ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY
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ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY
MINUTES OF THE 20TH REGULAR MEETING OF THE BOARD OF DIRECTORS
FAYETTEVILLE, ARKANSAS
OCTOBER 3, 1986

Board chairman Bill Bowen called the meeting to order at 1:30 p.m. Other Board members present were Mr. Louis Ramsay, Dr. Joe Nix, Mr. Bart Lindsey, Mr. Win Thompson, Dr. Ron Hart, and Dr. Joycelyn Elders. A quorum was present, and due notice had been mailed.

Also present from the University of Arkansas, Fayetteville: Dr. Daniel Ferritor, Chancellor; Dr. Don Pederson, Vice Chancellor for Academic Affairs; Mr. John Stokes, Research and Sponsored Programs staff; and Mr. Karry Guillory, intern in the office of Finance and Administration. Mr. Walter May of Wright, Lindsey & Jennings was also in attendance.

Dr. Ferritor welcomed the Board to the University campus and expressed his pleasure at the progress of scientific and technological efforts in Arkansas.

With one amendment, the Board approved the minutes of its August 21 meeting.

PRESIDENT'S REPORT

The Authority has signed a lease to move to the fourth floor of the Continental Building at the corner of Main and First Streets (across the street from its present offices). This building will become the Technology Center after the owners of the building invest in the redevelopment. They have hired the management firm of Allison, Moses, Redden, for the renovation which--inside and out--is estimated to take about six months. The Authority's offices, however, should be ready for occupancy by the first of November.

There is a Memorandum of Intent to create one floor of business incubator space in the Technology Center. Opportunities to locate on the fourth floor are being discussed with other firms that

are assisting small businesses to get started. There are possibilities to extend beyond this modest first step to a second and third step that would create a very substantial incubator effort in downtown Little Rock.

Mr. Bowen asked John Ahlen for comments regarding the paper, "The Arkansas Science and Technology Corridor: An Avenue for Development," included in the Board meeting packet (Appendix A) . The paper on the science and technology corridor between Little Rock and Pine Bluff had been compiled by ASTA over a two and one-half year period and contained information on toxicology, biomedicine, and biotechnology. It was initially used as a background paper for a conference in Pine Bluff in which John Ahlen and Dr. Hart participated. The paper was presented to the Board for its comments and suggestions. In addition, John Ahlen asked for the Board's approval to use it as a discussion paper, background paper, or handout. Mr. Ramsay moved that the Board approve the paper for use as described by Dr. Ahlen. Dr. Nix seconded the motion.

Dr. Hart suggested Board members read the paper in depth and consider using it as a road map in planning for the future.

Dr. Nix asked whether a decision remained to be made regarding the entity to promote the corridor. John Ahlen said a comparison is frequently made between the corridor in Arkansas and the Research Triangle in North Carolina. The original outline for the paper followed the evolutionary steps of the development of the Research Triangle--one element of which is the need in North Carolina for a private, not-for-profit organization to take the lead. A similar argument is made in ASTA's corridor paper: the lack of progress in developing the corridor is the lack of that kind of group. The paper does not support any specific efforts to promote the corridor, but offers a number of alternatives and a road map based on at least one other similar effort.

Dr. Nix asked what the next step would be. John Ahlen said as the last item of business the Board would be asked to approve a two-day planning session in November. This meeting would provide an opportunity for the Board to explore options and suggest the next step.

Mr. Bowen said a reference to the corridor was made in a symposium in Little Rock at the Continuing Ed Center addressed by then President Ray Thornton of Arkansas State University, and its role was to look at scientific research and development. Ray Thornton

first referred to the area as "the corridor." Mr. Bowen suggested that this information be incorporated in the history. John Ahlen said the information is in the report implicitly; however, he had not heard of that particular meeting. The first reference he found was in the task force report of the Legislative Council which Ray Thornton chaired.

INVESTMENT COMMITTEE

Opening discussion of agenda item IV, Dr. Ahlen reviewed the statutory language that covers the seed capital investment program. In several places, the word "reasonable" is used to define the requirements made of an applicant. Several Board members expressed the view that the Board make the best, most reasonable decision based on the information available. Mr. Thompson said the Board would have to read the word "reasonable" in the context of other purposes the Authority is trying to achieve.

Commenting that the discussion seemed slightly too bureaucratic and too structured, Dr. Hart agreed the only thing to do is to use good judgment on a case-by-case basis. When the Board feels it is a feasible investment, it makes the decision that it is a reasonable investment. Most economists have a hard time agreeing whether there will be a three percent, five percent, seven percent, or nine percent inflation rate in the next 18 months. In deciding on a particular investment, the number of jobs created in order to equal the pay-in and the number of tax dollars based upon the return to the local region is equally difficult to define. In the long run, these issues can only be addressed on a case-by-case basis following the guidelines discussed.

While there is a sense of urgency about beginning the seed capital program by approving an investment proposal, Dr. Nix said care should be taken not to act in a careless or haphazard manner.

Mr. Bowen said if this were a commercial lending question, guidelines would be in place before a nickel was advanced. An investment in a start-up business would not be a commercial loan. If investing funds--moving from debt to equity considerations--the "prudent man" rule of investment would be used. For instance, what if Dr. Land--as a young scientist with no money--came to us 30 years ago: his idea for an instant camera was all he had. This changes the situation from commercial lending and the "prudent man" rules of investing to the start-up long-risk investment opportunity. In

this category of investment, a reasonable chance of recoupment is as good a guideline as possible.

In other areas of the law, Mr. Thompson said, there are circumstances when "reasonable" means not arbitrary nor capricious. As long as the decision is not arbitrary and not capricious, then the decision as to reasonableness is in the discretion of the Board. That may not help the Board make any individual decision but it does provide a boundary within which decisions can be made as to whether investments are wise or not.

In sum, Mr. Bowen said, the decision seemed to boil down to an emphasis on reasonableness and common sense and an avoidance of arbitrariness and capriciousness. He asked Dr. Ahlen whether these points provided sufficient guidelines to allow the Board to address the first seed capital investment proposal. Dr. Ahlen agreed it did.

In connection with ASTA's first seed capital investment decision, Jim Benham, vice president of finance, reviewed the elements of the presentation made by Arkansas Technologies, Inc. (ARTECH) of Clarksville to the Investment Committee and provided further information from an investigation he made of the company.

ARTECH, as a system and technologies integrator, contracts to design and build computer-driven manufacturing devices to modernize a manufacturing facility so it will have a better competitive position in the industry. They have four major targeted markets in which they have prior contacts. In addition, the three principals have over 50 years cumulative experience in the industry and their experience covers all areas of operation. The follow-up investigation confirmed the principals have fine reputations and many contacts.

ARTECH has petitioned the Authority for $150,000 out of $650,000 initial capitalization. They have raised $300,000 to date.

From the presentation, Mr. Lindsey said, it was clear the principals felt comfortable in a field where they have previous experience. Not only do they have expertise in the manufacturing processes, but a vast number of contacts in those areas. Also, they are targeting five states in our region because they know that many factories moved from the North in the early 60's and these factories now need the type of service ARTECH provides to modernize.

Dr. Hart asked the terms of repayment. Mr. Benham said that the Committee would negotiate the terms with ARTECH. A straight loan would be considered with the interest rate to be negotiated. In response to a further question from Dr. Hart, Mr. Benham said the principals planned to take an equity position in common stock in the company.

Mr. Ramsay made a motion that the Board approve ARTECH's petition. The motion was seconded. John Ahlen suggested that before taking a decision the Board might want to consider a short recess to allow members to ask questions of Jim Benham that might not appropriately be raised in a public meeting. Also, conditions will have to be negotiated after the Board's approval. Dr. Hart made a substitute motion to recess for five or ten minutes to read Resolution No. 86-7 (Appendix B) in order to give it due and proper consideration. Dr. Nix seconded the motion.

After the recess, Mr. Lindsey read Resolution No. 86-7 as part of the motion for its approval. When presented to the Board, the motion to approve Resolution No. 86-7 passed with with one amendment: the addition of a requirement for ARTECH principals to personally guarantee, jointly and severally, their indebtedness to the Authority.

The Board expressed its appreciation to Jim Benham for his fine work in providing the Investment Committee and the Board with the best possible information upon which to base ASTA's first seed capital investment decision.

PLANNING COMMITTEE REPORT

Mr. Thompson reported that the planning committee is scheduled to meet October 23 to consider the second round of incubator program proposals. There are five prospects for funding: Mississippi County Community College, North Arkansas Community College, Southern Arkansas University, University of Arkansas at Little Rock and University of Arkansas at Pine Bluff. The proposals are under review by the staff and will be given to the committee for its review prior to the presentations by interested parties October 23. When an evaluation by the outside consultant is received, the committee will have a report for the Board.

The Board previously approved the incubator projects at Arkansas State University in Jonesboro in the amount of $522,000 and one for the University of Arkansas, Fayetteville, in the amount of

$550,000. After the Board meeting, there will be an opening of part of the UAF facility at Engineering South at 3:00 p.m.

RESEARCH COMMITTEE REPORT

Dr. Hart reported that the Research Committee had met and had reviewed all submitted research proposals, and has recommended funding for some. The Committee is considering all previously reviewed proposals approved by the Review Committee as meriting consideration for funding but not yet funded. All proposals will have to be reviewed for the second time by the middle of November. Dr. Hart commended the dedicated work of Dr. Nix, Dr. Elders and Dr. Troth.

OLD BUSINESS

The letters to Dr. Marian Barr and Mr. Chuck Mimbs have been sent at the request of the Board.

John Ahlen asked the Board to review the Conference agenda in the meeting packet. Alice Smith said Munro Pitt, vice president research for Shearson Lehman Brothers of New York, will be the featured dinner speaker Monday, December 8. Mr. Pitt is an investment analyst.

NEW BUSINESS

Dates under consideration for the next Board meeting are Thursday and Friday, November 13 and 14.

The meeting was adjourned at approximately 3:00 p.m.

Respectfully submitted,

Joe Nix, Ph.D.
Secretary, Board of Directors

Approved by the Board of Directors on this 20th day of November, 1986.

Joe F. Nix

Joe Nix, Ph.D.
Secretary, Board of Directors

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THE ARKANSAS SCIENCE AND TECHNOLOGY CORRIDOR: AN AVENUE FOR DEVELOPMENT

Prepared by John W. Ahlen for the
Arkansas Science & Technology Authority
October 3, 1986

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ARKANSAS SCIENCE AND TECHNOLOGY CORRIDOR: AN AVENUE FOR DEVELOPMENT

THE CORRIDOR DEFINED

The Arkansas Science and Technology Corridor is located in central Arkansas. It is bounded by the Arkansas River on the east, includes the interstate-caliber Route 65 to the west, and generally includes the Little Rock and North Little Rock greater metropolitan area to the north and the greater Pine Bluff metropolitan area to the south.

THE CORRIDOR CONCEPT

The corridor concept was developed in the early 1980s as the result of a legislative study concerning the feasibility of establishing the Arkansas Science & Technology Authority. The study (titled "Report of the Legislative Task Force to the [Arkansas] Legislative Council in Accordance with Interim Resolution 81-67" and dated January 28, 1983) specifically identified the institutions that had received federal research and development funds and showed circles proportionate to the amounts awarded on a map. The circles in central Arkansas covered an oblong region from the Little Rock metro area to Pine Bluff. This oblong was called the Arkansas Science and Technology Corridor.

The concept of the corridor, with emphasis on biomedicine and toxicology, was endorsed by the National Advisory Board of First Commercial Bank in 1983. The technology corridor was listed as an emerging high-tech center in a September 1983 Venture article titled "High-Tech Highways."

MAJOR RESOURCES FOR DEVELOPMENT

The institutions that were identified in the legislative study --along with other assets in the corridor--constitute the major resources around which the corridor is developing. A partial list of these resources includes the following:

- -- Greater Little Rock and Pine Bluff urban environments;
- -- Educational facilities,
  - University of Arkansas at Little Rock,
  - University of Arkansas for Medical Sciences,
  - Arkansas Childrens Hospital,

University of Arkansas Graduate Institute of Technology, and
University of Arkansas at Pine Bluff;

-- Federal facilities,
John L. McClellan Memorial Veterans' Administration Hospital,
National Center for Toxicological Research,
Pine Bluff Arsenal,
Little Rock Air Force Base, and
Camp Robinson; and

-- Access to a multimodal transportation system,
Little Rock Regional Airport,
Interstate Highways I-30 and I-40,
McClellan-Kerr Arkansas River Navigation System (year-round 9 foot channel),
Railroads--Union Pacific,
Amtrak,
Burlington Northern,
St. Louis and Southwestern,
Kansas City Southern,
Louisiana Arkansas, and
Texas Eastern Transmission Corp. oil and product pipeline.

The major educational and federal resources in the corridor are currently pursuing their own individual institutional objectives, primarily in areas related to biomedicine and toxicology. These institutions will continue to strengthen the existing resource base around which future development of the corridor can be built. In addition, the major resources serve as advertisements for the corridor.

LOCATIONAL CRITERIA FOR THE BIOTECHNOLOGY INDUSTRY

What are the important factors in a biotechnology firm's decision to locate in a particular place? The April 1986 issue of the Land Use Digest listed the siting criteria for large and small biotechnology firms. The publication reports that personnel in the biotechnology field will increase 25 to 30 percent annually over the next five to 10 years and that two to three million square feet of research and development space will be needed each year for the next five years. The following lists show what kind of locations biotechnology firms will be looking for.

Large Companies seek (in order of significance):

-- Proximity to government research labs, other well-established health care companies, and teaching or large community hospitals,

-- An ample supply of qualified scientific, technical, managerial, skilled, and semiskilled workers,

-- Areas that have a reputation for good labor relations,

-- Quality-of-life factors, including affordable housing, low real estate taxes, and a wide range of cultural, recreational, and educational opportunities,

-- A pro-business environment including favorable tax structures, tax incentives, and progressive elected officials,

-- A sophisticated and efficient transportation network that provides easy access to the potential site,

-- Relative low expense levels--wages, land, energy, and construction costs,

-- Master-planned land use and environment,

-- Proximity to the company's headquarters or the ability to consolidate operations, and

-- An established networking system with nearby universities.

Smaller biotechnology companies have a similar, but not identical, listing (also in order of significance):

-- Familiarity with the area by partners or founders,

-- Accessibility to investors or venture capital groups,

-- Ability to expand,

-- Proximity to a quality university that can offer faculty, student, and equipment support,

-- Easy access to major highways and airport,

-- Availability of shared support services,

-- Favorable tax levels and availability of tax incentives,

-- A low-cost, strong-potential work force in the region and a minimum of labor problems,

-- An image area or address,

-- Affordable land, rent, and building costs,

-- A supportive community that encourages entrepreneurship, and

-- Proximity to supplier and customer markets.

Comparing the list of the major resources for development to the lists of locational criteria for large and small biotechnology firms illustrates the opportunity for development within the corridor. While the individual achievements of the institutions in the corridor are beneficial for the corridor, optimizing the development within the corridor requires more than individual efforts.

What is needed is a planned, coordinated development effort, one that is organized and can respond quickly and efficiently to opportunities that arise . The remainder of this document offers examples of things that might be done to develop further the Arkansas Science and Technology Corridor.

THE CORRIDOR FOUNDATION

Developing the corridor will require the efforts of others, in addition to the individual institutions, who can lead and coordinate the effort without giving the appearance of being self serving. A private, not-for-profit foundation could be established to foster the development of the corridor. The goals of the corridor foundation might be to:

-- promote research and education in the corridor,

-- solicit real estate donations and monetary contributions to purchase land and assemble the needed property for a major development within the corridor,

-- establish quality research, service and shopping centers and develop other real estate in the corridor,

-- establish, manage and use capital accounts to provide incentives to firms locating in the corridor, and

-- serve as the regional coordinator for corridor-related development activities.

The foundation must address the unique interests of central Arkansas and, therefore, should include representation from the major cities in the corridor.

RESEARCH CENTERS

Quality research centers will give the corridor substance. Such centers clearly include the already mentioned educational institutions and federal facilities that are located in the corridor.

The new centers would also supplement the existing industrial parks in the corridor. These existing facilities include:

Jefferson Industrial Park (785 acres),
Pine Bluff Harbor Industrial District (372 acres),
Little Rock Industrial Park (1,525 acres),
Little Rock South Industrial Park (1,400 acres), and
Little Rock Industrial District (1,000 acres).

Other research-oriented centers might also be created and could include a combination of the following: (a) a major science research park, (b) a basic research facility jointly sponsored by a consortium of universities, (c) an industrial research campus, and (d) an international science conference center.

A RESEARCH PARK IN THE CORRIDOR

A science research park in the corridor would give the corridor a focal point that it does not presently have. A comprehensive research park could be the center for cooperative research between universities, and perhaps among other public and private, research-oriented institutions. A significant research center could perhaps generate pledges--from private sources and foundations--to assist in creating centers of excellence in particular fields where Arkansas has scientific strength. The prestige of such a park would be enhanced by an affiliation with the University of Arkansas.

According to speakers at the International Conference on University Affiliated Research Parks (April 27-30, 1986 in Tempe, Arizona), the common goal of all research parks is to succeed. Based on the experiences of others who have established research parks, there are five ingredients for success. A project needs to have:

1. Definite objectives for the research park,
2. Dynamic planning,
3. Dedicated people with a sense of professionalism,
4. Dogged perseverance, and
5. Deep pockets.

The conference program was divided into five major sessions which serve as an abbreviated checklist for developing a research park: (1) formulating the project, (2) project feasibility and analysis, (3) pre-project design and development, (4) design and construction, and (5) marketing and tenant relations. (A more complete check-list is presented on the last 2 pages of this document.)

Proximity to universities is particularly important for research parks. Universities are stable institutions and the modern university is the foundation of scientific knowledge. The departments of engineering, computer science, and business administration are important and have resources that can help small firms get off the ground, perhaps through "incubator" activities. There is also an important role for the university in continuing education.

One conference panelist summarized the most important university roles as (1) giving the project integrity, (2) making specialized equipment, (3) providing ideas through technology transfer, (4) providing people such as students, researchers, and consultants, and (5) providing a productive environment.

FEASIBILITY OF A RESEARCH PARK

Conducting the project feasibility and analysis must be done right and will be expensive, but it is essential that the work be done if the project is to be successful. It must be remembered that research is a means to an end, and the end is wealth creation and jobs. The feasibility study should focus on the desired end result and the factors that may support the effort. The role of state and local government must be determined, site selection factors must be identified, and the method of financing needs to be selected. Other considerations include the management structure for the park, the legal documents that define the various relationships, and the disposition of income from the park. The following paragraphs summarize some points made by panelists at the International Conference on University Affiliated Research Parks.

ROLE OF GOVERNMENT. A government role is needed if the university affiliated research park requires enabling legislation, incentives, or financial support. Since state funds often bring a burdensome review of daily activities, some parks do not seek any help from state government. For example, one panelist said that politicians are like little boys in a garden: they keep pulling up the plants to see why they aren't growing. It was felt that the help of cities was needed, especially if an urban university has to acquire land for the park.

SITE SELECTION. Site selection is important. Corporations look for specific things in and around a research park. These include urban vs. rural locations, corporate headquarters, single- vs. multi-tenant buildings, demographics, fine homes within one mile of the park, excellent schools, recreation facilities nearby, and airport services.

INFRASTRUCTURE FINANCING. Financing a research park is complex. There are many options available, including grants, bonds, private funds, public support, and creative combinations of these and other resources.

MANAGEMENT. Management of the park can be done by a department of the university, a private contractor, a nonprofit corporation, a private developer, or a for-profit corporation. The consensus of the panel was that a nonprofit corporation is the best manager for a research park. The panel recognized that there were problems with nonprofits, too. The major problem is getting liability insurance for the directors of the corporation.

LEGAL DOCUMENTS. Start work early on the documents that define legal relationships. The documents must be in place when the park opens. Two items to consider are (1) the delegated authority to negotiate lease terms and (2) the ease of getting the final signature on needed documents.

INCOME. It was unanimous that income from the research parks went to university foundations.

BREAKTHROUGH

In North Carolina, the first breakthrough in the development of the Research Triangle Park (RTP) came when IBM located a major research facility at RTP seven years after the creation of the Research Triangle Foundation.

A breakthrough is needed for the healthy future development of the corridor. Arkansas is poised for such a breakthrough. Many of the necessary supporting resources are in place. Whatever form it might take, a breakthrough of some kind is needed to build momentum.

OTHER OPPORTUNITIES--FEDERAL EFFORTS

The major research facility currently within the boundaries of the corridor is the National Center for Toxicological Research (NCTR). In 1984 the federal government spent $13.8 million to upgrade laboratories at NCTR. Now, with the threat of automatic budget cuts under the Gramm-Rudman-Hollings deficit reduction legislation, it seems that the Arkansas facility is well positioned to have appropriate types of intramural federal research consolidated in the new research facilities at NCTR. The Arkansas Congressional Delegation should be alert for opportunities to cut federal spending on government research by consolidating other agencies' research at NCTR, which also has been identified by the Grace Commission as one of the best managed federal laboratories in the country.

Another opportunity for NCTR to contribute to the economic development of Arkansas and neighboring states is on the horizon. Amendments to the Stevenson-Wydler federal technology transfer legislation would make it possible for NCTR to engage in a variety

of partnerships with industry, nonprofit organizations, universities and state agencies. Such partnerships could result in patents and cooperative new-product development activities.

OTHER OPPORTUNITIES--STATE EFFORTS

There are several options for public and private institutions to exercise in developing the corridor, in addition to supporting the efforts of the Arkansas Congressional Delegation, including:

-- The Arkansas Department of Highways and Transportation could work to improve the access to NCTR. There are many visitors from the U.S. and foreign countries that visit NCTR. Much of their impression about Arkansas is formed on their drive from the Little Rock Regional Airport to NCTR. Part of the drive takes them through a rural community that does not show Arkansas at its best. An improved road--or better, a new road--to NCTR could prove to be the first of many infrastructural improvements needed for future developments in the corridor.

-- Major landholders in the corridor appear to be Arkansas Power and Light Company and International Paper Company. It might be in the best interest of these companies to make contributions of real estate to the foundation and to donate some of their personnel to the planning, development and implementation of the corridor concept. In addition, private real estate development companies might be interested in volunteering some of their resources to the foundation for use in the corridor project. For example, developers with experience in residential development might consider working with the foundation because housing will be an important component of corridor evolution as employees of the growing research and industrial base seek to find affordable housing in nearby residential areas.

-- The Arkansas Industrial Development Commission (AIDC) could target the corridor in part of its national advertising campaign and international promotional activities. AIDC might be able to interest others in cosponsoring some of the corridor advertising and promotions. The Arkansas Science & Technology Authority (ASTA) might be able to supply some of the information about scientific and technological resources available in the corridor. Whatever the AIDC (read government) role, it must be an ongoing one; a one-shot effort will not be sufficient.

-- ASTA could have an expanding role in the development of the corridor. Its technology transfer program would be a natural complement to the federal technology transfer effort and ASTA's authority to buy and sell patents and invest in innovative technology give Arkansas the mechanism to take economic advantage of technology spinoffs from NCTR.

-- Both AIDC and ASTA--and probably some of the other state economic development institutions--would be helpful in the

corridor planning efforts, but their involvement raises an important question: "Should the development of the corridor be a state effort?" There are those who will argue that state agencies should have no role in promoting only one part of the state. It is true that these state agencies should not have the development of the corridor as their only mission, but the state must have a well defined role. The corridor concept is in the state's interest if the corridor can elevate the image of Arkansas as a whole and be used in AIDC's industrial recruiting effort. There are not many Arkansas features on the international economic landscape, which means that Arkansas is often overlooked as a place of opportunity. The question raised above can be answered by the Governor and General Assembly providing the political leadership in defining--with legislation if necessary--and supporting state government's role in corridor planning and development.

THE NEXT STEP: MARKETING THE CORRIDOR

As suggested earlier, efforts can be made to market the Arkansas Science and Technology Corridor. This is perhaps the best next step in developing the corridor.

Marketing the corridor is more of a public relations effort than an advertising effort. Attitude about promoting the corridor is important and must permeate the entire marketing effort. Those involved in the effort must be prepared to take the corridor concept as far as it will go.

The effort should piggyback on the promotions of others--such as the university, utilities, businesses, and chambers of commerce. An effort to coordinate major advertising campaigns and to package consistent corridor facts will have to be made.

The whole marketing system--a national advertising campaign, which is expensive, is not enough--for the corridor should be in place when the corridor promotion begins. The system can include any public information medium. Such media could include radio, videos, paid advertising, slide shows, and brochures as well as an airport display and highway markers and signs. The value of publicity should not be overlooked.

The marketing effort should be geared to the target audience--the scientist decision maker. A good researcher is a valuable person for the marketing effort. The researcher can identify the specific targets for the marketing efforts and can supply leads.

Such leads can be used in a targeted marketing effort. Specific companies--perhaps biotechnology, biomedical, and other growth companies--could be identified by standard industrial classification (SIC) codes. These companies could be cross-referenced with University of Arkansas alumni who work as decision-makers in those companies, as is done by the State of Indiana. The chief executive officers of companies located in the corridor--executives who know the resources and can open doors in

the targeted companies--could visit with the alumni, make a presentation about the advantages of being located in the corridor, and collect valuable information for use later in the effort.

Other possibilities for marketing the corridor include an artist's rendering of the corridor. The rendering could emphasize the major resources in the corridor and could perhaps be financed by selling "billboards" on the map to prominent technology-based industries.

MISTAKES TO AVOID

Based on the experience of North Carolina, there are several mistakes--made during the development of the Research Triangle Park (RTP)--that can perhaps be avoided in Arkansas:

1. Service and shopping center facilities were originally limited in RTP, but they generate income and should be encouraged in the corridor,

2. Unlike in RTP, more research centers and centers of "excellence" should be developed early to serve as a "draw" to the corridor, and

3. Manufacturing facilities were also originally limited in RTP, but this was found to be a mistake; manufacturing is a strength in Arkansas and manufacturing facilities should be encouraged to locate in the corridor.

The most important mistake to avoid, however, is the mistake of doing nothing at all.

INGREDIENTS FOR SUCCESS

There appear to be four key ingredients to the successful implementation of an Arkansas Science and Technology Corridor:

1. An aggressive marketing effort;

2. The private, not-for-profit foundation, to take the lead in corridor development and assure that the project is seen as a long-term, cooperative development effort and not a government project subject to short-term political expediency;

3. Political and corporate leadership committed to the long-term economic development objectives of the corridor, and

4. Cooperation among the entities identified above--including state and federal government agencies and institutions, universities, the foundation and private enterprises--in marketing, planning and implementing the corridor concept.

* * *

The information contained in this document has been developed over several years, by many different people, for a variety of specific reasons. This document was originally prepared to provide general information about the Arkansas Science and Technology Corridor. The information was presented at a panel discussion concerning "The Arkansas Science and Technology Corridor" during a symposium titled "The Global Revolution in Technology and Its Impact on Arkansas" which was held at the University of Arkansas at Pine Bluff, June 6-7, 1986. The information was approved for release by the Board of Directors of the Arkansas Science & Technology Authority on October 3, 1986.

* * *

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RESEARCH PARK DEVELOPMENT CHECKLIST

There was much more information exchanged at the International Conference on University Affiliated Research Parks (April 27-30, 1986 in Tempe, Arizona) than can be reported in this document. To help interested readers, a checklist of the topics discussed at the conference is presented for reference.

FORMULATING THE PROJECT

- Role of University
- University-Industry Research Opportunities
- Technology Transfer Policies
- University Patent Policies
- Faculty Entrepreneurship
- Local Government and Private Industry Relations
- University or Private Research Institutes
- Pure Research vs. Manufacturing Mixture
- Nature of the Park-University Connection

PROJECT FEASIBILITY AND ANALYSIS

- States' Enabling Legislation for Research Parks
- Role of State and Local Governments
- Site Selection
- Project Feasibility Analysis
- Economic Pro Formas
- Infrastructure Financing Alternatives
- Research Park Management Structure Options (University/Private Development/Nonprofit)
- How Are Parks Run?
- Operational Budgets
- Staffing Requirements
- Staff Compensation and Incentives
- Insurance Requirements
- Legal Counsel, Document Preparation
- Income Allocation

PRE-PROJECT DESIGN AND DEVELOPMENT

- Site Analysis
- Defining Permitted Land Uses
- Environmental Analysis, Toxic Wastes
- Preparation of Design Covenants, Conditions, and Restrictions; Zoning Standards
- Preparation of Request for Proposals for Architectural, Civil Engineering, Site Planning, Landscape Architectural Services; Interview and Selection Process; Design Budgets
- Park Options

DESIGN AND CONSTRUCTION

Master Site Planning Process; Landscape Design
Park Infrastructure Bidding, Awarding, and Construction
Laboratory Design
High Tech R&D Buildings
Amenities, Corporate Conference Centers, Hotels, Recreation Facilities, and Support Services (Such as Child Care)
Intelligent Parks and Buildings; Telecommunication Options
Security
Consultants

MARKETING AND TENANT RELATIONS

Domestic and International Marketing
Preparation of a Tenants Solicitation Program
Design and Production of Marketing Brochure, Flyers
Marketing Incentives
For Sale vs. Ground Lease Alternatives
Land Prices, Ground Lease Rental Rates and Terms
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APPENDIX B
(As Revised)

ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY
200 Main Street, Suite 210, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 86-7

PROVIDING FOR THE SEED CAPITAL INVESTMENT OF MONIES FROM THE INVESTMENT FUND OF THE AUTHORITY IN A TECHNOLOGY-BASED ENTERPRISE IN ARKANSAS.

WHEREAS, ACT 859 OF 1983, as amended (the "Act"), authorizes the Authority to participate in the initial capitalization of technology-based enterprises through purchases of their qualified securities;

WHEREAS, pursuant to the Act, the Authority has created the Seed Capital Investment Program (the "Program") to foster the formation and development of innovative, technology-based business enterprises that will stimulate the economy of Arkansas through increased employment and leveraging of private investment;

WHEREAS, Arkansas Technologies, Inc.("ARTECH") has submitted an application under the Program requesting a loan in the amount of $150,000 to provide a portion of its initial capitalization;

WHEREAS, ARTECH projects that its initial capitalization will require a total of $650,000, of which $100,000 will be provided by ARTECH's principals and $400,000 is reasonably expected to be available from sources other than the Authority;

WHEREAS, ARTECH qualifies as an "enterprise" as defined by the Act, in that its principal place of business is located in Clarksville, Arkansas and it proposes to engage in manufacturing and the provision of services involving a significant amount of technology;

WHEREAS, based upon ARTECH's application and the results of an investigation conducted by the Authority's staff, the Board hereby finds that:

(1) the proceeds of the requested loan will be used only to cover a portion of ARTECH's initial capitalization,

(2) ARTECH has a reasonable chance of success,

(3) the Authority's participation in ARTECH's initial capitalization is necessary to the company's success because sufficient funding is unavailable in the traditional capital markets or, if available, could be obtained only on terms that would substantially hinder ARTECH's prospects for success,

(4) ARTECH has the reasonable potential to create a substantial amount of primary employment within Arkansas,

(5) ARTECH's principals have committed to make substantial financial and time commitments to the company,

(6) the loan requested by ARTECH constitutes a "qualified security" under the Act,

(7) there is a reasonable possibility that the Authority will recoup at least its initial investment in ARTECH, and

(8) ARTECH will enter into binding commitments with the Authority to supply such financial and other data as are required under the Act and to submit to such management control on the part of the Authority as the Board, through its Investment Committee, deems prudent for the protection of the Authority's investment; and

WHEREAS, ARTECH's application for a loan complies in all respects with the requirements of the Act and the rules governing the Program;

NOW THEREFORE, BE IT RESOLVED:

THAT the application [Project No. 86-S-0022] of Arkansas Technologies, Inc. for an initial capitalization loan in the amount of $150,000 is hereby approved; provided, however, that prior to the Authority's disbursement of loan proceeds, ARTECH shall:

(1) provide proof of its incorporation under the laws of the State of Arkansas,

(2) demonstrate that its principals have contributed not less than $100,000 in cash to ARTECH's initial capitalization,

(3) obtain financing or binding commitments for financing from sources other than the Authority in an amount not less than $400,000, which monies shall be applied to ARTECH's initial capitalization,

(4) enter into a lease agreement covering the facilities that will house ARTECH's operations, and

(5) ARTECH principals shall personally guarantee, jointly and severally, their indebtedness to the Authority,

all of which shall be provided or done to the Authority's satisfaction.

THAT the Investment Committee of the Board is hereby authorized on behalf of the Authority to prepare loan documents covering the transaction authorized hereby, which documents shall meet all requirements contained in the Act and shall include such provisions as, in the judgment of the Committee, are necessary or desirable to protect the Authority's investment in ARTECH. The Committee is further authorized on behalf of the Authority to negotiate with ARTECH such terms, including interest rate and maturity date, as are appropriate to the loan authorized hereby.

THAT the President of the Authority is hereby authorized on behalf of the Authority to execute and deliver all documents relating to the loan authorized hereby.

BE IT FURTHER RESOLVED:

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Act 859 of 1983 as amended.

APPROVED by the Board of Directors
on this 3rd day of October, 1986

Joe F. Nix

Joe F. Nix, Ph.D.
Secretary of the Board of Directors