



ANNUAL REPORT 2013 PERSPECTIVES



Solving New Mexico's Small Business Challenges



2195

Businesses Assisted

3510

Jobs Created and Retained

\$39M

Technical Assistance Provided by Labs

33

New Mexico Counties Represented

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The New Mexico Small Business Assistance Program plays an important role in nurturing small businesses that lack technical expertise. NMSBA works closely with the nation's top two research institutions – Los Alamos National Laboratory and Sandia National Laboratories – to tap skills from preeminent scientists and engineers to help small businesses with any technical challenges. In New Mexico, NMSBA is at the forefront of turning small ideas and concepts to big marketplace successes.

Demesia Padilla

Cabinet Secretary

New Mexico Taxation and Revenue Department

State of New Mexico



The New Mexico Small Business Assistance Program is a tremendous resource for driving economic and job growth in New Mexico. I am pleased with NMSBA's effort to help small businesses increase their technical capabilities, giving them a competitive edge to succeed and grow.

Jon Barela

Cabinet Secretary

Economic Development Department

State of New Mexico



Dear Governor Martinez and New Mexico State Legislators,

We are pleased to share with you the 2013 Annual Report for the New Mexico Small Business Assistance (NMSBA) Program. This report showcases success stories and presents quantitative results from the past year.

During 2013, NMSBA helped 354 small New Mexico businesses sustain and grow their companies. Thanks to the Laboratory Partnership with Small Business Tax Credit Act, the state of New Mexico, along with Los Alamos National Laboratory and Sandia National Laboratories, invested over \$4.6 million of national laboratory expertise and resources to help small businesses in 29 counties overcome technical challenges.

Highlights from 2013 demonstrate the impact of NMSBA on small businesses from various industries around the state.

- Five Albuquerque companies jointly received assistance to improve the ergonomics and measurement range of a new skin fold caliper.
- A group of companies from San Juan and Sierra counties were able to show that their green technology systems result in economic benefits to homeowners and municipalities.
- A Santa Fe company developing inspection tools for 3-D printers and other manufacturing technologies received an evaluation of existing technologies capable of providing high-accuracy optical metrology solutions that could be applied to 3D metal printing.
- A Socorro company that invents, designs, and produces solar-powered lighting and attic ventilation systems was assisted in streamlining production workflow to decrease product cycle time from 40 to 22 minutes and increase production capacity to 1,500 units a month.

This year, Data Center Transitions received the “Honorable Speaker Ben Luján Award for Small Business Excellence” for demonstrating the most economic impact. Through NMSBA, the company received an evaluation of the design of their MASS Lift’s power system. As a result of NMSBA’s assistance, the company was able to cut costs by 20%, keep production in Albuquerque, and sell additional units to Microsoft and Facebook.

NMSBA has helped create jobs, increase revenues, decrease operating costs, and attract new funding opportunities. Since 2000, NMSBA has assisted 2,195 businesses representing all 33 New Mexico counties, enabled 3,510 jobs to be created and retained, and provided \$39 million in technical assistance from our two national laboratories.

We sincerely thank you for your continued support of NMSBA, which allows our great state to engage the national laboratories and small business community in promoting economic development and creating wealth throughout New Mexico!

Sincerely,

Belinda Snyder
Los Alamos National Laboratory

Jackie Kerby Moore
Sandia National Laboratories

PROGRAM INFORMATION

OVERVIEW

In 2000, the New Mexico State Legislature created the Laboratory Partnership with Small Business Tax Credit Act for the purpose of “bringing the technology and expertise of the national laboratories to small businesses in New Mexico to promote economic development in the state, with an emphasis on rural areas.” As a result, Sandia National Laboratories established NMSBA to help small businesses throughout the state by providing technical support. Los Alamos National Laboratory began participating in the program in 2007. Jointly, the labs are committed to solving small businesses’ critical challenges with national laboratory expertise and resources; influencing New Mexico business development by building capacity, capabilities, and competencies; and acting as an advocate for small businesses through an entrepreneurial culture.

During 2013, NMSBA helped 354 small businesses across the state reach business goals, develop their products for commercial use, and increase profitability.

NMSBA makes a statewide impact by:

- Enabling New Mexico small businesses to access cutting-edge technology
- Increasing New Mexico small businesses’ technical sophistication and capabilities
- Sharing knowledge and resources between laboratory personnel and small businesses to address issues and develop real-world applications

While each company utilizes NMSBA in a different way, all use it as a means to maintain or grow their businesses. Our services are provided at no cost to the participating small businesses in the form of lab staff hours valued at up to \$20,000 per calendar year for businesses located in rural counties and \$10,000 for businesses located in an urban county (Bernalillo County). The total amount of assistance is capped at \$2.4 million annually for each laboratory. NMSBA may not provide assistance that is available in the private sector, and no equipment or cash can be given to a participating company.

At this year's NMSBA Innovation Celebration, Data Center Transitions received the “Honorable Speaker Ben Luján Award for Small Business Excellence” for demonstrating the most economic impact.

Left to right: Peter Atherton, Industry Partnerships, Sandia; Duncan McBranch, Chief Technology Officer, Los Alamos; Jeff Dabling, Principal Investigator, Sandia; Demesia Padilla, Cabinet Secretary, New Mexico Taxation and Revenue Department; Jane Powdrell-Culbert, NM Representative District 44; Maria Watts, Vice President, Data Center Transitions; Paul Pacheco, NM Representative District 23; Bill Watts, Owner, Data Center Transitions; and Patrick Duran, Field Representative and Economic Development Liaison, Office of U.S. Congressman Ben Ray Luján.





TYPES OF SMALL BUSINESS ASSISTANCE

Individual Projects

Individual NMSBA projects involve a single New Mexico for-profit small business. Projects address challenges specific to the business that can be solved with national laboratory expertise and resources. Technical assistance challenges are wide ranging; however, the majority include testing, design consultation, and access to special equipment or facilities. Requests for individual projects are accepted year-round until funding is exhausted.

Leveraged Projects

Leveraged NMSBA projects allow a group of small businesses that share technical challenges to collectively request assistance. Leveraged projects address issues that are too large or complex to solve through an individual project. Proposals for projects are reviewed semi-annually by NMSBA's Advisory Council.

Contract Projects

Legislation allows NMSBA to contract with entities that have the capability to provide small business assistance services not available in the private sector. NMSBA contracts for specific services with the New Mexico Manufacturing Extension Partnership and the three state research universities.

The New Mexico Manufacturing Extension Partnership provides training and assessments in the areas of quality and lean manufacturing principles.

The University of New Mexico Management of Technology program at the Anderson School of Management evaluates the commercial potential of small business technology and identifies commercialization challenges.

The Arrowhead Center at New Mexico State University evaluates capabilities of small business technology using subject matter experts throughout the university.

The New Mexico Tech Department of Management interfaces with a variety of disciplines taught at the university to help accurately assess the current competitive position of small business technology.

FUTURE DIRECTION

NMSBA continues to successfully support the growth and diversification of the New Mexico economy. As NMSBA moves into the future, it will continue to broaden the types of businesses receiving assistance, increase the range of technical expertise offered by the national laboratories, and expand the program's coverage in underserved rural counties. In addition, NMSBA continues to look for new opportunities and avenues to partner with New Mexico universities.

In 2013, past participants of NMSBA took part in a long-term economic impact survey. NMSBA is using the results of this survey to identify how NMSBA has helped commercialized technologies and create economic impact over a sustained period of time.

On April 3, 2014, NMSBA hosted the annual Innovation Celebration at the Technology Ventures Corporation 2014 Innovation Summit. The Success Stories throughout this publication highlight the companies that were recognized at the event. These photos capture the spirit of the celebration.





Customizabooks



Data Center Transitions



Enchanted Woodworks



McFarland Instrumentation Services



Real Green Construction Leveraged Project



Retriever Technology



Sigma Labs



Skyndex Leveraged Project



Solaro Energy



SportXast





We're transitioning from our development phase to a marketing phase. We're going to start using the concepts from NMSBA, and I expect we'll find out that it's more helpful as we go.

Tom Anderson
Co-Founder

● CUSTOMIZABOOKS

Tom Anderson's company, Customizabooks, LLC, works with people to convert their children's books or stories into digital apps. In this rapidly growing digital field, Anderson was looking for help in both improving his interactive book apps and taking his product outside traditional markets.

NMSBA paired Anderson with University of New Mexico (UNM) professor Steve Walsh and his team of students. UNM students Ryan Brown and Ruth Karkiewicz worked together to analyze the company's production process. They then proposed suggestions for advancing the graphics and animations in Anderson's mobile apps.

To help identify different primary customers, Walsh brought in student Nathan Tafoya to use a non-traditional expeditionary marketing approach, which involves searching for markets in places businesses don't currently exist. Using this commercial development technique, they analyzed the technology's unique benefits, developed a commercialization strategy for the company, and recommended innovative ways for Anderson to market the digital apps.

As a result of the help, Customizabooks was able to accelerate its time to market, generate a new customer base, and find other potential customers.

Coupled with the Los Alamos National Security (LANS) Venture Acceleration Fund, the production and marketing assistance from UNM allowed Customizabooks to successfully obtain a first round of funding.

Meet the
PRINCIPAL INVESTIGATORS

Left to right: Ryan Brown, Steve Walsh, Nathan Tafoya,
and Sul Kasscieh
University of New Mexico







They reduced my manufacturing costs by 20% and made it possible to build everything here in Albuquerque. We should have our first million dollars in sales within six months.

Bill Watts
Owner



DATA CENTER TRANSITIONS

To help transport his company's large computer server cabinets, Bill Watts of Data Center Transitions, Inc., designed an innovative lifting device called a MASS Lift. Using two motorized units in tandem, the MASS Lift can raise and move a 5,000-pound server cabinet.

But Watts ran into problems when the electronics in the lift's control system threatened to interfere with sensitive computer servers stored in the cabinets.

To resolve the problem, NMSBA paired Watts with mechanical engineer Jeff Dabling and his team of electronics experts at Sandia National Laboratories to evaluate the design of the MASS Lift's control system. The team sourced a suitable motor and controller for Watts' control system and also helped him incorporate a mechanical torque-limiting clutch and an electromagnetic brake into the controls to hold the load suspended. The team's suggestions not only added 500 more pounds of capacity to the lift, but the modifications also improved the lift's safety features and its overall operational reliability.

The reworked control systems reduced Watts' costs by 20% and allowed him to source and build his product entirely in Albuquerque. Watts signed a contract with Microsoft for one pair of MASS Lifts and expects a follow-up order of more than 50 units. He expects to make his first million dollars in sales within six months.

Meet the
PRINCIPAL INVESTIGATOR

Jeff Dabling
Sandia National Laboratories

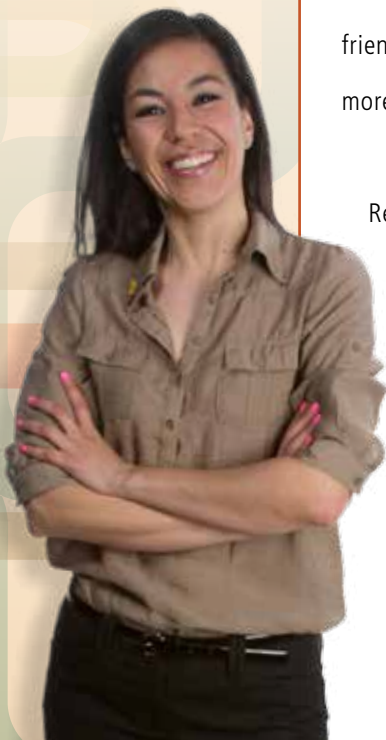
Craft
TS™





The consumer research they conducted helped tremendously in knowing what the consumer looks for. As a result of this help, my business has expanded.

Jeri Remley
Founder and Operator



● ENCHANTED WOODWORKS

Founded and operated by Jeri Remley, Enchanted Woodworks, LLC, manufactures educational wooden puzzle kits for children. In producing and selling the kits, Remley realized her product needed packaging that was more appealing to customers, as well as reusable and more environmentally friendly. She also wanted to have a better understanding of her market and the potential for growth.

For help, Remley turned to NMSBA through the Arrowhead Center at New Mexico State University. Griselda Martinez, enlisting the support of a team of people with business and engineering expertise, performed research on consumer development. Their study considered design features and components that better connected the kits with potential customers. As a result, Remley came away with numerous recommendations for package redesigns and ideas for product development.

With production suggestions in hand, Remley created new prototypes implementing the recommendations. The changes transformed her product line, adding user-friendly and attractive new packaging and a fully illustrated instruction guide for more than 30 different themed kits.

Remley showed her newly designed kit samples at regional and local shows. The new changes resulted in 30% increased sales for her company and have attracted potential buyers. Since the assistance, Remley has hired two additional contractors, including a storywriter and an additional graphic artist.

Meet the
PRINCIPAL INVESTIGATOR

Griselda Martinez
Arrowhead Center at New Mexico State University





I don't think we could have done what we did without the help from NMSBA. There has been a return on that investment.

Malcolm Fowler
Owner

● MCFARLAND INSTRUMENTATION SERVICES

McFarland Instrumentation Services, Inc., designs and fabricates electronic instrumentation for analytical procedures and data analysis. To further help companies with their instrumentation's analytical needs, McFarland owner Malcolm Fowler wanted to validate the precision of his equipment. The certification he sought for the analytical procedures was not available in the commercial sector.

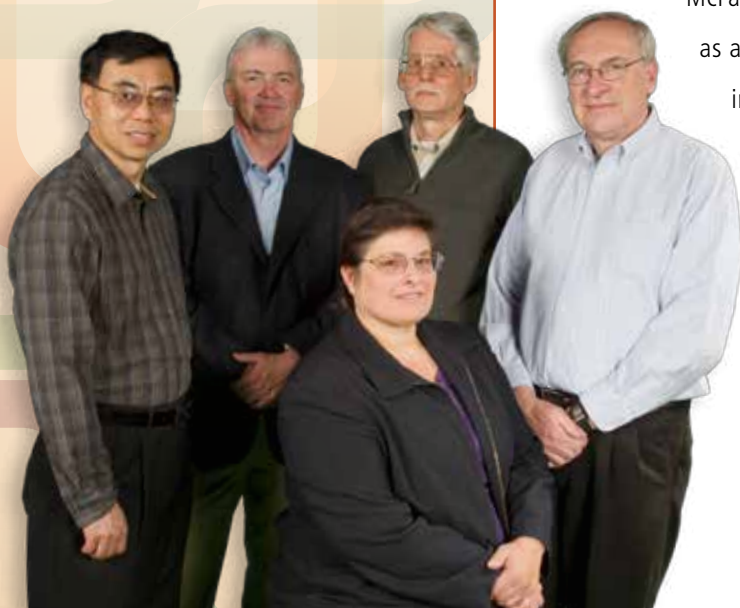
NMSBA connected Fowler with Deb Summa of Los Alamos National Laboratory, who assembled a team to help with the company's instrumentation testing and measurements.

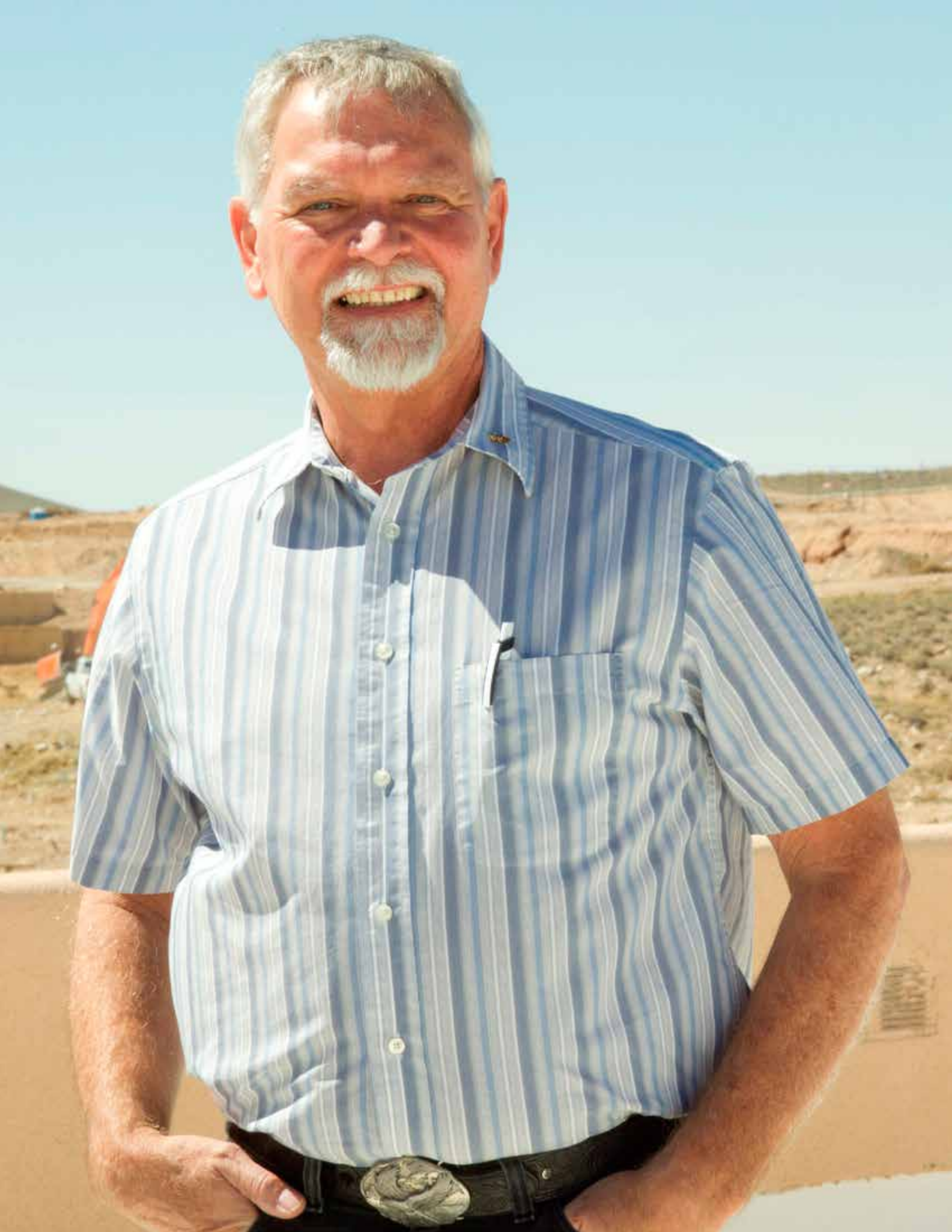
Using a unique high-resolution mass spectrometer, Summa and her team ran confirmatory tests on numerous materials with various gas compositions for catalytic activity. The team also helped prepare metal foils that were implanted with fluorine to modify their potential catalytic activity. Summa's team then monitored and evaluated the measurements, providing Fowler with the results of the confirmatory testing.

McFarland Instrumentation was able to certify its analytical methods as a result of the evaluations from Summa's team. With this information, the company subsequently secured contracts with a low-energy nuclear company in Chicago for \$45,000, an amount that could increase in the future. Another company in Texas is also pursuing the validation services of McFarland Instrumentation Services.

Meet the
PRINCIPAL INVESTIGATORS

Left to right: Yong Wang, Don Dry, Deb Summa, John Gill, and Tom Claytor
Los Alamos National Laboratory







What they did is incalculable; economically, it's incredible. Everyone on the project is getting business growth, and more people are looking at these technologies now. I believe we're going to have a major economic impact in New Mexico

Doug Lenberg
Chief Executive Officer

● REAL GREEN CONSTRUCTION LEVERAGED PROJECT

Doug Lenberg of Real Green Building Systems and four other construction and real estate companies are offering environmentally friendly home designs in San Juan and Sierra counties. They wanted to see how their innovative features stacked up against industry baseline data.

The home designs integrate plumbing-based fire protection, solar thermal heating and hot water, solar electricity, and recycled water systems into each home. Lenberg and the other companies applied for a leveraged NMSBA project to obtain an unbiased evaluation of their environmentally friendly and affordable home designs.

Through NMSBA, Steven Booth and Andy McCown of Los Alamos National Laboratory conducted a cost-benefit analysis of homes designed with the green technology systems. Their analysis addressed value and payback periods of each green technology applied both to individual homes and at the subdivision level. They also compared each technology's performance against standard industry practices.

The cost-benefit analysis showed that the green technology systems offer a payback in less than eight years and result in economic benefits to homeowners as well as municipalities. The analysis revealed that a subdivision of homes built with the integrated systems provides infrastructure cost savings for the entire community.

Overall, the cost-benefit analysis has helped Real Green Building Systems attract investors and increase business and has spurred hiring plans by the participating companies.

Meet the
PRINCIPAL INVESTIGATORS

Steven Booth and Andy McCown
Los Alamos National Laboratory



PROGRAM METRICS

VALUE OF PROGRAM ASSISTANCE IN 2013

In 2013 the State of New Mexico, along with Los Alamos National Laboratory and Sandia National Laboratories, invested over **\$4.6M** helping **354** small businesses in **29** counties to solve technical challenges. The following table contains the number of small businesses that received assistance from NMSBA, dollar value of the assistance for calendar year 2013, and cumulative value from 2000 to 2013.

	LANL	Sandia	Total
Number of Small Businesses Served			
2013	160	194	354
Rural	135	95	230
Urban	25	99	124
2000-2013*	538	1,821	2,195[†]
Rural	415	1,133	1,431 [†]
Urban	123	688	764 [†]
Value of Assistance Provided			
2013	\$2,339,973	\$2,356,558	\$4,696,531
Rural	\$2,143,153	\$1,531,847	\$3,675,000
Urban	\$196,820	\$824,711	\$1,021,531
2000-2013*	\$12,133,458	\$26,927,346	\$39,060,804
Rural	\$10,964,616	\$20,809,365	\$31,773,981
Urban	\$1,168,842	\$6,117,981	\$7,286,823

*LANL began participating in NMSBA in 2007.

[†]Some companies are served by both laboratories.

ACCOUNTABILITY & ECONOMIC IMPACT

NMSBA, enabled by the Laboratory Partnership with Small Business Tax Credit Act, is accountable to the State of New Mexico for its expenditures. It measures its economic impact through client surveys conducted by Research and Polling, Inc., and economic analysis provided by Brian McDonald, PhD Economist. The survey and analysis are performed six months to a year after the completion of the project.

Economic Impact for Businesses from NMSBA Projects

	2000 - 2012
Return on Investment (ROI)*	\$1.17
Small Business Jobs Created and Retained	3,510
Mean Salary	\$38,375
Increase in Revenue	\$172,525,995
Decrease in Operating Costs	\$78,992,071
Investment in NM Goods / Services	\$56,383,857
New Funding / Financing Received	\$59,603,539

*ROI is based on salaries of jobs created and retained.

BENEFITS TO NEW MEXICO SMALL BUSINESS

New Mexico small businesses achieved positive results after receiving technical assistance from NMSBA. Feedback from companies that participated in the 2012 economic impact client survey revealed that:

50%
IMPROVED
OVERALL OPERATIONS

50%
BECAME MORE COMPETITIVE
IN THE MARKETPLACE

51%
DEVELOPED A NEW PRODUCT
OR TECHNOLOGY

51%
EXPANDED OR IMPROVED A
PRODUCT OR SERVICE

50%
IMPROVED THE EXPERTISE OR
CAPABILITIES OF EMPLOYEES



NMSBA identifies the areas of technical expertise that the national laboratories and their contractors utilized in NMSBA technical assistance projects, as well as the industry sector for the participating companies. The county in which the small businesses reside are tracked to gain a better understanding of the reach of the program across the state.

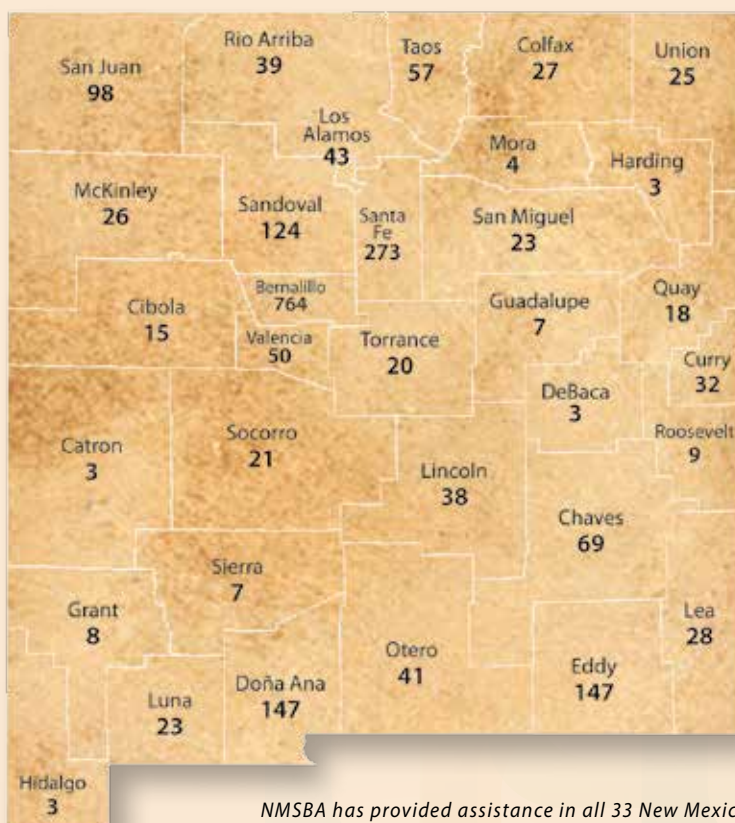
LABORATORY CAPABILITIES UTILIZED IN 2013

Manufacturing.....	22.0%
Engineering.....	16.4%
Energy.....	11.6%
Chemistry.....	9.9%
Advanced Modeling and Simulation.....	8.5%
Business Development.....	8.2%
Earth and Environmental Sciences.....	8.2%
Materials Science.....	5.6%
Biological and Medical.....	4.2%
Math and Computer Science.....	4.0%
Micro-Nano Technology.....	1.1%
Astronomy and Physics.....	0.3%

INDUSTRIES OF SMALL BUSINESSES SERVED IN 2013

Manufacturing.....	34.7%
Professional, Scientific, and Technical Services.....	27.1%
Agriculture and Natural Resources.....	13.8%
Retail and Wholesale Trade.....	6.8%
Oil & Gas, Utilities, Mining.....	5.4%
Education Services and Health Care.....	4.8%
Other Services except Public Administration).....	4.0%
Real Estate, Finance, Insurance, and Management Services.....	2.3%
Media and Hospitality.....	1.1%

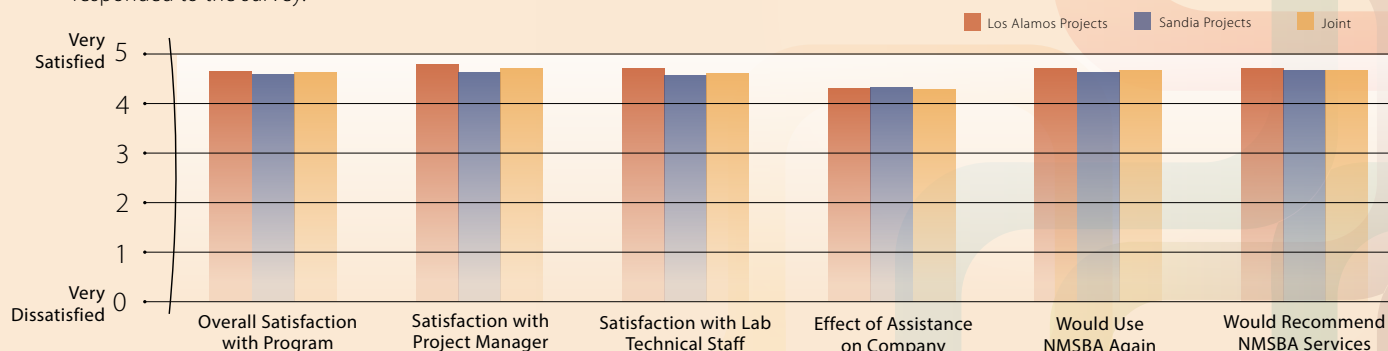
BUSINESSES ASSISTED BY COUNTY 2000-2013



NMSBA has provided assistance in all 33 New Mexico counties during the life of the program.

CUSTOMER SATISFACTION IN 2013

Each year, NMSBA surveys the participating businesses to learn about their satisfaction with the program. In 2013, 81% of the businesses responded to the survey.







*NMSBA is trying
to help you solve
your problems. From
a small business
perspective, this help
is very valuable.
You can't get it
anywhere else.*

Andy Bartlett
Owner



● RETRIEVER TECHNOLOGY

Old seismograms, which are records of the earth's vibrations, hold a wealth of information that could be beneficial to today's work in nuclear nonproliferation, earthquake modeling, oil and gas extraction, and even climate-change modeling.

But there's one main problem: these decades-old seismograms are film-based. As such, the data are rarely exploited because of the difficulty in converting the single snapshot images of the analog archives to more useful digital data, in which each seismogram line is made up of individual dots with a value and a time stamp.

Enter Retriever Technology, LP, a company that provides imaging software and hardware for scientific and industrial users. Andy Bartlett of Retriever Technology wants to develop a process to digitize seismograms so it's possible to elicit usable information from the historical data. To tackle the problem, Bartlett approached NMSBA, which set him up with Bill O'Rourke of Sandia National Laboratories.

Tapping into Sandia's signal and image processing expertise as well as geophysical proficiencies, O'Rourke consulted with Retriever Technology on suitable image and signal processing techniques to convert seismograms into usable digitized formats. His guidance provided Bartlett with an understanding of how image processing could be used to begin to solve conversion problems from film-based seismograms into digital data.

With Sandia's assistance, Retriever Technology secured a \$1 million Small Business Innovation Research (SBIR) Phase II award for future research into possible solutions.

Meet the
PRINCIPAL INVESTIGATOR

Bill O'Rourke
Sandia National Laboratories





It has helped us focus our internal R&D efforts and, therefore, streamline and accelerate our product development, which has a large cost savings.

Mark Cola
President and CEO

● SIGMA LABS

The world of 3D printing—making solid parts from digital designs—is rapidly growing and proving invaluable in manufacturing. In many industries, however, certain parts or products must be made to exacting specifications. And 3D printing requires a costly and time-consuming separate inspection step after printing to ensure the part meets precise specifications.

Mark Cola of Sigma Labs, Inc., wanted to combine the two steps, the manufacture and inspection of parts, into one step to ensure the quality and geometry of the 3D metal printing. Sigma Labs specializes in advanced, real-time, non-destructive inspection systems for advanced manufacturing.

To help find a solution, NMSBA matched the company with Frank Reinow and Jun Zheng of New Mexico Tech. Reinow and Zheng led a team in investigating imaging techniques that use high-resolution digital cameras for precision measurements, also called optical metrology. The team identified existing technologies that provided high-accuracy optical metrology solutions for use in 2D printing, which could then be applied to 3D metal printing.

Reinow and Zheng's team then provided recommendations on systems that offered the dimensional accuracy Sigma Labs was interested in. The company used the recommendations in its research and development efforts to accelerate commercialization of their product.

Meet the
PRINCIPAL INVESTIGATORS

Jun Zheng and Frank Reinow
New Mexico Tech







It was amazing to have the resources of Sandia. The engineers at the Labs had the specific expertise in mechanical design that made our idea into a reality.

Jeff Collins
President and Owner



● SKYINDEX LEVERAGED PROJECT

Through a leveraged NMSBA project, Jeff Collins brought together five companies seeking help on their new Skyindex skin fold caliper. The caliper, which is manufactured by Collins' company Welltec, Inc., measures body fat percentage.

The companies sought assistance with the caliper's ergonomics and its increased measurement range. To work properly, the caliper jaws must maintain a consistent pressure throughout their entire range. The new caliper design measures more than twice the thickness of the old caliper, from an upper measurement of 55 mm with the old caliper, to a 130-mm capacity with the new caliper.

Keeping a consistent pressure throughout the increased range presents a unique engineering challenge. To tackle the challenge, NMSBA connected the companies with Clinton Hobart and his team of robotic experts at Sandia National Laboratories. The team members conducted analysis, solid modeling, and advanced simulations on the caliper. They then ran the caliper's design through mechanical testing and evaluations, based on design improvements offered by the companies.

The companies received a final report detailing the Sandia team's design and manufacturing suggestions, including making physical changes so that the caliper jaws face perpendicularly. Thanks to Sandia's product design ideas and a new market, the companies expect to realize \$3 million in benefits over the next five years.

Meet the
PRINCIPAL INVESTIGATOR

Clinton Hobart
Sandia National Laboratories

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Y/O

PLEASE
HANDLE WITH CARE
FRAGILE
THANK YOU



We are in the process of constructing a second building so that we can fabricate our own components that we currently buy from suppliers.

Dennis Grubb
Owner and Engineer



● SOLARO ENERGY

Solaro Energy, Inc., invents, designs, and produces solar-powered lighting systems and attic ventilation systems. To grow his business with his current workforce and meet a monthly demand of 1,000 units, Solaro owner and engineer Dennis Grubb requested NMSBA's help with production workflow.

NMSBA brought Grubb together with Andrea Holling of New Mexico Manufacturing Extension Partnership. Holling began by training Solaro's employees in Lean Manufacturing techniques, which enable companies to transition manufacturing from mass production to smaller, more efficient areas for building individual products.

Holling then worked with the employees to streamline production for the company's attic fans. She helped them create a value stream map of their production process to identify wasteful steps. And together, they reorganized the area into a manufacturing cell as well as implemented a separating, sorting, shine, standardizing, and sustaining (5S) system and visual systems to quickly organize tools, information, and materials used in manufacturing.

Using the improved manufacturing process, Solaro was able to decrease product cycle time from 40 to 22 minutes and can now comfortably produce 1,500 units a month. The increased capacity surpasses the current demand for their product of 1,000 units per month and allows for immediate growth in sales. In addition, because of the improvements to its production process, Solaro reduced its expenses related to quality issues to nearly zero.

Meet the
PRINCIPAL INVESTIGATOR

Andrea Holling
New Mexico Manufacturing Extension Partnership





By participating in NMSBA, we've been able to pursue cutting-edge technology for our mobile app, which has a direct correlation to getting more users and investors.

Molly Cernicek
Chief Executive Officer



● SPORTXAST

Imagine using your smartphone to capture action-packed highlights of your favorite soccer match, football game, or any other sporting event and having them streamed real-time for fans, family, and friends to enjoy. The SportXast smartphone app does just that, allowing fans to capture, watch, and share real-time video highlights of local sporting events.

To further improve the sports app, SportXast's Molly Cernicek was interested in adding automated tagging within its sport videos. She turned to NMSBA for help in identifying computer vision algorithms that could be integrated into the company's app. The company's needs aligned with the expertise of Steven Brumby, a computer vision expert at Los Alamos National Laboratory.

Steven Brumby explored several algorithms and advised SportXast of emerging, open-source computer vision tools that were affordable, cost-effective, and accessible to a small business.

SportXast evaluated Brumby's suggestions to determine which tools fit best with their mobile app. Because of the help from Los Alamos National Laboratory through NMSBA, SportXast hired its own computer-vision developer to integrate these features into its app. The solution has put SportXast in a favorable market position to have powerful features and potential revenue sources.

Meet the
PRINCIPAL INVESTIGATOR

Steven Brumby
Los Alamos National Laboratory

LEVERAGED PROJECTS

Lab	Project	Description	Business Participants	Counties	Funding
Sandia	Algal Nutrient	To determine the feasibility of recovering nutrients from residual microbial biomass after lipid extraction for biofuel production, Sandia National Laboratories developed methodologies to compare nutrient content and potential nutrient recycling from various cell lysing techniques including hexane extraction, sonication, supercritical liquid extraction, and photocellular techniques.	Algae Growing Systems BioProcess Diagnostics, Inc. Energy Futures New Mexico KD Consulting New Solutions Energy Corporation Pocagua Consulting	Bernalillo Santa Fe	\$100,000
Los Alamos	Atrisco Biofuels Exploration	Los Alamos National Laboratory identified a panel of algal strains that are likely candidates for sustainable growth in brackish water conditions based on biomass and lipid content. Los Alamos also reformulated the growth media using water chemistry data supplied by the small businesses and provided an assessment of the suitability of the participants' water for algal biofuel applications.	Atrisco Companies Benavidez Land and Cattle Michelle Henrie, LLC dba MHenrie Land Water Law	Bernalillo Santa Fe	\$40,000
Los Alamos	CAFO Web Modules	Los Alamos National Laboratory assisted the participating small businesses in developing technical specifications for new modules within their existing software that included a water rights and water use tracking module.	Brownrice Internet, Inc. CAFO Web Modules Glorieta Geoscience, Inc. Perry Farms	Chaves Santa Fe Taos	\$79,000
Sandia	Catalyst for Tire Recycling	Sandia National Laboratories provided technical assistance to the small businesses by exploring routes to clean up and upgrade the residual oil from thermal treatment of tires. Catalysts that desulfurize oil or hydrogenate/dehydrogenate the oil to higher value-added products were examined. Sandia determined optimal reactor operating conditions and detailed characterization of the oil-based products.	Adherent Technologies, Inc. Alternative Industry Resources (AIR) Division of Sandia Development, Inc. LRC Trucking, Inc. Thoma Industrial Technology Services & Applied Scientific Solution	Bernalillo Valencia	\$50,000
Sandia	Characterization of I & W Brine Cavity	Sandia National Laboratories provided technical consulting and conducted a geophysical survey of the area of the brine cavity. Results from this measurement survey provided an estimate of the areal extent of the cavity's borders, the amount of material dissolved, and the location of the center of the dissolution cavity.	Coley Burgess Custom Farming Dean Calvani Farms Tidwell Farm	Eddy	\$62,000
Los Alamos	Commercial Soil Mining	Los Alamos National Laboratory conducted field investigations and sample collection on and around the property of participating businesses. Laboratory analyses, such as quantitative x-ray diffraction and electron microscopy, were conducted to evaluate the suitability of the soil as a commercial soil amendment.	Anthony & Cathie Hephner Ranch John Hephner Ranch JT Ranch Sofia Land & Cattle, LLC Wagon Mound Ranch	Colfax Mora Union	\$98,000
Los Alamos	Computational Methods for Bypassed Hydrocarbons	Los Alamos National Laboratory used the open source tools OpendTect, Seismic Unix (SU), and Madagascar as platforms for novel direct hydrocarbon filters. The assistance focused on proof of concept and delivery of tools that are tailored for use with New Mexico data.	Providence Technologies, Inc. Thrust Energy Corporation fka Sierra Oil & Gas, Inc.	Chaves	\$40,000
Sandia	Dairy Energy & Water	Sandia National Laboratories helped evaluate the use of waste heat within a dairy to provide the energy source for treating dairy lagoon water via an evaporator technology developed for the oil and gas industry. Sandia also evaluated pre- and post-dairy water treatment quality and equipment operation, equipment optimization to further enhance economics of the technology, and identification and quantification of the waste heat sources available.	Buster, LLC Gator Hydro-Incineration, LLC Western Environmental Management Group	Eddy Sandoval	\$60,000
Sandia	Information Assurance	Sandia National Laboratories assisted with knowledge transfer of emergent Internet Protocol version 6 (IPv6) and associated internet modernization technologies. Sandia also consulted on IPv6 security methods and practices to address complex cyber security challenges and maximize internal infrastructure security and customer data integrity. An assessment of emerging advanced Internet services with broad application across diverse transport media and devices was also completed.	Crestino Telecommunications Solutions, Inc. Mescalero Apache Telecom, Inc.	Bernalillo Otero	\$21,000



Lab	Project	Description	Business Participants	Counties	Funding
Sandia	Intense Photonic Flash	Sandia National Laboratories explored the possibility of employing the solar tower facilities (i.e., solar furnace) to deliver intense photonic flashes to produce sintering in very thin films under varying conditions. Work was performed to embed solar-active nanoparticles in the matrix via dispersion of the particles in solution with subsequent deposition on a substrate in an effort to improve the stability of the dispersion. Thermal modeling was performed to quantify and predict the thermal effects of the photonic flash onto the CIGS layer and substrate layers.	Energy Related Devices, Inc. eQsolaris, Inc. McCune Solar Works, LLC	Bernalillo Quay	\$33,000
Los Alamos	Irrigation Water Loss on NM Agriculture	Using historical data for the Canadian River watershed, Los Alamos National Laboratory outlined baseline statistics, input datasets formatted for computer models, identified causal factors that result in changes to river flow, and delineated factors that are not associated with drought conditions. A predictive regression model was created to establish the statistical relationship between monthly rainfall and river flow. Los Alamos also provided a demonstration of the forecast model.	Evans Farms McEwen Farms Perkins Land, LLC Phillip Box Farms Tucumcari General Insurance Agency, Inc.	Quay	\$91,000
Los Alamos	Manufacturing Microfluidic Chips	Los Alamos National Laboratory provided facilities and assistance for microfluidic platform fabrication to aid the small businesses' design optimization and integration with biosensors.	Focus Biomedical Integrative Enzymatics Vista Therapeutics, Inc.	Santa Fe	\$59,000
Sandia	Membrane	Sandia National Laboratories provided technical consulting to the companies regarding the feasibility of integrating a proprietary biocidal coating with polyamide membrane materials. Sandia then evaluated and tested the resulting products.	Aqua Access, LLC Aqua Membranes, LLC CleanSpot, Inc. fka Oligocide, Inc.	Bernalillo	\$30,000
Sandia	Off-Grid Pumping	In order to optimize the participating small businesses' off-grid pumping system, Sandia National Laboratories evaluated pump flow rates vs. fuel consumption, motor and generator combinations, air emissions, battery charge/storage, and PLC operations.	Melton Electric Mountain Propane Company One Stop Auto Remote Well Solutions, LLC Roy's Welding and Wrought Iron, Inc.	Otero	\$100,000
Los Alamos	Ozone Efficacy for Dairy Disinfection	Los Alamos National Laboratory assisted the small businesses by evaluating the feasibility of utilizing ozone technology as a substitute for currently employed methods of clean in place (CIP) in the dairy industry. Los Alamos conducted a review of literature and relevant information to understand and focus the application of the technology and to identify information necessary to obtain CIP certification. The many regulatory requirements were assessed and summarized, along with the current understanding of ozone utilization in the food and beverage industries. As a result of this work, New Mexico Department of Agriculture has provisionally approved the deployment of a pilot scale test of ozone use for CIP. A summary report on current methods and available data on ozone use in industry was produced. This report also summarized a path forward for field-scale testing and the steps for obtaining approval for implementing ozone in CIP.	AgVentures, LLC Next Generation Ozone	Chaves	\$19,000
Sandia	Pattern Recognition	Sandia National Laboratories provided consulting to apply state-of-the-art pattern recognition algorithms (software) to raw data generated by Safe Zone's Suicide Bomber Detector. Sandia's assistance provided a more accurate and consistent determination of threat/non-threat across a wider variety of targets.	Electro Science Technologies, LLC MacAleese Companies, Inc., The, dba Safe Zone Systems Roberson Construction Company, Inc.	Bernalillo	\$30,000

LEVERAGED PROJECTS (CONT.)

Lab	Project	Description	Business Participants	Counties	Funding
Los Alamos	Petaca REE Mining	The participating businesses required assistance to evaluate potential mining and recovery methods and the overall economic viability of rare earth element (REE) placer deposits in the Petaca Mining district. Los Alamos National Laboratory conducted field and laboratory investigations to assist the small businesses with resource evaluation and testing field-recovery methods in an effort to identify efficient, low-cost ore processing for the materials found in the Petaca district. Los Alamos prepared a report summarizing the mineralogic and geochemical data and provided a resource assessment of the study areas.	Aroma Fresca, Inc. Geosights Consulting Mineral Exploration Location Services, LLC Prospect Geotech	Bernalillo Chaves Sandoval	\$59,000
Sandia	Radar, EMI & RFI Films	Sandia National Laboratories provided technical consulting to characterize materials, design RF absorptive treatments, and evaluate the treatments with the goal of improving the radar and EMI performance of the participating companies' small, portable shelters.	BMT USA, LLC Lifeline Building Sciences, LLC Litehouse International, Inc.	Bernalillo	\$22,000
Los Alamos	Ranchvale	Los Alamos National Laboratory identified renewable development options that meet Air Installation Compatible Use Zone (AICUZ) requirements and analyzed new technologies that offer greater compliance potential. This study included the review of AICUZ guidelines, selection of compatible renewable technologies, and modeling of the options. Los Alamos also assisted the small businesses by assessing renewable sellback options for Cannon Air Force Base and other potential purchasers and evaluating a range of energy sellback scenarios. A final report summarizing AICUZ-compatible renewable configuration (technology, locations, and energy sales options) was produced.	Douglas Reid Farm Frank Blackburn Farm TeePee C, Inc. Wall Farms	Curry	\$56,000
Los Alamos	Real Green Construction	Los Alamos National Laboratory performed a cost-benefit analysis (CBA) of the Real Green Building System (RGBS). Features of this system include fire suppression, grey water reclamation, solar hot water heating, solar radiant floor heating, and photovoltaic energy. The CBA addressed payback period of each feature, and also the value of the entire RGBS package applied to an individual home as well as at a subdivision level. Performance of the innovative features was compared against standard industry practice to identify relative efficiencies. Cost of materials, installation, and maintenance over time were tabulated. Comparison of performance combined with cost allowed payback period to be estimated. The steps in the CBA methodology included scenario definition, data gathering and subject matter expert interviews, economic analysis, and report preparation.	All About the House Homesteaders Realty Real Green Building Systems (RGS) Solar Works	San Juan Sierra	\$79,000
Sandia	Skyndex Redesign	Sandia National Laboratories provided the participating businesses with design assistance in the form of consultation, solid modeling, and advanced simulations. Sandia also provided mechanical testing and evaluation expertise regarding design improvements made by the companies and delivered a final report detailing design and manufacturing considerations for the production of the new Skyndex skin fold caliper.	Crestline Plastics, Inc. Electronic Workmanship Standards, Inc. (EWS) Southwest Design and Prototyping TCS Industries, Inc. Welltec, Inc.	Bernalillo	\$44,000
Los Alamos	Solar Project Development	Los Alamos National Laboratory leveraged results of a previous renewable site assessment study to assess key features of solar plant options. Los Alamos applied standardized methods to quantify the technical feasibility, operational value and market potential of a concentrated solar plant (CSP), and provided technical status briefings. A final report summarizing recommended CSP plant configuration (sizing, operational issues, and energy sales options) was produced following the study.	Johnny Reid Farms Jurva Farms Ogden Farms Oscar Vasquez Farms	Eddy	\$65,000



Lab	Project	Description	Business Participants	Counties	Funding
Sandia	Subsea Modeling	Sandia National Laboratories provided design assistance to the participating small businesses by utilizing the expertise of its technical staff in the configuration, coding, operation, and data analysis of OrcaFlex software. Sandia modeled the Ocean Hydropower System, optimized the mooring system, and transferred the technology to the New Mexico companies. Upon completion of the work, Sandia submitted a final design and project report.	Atmocean, Inc. Reytek Corporation	Bernalillo Santa Fe	\$30,000
Sandia	Thin Film	Sandia National Laboratories provided technical consulting regarding refinement of aluminum coatings of polycarbonate films via expertise in unique deposition systems and low-stress coatings. The objective was to collaboratively produce a stress-free, pinhole-free coating process based on publicly available methods and transfer this knowledge to the companies.	R & A Technical Manufacturing Industries (TMI)	Bernalillo Valencia	\$30,000
Sandia	Vertical Turbine	Sandia National Laboratories provided technical consulting to the participating small businesses in the form of computational modeling dynamics (CFD) and simulation that was used to determine the efficiency of a novel vertical-axis wind turbine (VAWT) design.	B & H Ranch Choate Welding & Supply Make-A-Buck Construction and Maintenance Company T4 Cattle Company, LLC	Quay	\$42,000
Los Alamos	Vitrecrete	For mixtures of fly ash and various additives, including sand and bottom ash, Los Alamos National Laboratory produced castings that can be used for 28-day strength and freeze-thaw cycling performance, as well as tomography of samples as-cured and cycled. Los Alamos also produced SEM cross section images for physical structure, and modeled the initial material using NIST Virtual Concrete Lab. For each mixture, Los Alamos scientists attempted to determine the features that optimize performance. A final report describing the full set of results and expected optimal composition of each mixture was produced.	Concrete, Aggregate, and Asphalt Testing, LLC Lopez & Sakura, LP Vitre International, LLC	San Miguel Santa Fe	\$26,000
Sandia	Wireless Protocol	Sandia National Laboratories provided technical consulting to the participating companies regarding the viability of incorporation of wireless data transfer for their various product applications, including design consultation and review and testing of components produced by the companies. The FreeFall circuit boards have been built and are currently being tested. The other two circuit boards are waiting for testing results from the FreeFall boards before they are built (so that problems found in the FreeFall boards can be avoided in the other two boards).	ExerPlay, Inc. Maimonides Sleep Arts & Sciences, Ltd Marla Bell, LLC ParkLab, The Quality Sleep Solutions, Inc. ZBOX, LLC	Bernalillo	\$73,000

INDIVIDUAL PROJECTS

Chaves

AerSale, Inc.
GeoScience Technologies
Rich Glo Products, Inc.

Cibola

Mt Taylor Machine, LLC
Mt Taylor Millworks

Curry

Farming Services Company of New Mexico
dba FarmKo
Lay Land and Cattle Co. dba Lay Wind Farm
Marvin Estes
Ryan White
Sena & Associates
Southwest Cheese Company, LLC

Dona Ana

Alma Energy Group, LLC
Asymptopia Software
Clean Code, Inc. dba CCI Solar dba 35 Solar
Dynamic Core
Enchanted Woodworks, LLC
Glaz-Tech Industries
Himalayan, LLC, The
Like CASH Global Corp dba OneEighty
aka OneEighty Global Corp.
Mte Music
R-Qubed Energy, Inc.
Sapphire Energy, Inc.
Shouman Associates Engineering
Stanco Metal Products

Eddy

Accu-Rite
Blue Springs Ranch
Dane Williams Farms
Durham & Associates
Jahva House, The
JSJ Farms
Murrill Electric, LLC
NeuroTechnology Device Manufacturing
North Star Investments / Norcon Rail
Otis Mutual Domestic Water and
Sewage Company
Taddy Healthcare Services, LLC

Grant

Life Genome Project, LLC

Guadalupe

Big Rig Truck Service
Kelly Green Energy
Milagro Ranch Resources
Thompson Cattle Company

Harding

Ute Creek Cattle Company

Lincoln

L-Bar Resources, LLC
Y Bar Ranch, LLC

Los Alamos

Alpha Analytics, LLC
Fraser E. Goff
Heppolt Wind, LLC
HyPwr, LLC
MIMICRI, LLC
Mustomo, Inc.
Samitaur Medical Technologies, LLC
SportXast
Sun Enerjy, LLC
Tibbar Technologies

Luna

Compass Manufacturing Services Division
Fence Company

McKinley

Hydro Resources, Inc. aka HRI Energy
Navajo Spirit Southwestern Wear

Mora

Union Land and Grazing Company
Worldwide Comfort Solutions, LLC
aka Upright Sleeper

Quay

Box Insurance Agency
Heckendorn Ranch

Rio Arriba

Apache Fire Industries fka Asher
Fire Hose Company
Black Mesa Winery
McFarland Instrumentation Services, Inc.
Rincon Blanco Veterinary Hospital

Roosevelt

DairiConcepts
Sunland, Inc. / Sunland Valencia Peanuts

San Juan

Air Star, Inc.
A-Plus Well Service, Inc.
Choman Enterprises
Compressco Partners, LP
Glenhasbah Renewable Energy
Technologies, Inc.
Haulrite of Four Corners, Inc.
Henry Production, Inc. (HPI)
Jack's Plastic and Welding, Inc.

James R. Dennis Associates
MuleShoe Engineering
Nott, Ltd. / Not Limited, LLC
One Source Service
Peak Power Manufacturing fka Premium
Power Solutions
PESCO, Inc.
R & T Holdings, LLC
Surefire Burner Management Systems
Terra Tersus, LLC

San Miguel

Environmental Building Sciences, Inc.
Old Wood, LLC
Randy Huston Ranch

Sandoval

Carter Holdings, LLC
Cordova & Sons Tire Recycling & Manufacturing
fka Cordova & Sons Tire Disposal & Recycling
Customizabooks, LLC
Data Center Transitions, Inc.
Enchantment Organics
Focus, LLC
Insight Lighting
Inspyrd Products Corporation
KCVI Corrosion Services
Mesa Top Excavations, LLC
Pueblo of Zia
Roadrunner Healthcare & Navigation
Slider Structure Systems, LLC
Vacsmart, LLC
WEN Engineering

Santa Fe

Action Estate Pros, LLC
Advanced Ports, LLC
Aerblock Enterprises, LLC
Aerolenz
AM Energy
AttoLight Group, The
Barraclough & Assoc. P.C.
Batterade, LLC
Center for Orthopaedic and Sports
Performance Research, Inc.
Decysive Systems
Dixon, LLC
Duel Brewing Company
Environmental Geochemistry, LLC
Evolving Energy
Fault Tolerant Technology
Flow Sciences, Inc.
GO Electric, LLC dba GO Solar
Good Sawyer Development, LLC
Healthy Living Spaces
Herbs, Etc., Inc.
iBeam Materials, Inc.

**Santa Fe (cont.)**

Innovative Organic Solutions Intl., Inc.
Intermodal International & Associates, LLC
Kreger Design Build, LLC dba Rain Vessels
Marty's Meals
Mesa Tech International, Inc.
MS Flawless Goddess, LLC
National Water Services, Inc.
New Mexico Algae, LLC
New Water Innovations
OpenEye Scientific Software, Inc.
PediBioMetrix, LLC
Phase One Ventures
Phyteau Functional Foods
Positive Energy Solar
Pristina Natural, Inc.
Radiation Detection Solutions, LLC

Retriever Technology, LP
Rio Grande Neurosciences
Santa Fe Brewing Company, Inc.
Sigma Labs dba B6 Sigma, Inc.
fka Beyond6 Sigma
STAR Cryoelectronics, LLC
Sumner & Lawrence Limited
aka Sumner Associates, Inc. dba Sigma Labs
Synfolia
Ungar
VB Enterprises

Socorro

Animal Haven Veterinary Clinic of Socorro, PC
Armijo Farm
Nu-H2O, LLC
Solaro Energy, Inc.

Taos

Biofuels & Energy, LLC
Old Masters Maroger
Paradise Power Company, Inc. dba PPC Solar
Private Label Select, Ltd. Company
Taos Mountain Energy Foods, LLC
Taos Ventures in Fiber Optics, LLC
Vapour Organic Beauty

Torrance

EarthGift Group, The dba EarthGift Herbals
KemKey, LLC
Titan Aerospace Holdings, Inc.

Union

Amistad Energy

URBAN INDIVIDUAL PROJECTS

Bernalillo County

505access, LLC
ABQ Machine Works
Affordable Solar Installation, Inc.
Alcone Performance Products, Inc.
Alternate Route, LLC
Angstrom Thin Film
Technologies, LLC
Apple Canyon Gourmet Company
Applied Technology Associates (ATA)
/ A-Tech Corporation / ATA Sensors
Armed Response Team, Inc.
Assila
Azano Pharmaceuticals
Backerworks
Bio-Detector, LLC
Biomoda, Inc.
Biophagy
Black Mesa Coffee Company, Inc.
Blur to Focus Productions
Bocadillos
Bogue Machine Company
Boomstixs, LLC
Brenda's Perfect Brittle
Carl Hime and Associates, LLC
Century Sign Builders
Chase Ergonomics

Continental Machining Company
Dapwood Furniture
fka Ramblin Wood, Inc.
Definitive Bone, LLC
Desert Paper & Envelope
Company, Inc.
Diversified Tooling Corporation
Ducks in a Row, Inc.
Environmental Restoration Group
Excel Manufacturing
Fiore Industries, Inc.
Geaux Gluten Free
Gluten Free Gourmet Foods, Inc.
Halcyon Wellness Initiative, LLC
HoldMyTicket
HT MicroAnalytical, Inc.
IC Tech Incorporated
Imagars, LLC
Improve Group, The
Innovasic, Inc.
Innovative Technologies and
Solutions Global Trading Company
Integrated Deposition
Solutions dba IDS
Integrated Machining Company
Jaguar Precision Machine
Corporation

Lotus Leaf Coatings, Inc.
Machining Solutions, LLC
Management Sciences, Inc.
MARPAC Medical Manufacturing
Masha Manufacturing, Inc.
Mineris Vitae, LLC
Motorcycle Taxi Service LLC dba
TJ's Motorcycle Taxi Service
MVD Express
NanoPore, Inc.
OGB Architectural Millwork, Inc.
OSO BioPharmaceutical
Manufacturing
Plectone, LLC
Pressure Analysis Company
Pure Water Technologies, LLC
PureColor, Inc.
Qynergy Corporation
Radiant Technologies, Inc.
Radigan Engineering, LLC
Real Rock Replications, LLC
Red Rock Distributing Co., LLC
fka Red Rock Roasters
Robocasting
Sage Technology Partners, Inc.
Salteydogg Metal Fab
Senior Scientific, LLC

Sierra Peaks
SoilCo, LLC
Sourcery, Inc.
Spa Enrichment Strategies
dba My Sacred Fig
Srypto, Inc.
Strategic Engagement, LLC
Stride, Inc.
Sun Sign Soap Company
Sustainable Planet Solutions (SPS)
TEAM Technologies, Inc. fka
TEAM Specialty Products
TransMix Safe Lock
Valley Gurlz Goodz
VanDevender Enterprises, LLC
fka VanDevender Enterprises
Viatech Global
Vibrant Corporation
Vida Pharmacy
Walker Hi-Tech, Inc.
Welch's Boiler Service, Inc.
Whispering Spirits Alpacas
dba Whispirit
WOOD2GREEN
You & Me Productions
Z-Coil Footwear aka Z-Tech Footwear
Zymostat, LLC

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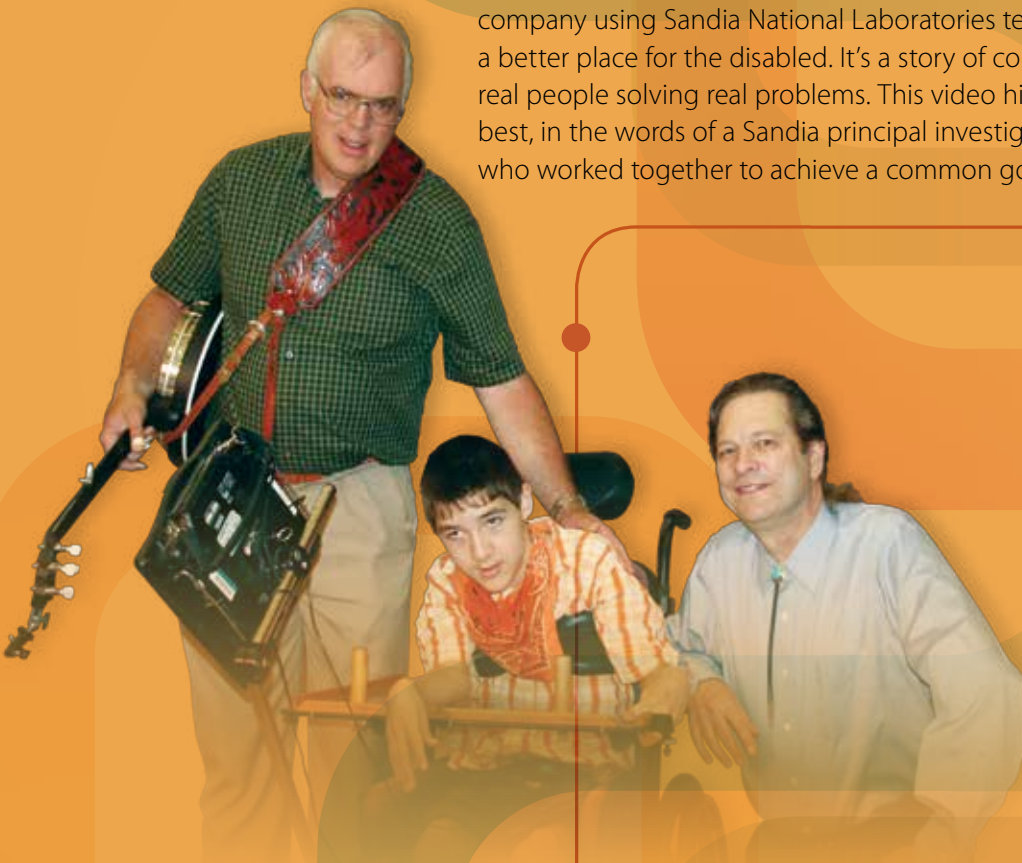
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NMSBA SUCCESS STORY VIDEO

KIDS WITH DISABILITIES INSPIRE A MUSICAL INSTRUMENT ANYONE CAN PLAY

Musicode Innovations, a 2011 success story, brings to life the vision of a company using Sandia National Laboratories technology to make the world a better place for the disabled. It's a story of commitment, partnership, and real people solving real problems. This video highlights the NMSBA at its best, in the words of a Sandia principal investigator and an entrepreneur who worked together to achieve a common goal.



To watch the video,
scan the QR code or go to
www.sandia.gov/partnerships.



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