

# ForwardFocus

www.mtmanufacturingcenter.com

Summer 2011

## Inside this Issue:

- 3 Making Stuff...
- 4 Meet Alex Philp, Keynote
- 5 New Loan Available

## Plus

8 Seeing To Learn  
Oct. 5 in Kalispell

Montana Manufacturing Center

University Technical Assistance Program

## MMEC Helps AdvR Visualize the Move from Development to Production

When Montana-based AdvR, Inc.—a developer of laser optic technologies—was moving one of their technologies from development toward production, company leaders asked what is the best way to move toward manufacturing. They were, after all, a “bunch of scientists, not manufacturers,” said Elizabeth Noonan, AdvR’s contracts coordinator. “We knew we needed guidance but we weren’t sure where we could get it.”

Then Noonan attended a Prospera Business Network local small business gathering, where Mark Shyne of the Montana Manufacturing Extension Center (MMEC) was a speaker. “It sounded like he understood the questions we had as a small business headed toward production. I asked Mark when it is too soon to get MMEC involved and he said that it is better to start before bad production habits get entrenched.”

Immediately, Noonan and other company leaders recognized the value of working with the NIST Manufacturing Extension Partnership network using its Montana affiliate MMEC. Beginning with a Value Stream Mapping exercise, a technique used to analyze and design

the flow of materials and information required to bring a product to market, Shyne identified several key areas where the company could put procedures in

place that would put the company in position to innovate and grow. In the process, he translated the scientific language of technology into the language of business.

“The people at AdvR were very open to

ideas for making production work better and just needed a skilled facilitator that could bring all the ideas and best practices into a team setting for implementation planning,” said Shyne.

### Guidance Offered in Several Areas

The guidance MMEC provided ranged from centralizing information and developing a database to streamlining the process for making AdvR’s most successful product, a module that converts the frequency of laser light. The module allows customers to use their existing lasers for different purposes.

“Because of our work with Mark Shyne and MMEC, we have more confidence

as we march on in production,” Noonan said. “The fact that we started looking at things systematically so early in the process means that we are able to incorporate best business practices right away and streamline production, maximizing our capabilities.”

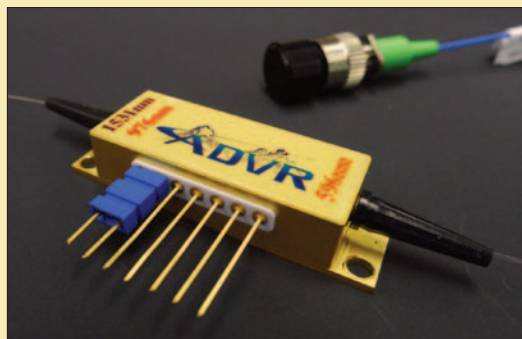
The results speak for themselves. Although the product has a very specific and targeted market, sales have gone up exponentially since AdvR began working with MMEC. In 2010, outside sales represented more than 25 percent of company income, and the firm forecasts continued increased sales in 2011 and beyond.

“In order to make the most of our product, we need to work to identify the people who might need it. We are still learning about how to sell this product and who to sell it to,” said Noonan, noting that this is another area in which AdvR could seek help from MMEC.

### Services Customized to Customer Needs

As a technology-based company specializing in the development of optical devices and systems using engineered nonlinear optical materials, AdvR will also benefit from the MEP system’s completely customizable services that cover everything from lean manufacturing through new product development. MMEC has access to specialists from other MEP centers nationwide for additional expertise when it is needed.

(continued on page 4)



Frequency Conversion Module is a signature product at AdvR.

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# The World is Changing

**Are You?**

The world within which we live and work is changing. If you are going to capture the opportunities ahead as part of the manufacturing community, you must lead the way in order to thrive.

**Steve Holland**

Clearly, the political environment in Washington is evolving. Stories about the budget and deficit spending dominate the news. There seems to be a consensus that we need to balance the federal budget, but how? More taxes? Tax whom? Budget cuts? Which programs?

The markets in which we sell our products and services continue to morph from local to global space. Currency values continue to undulate, shifting foreign market opportunities in a dizzying fashion. Adding to the chaos are civil wars, storms and earthquakes.

Determining where opportunities lay in this hostile environment can be a challenge. Carefully considered strategies have become paramount, even more so today, because lost in the news is a critical third leg... the flagging global economy.

Here, at your Manufacturing Center, we are undertaking a major strategic planning effort, looking at who we are, where we've been and more importantly where we're going out into the future. The reason – to better serve you in this environment, so you can grow and remain healthy. Sound growth and more efficiencies are good for your company. But more business activity would also mean more jobs that feed a strong economy and yield more tax revenue. And our community of manufacturers is central to a vibrant economy

offering higher paying jobs and higher demand for related services like transportation, finance, accounting and engineering than other sectors. Robust domestic manufacturing is essential for our nation's future.

How so? Manufacturing is a wealth-producing sector in an economy, adding value to raw materials. Manufacturing is the crux of sound infrastructure and national defense. Third world nations, for example, don't have an industrial base, i.e., they don't have manufacturing. As a result, they have a much lower standard of living, often have difficulty feeding their populations and have no significant national defense.

If you listen past the cacophony of headlines, you'll hear a lot of discussion about how we can return manufacturing to the U.S. through more exports, innovation, and growing supply chains. A solid, capable domestic manufacturing base is now recognized as critical

to our economic well being, to our trade balance and to our security. This awareness may remove barriers to doing business on a level playing field.

That's why I think the opportunities facing your manufacturing company far

outweigh the threats you face. But you can't blindly continue doing what you've been doing and just hope for the best...

A thoughtful review of your organization and the business environment changes that have a potential to impact your continued success will help. Identify and evaluate both current and future threats and build a strategy for those most critical to you. In our rapidly changing environment, trends that can affect our ability to achieve our vision may be technological, political, social, economic, governmental, and more.

Look within your company to assess strengths and weaknesses. Are the things you do today and the way you do

(continued on page 7)



# Making Stuff Poses Opportunities for Montana

By Evelyn Pyburn, *Big Sky Business Journal*

Opportunity abounds for manufacturing in Montana, according to one industry expert. It just requires that manufacturers focus on the advantages available to them and cease worrying about the disadvantages.

Montana has a lot of inherent advantages, and as manufacturing returns to our shores, there are opportunities to be seized, said Bill Waddell, who conducted a Leadership seminar in Billings in late August for local manufacturers, sponsored by the Montana Manufacturing Extension Center, Montana Department of Commerce and SBDC.

Waddell is a leading expert on lean manufacturing. Hailing from Illinois, he is a global supply chain expert, one of the original Lean Accounting 'thought leaders', and has served as a technical chairman for various manufacturing quality forums. He is also author two best-selling books "Simple Excellence" and "Rebirth of American Industry".

Waddell calls himself "a life-long manufacturing zealot," raised by a father who said that the only people producing things and creating wealth were farmers, miners and manufacturers – "everyone else is just shuffling money around."

## Importance Is Far Reaching

Not only is manufacturing important to the economy but also to our culture in establishing "the important value of work. We've had a generation who believe that creating new financial instruments is a clever deal, but all they are doing is taking advantage of other people's money," Waddell said.

Our culture must return to the day when the importance of making things was understood, he said. "The idea that we can let it happen in China while we sell insurance to each other is economic insanity."

In one of his many articles, Waddell sums up the situation for manufacturing in the US: "We were collectively sold on the notion of a 'service economy' to replace manufacturing, and the proportion of Americans working in manufacturing has dropped from about 20% in 1982 to less than 13% now – more than 10 mil-

lion manufacturing jobs gone. Factories have closed, small towns have been decimated, the national debt has exploded, and our balance of trade is deep in the red...We gave manufacturing to the Chinese, and now they hold the IOU's we have written to pay for the American way of life – the way of life we used to pay for ourselves with the wealth we created through manufacturing. It is past time to call the service economy a failure."

Small and medium sized, often family-owned manufacturing businesses are the "backbone" of the industry in the US, contends Waddell. "They are the ones I work with."

## Positive Message for Montana Firms

Waddell brings a positive message to manufacturers. It's a matter of not dwelling upon the negatives but utilizing the positives to their advantage. For Montana, that means that even though the producers have transportation problems, they should realize they are 7,000 miles closer to the biggest market "on the planet," than is China. The western US, he emphasized, is the world's biggest market.

Montana manufacturers – for all their complaints about competing for labor – are in the best of labor markets, one with a very high work ethic. Despite the very real problems that can be identified in our public school system, said Waddell, the students coming out of that system are much better prepared than kids in many other places in the world. "The kid at the bottom of the class is so much better than one from China's compulsory state sixth-grade education."

## Holistic Business Model Needed

It is Waddell's purpose to help manufacturers understand how to structure their businesses better, and to turn them in new directions. In doing that – "there is no limit to what you can do."

In pursuing the tenants of "Lean Manufacturing" Waddell pointed out that manufacturers are likely to find

themselves at odds with their accountants. Lean Manufacturing is a process aimed at "creating value for customers." It focuses on eliminating all waste – waste of time, labor and materials. If pursued correctly there should be little need for storage, for shelving or a building to hold materials or product. "But accounting

systems push you in the other direction," said Waddell, "Accountants like inventory; they consider them assets sitting on racks and having computer systems to keep track of it all." But all of that costs money and is not "lean."

With indicators that manufacturing is seeing some reversals of past declines throughout the country, what is happening?

It's a change in attitude about the desirability of doing business in China, answered Waddell, who is no fan of the Chinese "business model." "The whole 'China miracle' is a house of cards," he said, "I've been telling people for two years that China is on the verge of collapse." Prices in China are 10-15 percent higher than a year ago, pointed out Waddell, who went on to predict that increasingly higher prices will be the trend in the coming years, as well. "China is becoming an increasingly lousy place to manufacture." And, they have no respect for intellectual property. Companies were willing to tolerate that so long as the cost of labor was low. But, as labor costs go up and the currency exchange is weakening, "they are losing their advantage. A lot of companies are rethinking their strategy and coming back to the US. The challenge is to keep them here," said Waddell.

## Calls for New Business Model

How to do that? Not by going back to the old template, said Waddell. Manufacturers must create value for customers

(continued on page 5)



Group gets nuggets from Waddell in one-on-one following seminar.





A Day of Plant Tours, Food & Fun w/Peers & Coaches  
**October 5, 2011 Kalispell, MT**



## Meet Alex Philp – Keynote Speaker at Seeing To Learn

The keynote speaker at the “Seeing To Learn” plant tour event this fall in Kalispell is Alex Philp, Ph.D., entrepreneur, former Park Ranger in Glacier National Park and successful Montana businessman. His love for Montana’s vistas and vitality put him on a winding path that ultimately led to his co-founding of TerraEchos Inc., in Missoula, where he is President and CEO today. He will deliver his remarks during the event luncheon at Fun Beverage, Inc.

TerraEchos’ signature product Adelos® S4 is a leading covert intelligence and surveillance sensor

knowledge system that protects high value critical infrastructure, monitoring sensitive perimeters and securing vulnerable borders. It uses advanced, patented digital acoustic fiber-optic technology licensed exclusively from the US Navy.

An innovative small business, it was spun-out from Philp’s first venture, GCS Research, the commercial result of his graduate research with NASA and other US Government research laboratories at the University of Montana. Like many other small businesses it got its start in his basement.

His journey began prior to entering graduate studies, when Philp worked for the US Forest Service in biological assessment, spent five years as a Park Ranger in Glacier National Park, and served on the staff of a US Senator

working on environment policy. While at the University, he developed and managed a program to assist with the collection, processing, fusion, dissemination, and exploitation of geospatial information as derived from a variety of commercial and US Government sensor systems.

Philp’s keynote message is about tapping strengths to get the Big Bang of larger firms following a strategy that has worked very well for his firm and others. Using strategic decisions and a commitment to Montana, he is building business right here that helps Montana be part of the new economy – growing jobs and opportunity.

Currently, he serves on the Board of Directors of the Rocky Mountain Supercomputing Centers and the Montana Neuroscience Institute at St. Patrick’s Hospital; he also lectures occasionally in the Dept. of Geography at the University of Montana as a research professor. Philp participates as a private sector gubernatorial appointee to the State of Montana Land Information Council and serves as a liaison between the Governor’s Office of Economic Development and the Idaho National Laboratory. Dr. Philp’s graduate degrees are in Interdisciplinary Studies (1997, 2005) from the University of Montana, and he received his undergraduate degrees from Seattle University in History and Philosophy (1990). He has received various awards in his field, lectures around the country on a variety of topics, publishes topical articles, and lives with his family in Missoula, Mont.

Speaker sponsor for Seeing To Learn is the Montana Department of Commerce, Business Resource Division. Co-hosts are MMEC and the Montana Chamber of Commerce with support from other fine sponsors.

Registration link at [www.mtmanufacturingcenter.com](http://www.mtmanufacturingcenter.com)

Image courtesy of University of Montana



## MMEC Helps AdvR (cont. from cover)



**AdvR at dusk.**

they can meet growing demand, gain market share, and continue to create and commercialize even more new technologies.”

AdvR is part of a growing photonics cluster in the Bozeman area.

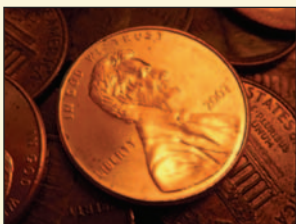
“Companies like AdvR have so much brain-power, along with great products and technology,” said Shyne. “Their potential for continuing innovation is limitless. It is vital that we help them organize on the production side so



**AdvR researcher, Tim Fry, testing module.**

## A New Loan Type Could be Perfect for Your Business!

The State of Montana has been selected by the U.S. Treasury to participate in the State Small Business Credit Initiative (SSBCI), making Montana eligible to receive over \$13.1 million in funds transfer. The SSBCI is intended to strengthen existing state programs that support private lending to help Montana small businesses and manufacturers to spur growth and create jobs across Montana.



### More Money for Montana Businesses

Loan proceeds must be used for a business purpose including but not limited to, working capital, business procurement, franchise fees, equipment, and inventory, as well as the purchase, construction renovation or tenant improvements of an eligible place of business that is not of

passive real estate purposes. Montana's Office of Economic Development, State Department of Commerce and Board of Investments have been selected by the Treasury to administer the SSBCI program. Working with applications submitted through the Big Sky Economic Development Corporation and other authorized economic development organizations. The Montana SSBCI will provide Montana businesses and lenders the ability to apply

for \$13,168,350 in federal funds. These funds will be available through December 31, 2016.

### SSBCI Requirements

Under the program highlights, the State of Montana will be required to demonstrate a minimum "bang for the

buck" of \$10 in new private lending for every \$1 in federal SSBCI funds advanced. If your particular business doesn't meet that ratio, it doesn't automatically discount your eligibility. You can call Big Sky Economic Development at 406-256-6871 to assist with determining borrower and project eligibility.

Note: In addition to Big Sky Economic Development, other development organizations that can help with this loan program are Butte Local Development Corp., Great Falls Development Authority; MCD, Anaconda Local Development Corp., Montana Business Assistance Connection located in Helena, Mountain West Economic Development Corp in Kalispell, and Southeast Montana Development Corp. in Colstrip.

*(Special thanks to Brandon Berger at Big Sky Economic Development for bringing our attention to this loan program.)*

## Making Stuff (cont. from pg. 3)

and they must engage their workforce. "We can't have our employees brains turned off," said Waddell. At the state and local level, we need to step up to the plate and educate and train a workforce for not just manufacturing but for the 21st Century.

The emphasis on having a lot of college degree holders is to get the cart-before-the-horse, he said. College degrees alone don't create a strong economy. It's necessary to invest in trade schools and vocational schools, so there is an economy that has a need for all the people with degrees. And we need to refrain from teaching children a bias against such work, which commonly happens in public education.

Also, necessary to maintain manufacturing in the US, is a need for fair trade laws, said Waddell. He pointed out that Brazil imposes a 39 percent import duty on US-made products; India, 35 percent; and in China from 25 to 50 percent. "They are very protective. They understand that we are in a global trade war," said Waddell, "It is only the US that

doesn't seem to understand."

The US typically has import duties of two to three percent. Waddell believes that the US should match whatever duty a country imposes on our exports to their country and some honesty with the American people about the true cost of environmental protections. "I'm as concerned about protecting the environment as anyone. I enjoy all the improvements we have made, but we need to be practical."

"We haven't improved the planet's environment," said Waddell, "We have shoved it over to someone else's back yard, so American people are led to believe you can clean up the environment for free."

### Backbone Left Out of the Picture

Waddell said that he has "fairly low hopes and expectations" for the big publicly traded manufacturing companies which have come to dominate the industry and tend to be the ones who outsource to China. "They have tended to change from being manufacturing to being

financial firms". GE is a case in point. "They went into financial services, while outsourcing production to other countries — at a cost of 100,000 manufacturing jobs in the US."

Worse — the big corporations are the ones who the media turns to as examples of manufacturing in our country, he said. Left out of the picture and often out of the loop when it comes to setting policies and political direction are the industry's backbone, the small and medium sized manufacturers.

According to Waddell, "Our business heroes are the thousands of American men and women in who roll up their sleeves and compete toe to toe every day with the best in the world, and win — in spite of their government and the financial sector."

*Editor's Note: Reprinted with permission — interview with Bill Waddell in late August. Edited for fit. Author Evelyn Pyburn is the Publisher and Editor-in-Chief of Big Sky Business Journal, a twice-monthly business newspaper and website <http://www.bigsky-business.com> located in Billings, Mont.*

## Manufacturing News Across Montana

### Bozeman Firm One of the Fastest Growing, Named No. 164 of 500

*Inc.* magazine recently ranked **Bridger Photonics**, Inc. as one of the nation's fastest-growing private companies at No. 164 in its 30th annual Inc. 500 list, an exclusive ranking. The list represents the most comprehensive look at the most important segment of the economy—America's independent entrepreneurs. The Bozeman-based firm ranked 1st on the list among companies in the Engineering sector. Bridger Photonics specializes in lasers and laser-based measurement systems. Its proprietary technologies lead to metrology products with unsurpassed resolution, gas detection, and 3D imaging capabilities. According to COO and co-founder, Dr. Randy Reibel, "We built this company the Montana way, with honesty, integrity, and extremely hard work." The companies on this year's list employ more than 46,000 people and generated over 35,000 jobs in the past three years. Read more at [http://bridgerphotonics.com/uploads/files/Press%20Releases/110823\\_Inc500\\_PressRelease.pdf](http://bridgerphotonics.com/uploads/files/Press%20Releases/110823_Inc500_PressRelease.pdf)

### Cycling App a Montana Success Story

The iBike Dash that converts the iPhone or iPod touch into a fully functional cycling computer using a free app is a recent Montana success story, mechanically designed by **Salient Technologies** using hardware manufactured in Montana. Salient is a product design firm, specializes in injection molded, sheet metal, cast, and machined part design. The iBike Dash is now featured in Apple retail stores across the country, in select box stores, as well as online. <http://www.salient-tech.com>

### Neuralynx Advances Goal to Become Medical Device Manufacturer

**Neuralynx**, <http://www.neuralynx.com>, in Bozeman has taken the next step toward its goal of advancing into the medical device market by meeting the requirements for a CE Medical Device Directive. The company recently received the Premarket 510K Notification from the FDA approving its Enterprise Electrophysiology System. After helping the company refine its quality management system to certify to the ISO 13485 standard this spring, MMEC had put them in touch with a CE-MDD specialist who took them through the steps for FDA approval of their medical device. Read More... [http://www.mtmanufacturingcenter.com/PDFs/Neuralynx\\_Article30111.pdf](http://www.mtmanufacturingcenter.com/PDFs/Neuralynx_Article30111.pdf)

### PFM Manufacturing Achieves AS9100 Certification

Townsend, MT (July 18, 2011) – **PFM Manufacturing, Inc.**, a manufacturer of products and services for commercial and military markets, achieved AS9100 Revision C certification following a rigorous independent audit of the organization's processes to this globally recognized aerospace quality standard. PFM obtained AS9100 certification in order to meet military quality requirements for manufacturing and ensure that their SMSS (Squad Mission Support System) and "Land Tamer" vehicle meet performance requirements. SMSS, utilizing the "Land Tamer" vehicle platform, will be used in Afghanistan as a support vehicle for light infantry squads and sling loaded by helicopter into battle zones. PFM has been manufacturing the Land Tamer Amphibious Remote Access Vehicles since 1998. <http://www.landtamer.com>

### Blue Marble Biomaterials Missoula Biorefinery Launches

The first zero-waste chemical biorefinery in the U.S. is now operational. The biorefinery was launched by **Blue Marble Biomaterials** a wholly owned subsidiary of Blue Marble Energy Corp., based in Seattle; the Missoula facility is located in the Missoula Development Park. The company uses a mix of proprietary clean technologies to produce natural, bio-based specialty chemicals used primarily in the food, cosmetics and personal care markets. The facility will produce 72 tons of fine chemicals a year and only purified water and pellet fuel for wood-boilers as its "waste". <http://www.bluemarblebio.com>

### Juhl Wind, Inc. Announces Agreement with Montana-based Zinc Air

**Juhl Wind Inc.** (OTCBB: JUHL), the leader in Community Wind Power, announced that it recently signed a Letter of Intent with Zinc Air, Inc. <http://www.zincairinc.com> for the installation of a 1 Megawatt advanced energy storage system developed by Zinc Air. Juhl Wind plans to install the system at its recently acquired Woodstock Hills wind farm located near its headquarters in Woodstock, Minn. Zinc Air Inc., a privately held corporation based in Kalispell, Mont., is the developer of a Zinc Redox flow battery designed to achieve rapid payback periods while also being the greenest battery technology on the market.

### Specialty Sawmill Niches for Growth; Hires President

**Montana Timber Products** (<http://www.montanatimberproducts.com>), a specialty sawmill located in Anaconda, recently announced that Don Bodemann of Highlands Ranch, Colo., has been selected as the company President. MTP crafts sustainable home building products such as exterior siding, timbers, trim, and accents. It introduced Ranchwood®, an environmentally friendly finished lumber with the architectural allure of weathered barn wood, last year. This year they partnered with Montana manufacturers Clawson Windows, Pine Door, and Buckeye Hardwood & Lumber Co. Together they provide a high-quality suite of fine wood products to meet the growing needs of the ranchwood market. Read more at <http://www.matr.net/article-45841.html>

## Changing (cont. from page 2)

them appropriate in the changing environment? Consider, for instance, evolving social media, regulatory changes, the higher cost of energy, more user-friendly and integrated business software ....

Reassessing your strengths may create new opportunities. At the MMEC "Seeing To Learn" event in October you will hear keynote speaker Alex Philp talk about tapping strengths to get the Big Bang of larger firms with a strategy that has worked very well for his firm, TerraEchos. Strategic decisions are growing business right here that helps Montana be part of the new economy - growing jobs and opportunity.

A strategic and tactical look both internally and externally can help you thrive in a changing world. This is an important process for all of us, as it will establish our direction for the future. The world is changing. Are you?



Steve Holland, MMEC Director

## Wind Energy Supply Chain – Next Steps

Did you know there are over 8,000 components in a wind turbine? The parts range from 120-meter tall steel towers and 50-meter long blades, to gearboxes, bearings, electrical wiring, power electronics and more. The parts consist of a wide range of materials including steel, cast iron, fiberglass, aluminum, copper, carbon fiber, rubber, brass, ceramics, concrete, Teflon and others.

If you are a manufacturer interested in expanding to this exciting sector, the Montana Manufacturing Extension Center, working through the BlueGreen Alliance Foundation's Clean Energy Manufacturing Sector, can help you by completing an on-site profile of your operations and explaining what steps would need to be taken in order to supply the wind industry.

For more information, view the "Wind Energy Industry Manufacturing Supplier Handbook" or contact Jim Haider, MMEC Energy Specialist, at 406-461-8543.



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### MMEC Mission

To Help Manufacturers  
Be More Successful

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**We Can Help!**

Photo courtesy of Glacier National Park

**SEEING TO LEARN**

**MAKE PLANS Now for October 5, 2011**  
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**Come Celebrate *Vistas, Vision, & Vitality* in the heart of the Northern Rockies**

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