

October 23, 2012

Phillip Singerman
Associate Director for Innovation and Industry Services
c/o Dr. Michael Schen
National Institute for Science and Technology
Advanced Manufacturing National Program Office
100 Bureau Drive
Gaithersburg, MD 20899-1070

Dear Mr. Singerman and Dr. Schen,

Just as good community colleges change to respond to the needs of the communities they serve, the Auto Communities Consortium (ACC) continues to evolve as it responds to new challenges faced by employers in their communities. The ACC was established in 2010 to address pervasive economic losses faced by communities whose major employers were auto industry related, the consortium now consists of 37 community colleges located in 17 states. We have attached an article which describes our group and some of our initial activities.

Our work suggests that workforce development activities in community colleges are undergoing a major transformation. Community Colleges are not simply training institutions; they must now respond to both the needs of the local employers in their communities and form networks to work effectively with large corporations that have multiple sites. Community Colleges also play an important role in the economic development of their communities by playing an active role in creating new employment opportunities for their students and the members of the communities they serve. These new jobs will require a different skill sets and will require community college leaders to make changes within their respective institutions. Our response to the request for information on proposed NNMI and Institutes in the Federal Registry is attached for your review. We look forward to working with you on the development of this exciting initiative.

Sincerely,

Jim Jacobs, PhD
President
Macomb Community College
Founding Member, Auto Community Consortium

Attachment: Response to proposed NNMI and Institutes
AACC article highlighting the Auto Communities Consortium

Auto Communities Consortium (ACC) Response to the Request for Information on the Proposed National Network for Manufacturing Innovation (NNMI)

The Auto Communities Consortium respectfully submits the following comments and suggestions in response to the request for information that was published in the Federal Register regarding the National Network for Manufacturing Innovation proposed initiative. The ACC responses are directly in response to questions #17-21 that were posed in the Education and Workforce Development Section.

Education and Workforce Development

17. How could Institutes support advanced manufacturing workforce development at all educational levels?

Since the inception of the National Science Foundation's Advanced Technological Education initiatives that lead to the creation of national and regional centers of excellence that are attached to community colleges throughout the U.S. there has been an effort to support advanced manufacturing and address workforce training needs. Those efforts have greatly expanded to deal with pipeline issues to ensure a supply of qualified well-trained workers to address the needs of the industry. The efforts have also included strategies and initiatives to begin to attract youth to advanced manufacturing careers while they are in middle school through high school.

While the NSF ATE Center Programs are typically housed at community or technical colleges, they also typically have industry partners and university partners. Through effective employer engagement coupled with faculty engagement at the two-year college and university level these centers consistently identify the needs of the industry and then work together with their partners to address those education and training needs to produce well qualified, highly skilled technicians for today's workforce.

Advances in addressing industry needs have also occurred in the Department of Labor's Employment and Training Administration's initiatives such as the TAACCCT, Community-Based Job Training Grants, and H-1B Program which all require engagement of employers with the primary training providers which are typically community or technical colleges. This type of engagement has been further catalyzed through the creation of the Advanced Manufacturing Jobs and Innovation Accelerator Challenge which brings together the Department of Commerce's Economic Development Administration, the National Institute for Standards in Technology's Hollings Manufacturing Extension Partnership (MEP), the Department of Energy's Advanced Manufacturing Office, the Department of Labor's Employment and Training Administration and the Small Business Administration to address the needs of advanced manufacturers in a region through a coordinated effort by providers who receive funding from those five agencies.

The ideal model for NNMI would be one that creates a hybrid approach to operating the Institutes, with multiple partners working together in an engagement process that involves, employers, higher education (two and four year institutions), economic development, industry associations, organized labor, K-12 systems, government agencies and other critical stakeholders to identify and address the overall needs of a sector. The ideal Institute would also provide

opportunities for small business growth, especially along the supply chain, to support industry growth and technological advancement. Many of the owners of smaller manufacturing companies attended community colleges and hold degrees and certificates from our institutions. They are comfortable in seeking assistance from us and know the role we play in their communities. As indicated in the overview to this document there are several model programs that have been created such as the ones at Lorain County Community College, Mott Community College and also at Macomb Community College that create a hands-on learning environment for students to enhance their knowledge, skills and abilities while assisting in R&D efforts for employers and product design.

It is also critical that higher education work together with the region's advanced manufacturing employers as well as local MEP entities to chart career pathways that include essential jobs that need to be filled to help grow the advanced manufacturing sector. These occupations should not only be charted along the career pathways but occupations that are identified along those pathways need to be profiled with the assistance of subject matter experts from industry. Once profiled there is the opportunity for higher education and the K-12 partners to work with those employers to create common language regarding these occupations that can then be used by the educational providers to match existing curriculum to the knowledge, skills and abilities requirements. When the matching process is completed, the educational providers can then determine the need for curricula changes, the development of new education and training programs, as well as the need for work-based learning components such as internships and co-op experiences. When this is accomplished it will become a relatively easy process to engage education from K-12 through doctoral programs in preparing students to address the employment needs of advanced manufacturers.

18. *How could institutes ensure that advanced manufacturing workforce development activities address industry needs?*

While several of the ACC responses to this question are embedded in the response to Question #17 above, establishing a process for meaningful industry engagement is critical in understanding and addressing industry needs in terms of education and workforce development outcomes. While there have been a number of highly successful strategies used over the past decade, perhaps the most effective one in addressing industry needs is the "Skills Panel" process that was first established in Washington. The process has been used successfully in defining, understanding and addressing the needs of a number of critical sectors in the state, as well as in other regions.

This highly effective model was developed and implemented in Washington State in 2000. In June 2008, the Corporation for a Skilled Workforce and the Paros Group published a report for the State of Washington "***Evaluating Industry Skill Panels: A Model Framework.***"³ The report stated that "skill panels have been highly successful at adapting to specific regional and industrial conditions to meet the needs of their members...that have resulted in strong and

³ Scott Cheney, Stacey Wagner, Linda Woolsey, (2008). "*Evaluating Industry Skill Panels: A Model Framework*". Paros Group, JarrettWagner Group, and the Corporation for a Skilled Workforce.

vibrant partnerships, exceptional products and services, and impressive impacts and outcomes. In most applications, the purpose is to identify the industry needs and then use that information in developing a “demand-driven” approach to the education, workforce development and economic development response to those needs. The intent is to have industry take the lead while the other partners (workforce development, education and economic development) listen to their needs and then work with the industry representatives to design an appropriate response to address the “market-driven” needs of the industry. The approach brings the demand side together in partnership with the labor pool supply side to ensure that the short-, mid- and long-term needs are understood and addressed.” This approach is most effective when bringing together the workforce and higher education systems to assist industry in achieving their employment and training needs.

The report also provided evidence tying the development of new and revised curricula and programs to skill panel outcomes. For example, Invasive Cardiovascular Technicians vacancies had been difficult to fill at hospitals in Western Washington. Two Health Council member hospitals (Good Samaritan and Multi-Care) had vacancy rates exceeding 50% in 2003 resulting in the Health Council developing a two-year training program, which dropped the vacancy rate for invasive cardiovascular technicians to 0%, resulting in an estimated \$300k cost savings annually and a pipeline of trained and certified technicians Western Washington hospitals. Students from Centralia College’s training programs benefitted from the industry skill standards developed for plant operators and plant mechanics through the skill panel process. In the past, new hires were required to complete a 6,000-hour or three-year apprenticeship program to become a certified journeyman. Through an agreement between the employer and organized labor, three Centralia graduates were hired at Grand Coulee Dam and received credit for completing one-half of the apprenticeship program (3000 hours) upon graduation from the college’s program.”

Another aspect to employer engagement is the identification of industry recognized certificates and embedding those certificates into new and existing curriculum in advanced manufacturing. Several of the ACC Colleges working on Advanced Integrated Manufacturing (AIM) have already identified possible certifications from the American Welding Society (AWS), the National Institute for Metalworking Skills (NIMS), the Society for Manufacturing Engineers’ (SME) Certified Manufacturing Technologist (CMfgT), Manufacturing Skills Standards Council (MSSC), and the National Association of Manufacturers Manufacturing Institute’s (NAMMI) endorsed Packaging Machinery Manufacturers Institute’s (PMMI) certification that could be embedded into programs or be achieved by testing post program. In addition, the colleges have identified the American College Testing (ACT) National Career Reading Certificate (NCRC), National Career Readiness Certificate Plus (NCRC+), and Talent Fit to determine competencies at the foundational skills level. Specific to Quality and Quality Assurance, the Certified Quality Technician (CQT) Body of Knowledge from the American Society for Quality (ASQ) has been identified and in production the MSSC Certified Production Technician (CPT) certification has been selected. In the Distribution and Logistics area the NAM endorsed MSSC Certified Logistics Associate (CLA) and Certified Logistics Technician (CLT) certifications as well as the Commercial Drivers License (CDL) Level A and B certifications can be used as key industry credentials.

19. *How could Institutes and the NNMI leverage and complement other education and workforce development programs?*

It is critical that the Institutes and NNMI leverage the efforts of all of the programs that were mentioned in the response to Question #17. It is also imperative that this leveraging of education and workforce development programs be built on the best practices that have already been established and proven through evidence-based research including promising and best practices. Especially important will be how the relationship will be defined between the NIST MEP program and each of the institutes, and then how that relationship can be supported by other workforce, education and training, and economic development initiatives in the institute's region. Community colleges are very adept at initiating partnerships with other post-secondary institutions. Many of the colleges in Auto Communities Consortium maintain four year and university programs at their campuses. They have also developed joint research and development projects with specific university engineering departments. It is important to see the community college as the first link in the knowledge supply chain for manufacturing innovation.

The nation's workforce system which is funded through the Workforce Investment Act provides great promise as do apprenticeship programs, new and emerging technology programs and entrepreneurship programs that are targeted at high skilled workers who want to own and grow their own business especially in high tech areas such as advanced manufacturing.

The NNMI efforts must look to linkages with the WIA System related to rapid response efforts that help transition workers who have been or will be laid off into new opportunities in advanced manufacturing environments. For example, Ivy Tech Community College in Indiana worked with local community leaders, the UAW and the corporation in a rapid response effort to reopen the Navistar Foundry in Indianapolis. The UAW and Navistar will partner to create Pure Power Technology which will be the only block and head manufacturer in the U.S. that uses compacted graphite iron. This initiative not only preserved jobs in the community, but led to the development of a group of smaller manufacturers which focus on auto racing which created a motor sports corridor.

Other state initiatives should also be examined to determine their connectivity to the institutes especially in terms of economic development related to promoting the growth and stability of the advanced manufacturing industry and job opportunities in each region in which an institute operates.. The state of Michigan has initiated Procurement and Technical Centers (PTAC) at many Michigan community college campuses. These PTAC's are responsible for providing assistance to firms who wish to gain access to federal contracts in new areas beyond their current expertise. In many manufacturing communities this has meant firms have shifted their product development and manufacturing away from the automobile industry and toward defense manufacturing. At Macomb Community College in the past year, the PTAC was responsible for the development of \$18.5 million dollars of contract awards in 2011, which created 30 new firms and over 360 jobs being created in the area served by the Center. (Macomb Community College, 2011).

Entrepreneurship must be an allowable and strongly encouraged programmatic element in WIA reauthorization. New business growth and supporting that growth through economic

development initiatives is critical to every Auto Communities' economic recovery and overall well-being or for that matter any state's recovery. While attraction of new employers is important as is retention of existing employers and their growth, so is the development of new small businesses through high quality entrepreneurship programs and supporting incubators.

The northeast Ohio region has been strongly supported in the creation of new businesses through NorTech, the Fund for Our Economic Future and projects that they have supported. Among the projects is the Great Lakes Innovation and Development Enterprise (GLIDE) which is a unique public/private partnership (located on the Lorain County Community College Campus) that can help individuals to grow their business, whether it is at the idea or expansion stage. GLIDE is staffed with business-development specialists who meet with individual's to discuss their idea(s). There is no charge for the initial consultation.

The SMART Center is another successful entrepreneurship and advanced technology initiative that have been successfully launched by LCCC. The SMART Commercialization Center is primarily funded through the Wright Center for Sensor Systems Engineering (WCSSE) at Cleveland State University, which is a program aimed at making high tech equipment available to companies and entrepreneurs as a local resource to stimulate and support new business starts and product development. The SMART Center demonstrates how a common set of equipment and expertise can successfully advance sensors and Microsystems to market entry.

Every community has entrepreneurs who are waiting to be unleashed and to develop new businesses. It is our hope that NNMI and its Institutes will be able to partner with other workforce initiatives through future workforce legislation including the reauthorization of the Workforce Investment Act, and that these future efforts will continue to support laid-off workers who desire to become self-employed entrepreneurs.

An example of how this can be accomplished would be the adoption of the Self-Employed Assistance Program which currently operates in several states. The program allows unemployed workers to receive unemployment insurance compensation while they turn an idea into a real business. People who want to participate are required to write a business plan and a market feasibility study that must be approved to qualify for the program. The self-employment option allows workers to bypass what may be an unattractive job and, in its place, start a business while continuing to draw unemployment benefits. This is an especially powerful program in bringing high skilled workers who have lost their jobs back into the workforce in a creative capacity that enables them to start and grow a business in the advanced manufacturing area or in other key sectors.

These future entrepreneurs will hire additional workers as their businesses become entrenched in the local economy and grow. In Macomb County and throughout the ACC service areas, we would welcome the opportunity to work with our unemployed workers to push this entrepreneurship program that could result in new business growth, expansion and most importantly jobs.

20. *What measures could assess institute performance and impact on education and workforce development?*

For a new and unique program such as NNMI with its Institutes there is a need to create new and customizable performance metrics that can be used to measure impact on education and training programs in the workforce development arena as well as in measuring employer impact. These measures need to be both quantifiable and qualitative in nature.

To that end, it is our recommendation that several high profile institutions of higher education that specialize in external evaluation be brought together to assist in the development of these metrics. It is our recommendation that the group include, but not be limited to: the Heldrich Center at Rutgers University; the Community College Research Center at Columbia University; the National Center for Postsecondary Research (NCPR) Teachers College at Columbia University; and, others.

Ultimately the measurements must be able to determine the ability of the Institute and NNMI to address the needs of the sector(s) that they serve. This would include the ability to create employment opportunities and fill those jobs with highly qualified candidates, as well as to develop and implement strategies to work with the industries to address current and future needs including those that relate to new processes and technologies. For the education and workforce providers the metrics also need to include program increases in size and quality, as well as increased enrollment, retention (including measurable movement toward completion), program completion, placement into employment, retention in employment and upward or lateral movement along a career pathway. Measures should also be established related to increasing internships, co-ops, and other work-based learning initiatives and activities that will enhance the student's potential for employment success.

21. How might institutes integrate R&D activities and education to best prepare the current and future workforce?

In the response to Question #19 above, evidence was provided about small business development through the PTAK's, incubators at LCCC and how the activities of their GLIDE and SMART Centers provide opportunities for students to participate in R&D activities at the community college and university level to gain valuable work experience that is directly tied to their educational pursuits. The models that have been used at LCCC are clearly replicable and are being recommended to NNMI by the ACC.

In addition, students at ACC Colleges and other institutions of higher education have gained valuable work experience in R&D through Fab Labs environments that enable them to participate in the design and fabrication of prototypes as well as the testing of new products. The integration of R&D hands-on activities for students at all levels will enhance their learning opportunities and further prepare them for employment. It will also provide them with an additional skills set that is highly desired by employers in advanced technology areas.

AUGUST/SEPTEMBER 2011

You've Got a Friend...

In Industry

Community colleges have long been destination No. 1 for American workers looking to upgrade their skills in search of new opportunities. In this special feature, we highlight how partnerships in three industries—automotive, biotechnology, and energy—are buoying efforts to support local economies.

Auto Communities Consortium Takes On The Manufacturing Challenge

BY JIM JACOBS

Nowhere is the reputation of community colleges as the workforce development engine of America being tested more than in communities that rely on the strength of the automotive industry.

It is no secret that most automakers face enormous challenges. Communities are suffering from high unemployment rates, the result of the disappearance of hundreds of thousands of jobs. Out of work and in need of new skills, job seekers routinely turn to the

nation's community colleges for a fresh start.

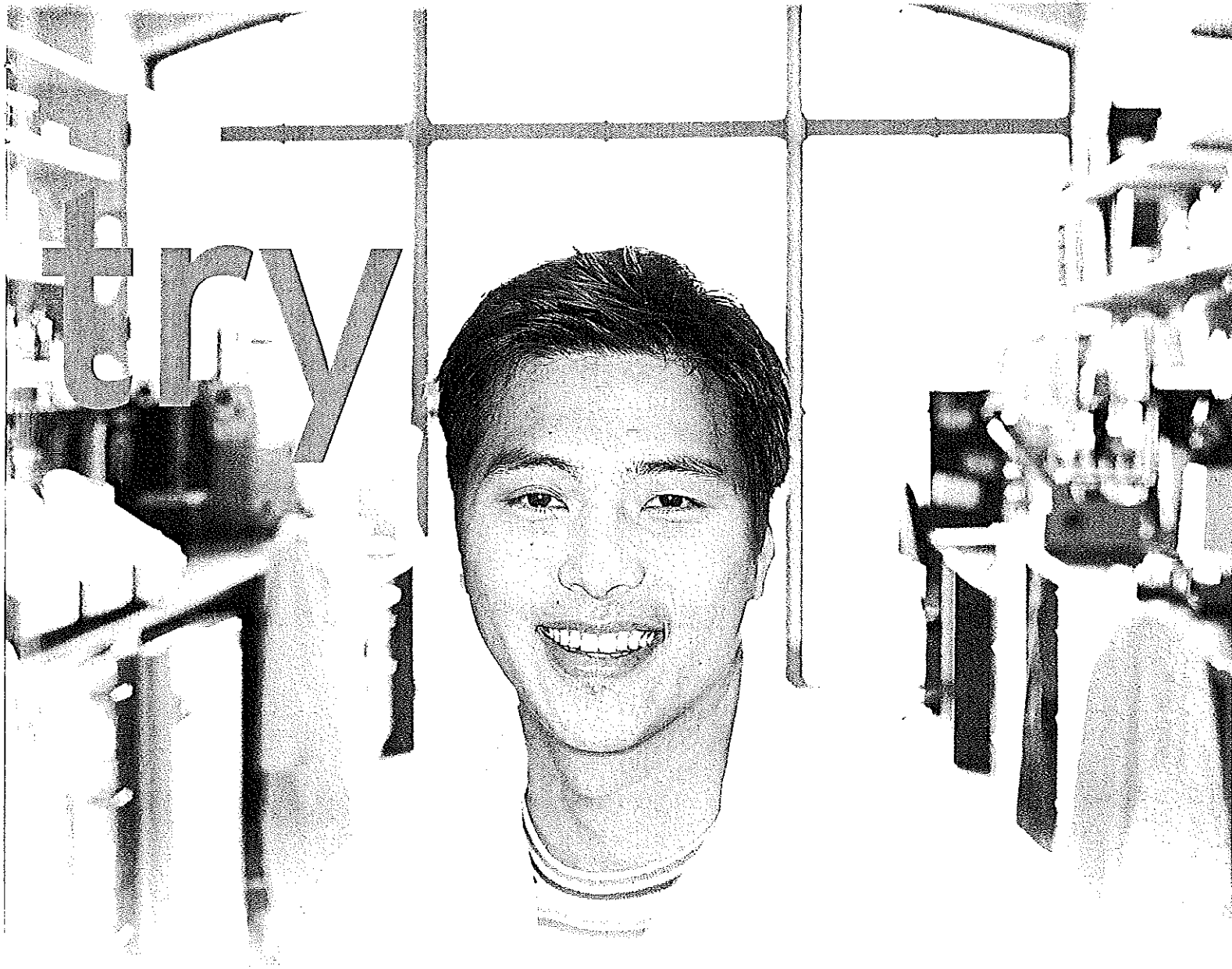
Initiated by community colleges in Michigan, Indiana, Ohio, and Iowa, and joined by colleges in Illinois, Wisconsin, Kentucky, and Tennessee, the Auto Communities Consortium is a "learning network" created with manufacturing-driven communities in mind.

The consortium, with funding provided by the Joyce Foundation and Lumina Foundation, encourages community colleges to face common challenges

by coordinating activities that spur new employment within and outside the auto industry.

For most of these communities, relying solely on the auto industry for future employment growth is not realistic. Instead, the goal is to collaborate with local economic development organizations and create meaningful programs that prepare students for jobs in emerging career sectors.

Ivy Tech Community College (ITCC) in Indiana, for example, has partnered



with local energy companies and the Indiana Department of Workforce Development to form the Indiana Energy Consortium (IEC) to promote career opportunities in the energy industry and develop a homegrown talent pool to fill administrative and management openings. In 2008, ITCC received a \$1 million U.S. Department of Labor grant to provide scholarships in the northwest, central, and southwest regions of the state. To date, 345 students have enrolled in classes, and 89 have completed

\$6.5M

Total impact of new Innovation Fund at Ohio's Lorain County Community College.

their training and received certificates or associate degrees.

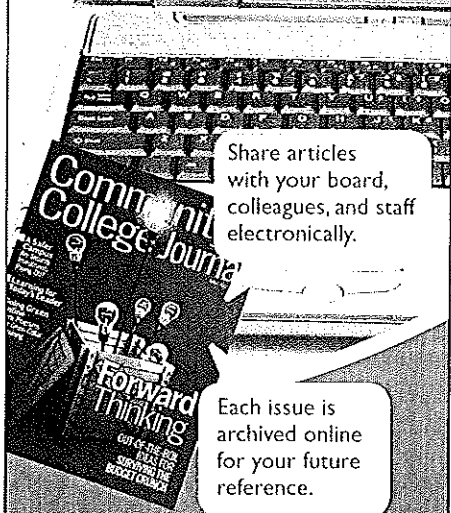
Lorain County Community College in northeast Ohio has been an aggressive promoter of economic growth and development in its region. The college recently established the Entrepreneurship Innovation Center, which will include one of the first sensor commercialization labs on a community college campus in the country. The college also launched a new Innovation Fund that provides pre-seed financial support to

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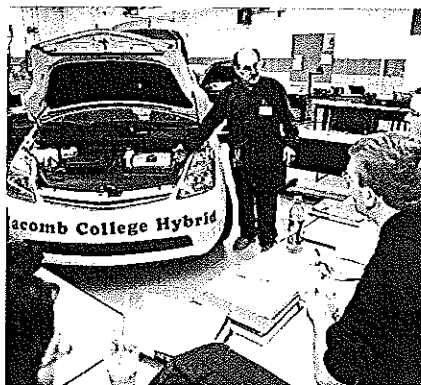


Published 6 times per year by
the American Association of
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entrepreneurs and emerging businesses. The fund so far has produced more than 130 new internships; 100 new jobs in the community, with an average annual salary of \$48,000; and a total economic impact of more than \$65 million.

Macomb Community College in Warren, Mich., established the Center for Advanced Automotive Technology (CAAT) in September 2010, one of 40 Advanced Technological Education Centers funded by the National Science Foundation (NSF).

The CAAT focuses on the need for skilled technicians as the transportation economy shifts from petroleum-powered engines to advanced vehicle propulsion



Hybrid engineering is an area of focus for automotive students at Michigan's Macomb Community College.

systems. The center will develop advanced automotive technology education and use strategic partnerships with industry, education, government, and professional organizations to support local economic development.

The common thread tying all of these automotive- and manufacturing-based communities together is the existence of a comprehensive community college. Together, these institutions can help displaced workers find their way back into the job market. Thirty-four community colleges in 16 states currently participate in the consortium. These colleges have come together not only to retrain and educate this population in acquiring new skills and knowledge, but also to help each other form efficient and meaningful educational strategies.

JIM JACOBS is president of Macomb Community College in Michigan.

Auto Communities Consortium Members

Alabama

Gadsden State
Community College

Illinois

Harper College
McHenry County
Community College

Indiana

Ivy Tech
Community College
of Indiana-Central
Office

Iowa

Des Moines Area
Community College

Kentucky

Bluegrass
Community and
Technical College

Jefferson

Community and
Technical College

Kentucky

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Technical College

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