

Ad Astra Kansas / NASA Cooperation Meeting

Thursday, November 20, 2008

On Thursday, November 20, 2008, Ad Astra Kansas hosted a meeting with representatives from Kansas universities, industry, government and organizations to discuss the state's space technology strengths and opportunities for developing NASA relationships with Kansas. The following is a list of attendees from the meeting:

Kevin Carr, Chief Operating Officer of Kansas Technology Enterprise Corporation; Greg Colvin, Honeywell, FMT; Linda Cory, NASA in Kansas/EPSCoR Program; Steve Durst, Ad Astra Kansas/Space Age Publishing; Jane Fortin, Kansas Commission on Aerospace Education; Paul Fortin, Kansas Commission on Aerospace Education; Jim Guikema, Associate Vice President for Research at Kansas State University; Robyn Horton, Ad Astra Kansas; Steve Kelly, Deputy Secretary for Business Development at the Kansas Department of Commerce; Frank Kroh, Nanoscale Corporation; Bill Kuhn, Professor of Electrical and Computer Engineering at Kansas State University; Jim Lookadoo, Professor of Electronics Engineering at Pittsburg State University; Glen Marotz, Dean of the School of Engineering at the University of Kansas; Craig McLaughlin, Assistant Professor of Aerospace Engineering at the University of Kansas; Jim Mitchell, Kansas Bioscience Authority; Kay Neill, Ad Astra Kansas; Jeanette Steinert, Ad Astra Kansas; and Harold Stones, Kansas Special Projects Director, Office of U.S. Senator Pat Roberts.

Meeting Outcomes

Kansas Core Strengths: Academia/Industry — Moon, Mars, Stars

Eagle Picher

Space uses 90% of lithium batteries for satellites and telecommunications, but not so much in robotics. We are starting to build a lithium ion plant and focusing on space and medical. (IDEKER)

Kansas State University

We have a very specialized focus in integrated circuit design, and produced miniaturized radios for Mars. That is our little contribution. Overall we specialized in electronics. For lunar missions, you want small radios with thermal insulation that can send information. (KUHN)

There has been research on battery technology at K-State by Kevin Lease (engineering). Kenneth Klabunde (chemistry) has also done a lot, also with lithium battery research. (GUIKEMA)

Pittsburg State University

There is a high-energy physics grant for cosmology and gamma ray astronomy, and a small group looking at smaller materials – very miniaturized chemical sensors or looking at disease and health applications, alcohol-based fuel cell. (LOOKADOO)

University of Kansas

There is research going on for robotic devices that employ intelligent learning autonomously – unmanned vehicles, aerial surveillance. We have 40 years of research on remote sensing through satellites. We also have had people developing sensors for orbiting. (MAROTZ)

Fuel cell research is the main research and it is conducted by Trung Van Nguyen (chemical & petroleum engineering - currently serving as Director of NSF Program for Energy for Sustainability). (MAROTZ)

We have a long history of autonomous vehicles, all part of a NSF project. We have a vehicle in development that can see through 8000 feet of ice. A combined NASA/NSF project is the carbon-fiber airplane. It will fly in Greenland this summer. We are also heavily involved in radio development and have worked in satellite technology for years. We are also developing a lightweight telescope for satellites that can be used to trick IEDs to not explode. (MAROTZ)

Kansas Bioscience Authority

We work with industry to identify what is needed and look for commercial opportunities. Currently we are focusing on bio-materials and are currently working with Wichita State University and the University of Kansas to address issues of titanium knee/hip replacements and the development of operating tables that hold more and weigh less than 100 lbs. We are also working with Kansas State University and the University of Kansas on alcohol-based fuel cells. It's an industry direct initiative that doesn't have direct ties to NASA today, but it may in the future. (MITCHELL)

Nanotechnology Corporation

A lot of our work focuses on nanocrystalline and destroying toxic compound. We have a current proposal with NASA that hopes to be funded, but it has not gotten off the ground yet. (KROH)

Vision for the Next Five to Ten Years

Office of U.S. Senator Pat Roberts

We are looking at commercialization 5 to 10 years down the line, and turning research into Kansas jobs. We should never ever lose our focus of producing a higher-paying job-base for Kansas men and women. We would like to see our universities research and patents transferring into a job base. (STONES)

Nanoscale Technology

Nanoscale has doubled its staff in the last five to seven years. Would like to see it continue to grow. (KROH)

KU's Aerospace Engineering

Would like to see another faculty member added for research collaboration. (MCLAUGHLIN)

Honeywell

In terms of particular research, we are focusing on data determination. Honeywell's objective is to help bridge the gap between with research and manufacturing. We continue to help companies and universities, and our company could see an additional growth of 10% as it has in the past 10 years. One-third of engineers are going to retire in the next five years. We tend to hire from states that border us. (COLVIN)

Kansas Department of Commerce

Our focus is the Kansas economy and strengthening our economic bulwarks – agriculture, aviation, energy, etc. – where we have traditionally been strong. We would also like to move forward in biosciences and alternative energies as these areas are very competitive. (KELLY)

Kansas Department of Commerce

We need quality research and support of companies. It takes money and investment, a level of commitment, a strong workforce with skill and set numbers. We need people to fill jobs in rural Kansas. We want to identify and promote Kansas opportunities to our own, to the country and world. We want to focus on the rural economy, and what can we do to sustain and support rural economies – create homegrown industries. (KELLY)

Kansas Bioscience Authority

From our perspective we want to echo Commerce. We have to consider four major goals. 1) Companies; 100-200 companies in Kansas development. I would hope somewhere that we have a 10-year plan. 2) Grants; 500-600 grants to major industries. 3) Investment; bring in 100 million dollars a year in new companies, projects, etc. 4) Operational; all our operational centers are in place and we're starting to receive patents. (MITCHELL)

Pittsburg State University

We need to look at the circumstances for growth, and what constitutes success in preparing students to other parts of the world. We recognize that we need to seed small companies – niches with clever bright people – in five years time. Small companies have sprung up from students with inspiration from NASA, but we need to motivate people to stay in the area. (LOOKADOO)

Kansas State University

We would like to see grants and outside research dollars hold steady and increase. We are heavily invested in life sciences, infectious disease research and the public health component. With a stronger presence in Kansas City with the Olathe campus, we created linkages with Cerner and medical care technology in sensing and internet networking. (GUIKEMA)

Kansas State University (Electrical Engineering)

We need to also look at the technology and teaching. It's a huge investment in the various technology that I have been working on. [I would like to] see them working on the Moon or Mars. On the human side, the reason I came to K-State was to teach because I like students, so I would like to see something come out of this to keep the research going, and keep the funding coming and not drying up. (KUHN)

Space Age / Ad Astra Kansas

Space Age hopes and has plans to have a broadcasting presence on the moon with the Google Moon X-Prize. With Ad Astra, we hope to be operating more robust from a Kansas point of view, and moving toward something permanent such as a center or foundation. In conjunction with 150th Kansas anniversary we look for ideas to expand, host a luncheon, speaker or meeting. (DURST)

Kansas Technology Enterprise Corporation

One need is finding trained people to work at Kansas technology companies. There are a number of people in the state trying to promote outreach in engineering education. We need to create growth-type companies, which can lead to potential for us as a state to gain more NASA and space support, and measure it against other states. (CARR)

Kansas Bioscience Authority

We have the ability to communicate and collaborate. That is what makes the state great and will make us really great. (MITCHELL)

Kansas Commission on Aerospace Education

There is a lack of interest among youth about space. We need to educate on wonderful things that have been done in space. Teachers have to focus on the basics, but we would like to reach down further than high school – the enthusiasm at junior high level or before that. Perhaps a youth core program sponsored by industry to get youth interested. Set up a mentor system, to get students involved in something that they can put their hands on and develop and as a result get youngsters minds on technology. With 20%-25% of resources on alternative energy, I would like to see an effort to figure out how to reuse the water and look at water resources that Mars might have and spark an interest among youth. We would like to see more encouragement from kindergarten on up. (P. FORTIN)

Ad Astra

I'm very concerned about the teaching staff and alternative education programs. Many universities have started programs where individuals can take education classes online to earn a teaching degree. Several people from the business sector are moving to education if school districts will hire them. (NEILL)

Eagle Picher

Our company doesn't have a huge growth on space. There are a few programs coming up with Galileo, but it impacts us very little. In respect to Kansas, we have a facility moving to Pittsburg that produces medical/implantable devices. At our Lenexa/Overland Park facility we are working with Kansas Department of Commerce. It's a \$10 million business in the medical field, and there is growth in aircraft batteries. (IDEKER)

Enabling Strategies/Funding Considerations

We need to look at the future of state and federal funding. They are expecting an 8% hit for Fiscal Year 2009. (CARR)

NASA cut funding for life science research seven years ago, but with a new administration, they may pursue it. (GUIKEMA)

NASA frequently does well when it comes to federal funding, as it typically doesn't lose money. We're in an administrative transition right now, so there is a lot of room for optimism. In the new 21st century, NASA funds could hold steady or even improve. (DURST)

Kansas needs to be ready and have a prepared agenda, when the funding is there. (STONES)

Other States and NASA

Ad Astra

Hawaii has a Memorandum of Understanding Agreement with NASA. This is something that Kansas might move forward with in developing strong relationships. (STEINERT)

Identifying Opportunities

Time needs to be spent reviewing the NASA website looking at trends and competencies to determine NASA's needs and what Kansas skills match. Looking at NASA as a customer and the potential short/long term opportunities that benefit NASA and Kansas. What are pockets of excellence where we might be unique, where there might be potential for more NASA, more statewide support. [We need] to pull [all these things] together and do an assessment. (CARR)

Create a technology task force. (STONE suggestion)

Provide a State of Kansas Booth at trade shows. (COLVIN suggestion)

Besides NASA, look at the commercial space industry, the telecommunications industry and the Department of Defense as other components of space business. (IDEKER suggestion)

Preliminary Assessments, Conclusions, Recommendations

Provide a list of key contacts and area of expertise. (AD ASTRA to initiate)

Establish listserv to promote communication. (AD ASTRA to initiate)

Determine NASA's needs and match them up with Kansas' skill sets. (AD ASTRA to initiate research)

Attendees are willing to meet again in 2009 on specific items. (AD ASTRA to initiate)

Consider pursuit of Memorandum of Understanding if mutual benefits to Kansas and NASA are pinpointed.