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Martin Scaglione,
President, Workforce Division, ACT

“We’re focused on two priorities. First, to open up to some of these disruptive innovations and create some space in these states and second to hold them to a new value proposition framed around outputs in quality rather than process standards.”

Michael Horn,
Executive Director, Innosight Institute

“I want to bet on America. I believe we can win. I think talent is here and innovativeness is here... We have to put the effort in and make sure that the opportunities are ubiquitous so everybody can take advantage of them. If we do that, our manufacturing economy will be strong for a long time to come regardless of what’s going on in the rest of the world.”

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The NAM-Endorsed Manufacturing Skills Certification System will validate for employers that a student or entry-level worker has achieved core technical skills that enable individuals to swiftly enter careers across 14 sectors of advanced technical skills that enable individuals to swiftly enter careers ranging for aerospace to agricultural processing. The Manufacturing Institute is now "building out" the NAM-Endorsed Manufacturing Skills Certification System, focusing on higher-level sector and occupation-specific industry-recognized credentials that will align to baccalaureate and graduate degree programs of study. The development of a highly skilled and educated 21st century workforce will help maintain U.S. leadership in innovation and productivity, which are essential to the viability of manufacturing in the global marketplace.

In the United States, people do not see manufacturing as a desirable career path. The more we can drive young people to look at manufacturing as an exciting career, the more open they will be to continuous learning to advance their careers.

About the Manufacturing Talent Development Roadmap

For the past two years, The Manufacturing Institute led a strategy effort to develop the educated and skilled workforce required to drive innovation in the United States advanced manufacturing sector.

"We still have an education system aligned to a 19th century agricultural economy and 20th century industrial model – in the 21st century driven by technology and innovation. The NAM-Endorsed Manufacturing Skills Certification System will validate for employers that a student or entry-level worker has achieved core technical skills that enable individuals to swiftly enter careers ranging for aerospace to agricultural processing. The Manufacturing Institute is now "building out" the NAM-Endorsed Manufacturing Skills Certification System, focusing on higher-level sector and occupation-specific industry-recognized credentials that will align to baccalaureate and graduate degree programs of study. The development of a highly skilled and educated 21st century workforce will help maintain U.S. leadership in innovation and productivity, which are essential to the viability of manufacturing in the global marketplace."

Manufacturers support:

- Competency-based learning pathways, allowing students to advance in their education as they gain mastery. These pathways should be standards-based, performance-based, and proficiency-based, not seat-time based.
- Manufacturers understand the value of the national Common Core Standards to ensure every student gains a mastery of foundational academic skills.
- Manufacturers call for the integration of industry-recognized skills credentials into programs of study.
- Manufacturers believe providing an alternative "applied STEM" pathway to graduation will keep students engaged in science, engineering, technology, and math.
- Blended learning, allowing students to learn, in part, through on-line delivery of education.
- Bring evidence-based youth development programs like 4-H/Club 4-H to scale.
- Our high schools and postsecondary education alternatives, meeting students and working learners "where they are" and "when they can learn."
- Supply STEM-based pathways with opportunities to earn industry-recognized credentials with value in the workplace.
- Accelerated pathways to credentials and more "on-and-off" ramps to postsecondary education, to learn streamlining their careers and improve advancement opportunities.
- More learn & Earn programs of study that translate prior experience and learning into credits for college.
- More internships and mentorships to align higher education with industry competencies and skills requirements.

Manufacturers provide high quality jobs that:

- Pay higher wages and provide greater benefits than other occupations.
- Create the highest number of jobs to both support the industry and serve the nation's economic community.
- Produce over half of all U.S. exports.
- Conduct nearly half of all research and development in the United States.

Manufacturers require the talented and skilled workforce that:

- Drive innovation in the industrial economy.
- Provide a competitive advantage to the global economy.
- Create jobs at the U.S. economy.

45% By 3rd grade, 15% of students are not enrolled in math and science

60% By 6th grade, 40% of students are not enrolling in math and science courses

31% Of students in 6th grade drop out before graduating

Through the application of technology and advances of computer-based learning, the creation of industry-governed and industry-endorsed standards-driven education and training, The Manufacturing Institute also establishes an Education Roadmap that drives innovation in the industrial economy and 20th century industrial model – in the 21st century driven by technology and innovation. The NAM-Endorsed Manufacturing Skills Certification System will validate for employers that a student or entry-level worker has achieved core technical skills that enable individuals to swiftly enter careers ranging for aerospace to agricultural processing. The Manufacturing Institute is now "building out" the NAM-Endorsed Manufacturing Skills Certification System, focusing on higher-level sector and occupation-specific industry-recognized credentials that will align to baccalaureate and graduate degree programs of study. The development of a highly skilled and educated 21st century workforce will help maintain U.S. leadership in innovation and productivity, which are essential to the viability of manufacturing in the global marketplace.

LEARN & EARN

COMMUNITY OR TECHNICAL COLLEGE

LEARN & EARN

1-YEAR COLLEGE OR UNIVERSITY

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To be successful, though, requires significant education reform.


In preparation for the Roundtable, participants read and reviewed some of the foremost research and writings on the subject of education reform. This includes the groundbreaking book on disruptive innovation in education, *Disrupting Class*, policy papers from think tanks like the American Enterprise Institute and the Center for American Progress, and foundation projects from the Bill & Melinda Gates Foundation and Lumina Foundation for Education.

There are quotes from many of the participants at the Roundtable throughout this Roadmap. This is not an endorsement of the recommendations in this report from those individuals. The recommendations come solely from manufacturers as represented by The Manufacturing Institute and the National Association of Manufacturers.

To access the complete set of books and research papers, or view the webcast of the National Manufacturing Talent Development Roundtable, please visit The Manufacturing Institute website at http://institute.nam.org.

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**Thought Leaders**

Molly Broad  
President  
American Council on Education

William Eggers  
Executive Director of the Public Leadership Institute

Deloitte, LLP

Michael Horn  
Executive Director  
Innosight Institute

Dr. Parminder Jassal  
Program Officer, Postsecondary Success  
The Bill & Melinda Gates Foundation

Jamie Merisotis  
President & CEO  
Lumina Foundation for Education

Stephen Ruffa  
President  
Lean Dynamics Research LLC

Martin Scaglione  
President, Workforce Division  
ACT

Louis Soares  
Director of the Postsecondary Education Program  
Center for American Progress
Why Manufacturing

Manufacturing, and particularly manufacturing that now dominates the U.S. industrial sector, creates more wealth than any other industry. If manufacturing is critical to our economic security, then it is essential to our national security. It is U.S. companies that provide the tools, armor, and machines that allow our military to control the battlefield while simultaneously protecting our communities.

In response to competition from foreign countries over the last two decades, the U.S. manufacturing industry has evolved to an advanced, technology-driven environment. Firms both large and small have applied lean principles to streamline operations and survive in this highly competitive marketplace. This has led to significant gains in productivity and enabled the United States to remain the world’s largest manufacturer.

But in order to maintain and increase productivity, companies must improve the skills of existing employees to utilize advanced technologies while attracting the next generation of talented and skilled workers. This is the greatest challenge that manufacturers face.

This is our call to action.
Facts about the U.S. Education System & U.S. Manufacturing

Manufacturers in the United States have a talent problem. Just as manufacturing grows more complex and innovation drives the industry, companies can no longer find workers with the skills today’s jobs demand. This deficit in talent available to manufacturers poses a direct threat to the future prosperity and security of the United States.

Though there are many reasons for this talent crisis, several facts about the state of education in the United States cannot be ignored.

- Over 31% of students drop out of high school. That is approximately 1.3 million students a year;
- Only 27.5% of students entering a two-year college earn an Associate Degree within three years and 55.9% of students entering a four-year college earn a Bachelor’s Degree within six years;
- By the year 2018, 63% of all jobs will require some form of postsecondary education;
- The National Defense Industrial Association reports that between 5th and 12th grade, 74% of students do not have interest in or access to math and science courses required for technical careers.

These deficits in education are now impacting the ability of U.S. manufacturers to compete in the global economy.

- At the height of the recession, 32% of manufacturers reported that they had jobs going unfilled because they could not find workers with the right skills;
- 84% of manufacturers stated that the K-12 school system was doing an inadequate job of preparing students for the workplace;
- 2.7 million manufacturing employees are 55 years of age or older and likely to leave the labor force over the next 10 years. This will create additional and significant demand for a technically trained workforce.

A skilled, educated workforce is the single most critical element of innovation success – and the hardest to acquire.
Emily Stover DeRocco, President, The Manufacturing Institute

Talent isn’t just what is developed to fill the jobs that are being created. Talent is actually what we use to create the jobs in the first place... Companies don’t create jobs; the people do.
Jamie Merisotis, President, Lumina Foundation for Education
As institutions and policymakers begin to address these education deficits, they must recognize that the student population has changed. The traditional, 4-year, residential model of postsecondary and higher education no longer serves the needs of today’s students.

- 73% of students in higher education today are “non-traditional;”
- Enrollment in community colleges has increased 17% within the past two years. This threatens to overwhelm the capacity of community colleges absent significant additional resources or the adoption of new methods of instruction;
- There are 75 million potential working learners in the United States. These “students” are balancing work, family, and school and need to learn the skills required to advance their careers in the most efficient and effective means possible.

These facts demand a completely new and different approach to education in the United States. Incremental increases in funding to deliver more of the same courses and models will not provide manufacturers, or any sector of the economy, with the skilled workforce required to compete and succeed. And traditional education models will no longer give the majority of Americans the skills to find and keep good paying jobs. It is time for innovative solutions.

“If you look at the 55-64-year-old age group in the United States in terms of postsecondary credentials, we are number one in the world. If you look at the 24-35-year-old age group in terms of postsecondary credentials, we are number 12 in the world.”

Joe Loughrey,
Retired President, Cummins, Inc.

“20% of students that attend technical college already have a Bachelor’s degree.”

Bryan Albrecht,
President, Gateway Technical College (Kenosha, WI)
Application of Competency-Based Education

The U.S. education system is based almost exclusively on time. K-12 grades are a single school year. Postsecondary degrees are conferred after a set number of credit hours.

The rate at which students learn is immaterial in today’s school system. If a student cannot master a subject in the time allotted, then he or she either fails or falls behind. Over time, as subjects grow more complex and interdependent, this pattern escalates to where students can never catch up and dropping out becomes an attractive and sometimes only option.

In a competency-based education system though, each student progresses as he or she demonstrates mastery of the curriculum. They proceed at their own pace and teachers, with the use and aid of technology, continuously assess progress and adapt instruction.

This type of education system promises several benefits. First, by continuously assessing a student’s progress, teachers will have a better understanding of the specific subjects and topics that are challenging the student. This will allow them to better customize and personalize instruction so more students achieve proficiency. This frees teachers from providing the average method at the average pace. Second, students will be able to proceed at their own natural learning pace, rather than the current arbitrary pace set by the teacher and the school calendar. Focusing additional time on the curriculum components in which individual students struggle gives them the time to overcome those struggles before proceeding to the next subject. In concert with technology, it does so in a way that does not disrupt or delay the rest of the class.

But perhaps most importantly, it will change the assumption about the length of schooling required to obtain skills and develop talent. Institutions at all levels of education are facing tremendous cost pressure. A system that enables the acceleration of learning and the compression of the traditional semester offers an opportunity to realize significant savings. This has already begun with dual enrollment and early college model programs in some areas, but it should be expanded and made available to all students.

“
Competency-based instruction is the future as we align education and workforce development with employers’ needs.

Gary Green,
President, Forsyth Technical Community College
Part of the responsibility for creating an education system that graduates students prepared to work in today’s economy must rest with companies. This includes ensuring that schools are teaching the latest skills required by industry, partnering with education to provide internship opportunities for students to blend classroom learning and application, and providing an education option for current employees to obtain new skills needed to advance.

There is also an opportunity for industry associations to create partnerships that are nationwide. Most industry-education partnerships have occurred between individual companies and community colleges. This is a difficult and time-consuming process that benefits only a small number of companies and provides limited employment options for students.

Now, through The Manufacturing Institute, the manufacturing sector is engaged with leadership in 31 states to integrate a set of nationally portable, industry-recognized skills certifications into their curriculum. This provides a framework for engagement between education and manufacturers that produces a consistent set of credentials and classes across the country.

The NAM-Endorsed Manufacturing Skills Certification System

The NAM-Endorsed Manufacturing Skills Certification System is an organized group of nationally portable, industry skills certifications applicable to entry-level jobs in advanced manufacturing. The attributes of the system are:

- The skills can be learned in programs of study beginning in high school and progressing through community college and university curriculum;
- The skills certifications are stackable, with the skills learned in chunks of curriculum and measured by gaining competencies, not through seat time or credit hours;
- The skills certifications are integrated into degree programs where educational pathways are aligned to career pathways for each certification;
- These pathways provide more “on” ramps to postsecondary education to learn high level skills, and more “off” ramps to employment with industry credentials that have value in the workplace.
The key differences in this approach to education reform and educational success are:

- A competency-based curriculum that redefines “completion” and “success” in postsecondary education and college as the attainment of industry-recognized credentials; and

- Industry playing a critical role in defining and refining the learning standards and assessment, ensuring curriculum is industry- and employment-relevant.

Deploying these competency-based educational pathways helps address the systemic educational deficits and long-term costs of education by:

- Keeping young people engaged in relevant education and progressing to credentials that have value in the workplace, reducing the high school dropout rate and the number of college students who leave prior to completion; and

- Achieving cost savings by compressing the last years of high school and first years of college allowing students to simultaneously earn a high school degree, National Career Readiness Certificate, and a substantial number of credits towards a college degree with industry certifications.

This approach helps ensure the employability of graduates and working learners by equipping them with the industry-recognized skills credentials with meaning in the workplace. It also provides the manufacturing sector with a framework to engage community colleges on a consistent, nationwide basis.

“Standards have to be set by industry and be independent, valid, and proven. We have to be able to look at anybody anywhere in the world and say the quality of our education can compete anywhere.”

JoAnne Pritchard,
Manager of Manufacturing Learning, General Motors

“...As I thought about what we can do, the only place I really have influence is where I live and so I chose to start locally... In my area, we are at the point of influencing hundreds of young people, changing their potential future. But if I add that to the thousands that JoAnne Pritchard and the thousands that Ronald Bullock are influencing and the work that Emily DeRocco is doing, it’s now growing to tens of thousands or even hundreds of thousands.”

Donald McCabe,
Senior Vice President, Corning, Inc.
The infusion of technology into the classroom is not simply the placement of computers at every desk; it is computer-based instruction, personalized for individual students and utilizing the full set of technology tools and applications now available to the rest of society. The possibilities that widespread technology infusion hold are revolutionary:

- The mass-customization of education through software programs that understand how students learn, adapt to each individual student’s strength in learning, and continually assess progress during instruction;

- Access to any course or instruction method developed anywhere in the world. Schools could pool resources to offer specialized or advanced classes over the web with students attending virtually from anywhere in the country;

- Through social media technology, students can find, learn from, and collaborate with other students with similar interests, learning styles, or aptitudes. This replicates the team-based approach now common in manufacturing, and all businesses, and better prepares students for the workplace.

The integration of such technology has the potential to reverse the dropout epidemic in the United States. By customizing learning to individuals, students who do not excel through traditional textbook and blackboard instruction will have the opportunity to learn through methods that engage and excite them.

It also provides an opportunity to re-inject the technical-based classes that so many schools eliminated over the past decades. These are critical to engaging students in the applied science and engineering pathways that lead to jobs in advanced manufacturing. Students can design and build products and operate machines virtually to learn the necessary skills. Then, through industry partnerships, they can apply those skills in a company setting.
Create Excitement for Manufacturing

Part of the challenge in today’s education system is that students do not see how what they learn in class applies to the real world.

This is particularly important in the manufacturing sector because a defined set of technical skills is required for most positions. This means students must engage in science, technology, engineering, and mathematics curriculum as early as middle school in order to obtain the required foundational knowledge.

A clear, defined, and well-lit pathway from school to a career in manufacturing is needed to ensure students obtain the necessary skills. Combined with industry partnerships and applied learning, this pathway can re-excite students about the opportunities present in advanced manufacturing.

The Manufacturing Institute leads a career awareness and recruitment strategy that is engaging manufacturers, educators, and economic developers to encourage students to pursue a career in manufacturing. Called Dream It! Do It!, this strategy provides students with the opportunity to learn about and engage with manufacturers while directing them to the education pathways that open career opportunities. It is underway in 20 regions around the U.S.

Technology has changed productivity in every industry except education. In education, it’s an add-on cost and it will be until we change the entire way we think about delivery, the way it has in manufacturing.

Dr. Robert Mendenhall, President, Western Governors University

"We can begin to create a broader range of opportunities that really will excite not only our students but begin to excite society as a whole about manufacturing. Advanced manufacturing is our only future if we are going to have a sustainable society.

Dan Swinney, Executive Director, Chicago Manufacturing Renaissance Council"
Manufacturers have been on the front lines of the global economic competition for over two decades. That experience has taught them how to cut costs and maximize their focus on customer value; in manufacturing terms, how to be “lean.”

While educational institutions do not face the same global competition, they are experiencing the same pressures to reduce costs. This has caused some schools to begin a reevaluation of their customers. This includes specifically defining students as their customers and designing services that maximize value to those customers. The next step in that process is to cut the services and costs that do not improve the value of education for students.

This is the application of the principle of lean dynamics from manufacturing into education and holds the promise of significantly reducing the costs associated with operating educational institutions while simultaneously improving the services and results for students.

A lean organization is one that really develops a mechanism to understand the customer—the specific needs of their customers... Students are obviously customers. What do they need? What does it take to excite them to get engaged in the fields they need to be, or we need them to be engaged in, and stick with it completely through to get their certification? Companies are moving in different directions and at different paces. There needs to be a linkage so educational organizations can respond well.

Stephen Ruffa,
President, Lean Dynamics Research LLC
Expand Successful Youth Development Programs

Solutions to many of the education challenges faced by manufacturers have already been found. These programs must be replicated and brought to scale if they are going to reach the number of students necessary to reinvigorate manufacturing in the United States. Some examples of these successful programs include:

- SkillsUSA, a partnership between students, teachers, and industry working to ensure that America has a skilled workforce. SkillsUSA provides students with hands-on instruction in the application of technology through manufacturing while developing the next generation of leaders and responsible citizens.

- For over three decades, Jobs for America’s Graduates achieved extraordinary outcomes, including: retaining at-risk youth in middle school and high school through graduation; assisting JAG graduates in securing an entry level job leading to career advancement opportunities; encouraging and helping JAG graduates pursue a postsecondary education; and providing program participants with competency-based classroom experiences.

- Austin Polytechnical Academy is a high school dedicated to educating the next generation of leaders in advanced manufacturing. Students learn about careers in all aspects of the industry, from skilled production and engineering to management and company ownership — plus related sectors like intellectual property law.

One of the things we’ve looked to SkillsUSA for, and why it’s become such an important talent pipeline for us, is that we are seeing students coming through with the capacity to understand complex skills and innovate creatively to function in manufacturing.

Lynn Scheitrum, Manager, Talent Management & Central Staffing, Air Products & Chemicals, Inc.
Of 50 children who can’t read in 1st grade, 44 will still be behind in 4th grade.

Let’s really infuse technology... so that we can educate children differently than we’ve ever done before. Change the role of the teacher. Change the role of technology and include a real working relationship with manufacturers and businesses to develop the curriculum that’s necessary for the future of America.

Dr. Stewart Weinberg
Superintendent, Dallastown (PA) Area School District
The NAM-Endorsed Manufacturing Skills Certification System will validate for employers that a student or entry-level worker possesses the knowledge, skills, and abilities essential to the manufacturing workforce. This system will help ensure that our students and entry-level workers are prepared for success in manufacturing and for long-term career advancement.

5 million American adults today do not have a high school diploma.

45% of 4th grade, 15% of 8th grade students are not proficient in math and science.

60% of 4th grade students on par with advanced proficiency in science.

31% of 8th grade students are on par with advanced proficiency in science.

Manufacturers support:

- Competency-based learning pathways, allowing students to advance in their education as they gain mastery. These pathways should be standards-based, performance-based, and proficiency-based, not seat-time based.
- Manufacturers understand the value of the national Common Core Standards to ensure every student gains a mastery of foundational academic skills.
- Manufacturers call for the integration of industry-recognized skills credentials into programs of study. This will give students industry-recognized credentials without having to get a degree.
- Manufacturers believe providing an alternative “applied STEM” pathway to the traditional K-12 education system will be essential.

Manufacturers provide high quality jobs that:

- Pay higher wages and provide greater benefits than other industries.
- Create nearly half of all research and development in the United States.
- Conduct nearly half of all basic research and development in the United States.
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We still have an education system aligned to a 19th century agricultural economy and 20th century industrial model – in the 21st century driven by technology and innovation.

In the United States, people do not see manufacturing as a desirable career path. The more we can drive young people to look at manufacturing as an exciting career, the more open we are to the potential working learners in America who must have access to higher education and employment opportunities.

Manufacturers support:

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Manufacturers provide high quality jobs that:

- Drive innovation in the industrial economy.
- Provide a competitive advantage to the global economy.
- Create jobs in the U.S. economy.
- Enable access to higher education.

Manufacturers require the talented and skilled workforce that:

- Increases access to higher education.
- Improves the education and training systems.
- Enhances the industry relationship with schools.
- Improves the opportunity to learn while working.
- Reforms barriers to entry into industry.

Manufacturing Skills Certification System

The Manufacturing Skills Certification System will validate for employers that a student or entry-level worker has achieved core workforce readiness, academic, and manufacturing technical skills that enable individuals to enter careers across 14 sectors of advanced manufacturing. The Manufacturing Institute is now “building out” the Skills Certification System, focusing on higher-level sector and occupation-specific industry-recognized credentials that will shape the workforce pipeline and provide employers with the next generation of manufacturing talent.

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The Manufacturing Institute will work closely with manufacturers, educators, and policymakers to advance the pathway of technology and innovation.

The United States’ advanced innovation in the development of the educated workforce have led a Development Roadmap. The Institute has led a National Manufacturing Talent Development Roundtable to advise The Manufacturing Institute and its partners on how to advance the pathway of technology and innovation.

Manufacturers support:

- Competency-based learning pathways, allowing students to advance in their education as they gain mastery. These pathways should be standards-based, performance-based, and proficiency-based, not seat time-based.
- Manufacturers understand the value of the national Common Core Standards to ensure every student gains a mastery of foundational academic skills.
- Manufacturers call for the integration of industry-recognized skills credentials into career pathways of study.
- Manufacturers believe providing an alternative “applied STEM” pathway to high school graduates, far more than education, to learn throughout their careers and improve advancement opportunities.
- More learn & earn programs of study that translate prior experience and learning into credits and credentials.
- More internships and mentorships to align higher education with industry.
- More technology-infused postsecondary education alternatives, meeting students and working adults without a high school diploma in our economy.

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- Reforms barriers to entry into industry.
- More internships and mentorships to align higher education with industry competency and skills requirements.
The NAM-Endorsed Manufacturing Skills Certification System will validate for employers that a student or entry-level worker has achieved core manufacturing skills that are essential to the viability of manufacturing in the global marketplace. This system is based on the latest research on industry and economic trends and is designed to help maintain U.S. leadership in innovation.

Manufacturers support:
- More technology-infused postsecondary education alternatives, meeting students and working learners “where they are” and “when they can learn;”
- Accelerated pathways to credentials and more “on- and off-ramps” to postsecondary education, to help students build their careers and seize advancement opportunities.
- More learning and earning programs of study that translate prior experience and learning into credits and advanced degrees.
- More internships and mentorships to align higher education and research opportunities.
- Competency-based pathways, allowing students to advance in their education as they gain mastery. These pathways should be standards-based, performance-based, and allow learners “where they are” and “when they can learn;”
- More technology-infused postsecondary education pathways, allowing students to learn, in part, through live delivery of educational content.
- Bringing evidence-based youth development programs like Scouting to scale.

Manufacturers require the talented and skilled workforce that:
- More technology-infused postsecondary education alternatives, meeting students and working learners “where they are” and “when they can learn;”
- Accelerated pathways to credentials and more “on- and off-ramps” to postsecondary education, to help students build their careers and seize advancement opportunities.
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- More technology-infused postsecondary education pathways, allowing students to learn, in part, through live delivery of educational content.
- Bringing evidence-based youth development programs like Scouting to scale.

Manufacturers provide high quality jobs that:
- Pay higher wages and provide greater benefits than other industries;
- Create the highest number of jobs to both support the industry and serve the surrounding communities;
- Produce over half of all U.S. exports;
- Conduct nearly half of all research and development in the United States;
- Provide more R&D funding than all other industries combined;
- Pay higher wages and provide greater benefits than other industries;
- Create the highest number of jobs to both support the industry and serve the surrounding communities;
- Produce over half of all U.S. exports;
- Conduct nearly half of all research and development in the United States;
We have the capacity to accurately define and measure specific competencies that lead to success on the job. We will quickly illuminate the clearest pathways to careers in manufacturing – and any other industry sector – once we begin relying on this information as evidence that informs teaching strategies and guides learners to knowledge and skills that will be directly associated with their success.

Martin Scaglione, President, Workforce Division, ACT

States are where we are going to need to test a lot of these potential solutions. We are in a place right now where there is a lot of willingness to do this. There are a lot of governors that have just been elected. I think there’s a huge opportunity to bring change where there’s a lot of manufacturing.

William Eggers, Executive Director, Public Leadership Institute, Deloitte, LLP

We’re focused on two priorities. First, to open up to some of these disruptive innovations and create some space in these states and second to hold them to a new value proposition framed around outputs in quality rather than process standards.

Michael Horn, Executive Director, Innosight Institute

I want to bet on America. I believe we can win. I think talent is here and innovativeness is here... We have to put the effort in and make sure that the opportunities are ubiquitous so everybody can take advantage of them. If we do that, our manufacturing economy will be strong for a long time to come regardless of what’s going on in the rest of the world.

Governor John Engler, President, Business Roundtable

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The National Manufacturing Talent Development Roundtable was sponsored by The Manufacturing Institute, the National Association of Manufacturers, and the Apollo Group. For more information, please visit The Manufacturing Institute website at http://institute.nam.org.

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