

Approved: 1-25-93
Date

MINUTES OF THE HOUSE COMMITTEE ON ECONOMIC DEVELOPMENT.

The meeting was called to order by Chairperson Wanda Fuller at 3:30 p.m. on January 21, 1993 in Room 423-S of the Capitol.

All members were present except: Representative Tom Bishop, excused

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

Conferees appearing before the committee:
Dr. William Brundage, KTEC
Charles Becker, Campbell-Becker, Inc.
Sam Campbell, Campbell-Becker, Inc.
Jerry Stabenow, Silicon Prairie Technology Association

Others attending: See attached list

The Chair called upon Dr. Brundage. Dr. Brundage distributed a copy of a report from the Wall Street Journal he had referred to in previous testimony. (Attachment 1) He then spoke briefly on Seed Capital (Attachment 2) and introduced Jerry Stabenow.

Mr. Stabenow presented testimony on excerpts from Cooper & Lybrand's Third Annual Economic Impact of Venture Capital Study. He stated that companies which participate in Cooper & Lybrand's study typically are young and it is during these start-up years that seed/venture capital plays a vital role in nourishing a successful company. (Attachment 3)

Dr. Brundage next introduced Charles Becker who presented testimony on excerpts from a report on The Changing Structure and Performance of the Kansas Economy by M. Jarvis Emerson, Professor of Economics, Kansas State University. (Attachment 4)

Sam Campbell was then introduced by Dr. Brundage. He presented testimony on the Ad Astra Fund. (Attachment 5) He passed around several products from Bio-Core, Inc. to the committee for their observation.

Mr. Stabenow summarized the testimony of the conferees, stating that capital availability to businesses is of vital importance to sustain and continue to grow Kansas' economic base. (Attachment 6)

The conferees then stood for questions from the committee.

The meeting was adjourned at 4:40 p.m.

The next meeting is scheduled for January 25, 1993.

GUEST LIST

COMMITTEE: Economic Development DATE: 1-21-93

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Future Factories

Small, Flexible Plants May Play Crucial Role In U.S. Manufacturing

Carrier Facility in Arkansas Picks Workers Carefully, Gives Them Autonomy

Ordering Their Own Supplies

By ERLE NORTON

Staff Reporter of THE WALL STREET JOURNAL

ARKADELPHIA, Ark. — On a pothole-filled road across from a big chicken processor in this remote town sits a Carrier Corp. plant that could be a blueprint for the future of U.S. manufacturing.

The plant looks more like an insurance office than a factory, with its sleek, one-story structure, pervasive automation and lean work force of only 150. On the factory floor, you could hear a whisper. And it's spotless — "probably cleaner than most of our houses," says Fred Cobb, a worker.

But just as Henry Ford changed the U.S. economy with mass production nearly a century ago, this plant and scores of small ones like it, many of them in isolated towns, are keeping U.S. manufacturing healthy. The Carrier plant, which produces compressors for air conditioners, operates in some unusual ways. For example, it maintains no finished-goods inventory because it makes the compressors only to order. "This is rethinking the manufacturing process," says David Garvin, a Harvard Business School professor.

Worker Autonomy

What most distinguishes this plant, however, are its workers, a breed apart from yesterday's lunch-pail crowd. Hopeful job applicants must complete a grueling six-week course before being even considered for employment — a selection process that results in a job for only one of every 16 applicants and yields a top-quality work force. Once on the job, the workers have unusual authority. They can, for example, shut down production if they spot a problem, and, within limits, they can order their own supplies.

Workers, who are nonunion and earn \$16,000 to \$17,000 a year excluding fringe benefits, don't have to punch a time clock or prove illness. Shown a doctor's excuse for an absence, Tracy Bartels, a supervisor, said, "I don't need that." The surprised employee blurted out, "Really?"

Even a lot of such plants can't make up for the heavy-industry jobs being wiped out by corporate giants such as General Motors Corp., which is closing 22 large plants. The U.S. lost a million manufacturing jobs from 1989 to 1991, and the Bureau of Labor Statistics expects no net additions before the end of the century to the current total of about 18 million.

Many New Plants

Yet U.S. manufacturers aren't ceding everything to foreign competitors. Instead, they're quietly opening small plants that require small, educated work forces.

Eaton Corp., a Cleveland-based auto-parts maker, started up a 120-employee plant in Hamilton, Ind., in September. Intel Corp. is constructing a computer-chip factory in Santa Clara, Calif., eventually creating 250 jobs. Miles Inc. has announced plans to build a \$140 million facility in Berkeley County, S.C., where 150 people will make synthetic fibers. M.A. Hanna Co., of Cleveland, is building a 60-employee plant to make color concentrates for plastics in Phoenix, near a big customer. And Stafford Railsteel Corp., of Charlotte, N.C., plans a minimill that will be the first new U.S. facility for making rail steel since early this century.

By their very nature, small plants are responsive, able to shift from one product to another or change production schedules quickly. They require less movement of materials. Managing them is easier because they have few layers of employees, and worker ideas can rise to the top faster. And they get better workers because their size enables them to be more selective.

Rural Locations

Such plants tend to locate in rural areas, which, being small, didn't land the giant factories of yesterday. "They can get better-educated, better-motivated workers than they can in the urban communities," says Michael Cantwell, national director for manufacturing for Grant Thornton, an accounting and consulting firm. Moreover, he adds, these "tend to be the people who don't like unions."

Carrier had no choice but to build a new factory: To be competitive, the United Technologies Corp. unit had to make its own compressors. But the big plants it built in the 1970s and 1980s, with their high fixed costs and inflexible production lines, proved to be money-losers, and the company began closing them.

So Thomas L. Kassouf, president of the compressor division, envisioned a streamlined plant that, even running at capacity, would employ no more than 400 workers. Carrier drew a circle around its Texas and Tennessee plants that would use the compressors and chose Arkadelphia as a possible site. The town, which has a population of 10,014, was eager; 1,700 people lost jobs there when three plants closed in 1986 and 1987. Unemployment soared to 15% of the work force from 5%. People were leaving.

Determined to woo Carrier, county voters approved a 1% sales tax to extend a sewer line to the local industrial park. The state government promised hundreds of thousands of dollars in tax breaks and training costs. In early 1989, Carrier pledged \$100 million to the project, and the

Please Turn to Page A2, Column 4

Future Factories: Manufacturers Try Small, Flexible Plants

Continued From First Page

plant opened last Oct. 13.

It's like no other plant in Arkadelphia. Tiles that soak up sound and reflect light cover much of the ceiling. The gray floors gleam. In a dirty plant "you get a don't-give-a-damn attitude right away," says a worker, Chuck Pennington.

Women work beside men in every area and can handle every job. Carrier designed the plant so that no one has to lift anything heavier than 12 pounds repeatedly. "Why should there be any barriers in our plant?" Mr. Kassouf asks.

The plant is highly automated. In one work unit, a person places two pieces of metal in a cutting machine, shuts the glass doors and punches a button. Guided by a computer that keeps the cut from straying more than eight millionths of an inch, the machine slices steel like butter.

Carrier makes one part of the compressor — the part requiring the most complex machining — in just over a minute. As a result, the company expects to produce each compressor for \$35 less than it now pays to buy them from suppliers, for a saving that could run \$26.3 million a year when annual production hits 750,000.

Flexibility is crucial, both among workers and in the design of the plant. Carrier teaches workers several jobs, so that if one is sick, another can fill in quickly. In addition, "the whole plant could probably be reconfigured in several weeks' time," Mr. Kassouf says.

Suggestion Accepted

The first workers hired suggested that they themselves install the machines. Management agreed, and several workers jetted off to machine-tool plants — some flying for the first time — where they learned how to assemble the equipment. That experience instilled a sense of ownership; many talk about "my machine." It also saved \$1 million of installation costs.

And because of their resulting familiarity with the equipment, employees don't have to wait for maintenance workers to fix a machine that breaks down.

When workers recently realized that their machines were arranged in a cumbersome way and that compressors were skipping a welding machine only to have to double back to it later, they pulled up seven machines and realigned them. They came up with the idea one morning and began implementing it that afternoon after clearing it only with their immediate supervisor. As a result, they completed the job in just four days. In a traditionally organized plant, by contrast, the need to consult an array of managers and wait for a maintenance crew to do the work would have dragged out the project for weeks.

Even during normal operations, says Mark Wells, an assembly-line employee, workers in teams quickly learn who has which skills and take directions from the most knowledgeable.

Getting a job at this Carrier plant is a bit like applying to college. It starts with a standard state test for job applicants, who must be high-school graduates or have a general education diploma. Only those scoring in the top third advance. Their references are checked closely, with Carrier managers zeroing in on how well applicants work with other people. The applicants are interviewed by managers and even assembly-line workers — and what the workers think strongly influences who gets hired.

Prospective Bosses

Workers even sometimes interview prospective bosses. In one case, a manager at another Carrier plant recommended a young man, one of his subordinates, for an engineering spot. The workers who interviewed him told William Harmison, production and materials manager at Arkadelphia, that the chemistry just wasn't right. The man didn't get the job.

Workers get involved in the hiring process in informal ways, too. Clyde Briggs, the human-resources manager, recalls asking an employee about an applicant he had worked with before.

"I don't think you guys want to hire him," the employee said. "The question is," Briggs responded, "do you want to hire him?" The answer was no, and the applicant was rejected.

Those who advance past the interviews take a six-week course. For five nights a week for three hours — with a couple of Saturdays thrown in — applicants learn blueprint reading, math such as fractions and metric calculations, statistical process-control methods, some computer skills, and solving the problems involved in dealing with fellow workers. While taking the course, the applicants — most of whom have other jobs — still haven't been hired by Carrier, haven't any assurance that they will be — and don't get paid.

Meanwhile, the instructors watch how well applicants work with each other. The applicants even judge one another. Inevitably, a few fall by the wayside. One was a woman who refused to work with others when the instructor wasn't nearby.

But getting through the training ses-

sions virtually guarantees not only a job but a say in how the plant operates. When Gene Whitaker, a 24-year-old assembly worker, noticed the paint wasn't adhering well to the compressors, he decided the pretreatment process needed sodium ash to make the paint stick better. So he picked up a phone and placed a \$5,000 order with a supplier. "I've never been stopped" when ordering supplies, he says.

Ceilings on Purchases

When one employee told Ms. Bartels he needed new gloves, the supervisor handed him a catalog. "Isn't it somebody's job to do that?" he asked. She explains later, "They're the ones who are going to use it; they might as well decide what they're going to use." Within various departments, however, workers are held to flexible ceilings on how much they can buy without getting management approval.

The workers clearly relish exercising their newfound authority. "We have the opportunity to prove that we can do it," says a beaming Mr. Pennington, who previously worked at an LTV Corp. missile plant that was struggling to push decision-making down into the ranks. "Every day, there are 100 problems that [managers] never know existed."

The plant's compressors are not only cheaper but also of high quality. Workers check the products constantly, rather than at prescribed intervals. All the finished compressors are cranked up, and at least one from every group is pulled off the line to test noise and energy levels.

That quality is critical to Carrier's success in the air-conditioning business, since compressors account for as much as 50% of an air conditioner's production costs. And faulty compressors can quickly increase the company's warranty costs. But Carrier executives believe the plant will not only serve as a model for future plants but keep it competitive. Says Mr. Kassouf: "My goal is to sell compressors from Arkansas to Japan."

January 21, 1993

Economic Development
Attachment 1

**Testimony to the
House Economic Development Committee
and the
Senate Commerce Committee**

**Availability and Necessity
of Seed Capital**

January 21, 1993

Table of Contents

I.	Introduction William Brundage, President of KTEC	5
II.	Background on Seed Capital and Ad Astra Fund Charles Becker, Campbell-Becker, Inc.	13
III.	Ad Astra Fund, The Companies Sam Campbell, Campbell-Becker, Inc.	57
IV.	Summary Jerry Stabenow, Silicon Prairie Technology Association	61

Introduction

KTEC Is An Investment
Not An Expenditure.

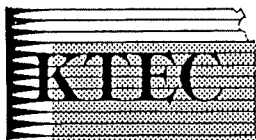
Leverage of State's Investment through KTEC

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

Start-up technology companies
that participate in KTEC's
network, can:

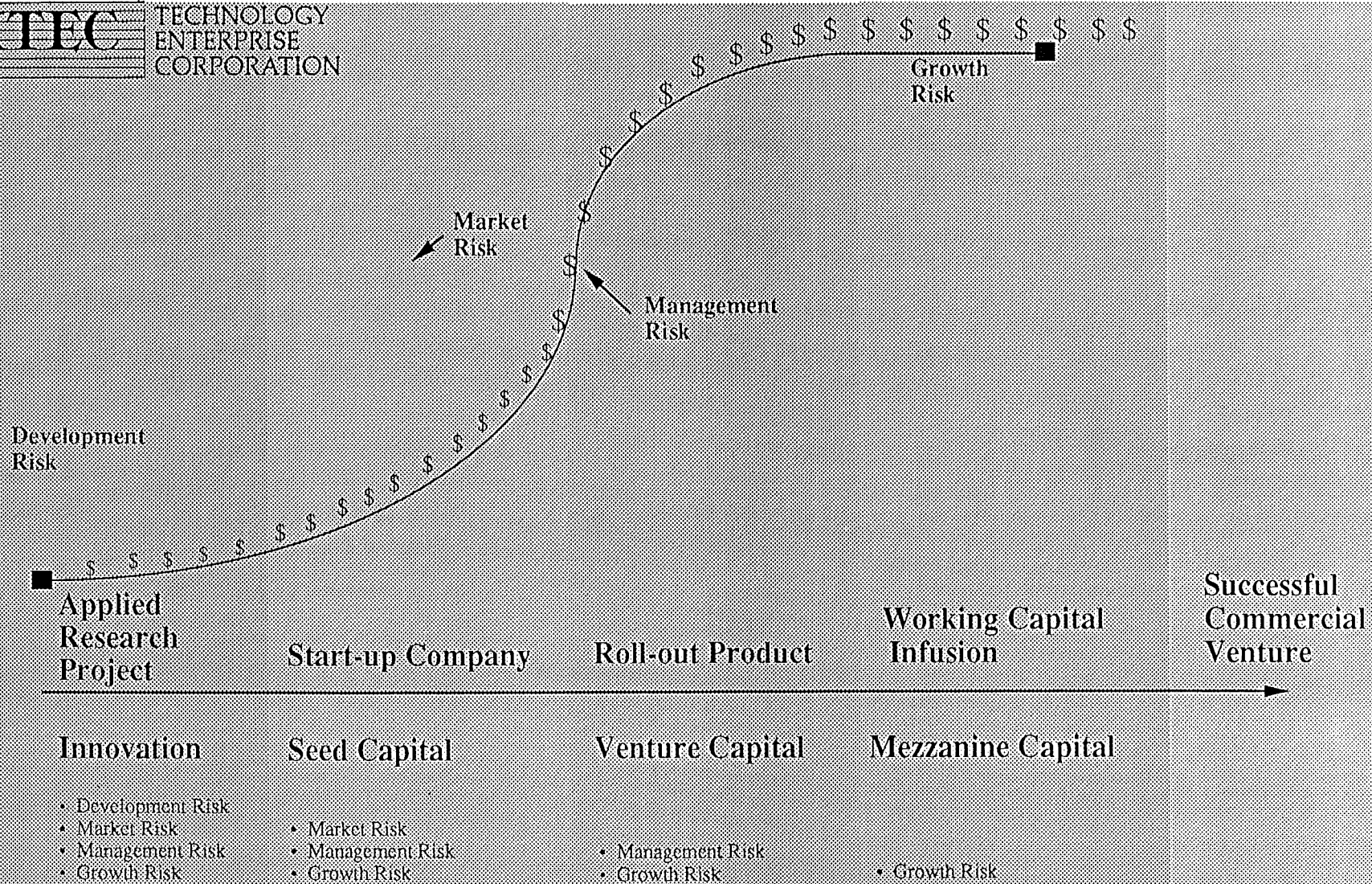
Decrease Costs

**Increase Chance
for Success**

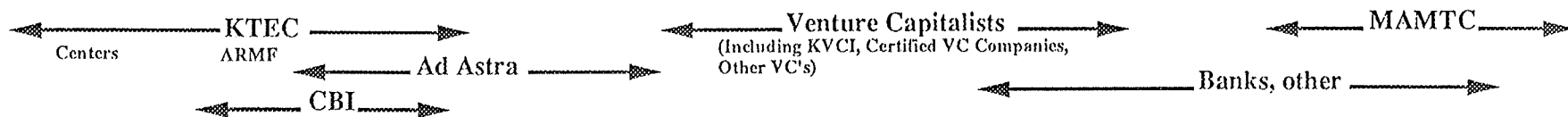


KANSAS
TECHNOLOGY
ENTERPRISE
CORPORATION

INVESTMENT

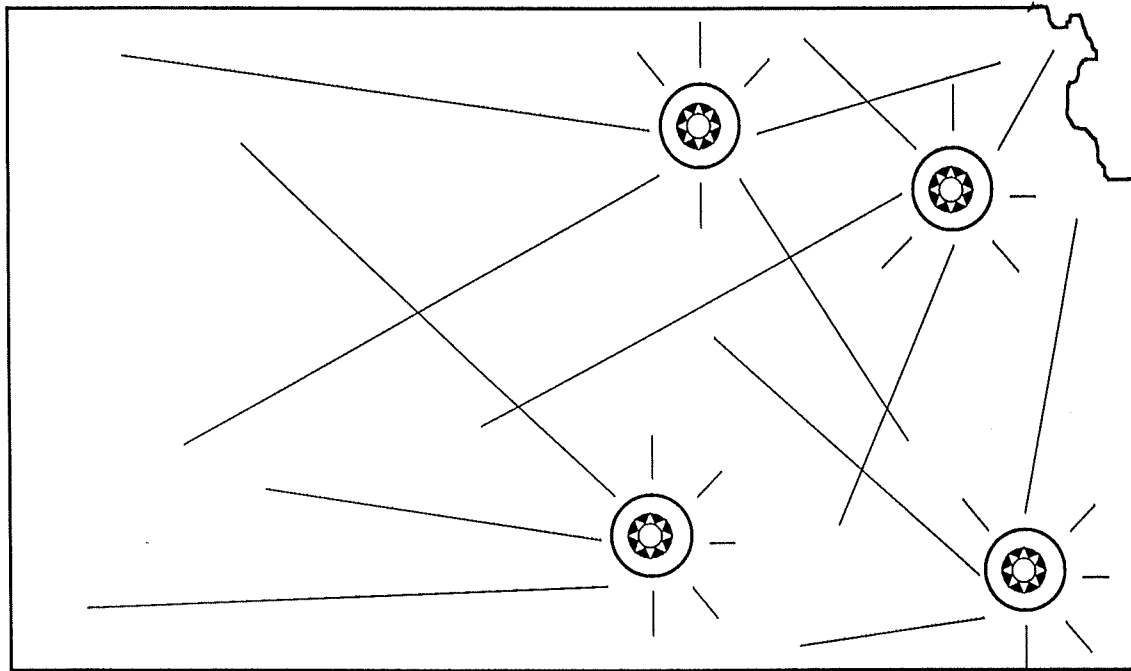



TIME






Innovation Centers



 Center of Excellence

 Innovation Center

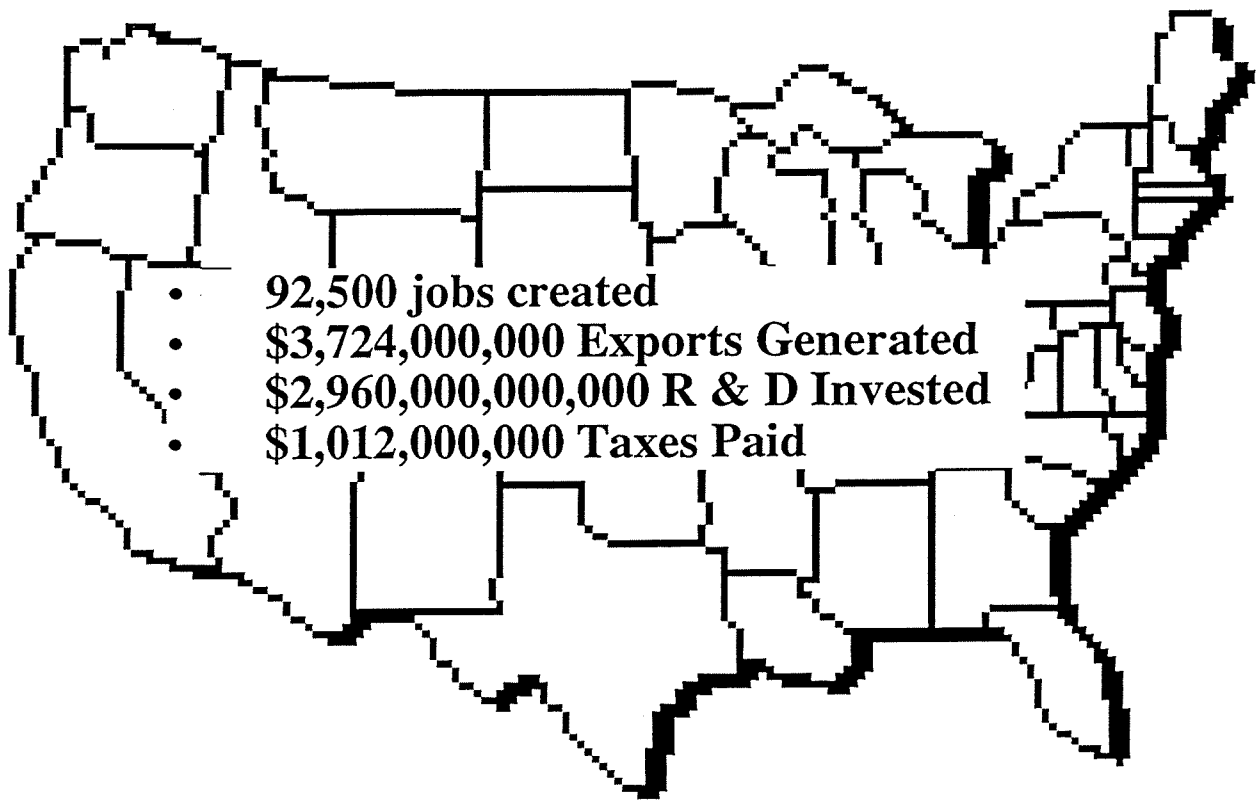
 Extension of Innovation Centers
to other Kansas Communities

**Excerpts from
Coopers & Lybrand**

**Third Annual Economic Impact
of Venture Capital Study**

1500 young, venture-backed companies were surveyed

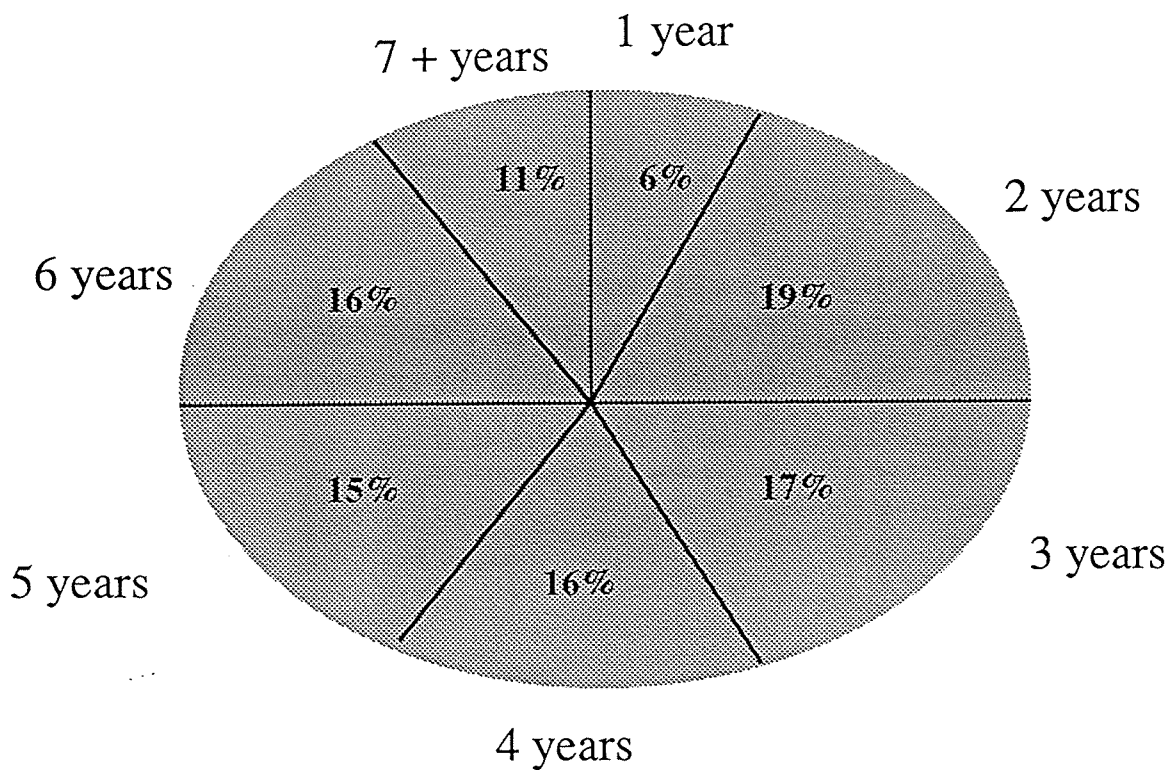
Professional Seed/Venture Capital Nourishes the Economy



Survey results 1985-1991

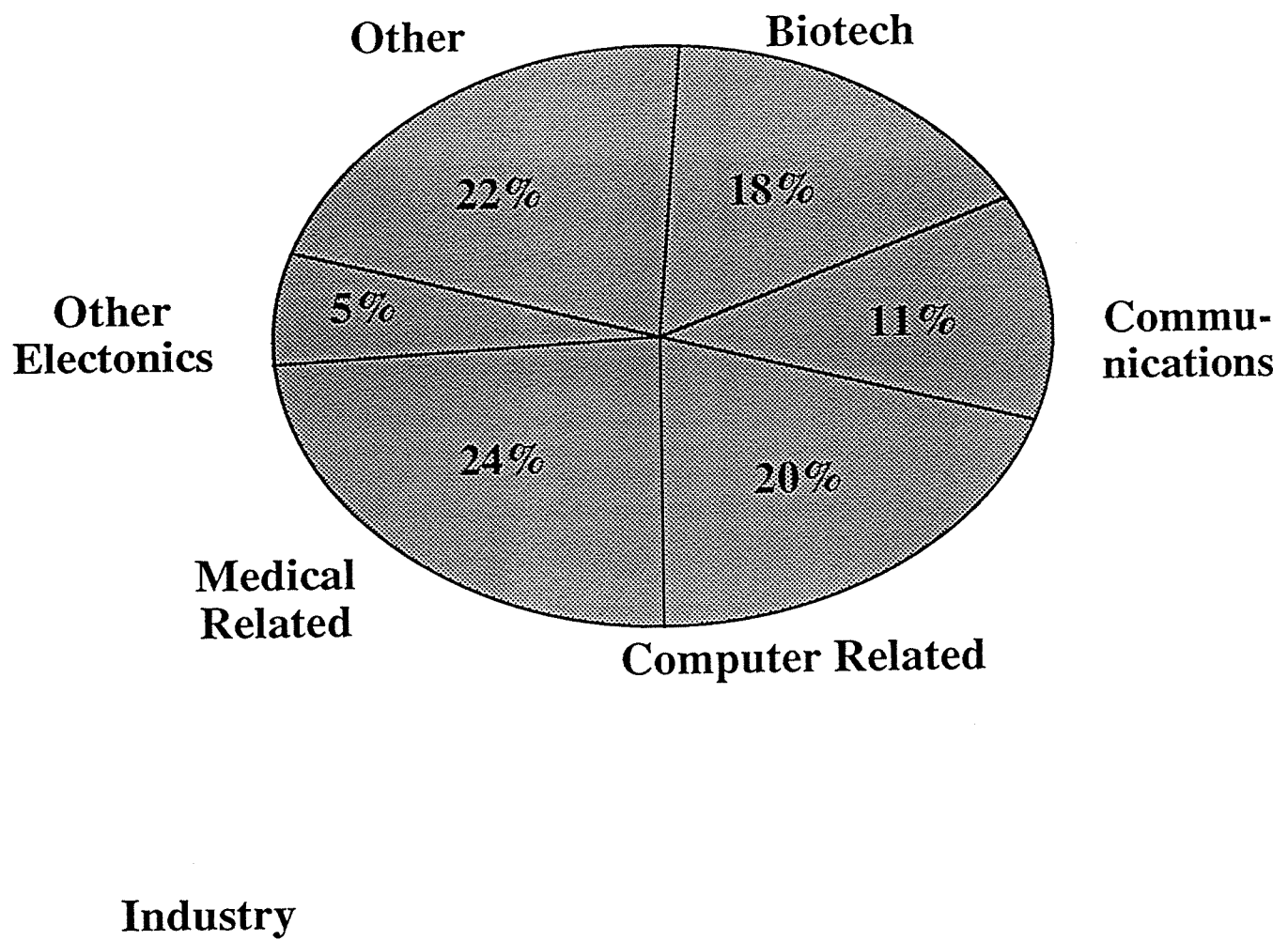
The equity supplied by professional venture capitalists kindles job growth. By 1991, the 428 young enterprises in the total survey database created over 92,500 new jobs in the United States or an average of 216 new jobs per company.

The companies which participate in Cooper & Lybrand's study typically are young. It is during these start-up years that seed/venture capital plays a vital role in nourishing a successful company.



Age

Start-up companies focus on technology



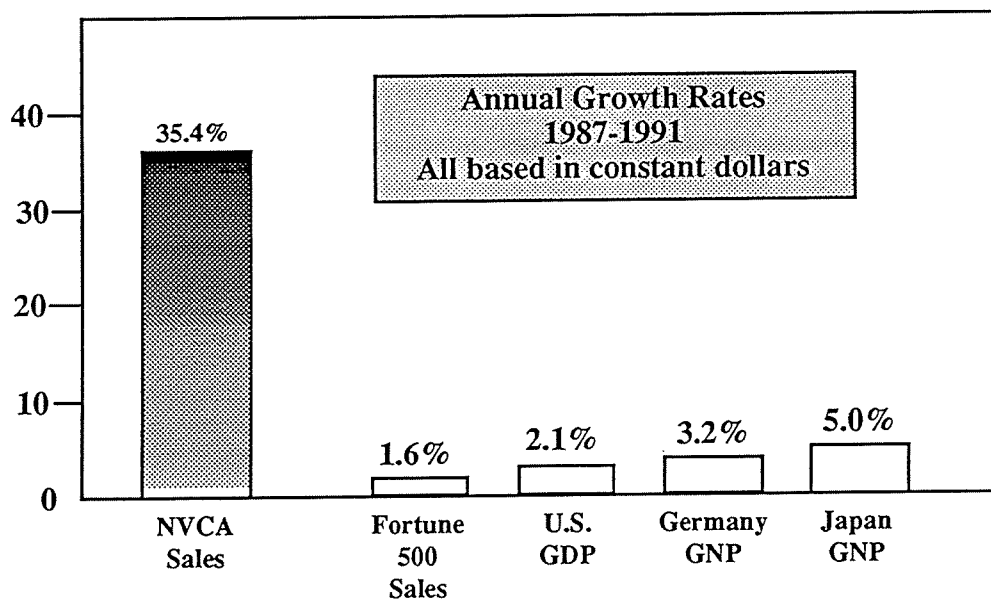
Seed/Venture Capital Sows Seeds for Accelerated Growth

The First Five Years Growth Rates

Jobs	48%
Assets	42%
Plant, Property & Equip.	64%
R & D	50%
Exports	206%
Taxes	79%

Seed/venture backed companies hit the ground running,
quickly benefiting the U.S. economy.

Seed/Venture-Backed Companies Boost U.S. Competitiveness



Source: International Financial Statistics

Professional seed-venture capital aggressively stimulates the economy of the United States

They create jobs more efficiently
than Fortune 500 companies

\$48,570 per job \$55,330 per job

\$ **\$**

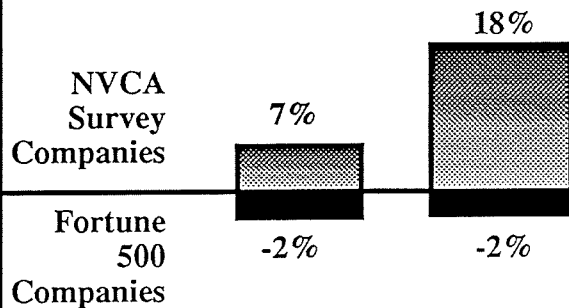
NVCA
Survey
Companies

Fortune 500
Companies

Average
Equity/Job
1985-1991

Compounded
Average Growth
Rate for Jobs

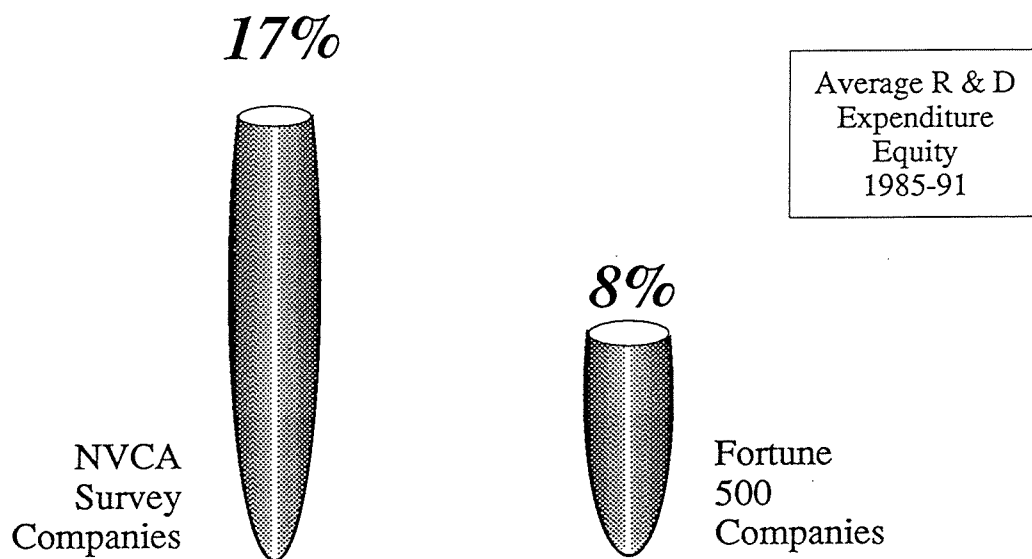
They aggressively grow jobs



1985-1991

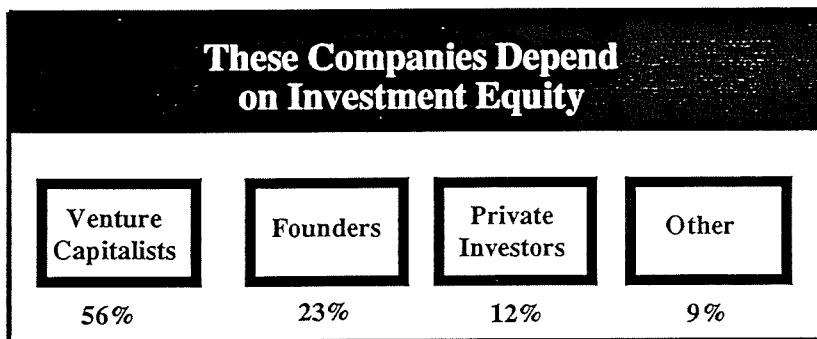
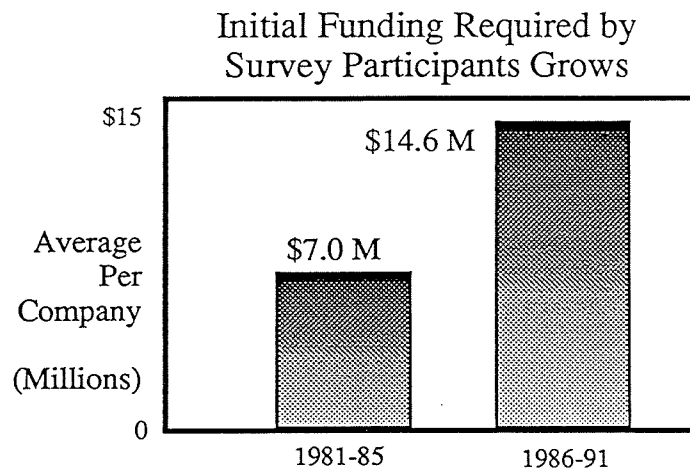
1987-1991

Investment Equity Fuels the R & D Engine



Seed/venture-backed companies typically spend the first years of their lives racing to produce new technologies and products that strengthen America's competitive edge.

Increasing Injection of Investment Equity Needed



1985-1991

Creating an on-going benefits stream of job creation, technological advancements, exports, capital expenditures, asset growth and tax revenues--all of which strengthen America's competitive advantage--comes at a price.

Economic Development Options

Fortune 500 Job Decline

- ⇒ Corporate restructuring
 - Mergers & acquisitions
 - Flatter organizations
 - Global competition
 - Computer technology
- ⇒ Result or Cause of Recession??
- ⇒ *These Jobs Are Not Coming Back!*

Economic Development OPTIONS:

- ➡ "Recruit & Relocate"
- ➡ "Grow Your Own"

"Recruit & Relocate"

- Every major city in U.S. is competing
- Requires major tax concessions
- Come with no loyalty
- Send \$\$ back home

"Grow Your Own"

⇒ Requires:

- Building strong research universities
- Building the people infrastructure
- Building a support system for entrepreneurs
- Capital \$\$\$\$\$\$\$\$\$\$

"Grow Your Own"

- Brings \$\$ in & builds the community
- More of the wealth stays here
- Greater loyalty
- More corporate taxes
- Greater corporate charity
- *That's where the jobs are!*

Excerpts from
The Changing Structure and
Performance
of the Kansas Economy

by M. Jarvin Emerson
Professor of Economics
Kansas State University

August 1992

January 21, 1993
Economic Development
Attachment 4

THE KANSAS ECONOMY, 1985-1990

Source: M. Jarvin Emerson, The Changing Structure and Performance of the Kansas Economy, Topeka, KS: Kansas Inc., June, 1992.

Change in Industry Sector Employment:

- Total Kansas employment increased 118,446.
- Kansas has a more slowly growing industrial mix than that of the nation. This slower growing state industrial mix accounts for nearly 23,000 fewer jobs in Kansas during the 1985-1990 period.
- The notable exception to the state's lagging competitive performance was the manufacturing sector. More than 10,800 more jobs were added to the manufacturing payrolls than would have been the case if Kansas manufacturing had only kept pace with national manufacturing growth.
- The combined goods producing sectors of farming, mining, construction, and manufacturing had an employment decline of 8,285, despite a 10,632 increase in manufacturing employment.
- The service-producing sectors had employment gains of 126,733.
- Kansas basic industries had mixed performance:
 - Aircraft Manufacturing gained 7,944 jobs.
 - Other Manufacturing lost 2,688 jobs.
 - Agriculture lost 10,021 jobs.
 - Oil and Gas lost 10,548 jobs.
- Other manufacturing sectors with positive job growth:
 - Paper and allied products, 29.7% increase (1,206 jobs).
 - Printing and publishing, 13.4% increase (2,624 jobs).
 - Rubber and plastic products, 20.4% increase (1,577 jobs).
 - Machinery, electronic & instruments, 7.6% increase (2,404 jobs).

- The farm employment share of total state employment shrank from 7 percent to 4.7 percent, the largest reduction in employment share of any of the major industry groups.
- The value-added agriculture sector of "Food and kindred products" that includes the meatpacking industry, lost 1,047 jobs.
- While total state employment grew by 8.7%, services sector employment grew by 20.3 percent with the strongest growth in:

Other Services (which includes personal, business, professional, and recreation), 27.3% increase, job gain of 32,064.

Health Services, 21.6% increase, job gain of 16,463.

Social Services, 41.1% increase, job gain of 4,722.

- Retail trade employment increased 10.6% with a job gain of 22,456. Wholesale trade grew by 4.5% with 3,265 jobs added.
- Tourism related sectors of "Eating and Drinking Places," and "Hotels and Other Lodging," show a combined increase 10.8% with a job gain of 8,070, yet only 269 "hotel" jobs were added.
- Government employment grew by 13.1 percent with 31,099 jobs added. Of that total, 23,300 jobs were added in state and local government.
- High-technology firms showed mixed gains with employment growing by 10.6%, adding 7,542 jobs; wages increased by 44.4 percent compared to 31.4 percent gain for the total private sector. Yet, the number of high-tech firms barely changed with 3,530 in business in the fourth quarter of 1991 compared to 3,517 in the fourth quarter of 1985 -- a gain of only 13 high tech firms in six years.

Industry Dynamics: Birth and Death of Firms:

- Under a contract with Kansas Inc., Emerson studied the dynamics of firm quits and starts in Kansas for a six year period, January 1, 1985 to December 31, 1990. Data were provided by the Kansas Department of Human Resources.

- 35,544 firms started operation. 28,215 of the firms were in service-producing industries, and 7,329 were in goods-producing industries.
- 34,634 firms quit operation. 27,045 were in service-producing industries, and 7,589 were in goods producing industries.
- There was a net gain of 1,371 firms during the period. Overall, the number of firms increased, the net wages increased, but the number of jobs decreased.
- Of total state "covered" employment growth of 94,307 from 1985 to 1990, firms in business during the entire six year period had a net employment increase of 95,678.
- There was a positive net business formation in metropolitan areas as 2,976 more firms entered business than left and an associate job gain of 11,253.
- By contrast, nonmetropolitan areas experienced 2,081 more firm quits than starts and an associated job loss of 11,062.

Firm Size and Growth and Decline:

- Although the largest firms accounted for both the greatest employment growth and the largest decline, the small firms had the largest net employment increase and the larger firms had the largest net employment decrease.
- Although manufacturing firms employing five or fewer persons account for nearly half of all manufacturing firms, the largest 3.7% of the firms account for 58 percent of manufacturing employment.

Income and Wage Changes:

- The personal income growth rate in Kansas was below that of the U.S. for the 1985-1990, as it had been in the 1979-1984 period.
- Kansas per capita personal income dropped from 102.9 percent of the national average in 1979 to 99.7% in 1984 and to 97.2% in 1990.

- The difference in U.S. and Kansas income growth rates have tended to converge, partly because of steady improvement in the Kansas growth rate and because of a slowing national growth rate from 1988 to 1990.
- Kansas manufacturing income grew more rapidly than the nation in the 1985-1990 period. It was led by a 43.7 percent increase in aviation manufacturing wages compared to a national increase of 29.7%. Yet, wages in food and kindred products grew only by 10.6%, less than half the national rate for that industry of 24.2%.
- In the services sector as a whole, wages in Kansas grew by 55.9 percent, below the national rate of 67.1 percent.
- In retail trade, Kansas wages lagged behind the national growth rate of 38.2%, growing only by 28 percent.
- The highest wage rates were in transportation and public utilities of \$33,114, and manufacturing of \$30,511. Within manufacturing, aviation industries paid average wages of \$39,762.
- The average wages in the services sector were \$20,026 ranging between private households at \$6,345 and legal services at \$44,358.
- Tourism related industries (eating and drinking and hotels) paid respective annual wages of \$8,675 and \$7,663.

Wage Levels and Employment Growth and Decline:

- The ten sectors with slowest growth employment paid average wages of \$25,062 compared to Kansas' fast growing sectors wages of \$24,320. Yet, the ten fast growing sectors had wage growth at a greater rate than the slow growth sectors.

Ten Sectors with Fastest Growing Employment:

Sector	1990 Avg. Wage	1985-90 % Wage Growth
Social Services	11,075	20.6
Paper/Allied Mfg.	28,451	20.2
Other Services	19,227	30.0
Communications	38,533	29.5
Agri. Services	15,170	36.8
Transp. Eq. Mfg. (aircraft)	39,762	16.7
Health Services	25,579	28.7
Rubber/Plastic Mfg.	28,151	9.6
Other Transportation	26,407	23.5
Furniture/ Fixture Mfg.	21,551	18.8

Ten Sectors with Slowest Growing Employment:

Sector	1990 Avg. Wage	1985-90 % Wage Growth
Oil & Gas Extraction	14,185	7.0
Motor Vehicle Mfg.	37,797	11.7
Railroad Transp.	46,995	21.1
Heavy Constr.	27,714	10.8
Pvt. Households	6,345	32.5
Petroleum Mfg.	51,373	25.1
Fab. Metal Mfg.	26,683	19.4

Primary Metal Mfg.	29,153	19.1
Food & Kindred Mfg.	25,867	14.9
Trucking & Warehousing	27,076	24.2

- The analysis between fast growing and slow growing sectors and wages does not speak to growth in job numbers, however. The ten sectors that contributed the greatest number of net job gains to the Kansas economy produced 112,928 jobs. Only two of the sectors had annual wages above \$20,000.

Jobs and Wages in Sectors with Largest Employment Increase:

Sector	Employment Increase	Annual Wage
Other Services	32,064	19,227
State & Local Government	23,300	19,702
Health Services	16,643	25,579
Aircraft Mfg.	7,994	39,762
Eating & Drinking	7,801	8,657
Other F.I.R.E.	6,653	15,219
Military	5,472	14,159
Social Services	4,722	11,075
Food Stores	4,481	13,251
Misc. Retail	3,798	9,811

Selected copy from pages 49-51.

High Technology Firms. A type of economic development of substantial interest is the start-up and/or expansion of firms that have become known as high-technology firms. High-technology firms are the premier development targets of many states and the desired type of development by most, if not all, states and regions, because they usually imply high quality jobs, i.e. high wage rates.

A high-technology firm is defined as a firm that has more than 8 percent of its employees in scientific, engineering, and technical occupations with at least 5 percent of them in scientific and engineering categories, or if expenditures for research and development are a relatively large percentage of product sales (twice the average for all industries).

Using the above conventional definition of high-technology industries and fourth-quarter 1990 data, Kansas has 3,530 high technology firms that employ 78,681 workers and paid fourth quarter 1990 wages of \$704.8 million. Table 12 summarizes employment and wage levels for high-technology firms for the fourth quarter of 1985 and 1990. Employment in high-technology firms accounted for about 7.4 percent of total state employment but about 13 percent of total wages.

The 10.6% employment growth in high-technology firms was above the overall state employment growth rate of 8.7 percent for the 1985-1990 period. The wage growth of 44.4 percent compares with Kansas private sector wage growth of 31.4 percent for the same period.

Firm Size and Growth Decline

Although the largest firms accounted for both the greatest employment growth and the largest decline, it was the smaller firms that had the largest net employment increase then the larger firms that had the largest net employment decrease.

Table 12
High Technology Firms in Kansas
Fourth Quarter 1985 and 1990

In Business in Fourth Quarter 1985

	No. of Firms	Employment	Wages
Mining	887	5,418	36,493,147
Manufacturing	937	56,093	383,704,270
Services	1,693	9,628	67,946,444
TOTAL	3,517	<u>71,139</u>	<u>488,143,861</u>

In Business in Fourth Quarter 1990

	No. of Firms	Employment	Wages
Mining	887	3,556	27,046,677
Manufacturing	950	62,568	566,598,224
Services	1,693	12,557	111,173,470
TOTAL	3,530	<u>78,681</u>	<u>704,818,372</u>

7.4%

13.0%

Ad Astra Fund L.P.

January 21, 1992
Economic Development
Attachment 5



AD ASTRA FUND

Ad Astra Fund

(A Kansas Limited Partnership)



AD ASTRA FUND

Limited Partnership

KTEC
Holdings
Inc.

Campbell -
Becker,
Inc.



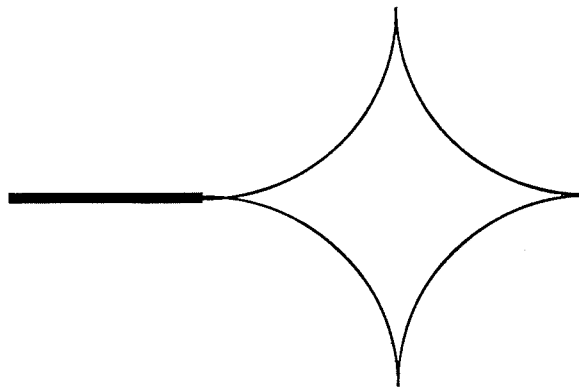
AD ASTRA
FUND
L.P.



AD ASTRA FUND

Expand Economic Base

- Traditional Industries
 - Agriculture
 - Aviation
 - Oil and Natural Gas



AD ASTRA FUND

Expand Economic Base

- Traditional Industries
- Technology-Based Industries
 - Biotechnologies
 - Communications
 - Computers
 - Electronics
 - Environment
 - Robotics



AD ASTRA FUND

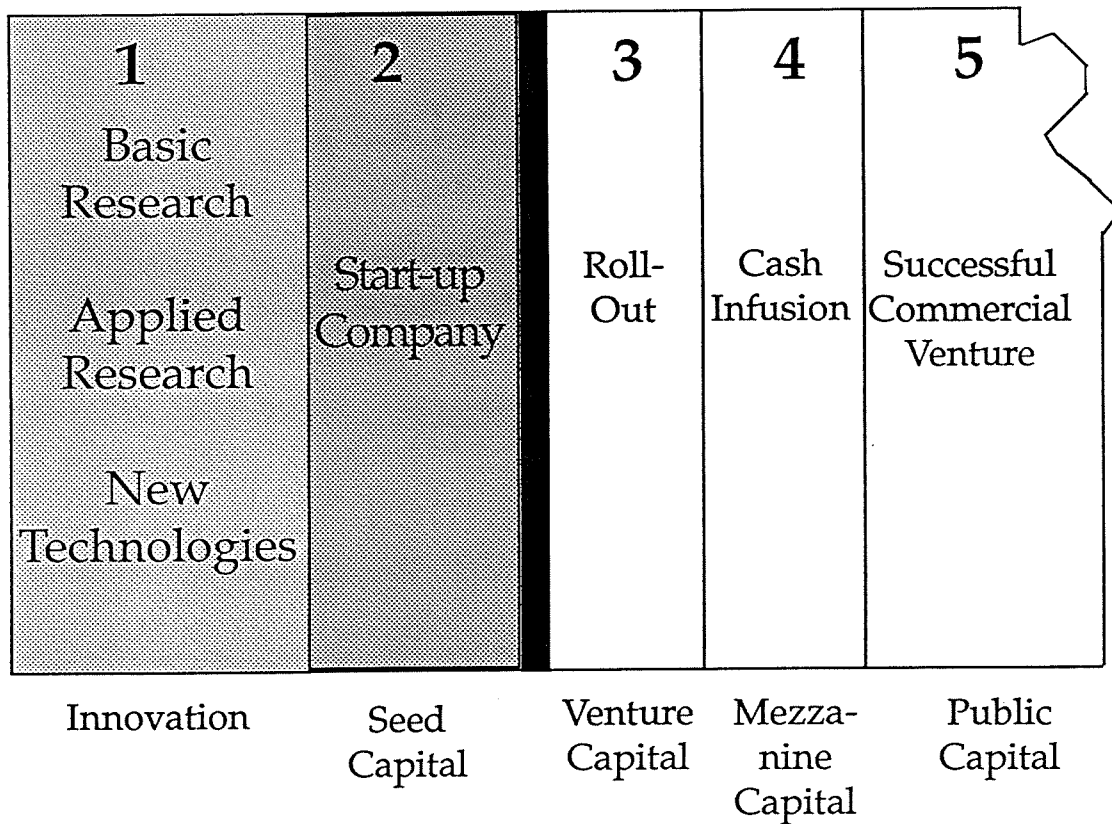
Risk Capital Fund

- Available to Unproven Enterprises
- Accepts "Risk" of High Loss
- Chance of Great Gain
 - Return on Investment
 - Creation of Prosperous,
High Tech Companies



AD ASTRA FUND

Technology Development Process

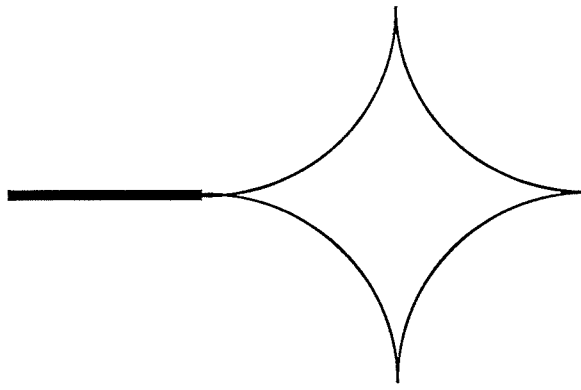




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Criteria for Success

- University System
- State Priorities
- Leadership Commitment
- Home-Grown Businesses
- Venture Capital
- Talented, Inventive People



AD ASTRA FUND

Most Important Task

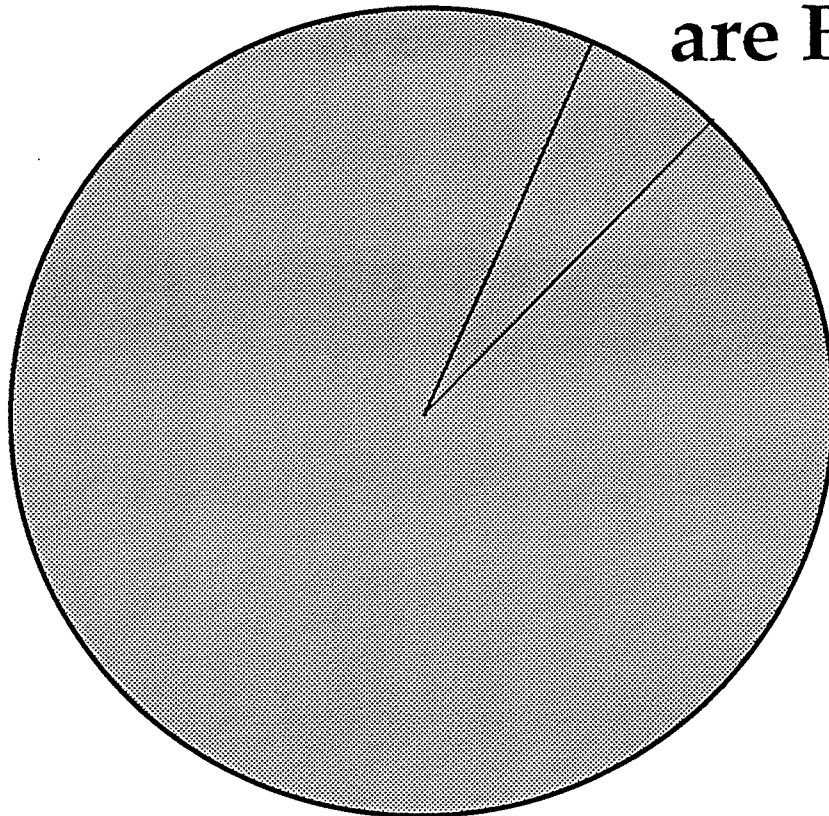
Reaching the Entrepreneurs



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Reaching Entrepreneurs

**6 Plans
are Funded**





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Rigorous Review

- The Process Assures
 - Companies have Best Chances to Succeed
 - Investors are Confident the Fund is Well-Managed



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Responsibilities Continued

- Once Funding is Accomplished
 - Serve on Board of Directors
 - Outside Expert Help
 - Additional financing



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***"Capital to
Advance
Technology"***

Ad Astra Fund

Company Examples

Janus

Strategic Alliances

- Poli - Marketing/Western Europe
- Mitsubishi - Marketing, Distribution/Japan
- Beckman - Kit Development
- Clonital - Manufacturing/Italy
- SFRI - Instrument Development and Manufacturing/France
- Diagnostic Resources Inc. - Rapid Diagnostic Kit Development/ U.S.
- Alberta Cytokine Institute - Cytokine Kit Development/Canada

Summary

January 21, 1993
Economic Development
Attachment 6

Capital Availability SUMMARY

Seed capital is:

- vitally important to Kansas entrepreneurs and small businesses.
- lacking in most areas of the country, especially Kansas.

Employment is declining:

- in Kansas basic industries.
- in agriculture at the highest rate of any major industry.
- in larger firms.
- as jobs simply become obsolete.

Employment is increasing:

- **fastest in small firms.**
- **in high technology firms.**

There are two options for stimulating economic development:

**by recruiting and relocating businesses; or
by encouraging new growth and expansion
of existing industries.**

High technology firms are premier development targets for all states. Kansas should protect and build its growing base.

It takes time and resources to build new business. Patience and capital are required.

KTEC and other economic development agencies have created a successful entrepreneurial infrastructure; but financial support lags behind.

With more seed money, Kansas can be a partner in helping even more companies succeed.

The Ad Astra investments are potential winners. The fund managers have a distinguished track record.

The Kansas Legislature had the vision to create KTEC and empower it to succeed. To renew its trust and support with additional seed capital would complement the success Kansas has enjoyed to date.

Capital Availability Recommendations for the Future

Capital availability to businesses is of vital importance to sustain and continue to grow Kansas' economic base. It is with this objective in mind that we recommend the following action:

Make a commitment to financially support the growth of small businesses. The Ad Astra Fund is proving itself to be an effective vehicle for creating an excellent return on investment to Kansas. We thank the Governor for her recommendation of \$1.5 million in appropriations for seed capital in FY 1994. This will enable us to continue building a stronger seed capital program for the state.

We do believe however that a five year plan to invest no less than \$20 million in small, high technology businesses is necessary.

Small businesses are the future economic leaders of this state and can be assisted directly through the Ad Astra Fund.