

ACROSS OKLAHOMA

Oklahoma is made up of entrepreneurial people full of ideas and ambition who will drive our economic future. OCAST helps these hard-working people create technologies that will advance our society, invent new products and discover medical treatments that will save millions of lives.

—Michael Carolina, executive director

2009 FUNDED PROJECTS

Ideas, inventions, new products and processes come from all areas of Oklahoma.

82

Projects funded in 2009

2,198

Projects funded since inception

INVESTING IN MANUFACTURING



The Oklahoma Manufacturing Alliance, sponsored by OCAST, is helping state manufacturing businesses, like Choctaw Defense, become more efficient, grow profits and bring more jobs to the state.

Choctaw Defense has operations in *McAlester, Hugo and Antlers* with a client roster that includes the U.S. Army, Marine Corps, Navy, Air Force, Raytheon, Lockheed-Martin and Boeing.

In 2010, Choctaw Defense will start production on one of its largest projects ever – a \$62 million contract to build the next generation of medium tactical vehicle trailers for the Marines. *More than 60 jobs are being created* by this new contract.

UNTAPPED POTENTIAL



2009 UNFUNDED PROJECTS

126

Qualified projects that went unfunded in 2009

\$16,185,725

Amount needed to fund all of the qualified unfunded projects from 2009

Oklahoma has unlimited potential to create, discover and invent. But OCAST's limited funding can only go so far. Every year, we run out of funding long before we run out of promising projects that have passed our rigorous peer-review process. That leaves untapped potential and an exciting opportunity for all of us.

Ideas originate in garages, at workbenches, in labs and in home offices across the state. To get Oklahoma citizens' ideas off the ground and launch new businesses, they need our help. The more we support the "idea people" in our state, the more our economy will benefit.

WIDEN THE PIPELINE

Through legislative leadership, hard work and evaluation of past successes, Oklahoma has developed services that offer financial support and advice to help new technology businesses succeed. Each year, we put new research and development projects into the "pipeline," and over time, many of them become profitable businesses that contribute to Oklahoma's economy.

99

Number of inventors assisted through Inventors Assistance Service in 2009

207

Number of patents filed in 2009

The more quality ideas we put into the pipeline, the more business and employment opportunities Oklahoma will realize.



GROWTH OF OCAST FUNDING IN TULSA

In 2009, OCAST expanded outreach efforts in the Tulsa area. OCAST began accepting applications in the Tulsa office; opened an Oklahoma Inventors Assistance Service office; hosted community leaders and encouraged them to tell researchers about funding opportunities; and reached

out to the community in partnership with the Tulsa Metro Chamber and backing from the University of Tulsa, OSU-Tulsa, OU-Tulsa and Tulsa Community College. This resulted in a 437% increase in OCAST funding to the Tulsa area in just 18 months.

IMPACTING ALL INDUSTRIES

Oklahoma has key industries in *aerospace, agriculture, bioscience, manufacturing, computer science, energy, nanotechnology, sensors, health and education*. OCAST strengthens these "clusters" by funding those who work in these important industries and by encouraging collaborations and partnerships among researchers and scientists. An investment in OCAST is an investment in each of these industries across the state.

FISCAL YEAR 2009 ANNUAL IMPACT

Program	Award Amounts	Leveraged private & federal funds & business financials	Ratio
Applied Research	\$4,036,023	\$97,752,284	24.22
Health Research	\$4,314,325	\$16,740,234	3.88
Inventors Assistance Service	\$159,920	\$770,000	4.81
Manufacturing Alliance*	\$1,372,028	\$267,271,179	194.80
Nanotechnology Applications Project	\$45,000	\$20,344,218	452.09
Plant Science Research	\$492,873	\$2,182,568	4.43
Seed Capital	\$1,528,467	\$8,683,797	5.68
Small Business Research Assistance	\$291,133	\$20,306,921	69.75
Technology Business Finance	\$724,109	\$25,796,525	35.63
Technology Commercialization Center	\$2,050,667	\$29,663,000	14.47
Totals	\$15,014,545	\$489,510,726	
Leverage Ratio			32.60

CUMULATIVE IMPACT 1987-2009

Program	Award Amounts	Leveraged private & federal funds & business financials	Ratio
Applied Research	\$70,032,709	\$1,126,064,054	16.08
Health Research	\$59,710,493	\$291,391,672	4.88
Inventors Assistance Service	\$1,910,721	\$1,676,000	0.88
Manufacturing Alliance*	\$14,222,220	\$1,510,269,228	106.19
Nanotechnology Applications Project	\$765,421	\$28,525,548	37.27
Plant Science Research	\$667,129	\$3,183,459	4.77
Seed Capital	\$2,341,887	\$14,998,211	6.40
Small Business Research Assistance	\$3,909,610	\$198,966,073	50.89
Technology Business Finance	\$7,568,504	\$208,027,484	27.49
Technology Commercialization Center	\$16,906,223	\$163,549,712	9.67
Totals	\$178,034,917	\$3,546,651,441	
Leverage Ratio			19.92

* The Oklahoma Manufacturing Alliance leverage is based on client projections of sales and capital investments. Historically, the actual leverage numbers exceed the projections.

IT'S ABOUT TIME

The projects funded today will create jobs, exported goods and tax revenue in the future. If the funding is delayed by years, the successful start-up company may also be delayed.

Oklahoma is better prepared to weather economic downturns because our state diversified its economy more than two decades ago. Back then, some said, "it's about time." With years of committed investment by our state, a history for high return on investment and quality research projects that are going unfunded, it's about time again.

The time has come for Oklahoma to take the next step and adopt an even more ambitious vision for Oklahoma as a global leader in research and technology.

\$19.92 for every \$1

Cumulative return to Oklahoma

\$3,546,651,441

Cumulative financial impact of OCAST funded programs on Oklahoma

2,815

Number of jobs created or retained by OCAST and its strategic partners in fiscal year 2009

\$44,050

Average salary of OCAST participants – 19% above Oklahoma's per capita income

INVESTING IN NEW TECHNOLOGY

Carbon Nanotubes are making metals, plastics, composites and other materials stronger, smaller and more energy efficient. "Smart bridges" made from fiber reinforced plastics containing nanotubes will sense and notify engineers when they need to be repaired. Nanotube inks will be used to "print" LED lighting products that consume one third the energy of fluorescent bulbs. SouthWest NanoTechnologies (SWeNT) is the leading producer of specialty carbon

nanotubes and the only company of its kind in the United States. The technology and company were developed in Oklahoma. With plans to go public in 2011, SWeNT will stay in the state and expects significant growth over the next few years.

"We would not be a leading producer of carbon nanotubes today without the support of OCAST."

—David Arthur, CEO of SWeNT

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A TIMELINE OF PAST INVESTMENTS ILLUSTRATES WHERE WE ARE TODAY

Since inception, OCAST has funded 2,198 Oklahoma research projects and leveraged more than \$3.5 billion. OCAST projects have made an impact on the state and the world over the past 22 years and will continue to impact our economy and society for years to come.

1987
OCAST created by the Oklahoma Legislature



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Artillery fire testing is costly in both manpower and equipment. Advanced Systems Technology was funded to create a simulation model.



1990



1992



2001



1995

3,000 CHILDREN DIE
ICx Nomadics received their first OCAST award. 3,000 children die every year from land mines. The company, based in Stillwater, employs more than 40 people and creates sensor technology that can detect land mines.

1998

Oklahoma Technology Commercialization Center, operated under contract with i2E, was created to guide innovators and entrepreneurs through the steps of taking new technology to market.

\$229 MILLION BUSINESS DEAL
OCAST funded Novazyme's research on treatment for children with Pompe's Disease, a rare but fatal autoimmune disorder. Dr. William Canfield sold Novazyme to Genzyme of New Jersey for a reported \$229 million and arranged for the research arm of the firm to remain in Oklahoma.

2001

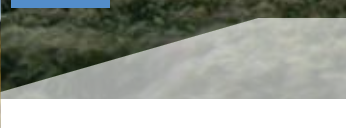
INVESTING IN AGRICULTURE
An OSU study on transgenic virus-resistant wheat seed was funded \$176,664 by OCAST.

2002



Pedigree Seeds reported \$14 million in sales through the OSU project funded by OCAST in 2001.

2004



2006
NEW ENERGY SOURCE
Geothermal power is eco-friendly, can be used to heat and cool homes and can be used to produce electricity. Impact Technologies received a \$90,000 OCAST award for geothermal drilling research.



2004

Dr. Canfield has since invested in his community through real estate development, local nonprofits and research and manufacturing projects.

2003

Cumulatively, OCAST leveraged \$1 billion for Oklahoma.

SAVING LIVES

Traditional smoke detectors are less likely to wake deep-sleeping children, seniors with hearing problems and heavy sleepers. Lifetone was funded \$100,000 to develop a low-frequency fire alarm capable of waking people who are unable to hear traditional smoke detectors. An intermittent bed-shaker was added for people who are fully deaf.

2005



2006



2009



2009

In July, R&D Magazine named GeoChip among the top 100 most outstanding technology developments of 2009.

2008

Cumulatively, OCAST leveraged \$3 billion for Oklahoma.

2007

Dr. Scofield received \$1.5 million in National Institutes of Health funding and attributed it to OCAST funds he received in 2000.

2007

7.8% U.S. POPULATION
OCAST awarded Dr. Sarah Zhang, University of Oklahoma Health Sciences Center, \$270,000 for diabetes research. 23.6 million people in the U.S.—7.8% of the population—have diabetes.

INVESTING IN BUSINESSES

The first 10,000 units of the Lifetone fire alarm are manufactured, sales orders are received and retail sales should begin soon.

Locally produced and consumed foods not only help local farmers, they also offer environmental, nutritional and security advantages over large-scale, out-of-state production. The Green Team was funded \$3,000 by OCAST for their local food market differentiation modeling project.

2009

NATCO reported \$31.2 million in sales from a project funded by OCAST in 2004.



2008

Dr. Sarah Zhang, University of Oklahoma Health Sciences Center, leveraged a \$12.5 million National Institutes of Health award for diabetes research.

OUR FUTURE WILL BE DEFINED BY TODAY'S CHOICES

2009

5% SURVIVAL RATE
Patrick Swayze dies of pancreatic cancer: the same year, OCAST funds Dr. Jay Hanas' cancer research. Two of the deadliest cancers, pancreatic and lung, have no early symptoms. By the time someone is diagnosed with pancreatic cancer, there is about a 5% survival rate after 5 years. Dr. Hanas at the University of Oklahoma Health Sciences Center is developing a blood test that would allow doctors to detect these cancers much earlier – potentially saving millions of lives. This is the first test of its kind in the world.

2009



CLEAN WATER

More than 50% of people in the U.S. drink groundwater and its largest use is in crop irrigation. Unfortunately, groundwater is sometimes contaminated with chemical solvents that leak from the surface. With a grant from OCAST, Dr. Kerry Sublette at the University of Tulsa is testing a process to break down the most common groundwater contaminant. Sublette's research and test could improve the quality of groundwater making it safer for Oklahomans and people around the world.

2023



PROJECTION

Using technology developed by Impact Technologies, holes drilled 6 miles deep are producing enough geothermal energy to power entire communities, while shallower geothermal drilling applications allow ground-source heat pumps to cut home and business heating and cooling bills by 50%.

2009

Impact Technologies received a \$2.4 million grant from the U.S. Department of Energy to adapt its new drilling technology.

2014

PROJECTION
Lifetone's new low-frequency fire alarms will be in homes across the U.S. making houses safer.

2020

PROJECTION
Dr. Jay Hanas' pancreatic and lung cancer test allows doctors to diagnose these cancers in stage one, increasing survival rate.

THE TIME IS NOW

OCAST
2010 IMPACT REPORT