



ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY

2006 Annual Report



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September 15, 2006

2006 Annual Report

Letter from the Chairman & President

Dear Governor Huckabee & Distinguished Legislators:

The Arkansas Science & Technology Authority's Board of Directors and staff are pleased to submit to you the Authority's 2006 Annual Report. This report summarizes the scientific and technological projects by which the Authority carries out its mission to bring the benefits of science and advanced technology to the people and state of Arkansas.

The Authority's overarching goal is "to plan, promote, influence and support with high quality programs and services the commercialization of research innovations thereby helping to grow the Arkansas economy and increase per capita income."

The Authority's Board has designated five goals that contribute to the overarching goal. They are: (1) To increase research activities in Arkansas, (2) To improve STEM (Science, Technology, Engineering, and Mathematics) education at all levels, (3) To maintain and transform existing enterprises into knowledge-based companies and increase global competitiveness, (4) To develop new products and entrepreneurial firms, and (5) To increase the Authority's visibility through a comprehensive communications and public relations program.

Increasing Research Activities

The Authority is committed to high-quality research in university and federal laboratories in Arkansas because federal investments in research and development generate innovations, spur commercialization and entrepreneurship, and correlate with higher per capita incomes. Arkansas' economic competitiveness depends on the state's research enterprise.

The Arkansas Research Matching Fund is a program through which state funds are used to match National Science Foundation and NASA grants. These matching fund projects involve students and faculty from 14 campuses around the state. In fiscal year 2006, two NSF EPSCoR and two NASA EPSCoR Grants totaled \$1,518,266 with a state match of \$695,473 provided by the Authority.

Improving STEM Education

The Authority continues its commitment to improve STEM (Science, Technology, Engineering, and Mathematics) education in Arkansas with the release of an Authority white paper titled: *A Tale of Two Years: 1983 & 2005*.

The purpose of this white paper is to elevate the level of public discussion and address the immediate, urgent need for strategies to improve science, technology, engineering and mathematics (STEM) education.

In an attempt to keep this issue before the public, the Authority took part in the 2006 Arkansas Executive Summit and co-hosted a STEM event with the University of Central Arkansas and Arkansas Business Journal titled *Connecting STEM Education Stakeholders*.

Supported by the Winthrop Rockefeller Foundation, the Authority's STUART Grant, Minigrant and SMART Grant projects continued promotion of innovative science education. Focusing on Arkansas middle schools, this was achieved through the allocation of funding for projects in grades 5 through 8. Two hundred ninety four Minigrant applications and 14 SMART Grant applications were received by the Authority.

In addition, Fiscal Year 2006 saw the introduction of a new BEST Robotics Hub project. This project, designed to enhance the engineering curriculum in Arkansas classrooms, promotes the engagement of Arkansas students in activities that will stimulate interest in Science Technology Engineering and Mathematics (STEM) fields and career options.

Transforming Arkansas Enterprises into Knowledge Based Companies

In the past year, Arkansas Manufacturing Solutions made impressive strides to facilitate the transformation of Arkansas Enterprises into knowledge-based companies.

Arkansas Manufacturing Solutions (AMS) is an Authority program designed to improve Arkansas' manufacturing and industrial competitiveness through the delivery of comprehensive technical and business assistance services.

As an affiliate of the U.S. Department of Commerce's National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP), AMS strives to improve the quality, productivity and global competitiveness of Arkansas' small and medium-sized manufacturers by providing technical and business management assistance services.

For FY2006, the Board authorized funding in the amount of \$1,116,746 to support the director and nine field staff: three at the University of Arkansas, Fayetteville; three at the University of Arkansas at Little Rock; one at Arkansas State University; one at Southern Arkansas University Tech; and one at Winrock International. The Board also authorized \$20,250 for partner activities and \$250,000 for Technology Transfer Assistance Grants. AMS field staff completed 161 projects and served 211 companies.

Developing New Products and Entrepreneurial Firms

Fostering development of new products, services and entrepreneurial firms is a key objective at the Authority. Bringing this to fruition involves several processes including Technology Transfer Assistant Grants (TTAG), the Technology Development Program (TDP), Seed Capital Investment Program (SCIP), and economic incentives including R&D Tax Credits.

In FY2006, The Authority funded 17 TTAG SBIR phase zero projects totaling \$59,352 that were matched by private sector investments totaling \$26,250. A majority of the recipients of Small Business Innovation Research (SBIR) funds have either prepared proposals through the use of TTAG funds or were formed as a result of Authority funding from another program. The Authority allocated the use of TTAG funds to leverage a federal award to the Arkansas Small Business Development Center for SBIR outreach. It co-sponsors an SBIR conference that brings in speakers to discuss the SBIR process, and works with the Arkansas Department of Economic Development (ADED) to ensure that SBIR funds are counted as eligibility criteria to meet the ADED requirements for the R&D Tax Credit.

Two companies were approved funding for Technology Development dollars in the past year. The UAMS Intellectual Property Roundtable was allotted \$10,000. The event, designed to familiarize

participants with technology growth at UAMS, hosted a number of state agencies, capital groups and private investors from Arkansas, Tennessee and Missouri . The Roundtable presented a unique opportunity for entrepreneurs to meet with venture capitalists and present their ideas. The other recipient was DCV Technologies. This UAMS BioVentures Company creates therapeutic vaccinations for cancer treatment. It received a \$50,000 award (\$25,000 paid in FY2006).

In 2006, four companies were recipients of Seed Capital investments including ContourMed, which was awarded \$25,812.77, Izon AMS which received \$250,000, Stage I Diagnostics was allocated funding for \$292,653.00, and Konaware T&L was awarded \$500,000.

Tax credits totaling \$2,042,827 were allotted to ten Arkansas companies. They included BioBased Systems, Space Photonics Inc., Nanomaterial and Fabrication Laboratories, SFC Fluidics, LLC, Vegrandis, LLC, BoDetection Instruments, LLC, NanoMech, LLC, Eaton Hydraulics Inc., Eaton Aeroquip Inc. and Arkansas Power Electronics International, Inc.

Increasing Authority Visibility

In 2006, the Arkansas Science & Technology Authority benefited from a renewed awareness of its products and services in the public eye. Thanks to opportunities to present information to legislative committees, boards and commissions on which the Authority has representation, stories in the Arkansas Democrat Gazette, Arkansas Business, and television media coverage of an AMS-sponsored tour of Hall Manufacturing by Congressman Vic Snyder, the Authority successfully increased its visibility.

Companies in which the Authority previously invested enjoyed the spotlight, as well. Art Exchange.com was featured on HGTV and Hall Manufacturing was the focus of a segment on John Ratzemberger's "Made In America" on the Travel Channel.

In addition, Authority representation on various boards and committees, as well as involvement in speaking engagements, helped solidify a visible Authority presence in the state.

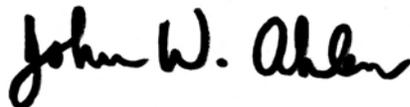
Conclusion

In 2006, the Authority continued to support the scientific and technological needs of Arkansans. It greatly appreciates your continued attention and financial support as it strives to prepare the state to meet the ever-changing challenges of what author Tom Friedman calls the flat world.

Sincerely,



Neil Rutger, Ph.D., Chair



John W. Ahlen, Ph.D., President

About the Authority

The Arkansas Science & Technology Authority (the Authority) was created by statute in 1983 with the mission to bring the benefits of science and advanced technology to the people and state of Arkansas. This mission is addressed by strategies to promote scientific research, technology development, business innovation, and math, science and engineering education.

The Authority is comprised of a Board of Directors, Advisory Committees and staff. The 14-member Board is appointed by the Governor to staggered four-year terms. The Board has three directors who are scientists or engineers, two directors who are representatives of academic institutions, five directors who represent the private sector, three directors who represent the private sector and have knowledge and experience in the field of manufacturing, and the Director of the Department of Higher Education (or the Director's designee).



The Authority's staff is led by the President, the chief executive officer, who is responsible for the agency's programs, services and support functions. The Authority's activities are divided into programmatic areas that parallel the Authority's five strategic goals.

The Board determines the allocation of funds to all projects supported by the Authority. Three standing committees, comprised exclusively of members of the Board, make recommendations to the full Board. Advisory Committees, comprised of Board and non-Board members, offer additional inputs to the Authority. All of the Authority's activities are audited annually to ensure compliance with state and federal guidelines.

Increasing Research Activities

Purpose:

The purpose of this program is to encourage, establish and support basic and strategic research by providing state matching funds for federal agency awards to Arkansas colleges and universities.

In keeping with the Authority's efforts to help scientists and engineers in Arkansas universities to become more nationally competitive for federal research funds, the Authority staff works with many entities. For example, the Authority works with organizations such as the Arkansas Biosciences Institute, the Experimental Program to Stimulate Competitive Research (EPSCoR), the Tobacco Settlement Commission, and the Arkansas Department of Economic Development (ADED) in endeavors to improve research capacity in the state. Authority staff continue in their efforts to increase the number of faculty in research by serving on an advisory board of the UAPB STEM project, the UALR College of Science and Mathematics (CSAM) Advisory Board to assist UALR in its effort to expand its research capacity and working independently with individual state universities to plan strategies for expanding research capacity. The Authority also supports larger-scale research projects and research infrastructure investments, such as in NASA's Space Grant Consortium and the National Science Foundation's EPSCoR initiative.



To increase the relationships between higher education and business development, the Authority works with ADED in managing the state's R&D tax credit program by visiting and working with companies that conduct in-house research. The Authority has also sought to increase industry-university partnerships through this mechanism. The Authority supports many high-tech university-based start-up companies in their efforts to obtain SBIR (Small Business Innovation Research Program) phase I and II awards. Authority staff participated in the award presentation of the Frost & Sullivan's 2005 Award for Excellence in Technology to NanoMech LLC, an excellent example of SBIR success and a university-based company with a long support history and relationship with the Authority.

Awards: The Arkansas Science & Technology Authority's Arkansas Research Matching Fund (established in 1999; Arkansas Code 15-3-201 et seq.) provides state funds to match federal awards for research and research equipment. The goal of the Arkansas Research Matching Fund is to improve the state's federal research and development ranking by helping to build university-based research infrastructure. No funds were available for matching requests in FY2004 or FY2005.

However, Accelerate Arkansas, a statewide volunteer group, was able to secure a biennial appropriation for research matching in the 2005 regular legislative session. The Authority's Board of Directors is grateful for the interest and support of research by Accelerate Arkansas. In fiscal year 2006 (FY2006) \$292,671 was available in this fund and was allocated to match two federal awards. Data concerning the projects submitted to the Arkansas Research Matching Fund (see Table I) show that Arkansas scientists and engineers are competitive for federal awards. Late in

the 2006 fiscal year, because there was sufficient revenue, Governor Huckabee allocated an additional \$350,000 in state funds for research.

The Board approved four Arkansas Research Matching Fund projects in FY2006, representing a total investment of \$695,473. These funds from the Authority, combined with the university research match support, satisfied federal match requirements and resulted in \$5,095,160 in federal research funding to Arkansas institutions.

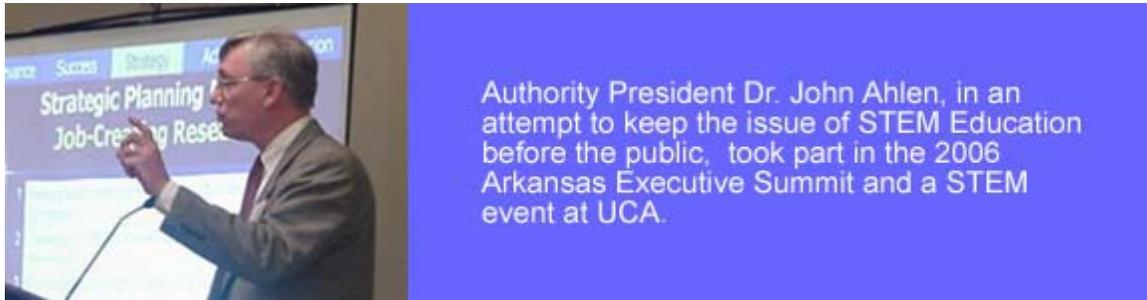
The continuing challenge is to find increasingly required research matching dollars from non-federal sources. Although the Authority's research matching funds were used to support the projects indicated, the available funds were insufficient to "fully match" the federal awards, placing much of the burden on participating campuses and limiting the participation of smaller campuses.

Table 1. Summary of ARMF FY2006

Arkansas Research Matching Fund Program -Projects Funded in 2006				
Program	Program File ID	Resolution G	Grant	Match
NSF EPSCoR	05-ARMF-01	Resolution No. 05-09	NSF grant: \$369,658	State match: \$184,829
NASA	06-ARMF-01	Resolution No. 06-08	NASA grant: \$335,000	State match \$107,842
NASA	06-ARMF-02	Resolution No. 06-31	NASA grant: \$303,000	State match \$147,498
NSF EPSCoR	06-ARMF-03	Resolution No. 06-32	NSF grant: \$510,608	State match: \$255,304

Improving STEM Education

The Authority has been extremely active in the past year in efforts to improve science, technology, engineering, and mathematics (STEM) education in K-12 classrooms.



182 minigrants were funded in FY2006. The Authority has worked with the Winthrop Rockefeller Foundation to insure sustainability of this program through an endowment to the Arkansas Community Foundation.

There were thirty-seven STUART grant applications received and twelve awards made in fiscal year 2006. STUART (Science Teaching Using Audience Response Technology) grants provide electronic classroom participation systems to middle school science classrooms, funded through the Winthrop Rockefeller Foundation. One award was made by each of the twelve educational centers. The total number of applications was a significant increase over previous years. One award was granted to a school in the geographic zone of each of the twelve Educational Resource Centers.

In the fourth quarter of 2005, the Authority was awarded funding from the Winthrop Rockefeller Foundation for a program to develop a website for free access to lesson plans for “hands-on” activities to enhance public school science and mathematics curriculum. Work under this five year grant to develop this program known as SMART (Science and Mathematics Accessible Resource Tool) has rapidly progressed in FY2006. The Authority staff, together with the Technology Task Force and Infrastructure Committee, worked together with the Information Network of Arkansas (INA) in the design of the SMART website. Workshops have been held to plan for summer workshops to develop one-concept lesson plans for the SMART website. (Four summer workshops will be held in July and August for math and science teachers to develop lesson plans).



The Authority received a third grant from the Winthrop Rockefeller Foundation in December of 2005. This five-year grant, known as STEM Teacher Empowerment, will use \$1.4 million in funds for teacher professional development workshops, small teacher initiated grants that are STEM curriculum based, and university projects that encourage competition. The award supports a STEM Program Manager and funds competitive STEM projects. Two competitive awards were granted, one each to North Arkansas Community College and Arkansas State University to develop BEST Robotics Hubs. Each hub will serve 24 school district teams and the program is free and open to all schools within the specified geographic regions.



The Arkansas Science, Mathematics, Engineering and Technology (STEM) Coalition, which the Authority helped to initiate in FY2005, has been extremely active in the past year. This group of business leaders, policy makers, and educators has tackled some of the educational issues that Arkansas faces with regard to developing a skilled workforce for the future. The Authority worked with the STEM Coalition to organize a Task Force for Integrating Technology into Public School Education (Technology Task Force), which is a subcommittee under the Coalition Board. This Technology Task Force is working with the Authority to address the legislative mandate to develop plans for the incorporation of technology into public school curriculum grades 7-12 based on Legislative Act 2266 of 2005. The Technology Task Force has expanded to a volunteer group of approximately 40 professionals who are building on the lesson plan materials of the SMART Portal to deliver technology curriculum to public schools. The Technology Task Force and the STEM Coalition are also looking at long range efforts to address the 21st Century skills that have been identified by participating industry for our future workforce. Industry, foundations and numerous state agencies have contributed funds to help the Authority expand the work of the Technology Task Force. The STEM Coalition has been actively meeting to determine the STEM public school educational needs and the Arkansas workforce educational needs, to evaluate model STEM programs and to develop strategies to enhance STEM curriculum in Arkansas public schools.



Profiles of Success: Minigrant Recipients

Charlotte Wheelless teaches 5th and 6th grade science at Walnut Ridge Middle School.

She used her minigrant to fund a skeleton reconstruction, a chemical reactions lab and raising painted lady butterflies (seen to the right).



“The 5th and 6th grade students at Walnut Ridge Middle School have been able to “do” science rather than read about it because of the Mini-grant funds. The students have gained so much but, most importantly, they have developed a positive attitude about science. With the price of supplies rising every year, these activities could not have been funded from the classroom budget.”

Charlotte Wheelless
5th/6th Grade Science Teacher
Walnut Ridge Middle School



Rebecca Reed's 7th grade science class (to the left) at Hot Springs Middle School act as Zoo Keepers after researching information about classroom pets.

The animals ranged from hedgehogs to snakes and included several that can be held by the younger students visiting the classroom.

Jerri Emrick's Earth Science Class (to the right) at Ozark Junior High conducts a density experiment involving the chemistry of the ocean.

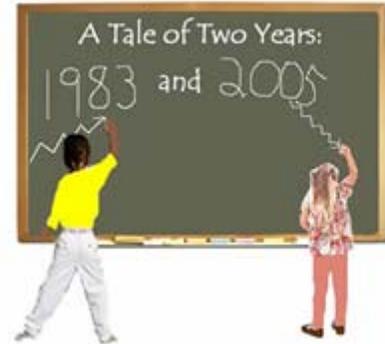
Students tested a combination of water, salt water, glycerin, and alcohol, each measured according to differing weight, to generate results.



Grants awarded	
Minigrant Awards	182
STUART Grant Awards	12
Robotics Grant Awards	2
Professional Development Events	
Workshops Funded (days)	5
Teacher Training Events (days)	8
Evaluation Workshops (days)	3
Affiliate Training Events	16
Curriculum Web Portal Development	
Portal Development Events	6
Teacher Workshops Held	4
Lesson Plans Created	80

This year, with continued focus on education across the state, the Arkansas Science & Technology Authority published a white paper dealing with a number of pressing issues affecting the future of our state's most precious resource, our children.

A Tale of Two Years: 1983 and 1985 addresses the immediate urgent need for strategies to improve science, technology, engineering, and mathematics education.



Maintaining and Transforming Existing Enterprises Into Knowledge-Based Companies

Arkansas Manufacturing Solutions

Purpose:

Arkansas Manufacturing Solutions (AMS) is designed to improve Arkansas' manufacturing and industrial competitiveness through the delivery of comprehensive technical and business assistance services.

AMS Description:

Arkansas Manufacturing Solutions is an affiliate of the U.S. Department of Commerce's National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP). Arkansas Manufacturing Solutions strives to improve the quality, productivity and global competitiveness of Arkansas' small and medium-sized manufacturers by providing technical and business management assistance services.

AMS' primary partners are the University of Arkansas, Fayetteville; Southern Arkansas University Tech, Camden; Arkansas State University, Jonesboro; the University of Arkansas at Little Rock; Winrock International; Arkansas Institute for Performance Excellence; and the Arkansas Department of Economic Development.

Nine field staff deliver services to manufacturers. Typical services include Lean Manufacturing, Quality Management Systems, Six Sigma, Environmental, Health and Safety Management Systems, Strategic Business Solutions, and General Technical and Management Assistance.



AMS Profile of Success: George Fischer Sloane Inc.

George Fischer Sloane Inc is a manufacturer of plastic pipe fittings (NAICS 332919). Currently, George Fischer Sloane employs 200 people at the facility located in Little Rock, Arkansas.



The company is the North American manufacturing site of George Fischer Piping Systems, which manufactures components and systems for industrial gas and water distribution applications. Poor economic conditions of 2000-2001 caused hardship in the business and a need for change was apparent. George Fischer Sloane began its Lean journey in mid 2002 to address this problem.

AMS Project Managers met with Mr. Paul Mastro (subsequently appointed by Governor Huckabee to the Authority's Board of Directors) and other George Fischer Sloane associates in March of 2004 to decide on an implementation plan for expanding the already started Lean Manufacturing initiative.

With the help of AMS, George Fischer Sloane applied Lean Manufacturing principles and realized the following improvements.

- Productivity increases of 20%.
- Inventory reduction of over \$350,000.
- Product travel decrease from over 4000 feet to less than 400 feet.
- Kanban levels decreased from months in some cases to days.
- Reduction in assembly cell from 6 stations to 2 with 25 different high volume products.
- Introduction of new product offerings utilizing space and inventory dollars made available from the lean effort.
- The Lean effort, along with the consolidating of all departments under one roof, has allowed George Fischer Sloane to develop new products and ship to customers faster and with a higher level of quality.

“In the first year (the Lean effort initiated by George Fischer Sloane) saved us more than \$1/2 million in costs. The second year, with AMS’ assistance, we saved another \$400,000. Last year (the Lean team) found more than \$100,000. They are to a point now where they have gone back a second and third time for some of the products.

Because we’ve had success, the rest of the plant is open to doing it. What you want as a result is for people to learn the techniques as they go through the improvement process. Then they can carry those techniques to other projects in the shop.”

Paul Mastro
Vice President Manufacturing
George Fischer Sloane, Inc.
Little Rock, Arkansas

AMS: The Year In Review

Awards

For FY2006, the Board authorized funding in the amount of \$1,116,746 to support the director and nine field staff: three at the University of Arkansas, Fayetteville; three at the University of Arkansas at Little Rock; one at Arkansas State University; one at Southern Arkansas University Tech; and one at Winrock International. The Board also authorized \$20,250 for partner activities and \$250,000 for Technology Transfer Assistance Grants.

Leverage State Funding FY06					
State Funding	Total Match				
\$257,182	\$3,516,468				
Match Breakdown					
Federal	State Agencies		Universities	Non-Profits	Clients
	Authority	ADED			
\$980,512	\$78,525	\$1,040,675	\$742,744	\$140,000	\$534,013
Leverage Ratio					
13.7					

The following improvements were reported in FY2006 by clients during the NIST MEP Surveys of AMS projects, including TTAG funded projects, completed from April 2004-March 2005 with Arkansas companies:

Increased and Retained Sales	\$185,365,000
Cost Savings	\$16,437,432
Company Investments	\$18,951,475
Jobs Created or Retained	1,659

In FY 2006 (July 2005 - June 2006), AMS field staff completed 161 projects and served 211 companies.

Substance	Number of Projects
Business Services	8
Quality Systems	38
Manufacturing Systems	80
Information Technology	10
Human Resources and Organization Development	2
Engineering/Technology Services	23
Total:	161



The Authority would like to congratulate our own Lydia Carson, director of Arkansas Manufacturing Solutions (AMS). She has been named to the Arkansas District Export Council (DEC). Lydia 's confirmation was one of seven recently announced by the U.S. Dept. of Commerce. Her term expires Dec. 31, 2009.

NAICS Grp	Industry Type	Number of Companies
213	Support Activities for Mining	2
311	Food Manufacturing	15
313	Textile Mills	2
315	Apparel Manufacturing	2
316	Leather and Applied Product Manufacturing	1
321	Wood Product Manufacturing	10
322	Paper Manufacturing	7
323	Printing and Related Support Activities	4
324	Petroleum and Coal Products Manufacturing	1
325	Chemical Manufacturing	15
326	Plastic and Rubber Products Manufacturing	16
327	Nonmetallic Mineral Product Manufacturing	2
331	Primary Metal Manufacturing	14
332	Fabricated Metal Product Manufacturing	23
333	Machinery Manufacturing	18
334	Computer & Electronic Product Manufacturing	9
335	Electrical Equipment, Appliance & Component Mfg.	15
336	Transportation Equipment	15
337	Furniture and Related Product Manufacturing	4
339	Miscellaneous Manufacturing	6
Others	Other	30
	Total:	211

Funding Received	
NIST Funding	\$936,215.00
Client Fees	\$534,012.98
State Funding	\$257,182.00
Total	\$1,727,410.01

In FY2006 the Authority's Board of Directors authorized 42 AMS funded TTAG projects totaling \$153,330 to help clients solve technical problems. The private sector invested an additional \$62,775 in these solutions. These investments assisted 31 separate companies, located in 17 counties representing the following industry types:

NAICS	Industry Type	Number of Companies
112	Animal Production	1
311	Food Manufacturing	2
321	Wood Product Manufacturing	1
322	Paper Manufacturing	1
323	Printing and Related Support Activities	1
325	Chemical Manufacturing	2
326	Plastics and Rubber Products Manufacturing	2
331	Primary Metal Manufacturing	1
332	Fabricated Metal Product Manufacturing	4
333	Machinery Manufacturing	3
334	Computer and Electronic Product Manufacturing	2
335	Electrical Equipment, Appliance, and Component Manufacturing	4
336	Transportation Equipment Manufacturing	1
337	Furniture and Related Product Manufacturing	2
339	Miscellaneous Manufacturing	1
424	Merchant Wholesalers, Nondurable Goods	2
511	Publishing Industries (except Internet)	1
Total:		31

TTAG Client Company Profile	
Average Number of Employees	465
Average AMS Investment per TTAG Project	\$3,750
Average Client Investment per TTAG Project	\$1,250

Services Rendered	Number of Projects
Business Info System/Process Improvement	2
CAD/CAM/CAE	1
E-Commerce	1
Environmental	18
Market Development	1
Plant Layout/Manufacturing Cells	1
Process Improvement	6
Product Development and Design	3
Quality/Inspection	9
Total:	42

Developing New Products and Entrepreneurial Firms

Authority Business Resources

Purpose:

As part of the Arkansas Science & Technology Authority's focus on business creation, several programs foster companies through various stages of development. From the inception of a tech-based business to the commercialization of new products, the Authority is partnering with the people who are changing our state.

Business Profile of Success: IZON AMS



In February, the Authority presented a check for \$250,000 to Stacey McPherson, Chief Executive Officer of IZON AMS.

As the recipient of this Authority Seed Capital Investment, IZON will expand the research and marketing of the company's groundbreaking technology, a remote monitoring system that helps farmers to track and control irrigation levels in their fields.



This Authority award is the second to be presented to the Paragould based company. The first was a Technology Transfer Assistant Grant that helped the initial development of the monitoring system. In addition, support from the TTAG program helped to secure a Conservation Innovation Grant from the Natural Resource Conservation Service totaling over \$790,000.

Further potential applications for the technology range from monitoring of oil and gas production to use in municipal water works.

Authority Business Resources: The Year In Review

Technology Transfer Assistance Grant (TTAG)

Purpose:

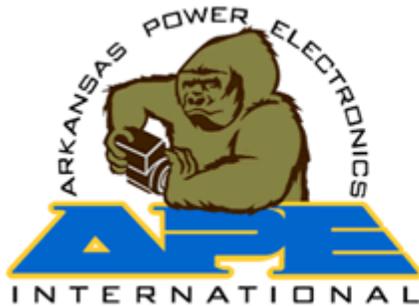
The Technology Transfer Assistance Grant Program (TTAG) assists Arkansas' enterprises in developing or improving products or processes through the transfer of technical solutions to technology-based, industry-driven problems, thus enhancing that enterprise's market competitiveness. A total of 33 TTAG projects were funded in Fiscal Year 2006.

Client Profile	
Average Number of Employees	8
Average Age of Company	5 Years
Average Year of Corporation Founded	2001
Most Active County	Washington
Number of Projects in County	20
Average Authority Investment	\$3,616.73
Total Authority Investment	\$119,352.00
Average Client Investment	\$1,518.18
Total Client Investment	\$50,100.00

Service Area	Number
Small Business Innovation Research (SBIR) Assistance	17
E-Commerce	1
Business Systems/Business Management	1
Market Development	6
Product Development and Design	5
Environmental	3
Total	33

TTAG SBIR	Totals
Authorized Awards Total	\$59,352.00
Private Sector Total	\$26,250.00
Total Projects Funded	17

The Technology Transfer Assistance Grant (TTAG) program is an exceedingly beneficial program for start-up companies applying for federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants. The TTAG program in past years has yielded a return on investment to the state of about \$3,800 for every dollar the Authority invests into a SBIR/STTR related TTAG project. One small business in Fayetteville, Arkansas took advantage of the TTAG program and was awarded over \$2M in federal funding.



APEI, Inc. performs research, product design, and product development in the board technical areas of electric power systems, power electronics, and electric machines.

From January 2005 to July 2006, APEI, Inc. has secured \$2,021,748.71 in SBIR funding. Currently APEI, Inc. has an annual revenue of approximately \$3M.

NAICS Industry Type	Total
315299 All Other Cut and Sew Apparel Manufacturing	1
333515 Cutting Tool and Machine Tool Accessory Manufacturing	1
334516 Analytical Laboratory Instrument Manufacturing	7
424210 Drugs and Druggists' Sundries Merchant Wholesalers	2
511210 Software Publishers	1
516110 Internet Publishing and Broadcasting (pt.)	7
525990 Other Financial Vehicles	1
541330 Engineering Services	3
541511 Custom Computer Programming Services	2
541611 Administrative Management and General Management Consulting Services	1
541710 Research and Development in the Physical, Engineering, and Life Sciences	7
561422 Telemarketing Bureaus	1
812910 Pet Care (except Veterinary) Services	1

Seed Capital Deals

Purpose:

The Seed Capital Investment Program (SCIP) fosters the development of innovative technology-based businesses and projects that will stimulate economic growth and industrial competitiveness in Arkansas.

Seed Capital Investment Program			
Company	NAICS Code	Fiscal Year	Funds Awarded
Stage I Diagnostics	325413	2006	\$292,653.00
Konaware Transportation & Logistics Division	541614	2006	\$500,000.00
Izon AMS	334290	2006	\$250,000.00
ContourMed	339113	2006	\$25,812.77

Technology Development Deals

Purpose:

The Technology Development Program provides assistance in the development and commercialization of new technology-based products and processes through innovative technology development projects.

Technology Development Program			
Company	NAICS Code	Fiscal Year	Funds Awarded
DCV Technologies	541710	2006	\$50,000.00

**Funds to be disbursed over FY 06 & FY 07

The UAMS IP Roundtable, held in December of 2005, provided a unique opportunity in which UAMS intellectual property (IP) and biotech companies emerging from the Biomedical Biotechnology Center Incubator were evaluated by a panel of venture capital executives. Two of the companies identified as exciting candidates for commercialization that would benefit from early-stage financing were DCV Technologies and Stage I Diagnostics. As a result, the Authority has followed these companies closely in order to assist them in their efforts to grow and attract venture capital.

Both companies have progressed well. At its May, 2006 meeting, the Board decided to provide \$50,000 in funding to DCV Technologies to bridge a funding gap between Phase I and Phase II STTR grants. This investment could bring an additional \$750,000 in federal funds into the state for research. The terms of this investment award authorize the Arkansas Science & Technology Authority to collect up to a 5% royalty from revenues generated by the technology development investment for a maximum period of 10 years.

At the same May, 2006 Meeting, the Board also approved \$292,653 in funding to Stage I Diagnostics. Stage I is developing and plans to market diagnostic products to detect ovarian, prostate and other reproductive tract cancers at their earliest stages. The funds are being used as working capital as the company develops test kits for its proprietary panel of early stage cancer markers. These kits will be distributed through the company's partners in Europe and the U.S. The Authority will receive a royalty repayment based on the company's performance.

R & D Tax Incentives

Tax credits are intended to provide incentives for a company's university-based research and in-house research of several kinds, and research and development in start-up, technology-based enterprises. It is important for the applicant to understand the different incentives and to select the most appropriate for the eligible research and development activity. By partnering with the Arkansas Department of Economic Development, the Arkansas Science & Technology Authority encourages the development of companies which will have long-term economic or commercial value for the state of Arkansas in the form of higher wages and improved standards of living. The Authority evaluates the research projects submitted to the Arkansas Department of Economic Development. This assures that the research meets the standards of qualified research set forth in the Consolidated Incentive Act of 2003.

R & D Credits			
NAICS Com	pany Name	Qualified Expenditures	Tax Credit Amount
3344 334413 334414 334419	Arkansas Power Electronics International, Inc.	\$304,494.93	\$100,483.33
334516	BioDetection Instruments, LLC	\$110,358.00	\$36,418.14
334516	SFC Fluidics, LLC	\$40,517.00	\$13,370.61
334516	Vegrandis, LLC	\$159,520.00	\$52,641.60
54171 541710	Nanomaterial and Nanofabrication Laboratories	\$825,024.07	\$272,257.94
332812	NanoMech, LLC	\$401,192.59	\$132,393.55
326150	BioBased Systems (A)	\$2,398,441.44	\$791,485.68
326150	BioBased Systems (B)	\$537,086.01	\$177,238.38
541710 927110	Space Photonics Inc.	\$1,353,145.00	\$446,537.85
332912	Eaton Hydraulics Inc.	\$608,900.00	\$20,000.00
Totals \$6,738		,679.04	\$2,042,827.08
Leverage Ratio		3.3*	
* Tax Credits of \$2.04 million supported \$6.74 million dollars of advanced research and development.			

Increasing Visibility

In 2006, The Authority received positive exposure through both Authority related events and client coverage.

Authority sponsored events like the UAMS IP Roundtable and the STEM Education Symposium helped position the Arkansas Science & Technology Authority as an organization supporting research and STEM Education. We further solidified our commitment to quality education in Arkansas by participating in the Arkansas Executive Summit and the STEM Event at the University of Central Arkansas titled "Connecting STEM Education Stakeholders".

Members of the Authority staff appeared before the Joint Education Committee and the Joint Committee For Advanced Communication and Information Technology. Authority staff also attended the 69th Annual Catholic Educators' Professional Day and meetings at twenty local boards of the Arkansas Community Foundation.

As part of a continuing web presence, the Authority enjoyed client related coverage from the Arkansas Venture Forum Newsletter and Dr. John Ahlen was featured in an online article from the Arkansas News Bureau.

The Authority shared in the excitement as client artexchange.com was nominated for an Arkansas Business of the Year Award and was featured as part of a nationwide segment on HGTV.



In one of the many media highlights of the year, company President Robert Hall gives Congressman Vic Snyder a tour of Hall Manufacturing in North Little Rock.

The tour was covered by local news teams from KATV, Channel 7, KARK, Channel 4, KTHV, Channel 11, KLRT, Channel 16 and KASN, Channel 38.

AMS benefited from media coverage in both print and television in 2006, as well. The organization was covered prominently in the Arkansas Democrat Gazette and Arkansas Business. It was also the focus of a piece on the Energy Savings Workshop at Pulaski Technical College on KARK-TV, Channel 4.

In addition to being appointed to the Arkansas District Export Council, Industry VP Lydia Carson became the latest contributor to Talk Business (talkbusiness.net) as the newest *Highly Opinionated* columnist.

AMS was also in the spotlight as part of news stories on KATV, Channel 7, KARK, Channel 4, KLRT, Channel 16 and KASN, Channel 38 when Congressman Vic Snyder took a tour of Authority client Hall Manufacturing.

Hall Manufacturing was featured, along with Authority client Alliance Rubber of Hot Springs, on John Ratzberger's series, "Made in America". The Travel Channel series features companies that keep America running smoothly.

The staff of the Authority is visible throughout the education, scientific, technological and economic development communities by their presence on various boards and committees. Staff member's appointments to these committees enable the Authority to be aware of and contribute to the myriad of activities in its domain, science & technology.

Committee/Board Who	Serves
Arkansas Capital Corporation	President
Commerce Capital Development Company	President or Designee
Southern Technology Council	President
Arkansas Capital Corporation	President
Arkansas School for Mathematics, Sciences and the Arts	President or VP Research
Information Network of Arkansas	President or Executive VP
Commission for the Coordination of Educational Efforts	President
Distance Learning Coordinating Council	Vice President Research
Arkansas Tobacco Settlement Commission	President
Arkansas Biosciences Institute	President
National Association of Women Business Owners	Vice President Industry
Arkansas District Export Council	Vice President Industry
UALR Mechanical & Electrical Engineering Advisory Council	Vice President Industry
UALR Arkansas Executive Summit Advisory Council	Vice President Industry
Arkansas Executive Conference	Vice President Industry
Steering Committee, Arkansas Technology Task Force	Vice President Research
Executive Committee, STEM Coalition (Secretary)	Vice President Research
Adjunct Faculty, College of Public Health, University of Arkansas for Medical Sciences	Vice President Research
College of Science and Mathematics Advisory Board, UALR	Vice President Research
EPSCoR Program Director - 2006, Executive Management Team	Vice President Research
Arkansas Venture Forum, Youth Entrepreneurship Showcase (Y.E.S.)	Finance Program Manager
Arkansas Business Plan Competition	Finance Program Manager

**ANNUAL REPORT
OPERATING REPORT
(FY2006 Expenditures)
Revision Date:06/30/2006**

General Operations	Budget	Actual				
Character		1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Regular Salaries	478,814	122,970.74	96,240.67	129,267.27	130,256.7	478,735.38
Extra Help	11,420	1,617.54	3,714.12	4,333.14	1,753.89	11,418.69
Maintenance and Operations	144,204	32,597.21	40,954.00	24,282.77	45,264.7	143,098.68
Fringe Benefits	140,344	36,816.18	30,736.50	36,854.87	35,556.56	139,964.11
Research						
(Reallocation)						
Conference Fees and Training	18,323	4,083.56	8,004.43	2,887.28	3,155.79	18,131.06
Professional Fees	16,800	1,830.74	86.10	5,069.90	3,770.7	10,757.44
Capital Outlay						
Research	350,000				413,197	413,197.00
Technology Development	217,549	31,150.00	11,250.00	51,250.00	60,702.00	154,352.00
Research Matching	292,653	46,207.00	82,154.34	82,154.34	82,137.32	292,653.00
Seed Capital Investments	292,653	0.00	0.00		292,653	292,653.00
TOTAL	1,962,760	277,272.97	273,140.16	336,099.57	1,068,447.66	1,954,960.36

Network Support	Budget	Actual				
Character		1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
AMS Support	257,182	0.00	0.00	124,347.75	132,834.25	257,182.00

Seed Capital Fund	Budget	Actual				
Character		1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Seed Capital Fund Balance	1,727,980	30,000.00	0.00	245,812.77	0	275,812.77

Network Operations	Budget	Actual				
Character		1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Regular Salaries	133,396	27,736.67	30,081.72	35,095.34	30,081.75	122,995.48
Maintenance and Operations	124,456	31,162.10	26,206.17	18,828.66	27,556.01	103,752.94
Fringe Benefits	36,599	7,520.01	9,913.43	10,019.19	8,953.49	36,406.12
Grants	389,585	38,010.00	21,561.00	59,641.78	113,677.00	232,889.78
Conference Fees and Training	12,777	1,589.04	641.94	1,193.31	9081.24	12,505.53
Professional Fees	50,000		1,800.00	8,474.54	18,460.00	28,734.54
Capital Outlay						0.00
Field Services	997,477	218,634.66	289,027	169,679	175,233	852,573.82
Miscellaneous Fees						0.00
TOTAL	1,744,290	324,652.48	379,231.10	302,931.91	383,042.72	1,389,858.21

TABLE CONTINUES ON NEXT PAGE

Grants Received	Ann'l Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Winthrop Rockefeller Foundation: Middle School Science Year 3 of 3 Total award \$405,000	7,025	0.00	7,025.00	0.00	0.00	7,025.00
Winthrop Rockefeller Foundation: Entrepreneurial Arkansas Year 2 of 3 Total award \$443,750	336,030	0.00	693.00	19,938.45	43,611.04	64,242.49
Winthrop Rockefeller Foundation: Transition of Middle School Science to Arkansas Community Foundation Year 1 of 2 Total award \$49,830	44,849	279.93	1,733.73	1,254.37	663.35	3,931.38
Winthrop Rockefeller Foundation: Models for Growth: Using Minigrants to Improve Science Education and to Connect the Arkansas Community Foundation Affiliates to Public Schools Years 1 and 2 of 6 Total award \$913,200	234,600	2,502.27	169,824.81	14,398.61	4,227.26	190,952.95
Winthrop Rockefeller Foundation: Science and Mathematics Accessible Resource Tool (SMART) Year 1 of 5 Total award \$441,000	106,200	195.30	5,149.27	7,253.85	19,361.97	31,960.39

New Board Members of 2006



Paul Horney, IV
CEO
Innovation Industries, Inc.



Stephen Seidman, Ph.D
Dean
College of Natural Sciences & Mathematics
University of Central Arkansas



Patrick Hutton
Quality Engineer
CoorsTek Ink.



Paul Mastro
Vice President of Manufacturing
George Fischer Sloane

Current Board of Directors	
<p>Neil Rutger, Ph.D. - Chair Chief Scientist and Supervisory Research Geneticist Dale Bumpers National Rice Research Center USDA Agricultural Research Service Term Expires 2009</p>	<p>Sue McGowan - Vice Chair Director of Economic Development/CEO Paragould/Greene County Chamber of Commerce <u>Authority Investment Committee Chair</u> Term Expires 2008</p>
<p>Gary Phillips Ph.D. - Secretary Company President Small Town Computer Guys Term Expires 2009</p>	<p>Johnny Hooks Agency Field Executive State Farm Insurance Term Expires 2008</p>
<p>Mr. Patrick Hutton Quality Engineer CoorsTek Inc. Term Expires 2007</p>	<p>Paul Mastro Vice President - Manufacturing and Engineering George Fischer Sloane Term Expires 2010</p>
<p>John White Ph.D. Chancellor University of Arkansas Fayetteville Term Expires 2010</p>	<p>Steve Seidman, Ph.D Dean College of Natural Sciences & Mathematics University of Central Arkansas Term Expires 2010</p>
<p>Collis Geren Ph.D. Vice Provost for Research University of Arkansas, Fayetteville <u>Authority Research Committee Chair</u> Term Expires 2009</p>	<p>Steve Floyd, Ed.D. Arkansas Department of Higher Education - Little Rock Term Permanent</p>
<p>Robert Hall President Hall Manufacturing <u>Authority Industry Committee Chair</u> Term Expires 2008</p>	<p>Gordon Knetzer Project Manager Nabholz Term Expires 2007</p>
<p>Rickey Williams President & Chief Executive Officer Rickey Williams & Associates, Inc. Term Expires 2007</p>	<p>Mr. Paul E. Horney IV Chief Executive Officer Innovation Industries Incorporated Term Expires 2007</p>

Term Expirations / Resignations	
<p>Harry Ward Professor of Medicine and Retired Chancellor University of Arkansas for Medical Sciences Term Expired Jan. 2006</p>	<p>David Eberdt Retired Resigned Nov. 2005</p>
<p>Buzz May May and Associates Term Expired Jan. 2006</p>	<p>Brian Porbeck Project and Mechanical Engineer Kawneer Co. Resigned June 2006</p>

New Staff Faces of 2006



Chris Snider
Communications Manager



Kirk Manor
AMS Project Manager



Steve Stanley, Ph.D.
Vice President Commercialization



Sharon Whitlock
STEM Project Manager

Staff

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AMS Project Managers

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