; universities and hospitals working in partnership to discover new treatments; and world class science curricula on the elementary, secondary, and university level. KTEC is a supporter of the Life Sciences initiative and will partner with the institute to promote life sciences technology projects.
- A new bi-state organization for supporting the technology community in the Kansas City region was formed. KCCatalyst, a metamorphosis of the Silicon Prairie Technology Association, is a network of resources dedicated to the creation and expansion of technology-based companies and the commercialization of new technologies. KTEC was a founding member of SPTA and is a partner of the new KCCatalyst.
- Digital Archaeology, a KTEC client company, was acquired by Delano Technology Corporation (NASDAQ: DTEC), a leading provider of interaction-based e-business solutions.
- Rainbow Organic Farms, Bronson, received the U.S. Small Business Administration Tibbetts Award. The award is the SBA's highest national recognition for innovative technology.
- The Information Research Corp., KTEC's for profit market research affiliate, has developed and is beta-testing an online proposal evaluation system for the Department of the Navy. The online system will allow evaluation of Small Business Innovation Research proposals over the Internet.

Senate Commerce Committee
January 11, 2001
Attachment 1-14

Global Outreach



Rich Bendis was an invited speaker at a December 2000 European Union conference in Lyon, France, on information societies and economic, social, and territorial cohesion.



An Italian delegation visited KTEC in July 2000 to learn more about entrepreneurial cultures at U.S. universities. In December 2000, Rich Bendis met with economic development officials in Italy.



A Portuguese delegation visited KTEC in April 2000 as part of a European Union-sponsored tour to study economic development "best practices" in the U.S.



KTEC co-chaired a NATO workshop, "Utilizing Technology Transfer to Develop Small and Medium-sized Enterprises," in Sinaia, Romania held in April 2000.



KTEC President Rich Bendis was an invited speaker at a May 2000 international conference in London, England, on growth clusters and business competitiveness.



Jenny Wong, an Australian MBA student, visited KTEC in December 1999 as part of a University of Western Australia Graduate School of Management study of business incubators in the U.S.



Rich Bendis participated as a guest panelist at the "Second Regional Conference of the Americas on Cleaner Production," held in Bogotá, Columbia in October 1999.



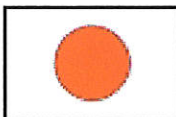
A European Union conference in October 1999 in Berlin, Germany, included Kansas as one of six "best practices" case studies on economic growth and job creation in the United States.



In September 1998, Rich Bendis was an invited speaker at a NATO Advanced Research Workshop held in Uzbekistan. Dr. Hasan Shodiev an Uzbeki researcher visited KTEC in Summer 1999.



In September 1999, a group of seven Chinese delegates visited KTEC and network affiliates as part of a U.S. trip to study intellectual property and technology transfer programs at universities.



Rich Bendis was invited to make a presentation before the Ministry of International Trade and Industry in Tokyo in March of 1998. Yoshinori Watanabe, a Japanese entrepreneur, visited KTEC for eight weeks in early 1999 to study seed and venture capital in the U.S.



In March 1998, Rich Bendis was a guest speaker at a New York Academy of Sciences international economic development conference in Harare, Zimbabwe.

Board of Directors



Front L-R:

- *Dr. Donald Beggs, president, Wichita State University*
- *Sen. Paul Feleciano Jr., D-Wichita*
- *Rich Bendis, KTEC president*
- *Robert Krause, vice president of institutional advancement, Kansas State University*
- *Rep. Bill Mason, R-El Dorado*
- *Rep. George Dean, D-Wichita*

Back L-R:

- *Jim Dahmen, general manager, Columbus Telephone Company*
- *Dr. David Schulenburger, provost, University of Kansas*
- *Steve Souder, CEO, Value-Line of Kansas*
- *Tracy Taylor, vice president, Townsend Capital, LLC*
- *Leroy Hayden, president, Big Time Operations, Inc.*
- *Tom Bryant, president, Pittsburg State University*
- *Ted Haggart, community bank president, Commerce Bank - Manhattan*

Not Pictured:

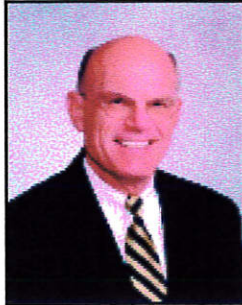
- *Jamie Clover Adams, secretary of Kansas Department of Agriculture*
- *David Brush, president, Brush Art Corporation*
- *Sen. David Corbin, R-Towanda*
- *Richard Danforth, vice president of operations, Raytheon Aircraft*
- *Allen Levine, international and bulk sales director, Pines International, Inc.*
- *Doyle Rahjes, retired partner, Gus Rahjes & Sons Family Farm Partnership*
- *Lt. Governor Gary Sherrer, secretary of Kansas Department of Commerce and Housing*
- *Lloyd Silver Jr., president, LSC, Inc.*

Senate Commerce Committee

January 11, 2001

Attachment 1-16

KTEC Staff



Rich Bendis
president & CEO



Beth Brough
vice president,
academic programs and
legislative affairs



Front L-R:

- Teresa Merrifield, innovation & research assistant
- Andra Hettenbach, marketing assistant
- Lori Rost, director of finance
- Karen Geier, administrative assistant, Information Research Corp.

Middle L-R:

- Andreanna Kounas, vice president of research, Information Research Corp.
- David Day, director of marketing
- Sheila Meyer, investment & commercialization assistant
- Mary Breakstone, director of administration

Back L-R:

- Kim Mason, operations specialist
- Alan Weis, director of information technology
- Wendi Lucero, research assistant
- Sherry Alt, assistant to the president



Kevin Carr
vice president,
investment and
commercialization



Clyde Engert
vice president,
market research &
president,
Information Research Corp.

KTEC Committees



Applied Research Matching Fund Committee

Front L-R: Keith Molzer, Entrepreneurial Consulting Group; Doyle Rahjes, KTEC Board; Howard Gadberry, retired, Midwest Research Institute; Joe Kessinger, Enterprise Center of Johnson County **Back L-R:** Robert Harbison, Pulse Systems, Inc.; Ken Frahm, Agribusiness; Sheila Meyer, KTEC; Kevin Carr, KTEC; Robert Stutz, Vanguard Systems **Not Pictured:** Ed Kittner, retired, Georgia Pacific; Allen Levine, KTEC Board; Dick Sidles, Western Kansas Technology Corporation.

Centers Committee



Front L-R: Bruce Peterman, retired Cessna Aircraft; Vern Silvers, Philips Lighting Co.; Gary Cooper, Honeywell; Patrick Connelly, Jr. ICE Corporation **Back L-R:** Wendi Lucero, KTEC; Leroy Hayden, KTEC Board; Beth Brough, KTEC **Not Pictured:** Dr. Michael Baltzor, Quintiles; Sam Campbell, Campbell-Becker, Inc.

KTEC Committees



Commercialization Committee



Front L-R: Robert Krause, KSU; Jane New, Kansas Innovation Corporation.; Rich Bendis, KTEC; Tracy Taylor, KTEC Board; Trish Brasted, Wichita Technology Corporation; Sen. Paul Feleciano, KTEC Board; Beth Brough, KTEC; **Back L-R:** Joe Kessinger, Enterprise Center of Johnson County; Lori Rost, KTEC; Jim Baxendale, KU Medical Center Research Institute; Phil Halstead, Kansas Polymer Research Center; Kevin Carr, KTEC; Jim Dahmen, KTEC Board; Eric Ferrell, Alliance for Technology Commercialization; Dick West, Wichita Technology Ventures; Ted Haggart, KTEC Board; Paul Clay, Mid-America Manufacturing Technology Center; Ron Sampson, Mid-America Commercialization Corporation

Information Technology Committee

L-R: Alan Weis, KTEC; Stephen Souder, KTEC Board; Tim Johnson, Information & Telecommunication Technology Center

Not Pictured: Mark Bannister, Ft. Hays State University; Kim Mason, KTEC; Rep. Jim Morrison, R-Colby; Barb Paschke, University of Kansas



Senate Commerce Committee

January 11, 2001

Attachment 6-19



Centers of Excellence

The Centers of Excellence conduct innovative research which can lead to marketable products. The Centers serve the technical research needs of start-up and mature Kansas companies, as well as collaborating with industry advisory boards to identify and solve technical problems common to the industry.

There are five Centers of Excellence located at four universities in Kansas. Each Center has its own technology focus. Centers conduct basic and applied research and provide product development, networking programs, training, seminars, and technical assistance to help in the development and commercialization of new technologies.

The five Centers of Excellence are:

Advanced Manufacturing Institute (AMI)

Kansas State University, Manhattan

Research Emphasis: Advancement and utilization of manufacturing technologies.

Higuchi Biosciences Center (HBC)

University of Kansas, Lawrence

Research Emphasis: Pharmaceuticals and human bioscience.

Information & Telecommunications Technology Center (ITTC)

University of Kansas, Lawrence

Research Emphasis: Information technology and telecommunications.

Kansas Polymer Research Center (KPRC)

Pittsburg State University, Pittsburg

Research Emphasis: Polymers and plastics.

National Institute for Aviation Research (NIAR)

Wichita State University, Wichita

Research Emphasis: Aviation and aviation-related technologies.

MAMTC Offices:

In addition to services offered as a KTEC Center of Excellence, the Advanced Manufacturing Institute, Kansas Polymer Research Center, the Information & Telecommunications Technology Center, and the National Institute for Aviation Research each hosts a regional office for the Mid-America Manufacturing Technology Center (MAMTC). MAMTC is a KTEC subsidiary that assists small- and medium-sized manufacturers in modernizing operations, adopting appropriate technology, and improving management, marketing, and business practices.

Centers of Excellence

Cumulative Results

1989-2000:

- ❖ 5,183 companies assisted
- ❖ 53 company start ups
- ❖ \$924.5M increased sales
- ❖ \$55M decreased costs
- ❖ 4,684 jobs created or retained
- ❖ 121 patents filed
- ❖ 53 patents issued
- ❖ 322 new technologies developed
- ❖ 77 new technologies commercialized

Advanced Manufacturing Institute



Alamo Group is a leader in tractor mowing equipment.

The Advanced Manufacturing Institute (AMI) helps companies make better products, so they can make more money.

Jim Poskie, operations manager at Alamo Group said, "AMI saved us a lot of time and money by helping us choose the most appropriate machine for our facility. They were able to offer suggestions we might not have found on our own."

The Alamo Group, an agricultural and industrial maintenance equipment parts manufacturer in Holton, wanted to purchase

the most appropriate machine for cutting/punching steel plate parts for its Rhino product line. The company was also exploring the addition of several new production lines at the Holton facility. The engineers at the Advanced Manufacturing Institute's Manufacturing Learning Center (MLC) and the Mid-America Manufacturing Technology Center's (MAMTC) Manhattan Regional office provided the information Alamo needed to make an informed purchase decision and make the necessary plant layout changes to accommodate its new equipment acquisition and product lines.

To help this client, MLC staff reviewed drawings and routings for three Alamo Rhino products. The parts in these products were representative of parts typically found in Rhino products. After reviewing these parts, a general machine specification for cutting/punching plate and sheet metal was created and agreed upon by Alamo representatives and AMI personnel.

To assess and recommend the most appropriate solution, Rick Windholz, MLC manufacturing engineer, attended the Fabtech show. During that show, he talked with various vendors at Fabtech to determine the best cutting process for parts made at the Alamo facility. The general machine specification was used as a guide during conversations with suppliers, and to obtain price estimates from various suppliers for price comparisons.

AMI provided a summary report, comparing and ranking major characteristics for different cutting/punching technologies. For each machine listed in the report, calculations were determined for the cost per linear foot to cut hot-rolled steel in several thicknesses. AMI then ranked the machines based on this cost and gave a recommendation on the most appropriate machine to purchase. Alamo has since purchased a new punch/plasma fabricating center. With this purchase, Alamo will stop outsourcing these parts and hopes to improve the quality of these parts.

Alamo has also added several mower deck production lines to its facility. These products had been manufactured at other Alamo plants in Mexico and across the U.S. and were won by the Kansas division owing to a history of producing high-quality, low-cost products. To help make this transition as smooth and efficient as possible, Manhattan's Regional MAMTC office examined Alamo's current and future operations and offered recommendations for a new plant layout.

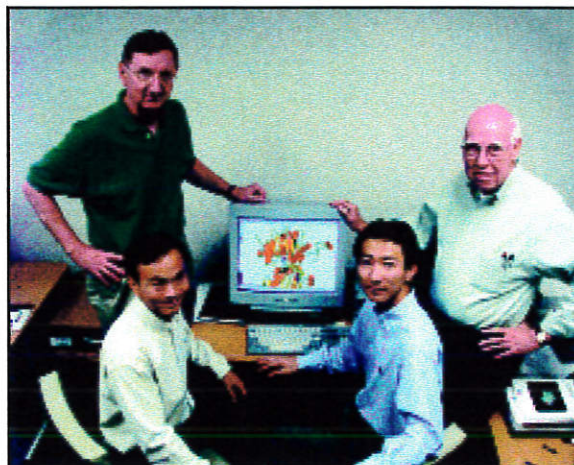
MAMTC brought several analytical tools to the project including a proven systematic approach to facility design and material handling, as well as a powerful manufacturing computer simulation program. Through MAMTC's close collaboration with Alamo Group's engineering and management, the company's redesigned plant will be able to meet its increased future demand in an efficient and safe manner, within a tight budget and relatively short payback period.

Higuchi Biosciences Center

Two decades ago, Takeru Higuchi envisioned that university research could give rise to new pharmaceutical companies in Kansas.

Today, that bold and novel idea is bearing fruit. Several pharmaceutical companies have spun out of the Higuchi Biosciences Center at the University of Kansas, with Oread, CyDex, CritiTech, and ProQuest as the bricks and mortar around Higuchi's vision.

Founded in 1997 by Ronald Borchardt, Valentino Stella, and Gunda Georg, ProQuest Pharmaceuticals, Inc. is prototypical of the results Higuchi dreamed of. The company's prodrugs were originally researched at HBC, but ProQuest was created to market them.



Ronald Borchardt (far left), co-founder of ProQuest, with Youngbo Hu, Dan Yin, and Richard Schowen.

KTEC provides funding to support both research and commercialization of pharmaceuticals, such as those produced by ProQuest, so that university research contributes to both healthcare and a healthy Kansas economy.

"The University can license a new drug to a pharmaceutical company that can develop and market it; however, if a new drug can be licensed and developed locally in Lawrence, then a significant portion of the money and the jobs stay in Kansas," said Osborne Wong, president of ProQuest.

Prodrugs are sophisticated chemical approaches to solving technical difficulties associated with some drugs. Prodrug technology can even make feasible some pharmaceuticals that otherwise could not be brought to the public.

Many drug candidates can't be made in a form that is usable by the human body, because they don't dissolve well, don't travel well across the body's cell membranes, or face some other barrier to effective delivery.

That's where prodrugs come to the rescue. Prodrugs can chemically alter the undesirable characteristics of a drug. By "marrying" certain known chemical constituents to the desired active drug, pharmaceutical chemists create a new compound that can bypass the barrier. Once delivered, the prodrug's chemical disguise is detached, leaving the active drug free to do its job.

In March, ProQuest licensed a prodrug to Guilford Pharmaceuticals in Baltimore for the commonly used anesthetic propofol. The prodrug is water-soluble and causes none of the side effects that were found in propofol's preclinical trials, reducing the anesthetic's risks and making rapid clinical development possible. Wong said that ProQuest hopes to capture a significant portion of the \$750 million per year worldwide market for propofol.

In exchange for the development rights to the prodrug, ProQuest received an initial payment and an equity payment from Guilford. Additionally, ProQuest will receive future royalties on any sales, provided the drug passes clinical trials.

ProQuest's founders are exploring new avenues for growth by expanding the company's product portfolio. With people willing to pay a fair market value for its drug candidates, ProQuest may well be on its way to making a name for itself in the pharmaceutical industry.

Information & Telecommunication Technology Center



A simulated ambient computational environment. ITTC is conducting research on ACEs.

Imagine walking into a conference room to give a presentation and seeing a high definition television display, remote cameras, microphones, and several laptop computers. The room looks like the ship's bridge from "Star Trek" and acts like it, too. Computers embedded in the room identify your voice as you direct the equipment to set up for your presentation.

You assign the cameras to view specific areas of the room, request the T.V. to show another conference room in the building, and ask that your presentation be loaded from your office computer to the room's projector. As others enter the room, they sit at the laptops and identify themselves by their thumbprints to access their individual office workstations.

This futuristic room may seem implausible, but research on ambient computational environments (ACE) has already begun at the Information Telecommunication Technology Center at the University of Kansas. A \$1.29 million, four-year award from the National Science Foundation and a \$1.46 million, 2.5-year contract from the Defense Advanced Research Projects Agency (DARPA) have enabled the ITTC to develop its expertise in "smart room" technologies.

Gary Minden, ITTC's chief technologist and one of the project's two lead investigators, said the major challenge of the ACE project was developing a way to separate a person's workspace from a specific computer. In a computational environment, access to equipment such as computers, cameras, video players, projectors, or cell phones is embedded in a room through a network that links the pieces of equipment to one another and to other rooms or buildings on the network. When completed, the ACE system will allow users to access their entire workspace, including programs, files, screen settings, and everything else that people expect to see on their own computers.

These tools can then be controlled or accessed from anywhere along the network. So, instead of carrying a laptop, cell phone and pager to a meeting, people can access their files and phone messages from equipment found along a network.

"This technology could eventually change the way people use computer resources. It could replace individual computers, wireless phones, disc players and other devices with one information appliance that could perform numerous tasks," said Joe Evans, co-principal investigator for the project.

The ACE team is still evaluating equipment for the room and began installation in March, Minden said. Two of ITTC's conference rooms will undergo the upgrade. Minden said the rooms should be completed within a year.

Because ITTC conducts research in five labs that together encompass the entire information technology field, it is well-suited to the ACE project. The labs can take on projects that require expertise in more than one discipline. ITTC director Victor Frost said this breadth of knowledge gave ITTC an advantage over most other research centers. ITTC's research projects often result in marketable technologies, which can be sold or licensed.

Kansas Polymer Research Center



KPRC staff (L-R): Alisa Zlantanic, research associate; Wei Zhang, research associate; Dr. Ivan Javni, research manager; Dr. Zoran Petrovic, research director; Dr. Andrew Guo, research scientist; Vladimir Karajkov, research assistant; Sara Riddle, business manager; Wendy Peterson, executive secretary; Dr. Phil Halstead, executive director.

B. F. Goodrich and KPRC are cooperating to commercialize the first PSU-owned patent. It may well be a blockbuster not just for Kansas, but for the nation and the world.

The patent covers a process for converting soybean oil to polyol, a key ingredient in plastics. The R&D, which produced the new technology, was funded by the United Soybean Board. According to B. F. Goodrich, this soybean oil-based polyol could replace more than 50 percent of petroleum-based feedstocks used in polyurethane plastics by the year 2030.

KPRC and B. F. Goodrich have submitted three funding proposals to the U.S. Department of Energy asking for federal support to help improve and scale up the new process for converting soybean oil to polyol. The new soybean polyol will create higher value for farm crops and reduce U.S. dependence on foreign oil.

Four more bio-based material patents are in KPRC's pipeline. Each patent application is the result of a sponsored research project, and PSU will own at least 50 percent of each patent. KPRC has been successful in building partnerships with a variety of industry associations and government entities, including the Kansas Soybean Board, the Missouri Soybean Merchandising Council, KTEC, and the U. S. Department of Agriculture. These organizations provide funding support and focus for KPRC's research efforts.

The portfolio of bio-based sponsored research under way has positioned KPRC to be a strong competitor for \$250 million of new federal money that will flow to universities and industry over the next five years to stimulate new bio-based initiatives. KPRC is now developing new concepts and seeking additional industrial partners to enable it to respond to future competitive solicitations.

"Polymer Prairie," a strategy developed by KPRC, envisions the new vegetable oil-based polyol process developed at KPRC being used in an integrated industrial process. The process flows from growing the crops, to processing them to meal and oil, then converting the oil to polyol, and finally using the polyol as feedstock for plastics production. The processing, conversion and plastics industries could be located near where the crops are grown and thus create rural jobs.

In addition to its R&D activities, KPRC is working to facilitate technology commercialization in southeast Kansas. KPRC initiated formation of Southeast Kansas, Inc., a regional development organization, and is working closely with the city of Pittsburg to attract plastics-oriented companies to the city's new 55-acre R&D park.

Senate Commerce Committee
January 11, 2001
Attachment 1-24

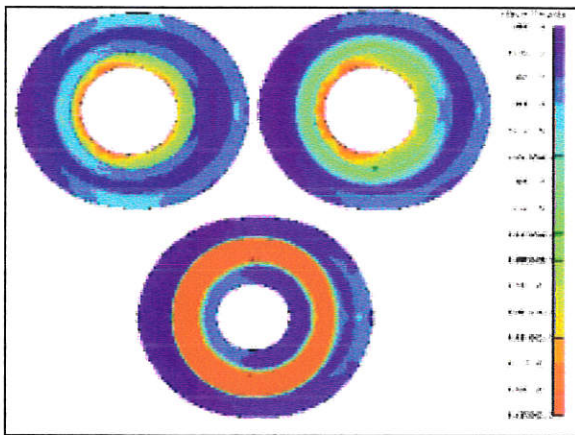
National Institute for Aviation Research



Sheet metal forming – the manufacturing of complex parts from flat sheet metal – can often make aircraft parts that are less expensive and lighter than machined parts. However, the challenge in successfully forming parts lies in maintaining the tight tolerances required in modern airframe design.

Trial and error based development of tooling on production presses results in excessive lead times and tooling costs. In addition, problems are rarely discovered until attempts are made to fabricate the first parts – long after the part design has been finalized. The severity and frequency of problem

parts can be significantly reduced if “virtual manufacturing” using finite element simulation is used to verify the formability of a part as designed, before the design is finalized.



By using virtual manufacturing, researchers can identify and correct potential manufacturing problems such as the excessive friction in the forming of this engine nacelle inlet lip.

Researchers working at the National Institute for Aviation Research (NIAR) at Wichita State University (WSU) in partnership with the local aircraft industry in Wichita have developed a comprehensive virtual manufacturing capability which allows parts to be “manufactured” on a computer so that problems can be identified and corrected before the actual manufacturing process begins.

Virtual manufacturing also gives companies an opportunity to test new manufacturing processes without wasting time and resources. The ability to handle multistage forming operations with intermediate heat

treatments is an example of a unique feature that was developed to address the specific needs of the industrial partners.

The virtual manufacturing project, “Advanced Sheet Metal Manufacturing,” was funded by the Aircraft Design and Manufacturing Research Center (ADMRC) and was carried out in close collaboration with researchers at Boeing, Cessna and Raytheon. Dr. Vis Madhavan, assistant professor and Industrial & Manufacturing Engineering and NIAR Fellow, was principal investigator for the project.

The technology developed has been transferred to industry through workshops conducted at NIAR/WSU. In addition, aircraft companies have recruited and hired WSU students who have been trained in virtual manufacturing processes. Students hired by Cessna, for example, have helped introduce virtual manufacturing into that company’s product development process.

In a follow-up project that began in March 2000, a software package called SMARTFORM (Sheet Metal Automated Rapid Tooling for Forming) is being developed to automate and simplify the various tasks required for accurate and efficient finite element analysis of sheet metal forming operations. This software will handle all the routine details that need attention to ensure analysis accuracy and will free the tool designer to concentrate on designing the forming process. An alpha version of the software has already been released to NIAR’s industrial partners for implementation into their design process. Software vendors such as MSC Software have expressed interest in extending and commercializing this software.



Innovation & Commercialization Corporations

The Innovation & Commercialization Corporations (ICCs) provide business assistance to start-up, technology-based companies. Services provided to start-up business clients include business planning, strategic business development, investor networking, grant and loan application assistance, technical review and market research, intellectual property management, and assistance in negotiations. Two ICCs also have incubator space and support available to start-up companies.

The ICCs are tax-exempt 501(c)3 companies and are financially supported and governed by partnerships consisting of KTEC, the local university, the local community, and industry. In addition to providing management services, each ICC also manages a pre-seed fund.

The Innovation and Commercialization Corporations are:

- **Kansas Innovation Corporation (KIC)**, *Lawrence*, a partnership among KTEC, Douglas County, the city of Lawrence, and the University of Kansas.
- **Mid-America Commercialization Corporation (MACC)**, *Manhattan*, a partnership among KTEC, Riley and Pottawatomie counties, the city of Manhattan, and Kansas State University.
- **Wichita Technology Corporation (WTC)**, *Wichita*, a partnership among KTEC, Wichita Area Development, and Wichita State University.

Each ICC assists Affiliate Innovation and Commercialization Corporations (AICCs) and Commercialization Offices in providing business development and/or pre-seed capital services and in extending KTEC services to all regions of the state.

The Affiliate Innovation and Commercialization Corporations are:

- **Alliance for Technology Commercialization**, *Pittsburg*
- **Quest Business Center for Entrepreneurs**, *Hutchinson*
- **University of Kansas Medical Center Research Institute**, *Kansas City, Kan.*

The Commercialization Offices are:

- **Enterprise Center of Johnson County**, *Lenexa*
- **Western Kansas Technology Commercialization Office**, *Great Bend*

Innovation & Commercialization Corporations Cumulative Results

1989-2000:

- ❖ 976 companies assisted
- ❖ 64 company start ups
- ❖ \$256M increased sales
- ❖ 425 jobs created or retained
- ❖ 150 patents filed
- ❖ 42 patents issued
- ❖ \$1.65M equity returns
- ❖ \$517,533 royalty returns

Kansas Innovation Corporation



HELP Innovations, Inc., Lawrence, was acquired in November by Cyber-Care, Inc., (Nasdaq: CYBR) in a stock deal valued at \$5 million. Cyber-Care is an Internet health care company located in Boynton Beach, Fla.

HELP Innovations, a Kansas Innovation Corporation client company, developed a system to deliver health care to patients in their homes using two-way interactive audio and video. The ResourceLink system uses a 13-inch television, a small video camera, and a standard telephone installed in a patient's home.

"This move really leapfrogs us into the market," said Linda Roman, HELP Innovations' founder and president. "We want to own this marketplace; we think it's huge."

Roman became a vice president for Cyber-Care Technologies Group, which will keep HELP Innovations in Lawrence.

"We have long admired the pioneering work of HELP Innovations in remote disease management," said John Haines, president of Cyber-Care. "They were the first in the industry to document the enormous savings and improved clinical outcomes achievable through this technology."

HELP Innovations has received assistance from a number of KTEC programs, including the Applied Research Matching Fund and the Information and Telecommunication Technology Center (ITTC) at the University of Kansas. Kaw Holdings, LLC, a KIC-affiliated pre-seed investment fund, made the first outside investment of \$50,000 in HELP Innovations, helping to establish its initial valuation for subsequent investments.



"In the four years that HELP Innovations has been a client, the company has taken advantage of virtually all of the business support services we offer," said Jacob Maczuga, KIC president.

From the beginning of the client relationship, KIC interns worked closely with Roman to refine the company's original business plan, market strategies, and pro-forma financial projections. KIC interns also worked with HELP Innovations' nurses and programmers on a number of product improvements and functionality enhancements in the company's ResourceLink Database Reporting Software.

Strategic partnerships with the Cerner Corporation, the Menninger Foundation, and Microlife, LLC of Taiwan were formed with KIC assistance. Technical development assistance was also provided through a KIC-mediated collaboration with ITTC and the University of Kansas Medical Center.

As HELP Innovations progressed in adding new telemedicine centers and increasing the number of connected patients, it became an acquisition target for several health care providers desiring to add a ready-made telemedicine component to their business. During this time, KIC worked with the company's board of directors to evaluate the suitability of potential partners for HELP Innovations' long-term development and the maintenance of the company's operations in Kansas. Through this process, Cyber-Care emerged as providing the best fit.

"Overall, access to the KTEC and KIC support networks proved invaluable in providing experience and guidance in dealing with the myriad business and technical issues as the company's development progressed," Roman said.

Mid-America Commercialization Corporation

Companies with too many patents and too little time are donating those patents to the Mid-America Commercialization Corporation and Kansas State University. The Technology Acquisition Development and Commercialization (TADAC) program was established by MACC to seek out patent portfolios to add to the research and commercialization of new technologies statewide.

Procter & Gamble and R.J. Reynolds are two companies that recently donated patent portfolios. Last year Ford Motor Company and Eaton donated patent portfolios through the TADAC program.

"We have the resources and infrastructure in place to really do something good with the technology patents that we have acquired through the TADAC program," said Ron Sampson, MACC's president and CEO. "Ultimately, these patents will lead to the creation of new companies spun-out of the university."

P&G donated the patent rights for its "Smoothies-Protein Particle Stabilization" technology to MACC. The technology will allow beverages containing both milk and fruit juices, or "Smoothies," to be shelved for a long period of time without the milk and juice separating or losing their flavors. Currently, it's difficult to produce Smoothies with a long shelf-life because milk and juice require different storage methods. With the new technology, mass-production of Smoothie-like products is a possibility. P&G made the donation because it didn't have time to develop the product itself.

"We simply invent more products than we can develop," said Gordon Brunner, P&G's chief technology officer. "The Mid-America Commercialization Corporation, through its affiliation with Kansas State University's food and nutrition programs, was the institute most qualified to advance the Smoothies-PPS technology and to realize its commercial potential."

According to Sampson, MACC will help organize a new venture company to commercialize products coming from the donated technologies. Any royalty returns will be used to enhance the research and technology commercialization programs of participating Kansas institutions.

The R.J. Reynolds Tobacco Company has also donated \$10 million in machinery and patented environmental monitoring technologies to MACC and K-State.



Ron Sampson, MACC president, presents a profit distribution check to Manhattan Mayor Karen McCulloh following Manhattan Holdings' successful harvest of its investment in Foodlabs which was acquired by STERIS Corp. The city of Manhattan is an investor in Manhattan Holdings.

Sampson said that MACC was glad to receive the donation and planned to work with the university to enhance the value of the technology. The donation will aid in the development of additional research programs in environmental monitoring and control at K-State. MACC and K-State will also make the patents available for commercial licensing.

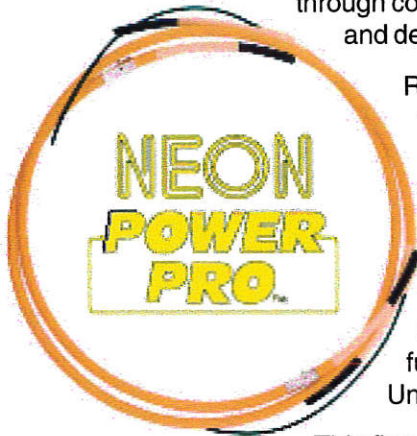
"After reviewing the programs and operations of the Mid-America Commercialization Corporation, we are confident that the organization is well-qualified as a recipient, and well-positioned to realize the opportunities this technology presents," said Janet Wheeler, vice president of R. J. Reynolds.

Wichita Technology Corporation



Neon signs have been around for more than 100 years, but sign wiring hasn't changed much over the past century. While neon signs provide unique appeal, many users are frustrated with the frequent sign failures that detract from their corporate image and can, in some cases, create fire hazards.

ReLight America, a Wichita Technology Corporation (WTC) client, is an excellent example of how through cooperative effort, an innovative idea can revolutionize an industry and develop a viable Kansas manufacturing company.



Relight America, with the help of WTC, was incorporated in 1995 to develop a neon wiring product that would provide a safe and easy method of installing the high voltage wiring in neon signs. The idea was to develop a wiring system which would reduce electrical and fire hazards.

From this simple beginning, Relight has developed the first new wiring product specifically designed for the neon signage industry, the Neon Power Pro Safety System. The product has fulfilled the developmental goals, been tested, and received an Underwriters Laboratories (UL) listing.

This first-of-its-type UL listing allows the wire to be used in any location without the use of metal conduits, sleeving and other accessory items currently needed to fulfill both the National Electrical Code and requirements by Underwriters Laboratories.

Roger Rumsey, president of Relight, said, "This is not just another fix for an old neon wire; it is a new method of delivering power to the sign that solves the basic question of why neon signs fail."

In February 2000, Neon Power Pro was formally given the UL listing to use the Powerflex Sign Cable in all applications. This new wiring system is designed to increase the safety of neon signs and increase profits for sign manufactures, installers, and service people.

The Neon Power Pro wire uses a system of insulation and shielding that provides a grounded enclosure that eliminating the degradation of the insulation that leads to arcing, sign failure and fires. The Neon Power Pro system is sold as finished ready to install assemblies that are comprised of ReLight's modified coaxial cable and integral fittings.

"Some new thinking will be needed, but for those professionals who take the step, the results will be so dramatic that the old, dangerous methods will quickly disappear," Rumsey said.

ReLight is now in the midst of an aggressive marketing program. This revolutionary technology has opened the entire \$160 million high voltage neon cabling market to ReLight's products. Through this opportunity, ReLight is confident that its wiring and signage technologies will dominate the market.

In 1995, ReLight approached WTC for help growing the business and raising capital. Since that time, WTC has provided a variety of services including business plan development, strategic planning, securing debt and equity financing, creation of sales and marketing strategies, and accounting services.

Through Wichita Technology Ventures, WTC has provided funding for ReLight and assisted the company in finding follow-on capital.

Senate Commerce Committee
January 11, 2001
Attachment 1-29

Commercialization Offices & AICCs



Phylogenetix developed a process to certify Echinacea and other plants used for dietary supplements.

If you're like a growing number of Americans, you may have tried natural herbs such as Echinacea, St. John's Wort, or Ginseng to treat an ailment. But how do you know what you're getting when you buy these over-the-counter remedies?

Unlike pharmaceuticals, which are strictly regulated, alternative medications, or "nutraceuticals," are not required to go through clinical testing and are regulated only by the Dietary Supplement and Health Education Act, which deals with product labeling.

The Dietary Supplement and Health Education Act allows for the use of nutraceutical ingredients, such as Echinacea, in a wide range of consumer products without substantial testing, but consumer and medical groups are seeking more stringent regulations, and manufacturing firms are seeking higher production standards. But who can ensure that the products being sold are what they claim to be? Phylogenetix Laboratories can.

Phylogenetix, a client company of the Enterprise Center of Johnson County, has developed technology to provide accurate, timely herb identification and certification to the farmer, herb buyer, manufacturer, distributor, retailer, and ultimately the consumer. The company's product, HerbalAmp, provides accurate and timely identification of numerous species of herbs. It was developed from a patented technology based on information theory and molecular biology by company founder Peter K. Rogan, Ph.D. Rogan has received several U.S. patents covering broad applications of information theory in molecular biology.

"The entry of HerbalAmp into the market couldn't be more timely, given the need for self-regulation that both the industry and the consumer are demanding," Dr. Rogan said.

The growth in the sale of nutraceuticals is driven by strong trends: an aging population interested in natural, preventative health care; and a consumer base willing and able to buy high-margin, plant-derived products.

With funding from KTEC, Phylogenetix has developed a diagnostic assay capable of distinguishing different Echinacea species from one another and from common adulterants that resemble Echinacea. In addition, Phylogenetix plans to develop diagnostic assays for other herbs such as St. John's Wort and Ginseng. Strategic partners working with Phylogenetix include Botanica Analytica Research Laboratories, Oskaloosa; Higuchi Biosciences Center, Lawrence; and the Great Plains Medicinal Herb Cooperative, a statewide partnership.

Prior to HerbalAmp, Phylogenetix developed OmniAmp, which, using similar technology, provides rapid, precise direct identification of bacterial or fungal infectious agents. Last year, the company completed a retrospective clinical trial of this technology using specimens from 300 different patients. Results showed that OmniAmp is both accurate and sensitive for a wide variety of bacterial infections.

Senate Commerce Committee
January 11, 2001
Attachment 1-30

Investment Funds



KTEC has helped to foster a risk capital network in Kansas to provide seed capital to emerging and start-up technology companies.

The first Ad Astra Fund was capitalized in 1989 with \$1.8 million of state funding and \$0.8 million of private funding. With appropriations in FY 94 and FY 95, Ad Astra Fund II was capitalized with \$3.0 million of state funding and \$1.0 million of private funding. Fund I is fully invested, and Fund II is fully committed. No investments are being made in new companies in either fund.

After investment into the funds as a limited partner, KTEC plays no direct role in the funding process. As the general partner of both Ad Astra funds, Campbell-Becker, Inc., evaluates prospective investments in light of various criteria such as qualified management, competitive uniqueness, sound business planning and the potential for high profitability. Funding decisions for the funds lie solely with Campbell-Becker, Inc. As a limited partner in the funds, KTEC's liability, as well as the other limited partners' liability, is limited by virtue of their limited role in management of the funds.

The 23 portfolio companies in the Ad Astra Fund and Ad Astra Fund II represent technologies in a variety of industries: medical, power/utility, transportation, information systems, communications, agriculture, electronics and aviation.

KTEC's Innovation and Commercialization Corporations (ICCs) and Affiliate ICCs have formed small seed capital investment funds through partnerships with their respective communities and/or local universities.

The seed capital investment funds are:

- **Kaw Holdings**, *Lawrence*, is affiliated with the Kansas Innovation Corporation.
- **Manhattan Holdings**, *Manhattan*, is affiliated with the Mid-America Commercialization Corporation.
- **Wichita Technology Ventures**, *Wichita*, is affiliated with the Wichita Technology Corporation.
- **Milestone Ventures, LLC**, *Pittsburg*, is affiliated with the Alliance for Technology Commercialization.
- **Prairie Investments for Technology Advancement, LLC**, *Lenexa*, is affiliated with the Enterprise Center of Johnson County.
- **Precede Fund LC**, *Kansas City, Kan.*, is affiliated with the University of Kansas Medical Center Research Institute.
- **Quest Ventures, LLC**, *Hutchinson*, is affiliated with the Quest Business Center for Entrepreneurs.



Investment Funds

KTEC has invested in the following privately-organized investment funds. The portfolio investments made in FY 2000 by those private investment funds are as follows:

Investment Fund	Company	Company Location	Description	Amount
Manhattan Holdings <i>Manhattan</i>	ICE	Manhattan	Advanced electronic devices for industrial applications	\$180,000
	Nantek	Manhattan	Nanoparticle chemicals for combating hazardous materials	\$100,000
Milestone Ventures <i>Pittsburg</i>	Renegade Tool	Parsons	Automated system for drywall construction	\$25,000
Prairie Investments <i>Lenexa</i>	Framecast Communications	Overland Park	Online network for universities	\$50,000
	DiscoverMe	Overland Park	Online executive search software	\$50,000
	Magic Lantern	Lenexa	Laser movie video projector	\$50,000
Precede Fund <i>Kansas City, Kan.</i>	MotionWatch	Lenexa	Instrumentation for measurement and treatment of repetitive motion syndrome	\$75,000
Wichita Technology <i>Wichita</i>	Nantek	Manhattan	Nanoparticle chemicals for combating hazardous materials	\$75,000
	PAC*MIG	Wichita	Air-cooled welding equipment	\$50,000
	Pelleting Concepts	Wichita	Pressurized feed pelletizing machines	\$32,064
	Pitstop Auto.com	Wichita	Online exchange for salvage auto parts	\$50,000
	ReLight America	Wichita	Neon power cabling system	\$12,583
				\$749,647

Applied Research Matching Fund



The Applied Research Matching Fund (ARMF) makes competitive investments in innovative research and development projects in Kansas that demonstrate a high potential for commercial success. These investments encourage the development of new technology products, create skilled job opportunities, and support the growth of Kansas companies.

Companies may apply for up to \$100,000 in ARMF assistance and are required to provide 150 percent match of KTEC funding. KTEC takes a royalty position on eventual product sales on commercially successful projects, and all ARMF awards are tracked for a minimum of five years to record success and economic impact.

An oil recovery project in southwest Kansas is an example how the ARMF program supports technology projects that could have significant benefits for the Kansas economy.



Oil production in Kansas, once a strong economic sector, has declined 5-10 percent a year in recent years. But Shell CO₂ Company has initiated a study of the potential of using carbon dioxide (CO₂) flooding in Kansas oil fields to increase production. Early projections showed that eventually CO₂ flooding could produce an extra 50,000 barrels per day of oil and add 6,000 more jobs to the state.

Shell CO₂ and its partners received funding from KTEC through the ARMF program and a \$1.9 million grant from the U.S. Department of Energy to study the feasibility of CO₂ flooding.

The project is focused on the Hall-Gurney Field in southern Russell and northern Barton counties. CO₂ will be brought in by truck and pumped into the ground. The CO₂ mixes with oil left in the reservoir, and is then pumped out and separated. The CO₂ can then be pumped back into the ground and reused.

"If we can show that carbon dioxide flooding works here, it may eventually be used to produce an additional half-billion barrels of Kansas oil that would otherwise be left in the ground," said Alan Byrnes, geologist for the Kansas Geological Survey.

The project will help determine the feasibility and effectiveness of using carbon dioxide to force oil out of underground rock formations in which it is trapped in Kansas oil fields.

This type of technology has been used in Texas, but with no readily available source of carbon dioxide in Kansas, it has never been attempted here. However, a CO₂ pipeline in Oklahoma comes to within six miles of the Kansas border. If the project is a success, it could encourage investors to extend the Oklahoma pipeline to bring CO₂ into Kansas.

Since the project was initiated, Kinder Morgan purchased Shell's interest in the project and contributed \$25 million cash and its 140-mile Central Basin Pipeline between McCamey and Denver City, Texas.

Other partners in the project include University of Kansas energy researchers, the Kansas Geological Survey, the Tertiary Oil Recovery Project, MV Energy LLC of Wichita, and the Kansas Department of Commerce and Housing. The partners in the project will provide an additional \$3.5 million in services and financing.



Applied Research Matching Fund

Following is a list of companies receiving ARMF grants in FY 2000. Included is the company name, location, technology project being funded, amount of grant, and amount of company match.

	<u>KTEC\$</u>	<u>Co. \$</u>
Logistics Plus, LLC, Lenexa – A B2B e-commerce solution for the prize redemption industry that will allow the company’s customers to access inventory accounts, product descriptions, pricing levels, and ticketing systems online.	22,758	33,698
Weigh-Right, Inc. Hutchinson – An on-board weighing system for the trucking industry that not only prevents truck overloads but will automate the axle weight distribution on a vehicle.	30,000	56,280
Magic Lantern, LLC, Lenexa – A laser-based digital projector for the film industry which offers advantages in contrast, brightness, and resolution over current projectors.	30,000	55,845
CyDex, Inc., Overland Park – Continued development, including proof of concept studies in humans, for the use of Captisol, an injectable formulation of the anesthetic drug “propofol.”	87,095	130,645
The Ullmann Aircraft Company, LLC, Wichita – A new general aviation aircraft, the “Panther,” which will utilize an all metal laminar flow wing.	99,000	161,000
Magic Lantern, LLC, Lenexa – A laser-based digital projector for the film industry which offers advantages in contrast, brightness, and resolution over current projectors.	100,000	167,960
Cyagra of Kansas, LLC, Manhattan – Research to determine if cloning efficiency can be maintained throughout the life span of a given population of fibroblast.	30,000	45,000
DiscoverME, LLC, Lenexa – A personality-based placement service on the Internet that allows companies not only to recruit talent that have the experience level they require, but also identify top performers based on an empirical profile of the individual’s personality characteristics.	30,000	45,000
DiscoverME, LLC, Lenexa – A personality-based placement service on the Internet that allows companies not only to recruit talent that have the experience level they require, but also identify top performers based on an empirical profile of the individual’s personality characteristics.	100,000	150,000
Framecast Communications, Inc., Shawnee Mission – Technology for adding advertising and information frames to Internet web pages that can be customized based on parameters set by website host companies and website administrators.	30,000	50,425
Safeconnect, Inc., Overland Park – A new robust search/filtering engine for the Internet that will allow the company to locate and sort the millions of websites for objectionable materials.	60,660	310,083

Senate Commerce Committee
January 11, 2001
Attachment 1-34

Applied Research Matching Fund



	<u>KTEC \$</u>	<u>Co. \$</u>
Sunlite Science & Technology, Inc., Lawrence – A manufacturing process for making super bright Light-Emitting Diode (LED) wafers by utilizing state-of-the-art Metal Organic Chemical Vapor Deposition (MOCVD) technologies.	100,000	150,000
Kansas Advanced Technologies, Inc., Manhattan – Identification of a feasible formulation and process to promote the commercialization potential of an edible and biodegradable composite in feed supplement packaging.	51,000	76,500
MotionWatch, LLC, Lenexa – Technology for monitoring, analyzing and measuring motion ranges for the knee joint.	89,000	149,360
Logistics Plus, LLC, Lenexa – A B2B e-commerce website for the novelty and redemption prize industry that will allow customers access to a fully automated and customized online catalog that will track inventory by price and ticket amount.	92,185	156,218
Meat Probes, Inc., Topeka – A probe system that can be used to assess the tenderness of a piece/carcass of beef on the production line of the packing facility.	30,000	89,800
EHSManager.com, Overland Park – A software product designed to assist the construction industry in complying with OSHA and EPA regulations by tracking and documenting projects from start to finish without employing a full Environmental Health and Safety (EHS) team.	85,000	156,670
Phylogenetix Laboratories, Inc., Overland Park – DNA-based diagnostic assays for the rapid identification of medicinal plants, including distinguishing between closely-related species of the phytomedicinal plant, Echinacea.	65,332	97,998
CritiTech, Inc., Lawrence – Production of drug nanoparticles of two sparingly water-soluble drugs for pre-clinical evaluation and testing, in addition to design of a high-pressure crystallizer that meets the code for the production of pharmaceutical products in clinical use.	25,466	38,200
Relight America, Inc., Wichita – Development, testing, listing, and marketing of a high-voltage splice connection product that can be used in wet, damp, and dry locations.	66,400	99,600

FY 2000 TOTALS:

KTEC - \$1,223,896

Companies - \$2,220,282

Total investment in Kansas technologies - \$3,444,178

Total leverage of KTEC ARMF investment = \$1.81:1

Senate Commerce Committee

January 11, 2001

Attachment 1.35



Innovation Research

KTEC has developed a number of programs to help small companies compete for federal Small Business Innovation Research (SBIR) awards, a competitive three-phase award system which gives small companies the opportunity to propose innovative ideas that meet the specific research and development needs of federal agencies.

SBIR Overview:

Each year, ten federal departments and agencies are required by SBIR to award a portion of their R&D funds to small business. These agencies designate R&D topics and accept proposals. Following submission of proposals, agencies make SBIR awards based on small business qualification, degree of innovation, technical merit, and future market potential.

SBIR Assistance through KTEC:

Kansas small companies that are interested in developing products through the federal SBIR program are eligible for additional assistance through the following programs:

The **Phase 0 SBIR Program** funds small businesses, university researchers, graduate students, and others conducting preliminary research for an SBIR proposal.

The **SBIR Proposal Preparation Grant Program** assists small businesses in obtaining the federal SBIR awards by providing grants of up to \$5,000 to support SBIR proposal preparation and review. In FY 2000, nine companies received assistance totaling \$67,993.

The **SBIR Bridge Funding Program** provides low interest loans to Kansas companies that have won Phase I awards and are applying for Phase II awards. In FY 2000, two companies received assistance totaling \$81,985. Pinnacle Technology, Lawrence, received \$31,985 and Aerotech Engineering & Research Corporation, Lawrence received \$50,000.

The **SSBIR Program** is a partnership between federal and state governments and private industry to accelerate commercialization of new technologies by small companies.

Aerotech Engineering & Research Corporation, Lawrence, received \$100,000 in FY 2000 as part of 3-year commitment to match a \$3 million contract awarded by the Office of Naval Research. The company is developing new technology for marine and propellor pitch control as a Dual Use Science and Technology project.

Rainbow Organic Farms Co., Bronson, received \$200,000 in conjunction with a U.S. Department of Agriculture SBIR award. The SBIR proposal was to teach small meat producers and processors how to increase profits from organically-fed cattle, and meet new ISO-9000 specifications for 4 all natural products.

The **Invention Development Assist Program (IDAP)**, is an Innovation Research program that provides up to \$1,000 to help Kansas inventors develop ideas with commercial potential.

Information Research Corp.



The Information Research Corp. (IRC) is a for-profit corporation created and owned by KTEC to provide research information and services to facilitate the decision making process, enhance competitiveness, and assist in commercialization and market expansion.

IRC provides affordable high quality services ranging from quick overview reports to in-depth studies and analyses of markets, technology, competitive factors, and other business needs. In order to provide the highest quality information to customers, IRC subscribes to a number of specialized proprietary databases, and each IRC report is customized to the customer's needs. IRC specializes in commercialization planning and service evaluation.

In addition to providing valuable information to small companies, IRC has worked with a number of federal agencies on information management projects.

Under a joint KTEC and Navy contract, IRC developed the Automated Evaluation Process (AEP) as a tool for evaluating services, products, or business and technical proposals. The AEP provides a rapid, efficient, high quality review process through interactive web-based data gathering and dissemination. The successful use of the AEP by the Department of Energy has helped generate inquiries from several other federal agencies.

In FY 2000, the Information Research Corp.:

- Completed a contract to assist 63 U.S Navy SBIR winners with commercialization planning.
- Entered into a contract with the Department of Energy to evaluating their NICE³ and I&I proposals using the IRC Automated Evaluation Process (AEP).
- Completed a contract with a California corporation to assist in commercialization planning.
- Conducted 115 customized research projects for Kansas companies and /or inventors.



Clyde Engert

IRC President Clyde Engert was recognized in FY 2000 for his contributions to the federal SBIR program. Engert, who also is vice president of innovation and research for KTEC, was the recipient of the national 1999 Tibbetts Award. Engert won the award for his work in creating the State SBIR program, a method whereby any state and a commercial partner could co-fund an SBIR topic and work together to create high-paying jobs.

The U.S. Small Business Administration's Tibbetts Award is named for Roland Tibbetts who led the federal effort to create the SBIR program. The award is presented annually to small firms, projects, organizations, and individuals that exemplify the best in SBIR achievements.

The intent of the State SBIR program (SSBIR), developed by Engert and co-funded by KTEC and the National Institute for Standards and Technology (NIST), was to improve the SBIR process by more effectively attaining the legislative purpose of increasing private sector commercialization of new technology. The program is structured so that the state receives a royalty payback for helping to bring successful new products to market, thus creating a self-sustaining state assistance program for technology commercialization.

Two KTEC client companies have previously won the Tibbetts award: Aerotech Engineering and Pinnacle Technologies, both located in Lawrence. In addition, KTEC won the award in 1996 and is the only organization to have won two Tibbetts Awards.

The Kansas Experimental Program to Stimulate Competitive Research (EPSCoR) provides match funding for federal and industrial research awards to Kansas universities in science and technology, with the goal of improving the research competitiveness of state universities in these disciplines.

Kansas qualified in 1992 to be one of 19 EPSCoR states because Kansas universities historically received a disproportionately low per capita average of federal research dollars. In effect, Kansas taxpayers were subsidizing the research efforts of universities in states that received a large share of federal research dollars.



The K-State team in the field, from left: Jim Zachary, graduate student; Steven Gao, Assistant Professor; Aimin Cao, graduate student.

Because of its integration of educational programs with science and technology economic development initiatives, and the commercialization of technology, Kansas has emerged as a model for other EPSCoR states. The benefits of EPSCoR projects such as the seismic research by KSU Assistant Professor Steven Gao extend beyond the borders of Kansas.

Receiving a Kansas NSF First Award isn't the first "earth-moving" event to occur in the life of Gao. In fact, it was his decade-long studies of seismic activities that led to his successful \$38,000 First Award in early 2000.

Kansas NSF First Awards are designed to help faculty begin research programs early in their careers. The awards, in amounts up to \$50,000, are made to faculty who have never served as a Principal Investigator on a federal agency research grant.

Gao's research focuses on the unusual geological features that surround the Blue River, its flow into Tuttle Creek Reservoir north of Manhattan, and the shifting level of the rock bed in the earth surrounding the area. More than 130 years ago, the largest earthquake ever in Kansas occurred near Manhattan. It was felt over an area of 300,000 sq. miles from Nebraska to Ohio.

With the NSF grant, and the assistance of the Carnegie Foundation in Washington, DC, Gao and his graduate students Jim Zachary and Aimin Cao, as well as Dr. Kelly Liu, have buried 18 seismic stations along what researchers consider to be a fault line in Kansas. The Carnegie Foundation is lending the seismic stations to Gao for the length of the project.

The seismic stations will record the earth's movement not only in Kansas, but far beyond the state's borders. In fact, data from the seismic stations already have recorded earthquake activity as far away as Mexico and Indonesia.

Over the next six months, more than 200,000 seismographs will be recorded at the stations. Gao, his K-State students, and colleagues will spend months analyzing the data and identifying active faults. Once identified, these faults will be recorded and reviewed regarding the safety of Tuttle Creek Dam, Tuttle Creek Reservoir, and power plants in the area. Gao's research might finally answer the question, "is Tuttle Creek Dam built on or close to a shifting fault?"

Gao is the first of two geophysicists to join the K-State faculty. He has studied seismic activity in Southern California, Russia, and South Africa.

Special Projects



Entity	Project	Amount
Fort Hays State University	Telepower Conference	\$3,000
Kansas State University	Science Writing Internship Program	\$4,075
KS Awards for Excellence	KAE Sponsorship	\$10,000
OZ - Cyber-Site	Website development and launch	\$10,000
KCK Public Schools	Community Alliance for Math, Science, Technology	\$4,000
Center for Entrepreneurship	Explore Entrep. High School Conference	\$3,000
KU Med. Ctr. Research Inst.	KUMC Gala 1999	\$1,000
Council on Competitiveness	1999 Contribution	\$2,500
Council for Entrepreneurship	Entrepreneur of the Year	\$1,350
Tweeds Muir Glenn	Continuous Improvement Odyssey research	\$1,750
Acumen Strategies	Strategic Technology Cluster Assessment	\$5,000
CRINC-IPPBR	Strategic Technology Cluster Assessment	\$14,981
John Yochelson	Global Innovation & Competitiveness study for KS	\$1,000
Kansas, Inc.	Strategic Planning, Redwood/Krider report update	\$1,250
CRINC	Sen. Pat Roberts' Task Force	\$500
Digital Archeology	Global Venture Forum participation	\$5,000
Aerotech	Market Research	\$1,000
Southeast Kansas, Inc.	Website development	\$1,000
Colorado Capital Alliance	Power of Angel Investing Seminar (co-sponsor)	\$1,400
Poster Contest Winners	KTEC-EPSCoR Poster Award Competition	\$1,750
Ernst & Young	Entrepreneur of the Year Awards	\$10,000
		\$83,556



For researchers in new media art, computer science, and advanced digital technology, work is about to get a lot easier.

A new website and searchable database created by Cyber-Site New Media Research Center will allow artists, scientists, and engineers working with innovative new digital technologies to communicate and collaborate with one another as never before. Cyber-Site, a 501c(3) organization based in Kansas City, was formed in 1999 to serve as a communications hub for, and to promote public awareness of, the emerging fields in new media art and science.

In FY 2000, The Kansas Technology Enterprise Corporation (KTEC) provided special projects funding to help Cyber-Site create its website and new media technology database. Cyber-Site will receive an additional \$80,000 grant from the Rockefeller Foundation.

Logging on to the Cyber-Site website at www.cyber-site.org, new media and digital technology researchers will be able to track new information technology developments, share resources, dialogue with one another and collaborate on projects from just about anywhere on the planet.

“Cyber-Site’s New Media Research Center opens a world of possibilities for interchange and collaboration among creative communities,” said Lynn Szwaja, acting director of the Rockefeller Foundation’s Creativity and Culture Program. “This project will not only connect artists with other artists, but artists with scientists, new media entrepreneurs with educators, and all of these groups with the general public.”

This global revolution for the information technology world will also have a local impact, serving as a catalyst for technology business growth, education, and development in the Kansas City area.

The website will be fully functional in 2001, and Cyber-Site envisions the virtual information center will evolve into a physical research facility within five years, accommodating resident and visiting artists, scientists, and engineers.



Mid-America Manufacturing Technology Center

The Mid-America Manufacturing Technology Center (MAMTC) is a not-for-profit organization that helps small- and medium-sized manufacturers increase sales, productivity, and quality, while reducing costs. MAMTC accomplishes this by working with manufacturers in modernizing their operations, utilizing new technologies, and improving management, marketing, and business practices.

MAMTC primarily provides low-cost, hands-on consulting services to small- and medium-sized manufacturers to help them become competitive. The focus is on manufacturers' day-to-day production and business issues. For example, MAMTC helps manufacturers implement quality improvement programs, troubleshoot equipment and product problems, locate hard-to-find vendors, economically reduce pollutants, and implement cost accounting systems. Other services include technical seminars, product testing, company assessments, industry networks and demonstrations of equipment and software.

About 80 Field Engineers, each with "dirt-under-the-fingernails" industry experience, provide technical assistance services. They often work with private sector consultants, college faculty, and other economic development groups to provide services. Together, they have capabilities in hundreds of manufacturing, engineering, operations, management, and marketing areas.

Operating since 1991, MAMTC has 27 offices throughout Missouri, Kansas, Colorado, and Wyoming. MAMTC is affiliated with the national NIST Manufacturing Extension Partnership and is a subsidiary of the Kansas Technology Enterprise Corporation. In addition to KTEC, state partners include the Missouri Department of Economic Development, the State of Colorado, and the Wyoming Business Council.

The Kansas regional offices are:

- Garden City Community College, *Garden City*
- Western Kansas Technology Corporation, *Great Bend*
- Fort Hays State University, *Hays*
- Manufacturing Learning Center, Kansas State University, *Manhattan*
- Overland Park Regional Office, *Overland Park*
- Kansas Polymer Research Center, Pittsburg State University, *Pittsburg*
- National Institute for Aviation Research, Wichita State University, *Wichita*

The services MAMTC offers are designed to meet the needs of individual manufacturers in eight core areas that are vitally important to the manufacturing community: quality, manufacturing processes, business systems, marketing, information systems, human resources, product development and testing, and company assessment.

MAMTC is a National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership Center.

Capital for Manufacturers

Capital for Manufacturers is a corporate finance advisory firm created to help small- and medium-sized manufacturers locate and select the best funding alternatives. CFM assists manufacturers in Kansas, Missouri, Colorado, and Wyoming, and was established in 1996 through a joint effort of the Mid-America Manufacturing Technology Center and KTEC.

Senate Commerce Committee
January 11, 2001
Attachment 1-40

Mid-America Manufacturing Technology Center



Most companies don't want to scare people, but for Chance Industries, Inc., it's all part of the job.

Chance Industries, based in Wichita, manufactures rides for amusement parks, carnivals, malls, and family entertainment centers. Founded in 1980, Chance rides operate at more than 300 parks in 13 countries. The company currently employs 200 people.

Chance's newest portable ride, the SlingShot, shoots riders up and down a 100-foot tower at +4.0Gs on the way up and 1.0G going down. Using a hydraulic system, the SlingShot is the first tower ride to have both "shoot" and "drop" actions rather than just a ride up or a ride down.

Chance was working to deliver the SlingShot to a customer earlier this year, and though the delivery deadline was approaching safety is always Chance's number one concern.

To ensure that the SlingShot was not only operationally sound, but that passengers could be assured maximum safety during their ride and in the unlikely event of a malfunction, Chance contacted MAMTC's Wichita office for testing assistance.

MAMTC's field engineers assisted Chance in conducting a structural strength analysis by strain gauge application to verify that the structure did not sustain any unpredicted stresses under normal and worst case conditions.

Working with the National Institute for Aviation Research, a KTEC Center of Excellence at Wichita State University, MAMTC used human-sized dummies to test the ride. Dummy acceleration testing was used to verify that passengers would not be exposed to excessive G-force during basic

operation. The dummy heads were examined at numerous acceleration intervals to determine the level of force to which the passenger would be exposed.

After all the tests were completed, a few structural changes were recommended to maximize vehicle strength. Chance was able to accommodate the changes and shipped the first SlingShot to its initial location.

"MAMTC was very flexible about working around our tight schedule," said Steve Eades, Chance vice president of engineering. "They did a great job of helping Chance verify that the SlingShot would be a sound, safe ride."



Chance Industries' SlingShot

Mid-America Manufacturing Technology Center

FY 2000 Results:

- ❖ 601 companies assisted
- ❖ \$22.2M increased sales
- ❖ \$5.5M decreased costs
- ❖ 601 jobs created or retained
- ❖ 336 technical assistance projects initiated
- ❖ 4.6 customer satisfaction rating (5 point scale)
- ❖ 44 seminars and workshops held with 748 people attending



KTEC Chronology

- 1983 * Kansas Advanced Technology Commission (KATC) established within the Department of Economic Development
- * Center for BioAnalytical Research (CBAR) established at the University of Kansas
- * Center for Productivity Enhancement (CPE) established

- 1984 * Center for Research in Computer-Controlled Automation (CRCCA) established at Kansas State University

- 1985 * Institute for Aviation Research (IAR) established at Wichita State University

- 1986 * Kansas Technology Enterprise Corporation (non-profit) and KTEC Holdings, Inc. (for-profit) created by the Kansas Legislature and established as state-owned corporations
- * Redwood/Krider report recommendations enacted into law by the Kansas Legislature

- 1987 * KTEC became operational, inheriting all KATC programs as well as being given oversight of the previously established Centers of Excellence

- 1988 * Center for Technology Transfer (CTT) at Pittsburg State University funded by KTEC as a Center of Excellence
- * Reorganization at the University of Kansas Center for BioAnalytical Research resulted in the establishment of the Higuchi Biosciences Center, encompassing research focus of the CBAR and new Center for Drug Delivery Research (CDDR)
- * Kansas funds seed capital for the first time. Campbell-Becker, Inc., Lawrence, was selected to manage the Ad Astra Fund, L.P.

- 1989 * Kansas Agricultural Value-Added Processing Center (KVAC) established at Kansas State University
- * Center of Excellence in Computer-Aided Systems Engineering (CECASE) established at the University of Kansas

- 1990 * The Institute for Aviation Research was designated as a national research center and became the National Institute for Aviation Research (NIAR)
- * Industrial Liaison program organized with two regional offices: the Western Kansas Technology Corporation, Great Bend, and Tech-Industry Consultants, Inc., Lenexa

- 1991 * Innovative Technology Enterprise Corporation (ITEC) created in Topeka
- * CRCCA at KSU reorganized to become the Advanced Manufacturing Institute
- * Mid-America Manufacturing Technology Center (MAMTC) established
- * Center of Molecular Engineering and Immunology (CMEI) established under the HBC
- * Kansas was designated an EPSCoR state (Experimental Program to Stimulate Competitive Research)
- * Kansas Science & Technology Council (KSTC) formed as advisory group to Kansas Inc.

- 1993 * Ad Astra Fund II set up through Campbell-Becker, Inc.
- * KVAC became a subsidiary of KTEC

- 1994 * CTT reorganized to become the Center for Design, Development and Production
- * Three commercialization corporations established: Kansas Innovation Corporation

KTEC Chronology



- ☛ (KIC), Lawrence; Mid-America Commercialization Corporation (MACC), Manhattan; Wichita Technology Corporation (WTC), Wichita
- ☛ ITEC merged with KTEC
- ☛ Oversight for the Experimental Program to Stimulate Competitive Research (EPSCoR) was transferred to KTEC. KSTC also transferred to KTEC
- ☛ Kaw Holdings, Inc., Manhattan Holdings, Inc., Wichita Holdings, Inc., and KVAC Holdings, Inc., formed as pre-seed capital funds
- ☛ KTEC established a Graduate Intern Program through a grant from the Ewing Marion Kauffman Foundation's Center for Entrepreneurial Leadership

- 1995** ☛ Sunflower Technology Ventures, L.P., received Legislative support, filling a need for venture capital in the state
- ☛ Manufacturing Learning Center opened its doors as part of AMI
- ☛ The Kansas Integrated Commercialization Information Network (KICIN) went online statewide
- ☛ Bridge Funding for Small Business Innovation Research (SBIR) awards created
- ☛ Management of the Industrial Agriculture sector of KVAC transferred to KTEC
- ☛ KTEC, KVAC, and the Kansas Department of Agriculture collaborated with a Minnesota entity to form an Industrial Agriculture Clearinghouse

- 1996** ☛ Affiliate Innovation and Commercialization Corporations established in five locations statewide
- ☛ Strategic Technology assessment of the state's research and industrial strengths completed the first step in KTEC's efforts to develop a long-term, advanced-technology economic development plan
- ☛ KTEC's work with the SBIR program earned one of the first-ever Tibbetts Awards from the U.S. Small Business Administration's Office of Advocacy
- ☛ KTEC received the Federal Laboratory Consortium Mid-Continent Regional industry/non-federal government/university award

- 1997** ☛ NIST awarded \$85,000 to KTEC to develop a program identified as the State SBIR (SSBIR) program
- ☛ A \$700,000 grant from NIST allowed MAMTC to establish Capital for Manufacturers to help manufacturers access existing sources of financing
- ☛ Aircraft Design and Manufacturing Research Center (ADMRC) established at Wichita State University by a consortium of state, private industry, and university partners
- ☛ The Technology Information Transfer Center (TITC) established to provide information services to small companies
- ☛ KTEC helped launch the Angel Capital Electronic Network (ACE-Net)
- ☛ The Center of Excellence in Computer-Aided Engineering (CECASE) at the University of Kansas merged with the Telecommunications and Information Sciences Laboratory at KU to form the Information and Telecommunications Technology Center (ITTC)

- 1998** ☛ A Legislative Post Audit Committee found that Campbell-Becker, Inc., Lawrence, acted appropriately and according to guidelines and statutes in all Ad Astra investments. The report affirmed that Campbell-Becker followed accepted industry standards in the selection of small companies receiving funding. The Post Audit inquiry resulted from controversy over two Ad Astra investments



KTEC Chronology

- * The KTEC Board of Directors voted to rescind the decision to create the Sunflower Technology Ventures Fund, a proposed \$30 million venture capital fund. KTEC returned approximately \$3.5 million to the state which had been appropriated for the STV start up
 - * KTEC made its first award under the new SSBIR program to Surfaces Research, Lenexa, in the amount of \$275,000
 - * Wichita State University's National Institute for Aviation Research was named as a partner in a Federal Aviation Administration Center of Excellence
 - * The KTEC Board of Directors authorized staff to research the feasibility of selling the Ad Astra Funds to a private investor
 - * The Kansas Legislature passed SB 554 authorizing tax credits for new capital formation should the Ad Astra Funds be sold to a private buyer
 - * KTEC created a for-profit company, Information Research Corp., to offer information, research, and analysis services to small companies
- 1999**
- * The SBIR Phase 0 program was developed to provide up to \$2,000 of funding for preliminary research and development of SBIR proposals
 - * Manhattan Holdings, LLC, the Mid-America Commercialization Corporation's affiliated seed capital fund, completed its initial capitalization round
 - * Two ICC client companies were acquired: Knowledge Communications, a Wichita Technology Corporation client company was acquired by Harcourt General; and FoodLabs, a Mid-America Commercialization Corporation client company, was acquired by STERIS Corporation
 - * Precede Fund, L.C., a new seed capital fund, was created at the University of Kansas Medical Center Research Institute
 - * The Entrepreneur in Residence Program was established with funding assistance from the Center for Entrepreneurial Leadership at the Ewing Marion Kauffman Foundation
 - * The Home Again program was created to recruit alumni from Kansas universities back to the state for employment
- 2000**
- * KTEC's charter statutes were changed to allow state university CEOs to serve on KTEC's board of directors
 - * The Technology Acquisition Development and Commercialization program was established to seek out patent portfolios to add to the research and commercialization of new technologies at Kansas universities
 - * Three KTEC client companies were acquired: Coach's Edge, Lawrence, was acquired by SportVision, Inc.; Digital Archaeology, Lenexa, was acquired by Delano Technology Corporation; and HELP Innovations, Lawrence, was acquired by Cyber-Care, Inc.
 - * The Applied Research Matching Fund reached \$1 million in royalty paybacks

Note about individual program results in this annual report:

Because KTEC programs are designed to operate as a network, a single client company may receive services from more than one KTEC program during the course of the technology's development and the company's business development. In such case, the client company is surveyed only once to determine economic impact, but each of the assisting program's performance indicators in this annual report is credited with that company's economic impact to reflect the contribution of each KTEC program. For this reason, the total economic impact of KTEC programs cannot be determined by summing the performance indicators of each program appearing in this annual report. The total economic impact of all KTEC programs, eliminating double-counting, is accurately reported on pages two and three of this annual report.

Network Contacts



Affiliates

Advanced Manufacturing Institute

Brad Kramer
Ph: 800.292.4186
Fax: 785.532.7072
ami@ksu.edu

Alliance for Technology Commercialization, Inc.

Eric Ferrell
Ph: 316.235.4927
Fax: 316.235.4030
eferrell@pittstate.edu

Campbell-Becker, Inc. (Ad Astra)

Sam Campbell
Ph: 785.841.7120
Fax: 785.841.7268

Enterprise Center of Johnson County

Joe Kessinger
Ph: 913.438.2282
Fax: 913.888.6928
jkessinger@ecjc.com

Experimental Program to Stimulate Competitive Research

Thomas Taylor
Ph: 785.864.3096
Fax: 785.864.3093
nsfepscor@kucr.ukans.edu

Higuchi Biosciences Center

Charles Decedue
Ph: 785.864.5183
Fax: 785.864.5738
decedue@ukans.edu

Information and Telecommunication Technology Center

Tim Johnson
Ph: 785.864.4896
Fax: 785.864.0387
johnson@ittc.ukans.edu

Information Research Corp.

Clyde Engert
Ph: 785.296.3363
Fax: 785.296.1160
cengert@ktec.com

Kansas Innovation Corporation

Jane New
Ph: 785.832.2110
Fax: 785.832.8234
kic@kic.org

Kansas Polymer Research Center

Phil Halstead
Ph: 316.235.4114
Fax: 316.235.4919
cddp@pittstate.edu

Manufacturing Learning Center

Brad Kramer
Ph: 785.532.0460
Fax: 785.532.7031
ami@ksuvm.ksu.edu

Mid-America Commercialization Corporation

Ron Sampson
Ph: 785.532.3900
Fax: 785.532.3909
macc@kansas.net

Mid-America Manufacturing Technology Center

Paul Clay
Ph: 800.653.4333
Fax: 913.649.4498
pclay@mamtc.com

National Institute for Aviation Research

Ramesh Agarwal
Ph: 316.978.6427
Fax: 316.978.3175
agarwal@niar.twsu.edu

Quest Business Center

Richard French
Ph: 316.665.8468
Fax: 316.665.7619
quest@southwind.net

University of Kansas Medical Center Research Institute, Inc.

Tom Noffsinger
Ph: 913.588.1261
Fax: 913.588.5242
tnoffs@kumc.edu

Western Kansas Technology Corporation

Dick Sidles
Ph: 316.793.7964
Fax: 316.792.4850
dsidles@midusa.net

Wichita Technology Corporation

Trish Brasted
Ph: 316.651.5900
Fax: 316.684.5640
wtc@wichitatechnology.com

Programs

Access to Capital Network (ACE-Net)

Beth Brough
Ph: 785.296.5131
Fax: 785.296.1160
bbrough@ktec.com

Applied Research Matching Fund

Kevin Carr
Ph: 785.296.5862
Fax: 785.296.1160
kcarr@ktec.com

Inventor Assistance

Clyde Engert
Ph: 785.296.3686
Fax: 785.296.1160
cengert@ktec.com

KTEC Internship Program

Mary Breakstone
Ph: 785.296.6308
Fax: 785.296.1160
mbreakst@ktec.com

SBIR/State SBIR Programs

Clyde Engert
Ph: 785.296.5862
Fax: 785.296.1160
kcarr@ktec.com

TADAC

Ron Sampson
Ph: 785.532.3900
Fax: 785.532.3909
macc@kansas.net