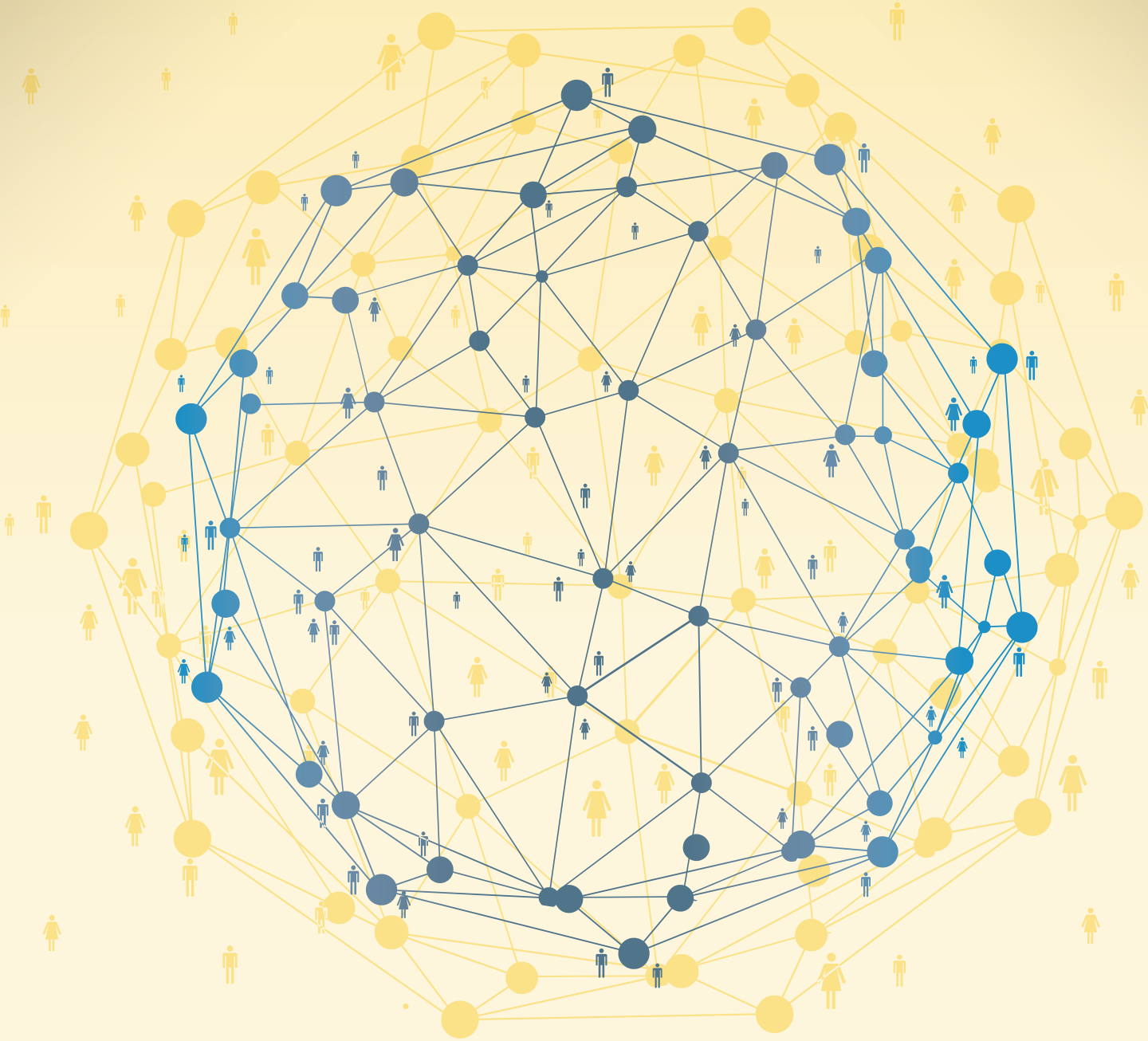

MODELS FOR LABOR MARKET INTERMEDIARIES

EDITOR
Stuart Andreason, Federal Reserve Bank of Atlanta

Models for Labor Market Intermediaries

Stuart Andreason,
Editor

Federal Reserve Bank of Atlanta
1000 Peachtree Street N.E.
Atlanta, GA 30309-4470

Cover design by Peter Hamilton and Odie Swanegan
Ebook designed by Peter Hamilton

6

The North Carolina Advanced Manufacturing Alliance: A Transformative Approach to Workforce Development for the Advanced Manufacturing Sector in North Carolina

DeRay Cole
North Carolina Advanced Manufacturing Alliance

Norman Smit
Integrated Media Strategies

Workforce development and human capital development can drive competitive advantage for industries and business sectors. It might actually help to drive business locations and expansions too. Although there is still a hearty debate about whether workforce development drives these outcomes, many agree that they certainly help to reinforce them.

North Carolina has been experiencing significant growth in employment and investment in advanced manufacturing, and a workforce development alliance has been an important part of that development. The state announced $977 million in new advanced manufacturing projects and expansions and more than 3,200 new jobs in 2012–-2013 in areas serviced by the 10 community colleges making up the North Carolina Advanced Manufacturing Alliance (NCAMA). The economic growth is a significant return on investment for an $18.8 million Round 1 grant from the U.S. Department of Labor awarded in 2011 (DOL 2011). It is also a highly visible barometer of confidence by industry in the ability of NCAMA to meet the specialized workforce needs of advanced manufacturing in these service areas of North Carolina.

Advanced manufacturing uses advanced and computer-controlled technologies, automation, mechatronics, and sophisticated biological processes to manufacture products. According to the White House's *A National Strategic Plan for Advanced Manufacturing*, 67 percent of manufacturing employers report a moderate-to-serious shortage in the availability of qualified workers (NSTC 2012). This sentiment is in keeping with face-to-face feedback from manufacturing companies serviced by consortium colleges. Changing demographics in the manufacturing workforce could further exacerbate the workforce skills shortage. Approximately 2.8 million manufacturing workers (nearly 25 percent) are now 55 years of age or older (BLS 2010).

Manufacturing has always relied on mechanization and technological innovation for production and productivity expansion. However, in advanced manufacturing, workers are increasingly managing production equipment in a mediated fashion, rather than directly. Instead of operating a machine, workers in new manufacturing plans operate sophisticated computer numeric controlled machinery and digital interfaces; mechatronic production lines; short, quickly customized components and production runs; and new production equipment, processes, and materials. These changes have created a moving target and a resulting gap between the skills that many in the manufacturing workforce hold and what workers need to know to gain employment in advanced manufacturing positions.

NCAMA addresses head on the issues posed by training for advanced manufacturing and provides an approach that aims to address many of the challenges.

The Alliance comprises 10 community colleges in counties spread across the length of the state in largely rural and poor regions. Staff and instructors from the community colleges work closely with local companies. Funded by an $18.8 million U.S. Department of Labor grant, the Alliance adopted a three-pronged approach:

• Matching advanced manufacturing equipment in training programs to the equipment that workers will use on the job locally

• Developing programs and support structures that produce students with the necessary, sought-after certifications and skills sought by local advanced manufacturers

• Using modern marketing communications to attract students and shape perceptions about advanced manufacturing and the careers it provides.

NCAMA colleges have used approximately $7.2 million of the $18.8 million grant for state-of-the art equipment. By matching the equipment on which students are training to the equipment in local advanced-manufacturing facilities, students are learning the skills, processes, and fundamentals they need. This approach also has other benefits. Onboarding costs and training at companies for new technicians are significantly reduced, and industry confidence in training outcomes is high. Ensuring equipment remains current with industry in future will require a sustainable funding structure for the initiative or industry support.

One benefit of developing partnerships with the community colleges was their ability to quickly align curriculum to focus on operating the new machinery and developing programs customized to local business needs. Alliance colleges developed new coursework internally and used training materials from established vendors such as Tooling U, Economic Modeling Specialists International—Analyst and Career Coach, Scientific Management Techniques, and the National Center for Construction Education and Research (NCCER). To ensure instructors remain current, the Alliance has forged partnerships with national training and certifying bodies such as NCCER. The Alliance's master instructors are able to update the skills of its colleges' instructors, providing industry-defined and recognized credentials to the instructors, such as credentials provided from industry-recognized national organizations such as the NCCER and others.

The Alliance provides a range of certificate, diploma, and associate degrees in specific fields that apply to the advanced manufacturing field. Some include more traditional industrial maintenance fields, drafting and design, and mechatronics, but programs also have an eye to future production such as 3D printing. Programs are also designed so students can obtain portable, industry-recognized credentials to more easily find work if they are to relocate outside the state or switch companies. Programs are designed in direct consultation with industry, and their continuing input and participation are key aspects of the partnering between NCAMA and industry.

Support for students to boost retention and completion rates is an important part of NCAMA's approach. Alliance colleges have success managers who are able to make a difference to students juggling family responsibilities, employment obligations, and their academic requirements. Success manager support includes help finding babysitters, ridesharing, financial assistance, and the tracking of their results to suggest areas in which academic support may be useful. The program is designed to understand that students need flexibility to learn in nontraditional settings and timeframes. Students in the programs also receive support to stay connected. To that end, students are issued iPads to connect to online coursework and other resources and provide an ability to remain in touch continuously with the college—something not necessarily taken for granted in poor, rural communities. These supports show some promise in helping keep students engaged, enrolled, and working toward program completion. According to NCAMA's program administration statistics, student retention rates are 6 percent better than other

programs in the North Carolina Community College System, and student enrollments have grown since the inception of the programs.

NCAMA colleges partner closely with local industry by matching programs closely to internal processes and equipment. These partnerships enable NCAMA to create internship solutions, resolving the experience barrier for hires new to advanced manufacturing. The partnerships enable companies to have confidence in the quality of the students' training, and internships provide a no-risk method for companies to take on potential new hires with the skill sets they need. In fact, companies are proactively seeking interns from NCAMA programs for paid internships.

NCAMA is planning to develop a continuing pipeline of workers for an industry sector expected to grow. It has developed outreach programs that reach into the K-12 system to engage a future generation of advanced manufacturing technicians and operators, touching both teachers and students.

From the outset, NCAMA has had a sophisticated focus on marketing, communications, student recruitment, and strategic positioning.[1] In January and February 2014 alone, server records show that the mobile-friendly website[2] attracted more than one million page views. NCAMA distributes a monthly newsletter, has a YouTube video channel, and uses social media to connect and engage students, the public, and industry. The communications plan enables colleges to promote their advanced manufacturing programs on their respective college websites to prospective students. Given the growing number of educational programs and job-training opportunities, the NCAMA program understood that outreach to students was an essential part of its work; the program's organizers could not simply hope that students would find the program on their own.

Outreach also meant developing partnerships with other government agencies. The federal grant-funded Alliance has established connections with the broader North Carolina Community College System, the North Carolina Department of Commerce, regional and local economic development agencies, and others.

The best metric of NCAMA's success is shown by advanced manufacturing growth in NCAMA college service areas, as it demonstrates confidence. Table 6.1 shows the full list of company expansions, capital committed, and new jobs created.

Table 6.1 - Growth in NCAMA Service Areas: 2012–2013

2012

Company	Location in NC	Investment	Employment
American Recycling	Enka	$1.5 million	20–30 new jobs
Butterfields	Rocky Mount	$300 thousand	10 new jobs
Avgol	Mocksville	$35 million expansion	42 new jobs in next 3 years
Campbell's Soup	Maxton	$46 million expansion	68 new jobs
Carolina Precision Plastics	Mocksville	$5.3 million new facility	140 new jobs in next 3 years
ConMet	Asheville	$4.5 million expansion	
East Coast Packaging	Rocky Mount	$1.5 million	29 new jobs
Draka	Rocky Mount	$3.2 million	67 new jobs
Hospira	Rocky Mount	$85 million expansion	200 new jobs
Ingersoll-Rand	Mocksville	$22 million expansion	60 new jobs in next 3 years
Linamar	Arden	$75 million expansion	400 jobs by 2020
Mountaire Farms	Parkton	$5 million expansion	77 jobs

New Belgium Brewing	Asheville	$175 million	154 by 2020
Plasticard-Locktech	Asheville	$4.6 million	42 new jobs
Pencco Inc	Rocky Mount	$1.5 million	10 new jobs
02 Energies	Rocky Mount	$5 million	
Sonoco	Waynesville	$3.8 million expansion	33 new hires
Subtotal		**$478.2 million**	**1,284 positions**

2013

Company	**Location in NC**	**Investment**	**Employment**
Ashley Furniture	Advance	$80 million expansion	500 new jobs
Campbells Soup	Maxton	$19 million expansion	23 jobs
Cape Fear Arsenal	Lumberton	15.2 million new facility	150 jobs
Custom Nonwoven	Thomasville	$12.8 million new facility	72 jobs in the next 3 years
DPSTC	Lumberton	1.37 million new facility	45 jobs
Fx Immune Co	Asheville	$ privately held	6 positions
Flo Tite	Lumberton	$1.5 million expansion	15 jobs
GE Aviation	Asheville	$125 million expansion	242 new jobs
Gildan Activewear	Mocksville	$112 million new facility	290 new jobs
Graphic Packaging	Lumberton	$9 million expansion	5 jobs
Jacob-Holm	Enka	$46 million	66 jobs
Nutkao-USA	Rocky Mount	$7.3 million	56 new jobs
Oak Ridge Industries	Washington	$9.4 million	35 jobs in 5 years
Piedmont Candy	Lexington	14.4 million expansion	20-30 new jobs
Pro Refrigeration	Mocksville	$4.9 million expansion	85 jobs in next 5 years
Rocky Mount Recycling	Rocky Mount	$10 million	15 new jobs
STF Precision	Arden	$4.5 million	25 jobs
Tarheel Plastics	Mocksville	$2.5-3.5 million expansion	48 new jobs
TE Connectivity	Fairview	$1.68 million	40 new jobs
Trinity Foods	Pembroke	$20 million new facility	150 jobs
Tutco-Farnum	Arden	$2.5 million	90 jobs
Unilin Flooring	Thomasville	$Reopening location	14 new jobs
Subtotal		**$499.5 million**	**1,997 positions**
TOTAL		**$977.7 million**	**3,281 positions**

SOURCE:North Carolina Advanced Manufacturing Alliance

Jamie Meadows is an example of the effect that the NCAMA programs can have on workers. At 38, Jamie lost his job during the Great Recession and went to NCAMA's Craven Community College, where he completed the manufacturing technology program, which is focused on manufacturing with composite materials. When he started, he had a GPA of less than 1.0, but support provided by NCAMA staff helped him raise that to 3.5. He is now a full-time composites technician at Spirit AeroSystems, a Kinston-based aerospace company that manufactures the center fuselage section and front wing spar for the Airbus A350 XWB airliner (NCAMA 2014).

The programs operated by the North Carolina Advanced Manufacturing Alliance can be replicated in other settings, and potentially the outcomes can be as well. Below is a summary of the key program lessons:

• Match equipment for specialized training to local industry clusters for optimal workplace skills relevance. New training programs for the new equipment must be developed.

• Develop strong industry-college partnerships and replicate actual industrial processes in training facilities.

• Develop portable and industry-recognized credentials.

• Create internship opportunities for students and graduates.

• Provide technology to students that allows them to work on- and offline while remaining connected.

• Develop the organizational capacity for leadership, strategic positioning of the initiative, high-level interactions with industry, support for instructional staff, and other stakeholders.

• Provide consortium communications capabilities that allows advanced manufacturing departments statewide to share ideas, solutions, curricula, and other resources.

• Develop strategic, long-term approaches to marketing, positioning, communications, and student recruitment, areas that are vital to developing strong connections to students and employers. Students most likely will not find programs on their own.

• Enable programs to follow students and assist them with their college experience and understand that many participants will have complex challenges. Off-campus issues such as transportation, childcare, and economic stress, among others, often negatively affect outcomes of promising students, particularly in poorer economic regions. A comprehensive complement of services and support can foster student success.

Use the consortium for evaluating and implementing program solutions, including off-the-shelf solutions from vendors and certification of instructors.

Ensure that economic development agencies can use consortium infrastructure, successes, strategic positioning of specialized training, and industry partnerships for future growth.

NCAMA advanced manufacturing programs are full. Consortium colleges report that they are being approached by companies for interns, suggesting that they value the programs. Companies are also increasingly asking for incumbent worker training. Placement numbers are significant. NCAMA has placed 190 interns at 70 companies as of this writing in 2014, with the greatest numbers in the past six months as students begin completing associate degrees. Since 2012, 454 people have completed short courses, certificate programs, diplomas, and other programs. A total of 3,613 certificates have been issued through 2014.

In a very short time, NCAMA has demonstrated an approach that has delivered results in supporting the advanced manufacturing sector. The approach it has adopted bodes well for helping to meet the specialized workforce needs in the areas the community colleges service. Its state-of-the art training on equipment currently used in industry and its ability to place interns directly into positions in industry where most of them are able to go on to full-time employment have proven both dynamic and effective. Coupled with the consortium’s modern communications practices around student recruitment and

economic development, NCAMA is able to demonstrate what it is doing online and create a virtuous circle.

During due diligence by companies seeking a location for a facility or an expansion, the credibility of workforce programs and the ability of a location or region to be able to supply the necessary pipeline of workers is a top-tier consideration. Economic developers and site selection consultants rate this factor as top five determinant (Brown 2015). NCAMA's credibility is straightforward to assess through the quality of its programs, the equipment it uses, its ongoing industry partnerships, and its highly visible, ongoing recruitment of students to supply the future worker pipeline. Although economic development recruiting usually goes on behind closed doors, the role of NCAMA in supporting state and regional recruiters—helping create an effective and agile workforce through its development programs—is easy to validate and act on.

About external marketing for industrial recruitment, the flip side of the coin is student recruitment. As word gets out that good, well-paying jobs are available in advanced manufacturing after specialized training, program managers in a competitive environment report easier student recruitment. And as more and more people discover how today's advanced manufacturing differs from that of yesteryear, the number of people seeking a career in the sector can begin to catch up with the current shortfall advanced manufacturing is experiencing. In North Carolina, the NCAMA workforce development programs have played a role in encouraging the investment of nearly $1 billion in advanced manufacturing.

REFERENCES

Brown, Emily. 2015. "Shifting Workforce Development Into High Gear." Washington, D.C.: International Economic Development Council.

National Science and Technology Council (NSTC). 2012. A National Strategic Plan for Advanced Manufacturing. Washington, D.C.: Executive Office of the President. http://www.whitehouse.gov/sites/default/files/microsites/ostp/iam_advancedmanufacturing_strategicplan_2012.pdf (accessed November 6, 2015).

U.S. Bureau of Labor Statistics (BLS). 2010. 2010 Current Population Survey. Washington, D.C.

U.S. Department of Labor (DOL). G; grant award announcement SGA-DFA-PY-10-03. Washington, D.C. http://webapps.dol.gov/DOLGrantData/GrantInformation.aspx?appid=12192 (accessed November 6, 2015).

---

[1] Strategic communications planning and economic development services implementation have been provided by Integrated Media Strategies.

[2] See the North Carolina Advanced Manufacturing Alliance website.