

executive summary



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Manufacturers in the United States are innovative, productive and efficient. For decades the manufacturing sector has been the center of strength of the American economy and its prospects for future growth. Nonetheless, manufacturing faces several forces that have sparked a period of transformation:

- **Global pressures** are squeezing U.S. manufacturers as they face brutal competition from around the world. To continue to succeed, U.S. manufacturers must compete less on cost than on product design, productivity, flexibility, quality and responsiveness to customer needs. These competitive mandates put a high premium on the skills, morale and commitment of workers.
- **Relentless advances in technology** have infused every aspect of manufacturing—from design and production to inventory management, delivery and service. Today's manufacturing jobs are technology jobs, and employees at all levels must have the wide range of skills required to respond to the demands of an increasingly complex environment.
- **Demographic shifts** portend great change ahead. The "Baby Boom generation" of skilled workers will be retired within the next 15 to 20 years. Currently, the only source of new skilled workers is from immigration. The result is a projected need for 10 million new skilled workers by 2020.¹



In addition, a long-term manufacturing employment and skills crisis is developing, one with ominous implications for the economy and national security. The loss of more than 2 million manufacturing jobs during the recent recession and anemic recovery masks a looming shortage of highly skilled, technically competent employees who can fully exploit the potential of new technologies and support increased product complexity.²

A study of workforce issues in manufacturing was conducted by the National Association of Manufacturers at the onset of the recent recession and published in its *The Skills Gap: Manufacturers Confront Persistent Skills Shortages in an Uncertain Economy*³ report. The study revealed that more than 80 percent of the surveyed manufacturers reported a "moderate to serious" shortage of qualified job applicants—even though manufacturing was suffering serious layoffs. In sum, what manufacturing is facing is not a lack of employees, but a shortfall of highly qualified employees with specific educational backgrounds and skills.



American Youth Are 'Turned Off' by Modern Manufacturing

To uncover the reasons behind the talent shortfall and identify why fewer young people appear to be entering careers in this sector, the National Association of Manufacturers, The Manufacturing Institute and Deloitte & Touche recently conducted two major research studies.⁴ The findings reveal a troubling picture. Among a geographically, ethnically and socio-economically diverse set of respondents—ranging from students in middle-school through college, parents and teachers to policy analysts, public officials, union leaders and manufacturing employees and executives—the sector's image was found to be heavily loaded with negative connotations and universally tied to an old stereotype of the "assembly line," as well as perceived to be in a state of decline.

When asked to describe the images associated with a career in manufacturing, student respondents offered phrases such as "serving a life sentence," being "on a chain gang" or "slave to the line," or even being a "robot." Even more telling, most adult respondents said that people "just have no idea" of manufacturing's contribution to the American economy.

The research also explored what today's young people are looking for in their

careers, how they make career choices and how well today's educational programs support successful preparation for careers in manufacturing. With near unanimity, respondents across the country saw manufacturing opportunities to be in stark conflict with the characteristics they desire in their careers—and as a result, they do not plan to pursue careers in manufacturing.

Our Education System Is a Weak Link

The research also emphatically showed that the United States' educational system exacerbates the negative perception of manufacturing, because it is largely out of step with the career opportunities emerging for young people in today's economy, including those in manufacturing. The United States sends more than two-thirds of its high-school graduates to college, but half of them drop out. The educational system fails to engage these students and help them enter alternative post-secondary programs. For those who do graduate, one-third fail to find employment requiring a four-year degree. Meanwhile, many well-paid and rapidly increasing manufacturing jobs remain unfilled, including those requiring two- and four-year technical degrees or short-term skill certificates.

The Good News

The reality of manufacturing is vastly different from its image. Today's manufacturing company is a major source of high-tech innovation, wealth creation and exciting, varied careers. Manufacturing contributes more than one-quarter of the nation's total economic output. It grew at an annual rate of 4.6 percent in the 1990s, compared to the economy-wide average of 3.6 percent.⁵ In fact, every \$1 million in manufacturing sales supports eight jobs in manufacturing and six in other, allied sectors. Manufacturing's varied jobs and careers averaged \$54,000 in total compensation in 2000—20 percent higher than the average

compensation for all American workers—while 83.7 percent of manufacturing employees receive health benefits from their employers, more than any other sector except government.⁶

The Challenge

To remain strong and continue to thrive in a highly competitive environment, U.S. manufacturing must surmount many challenges. High on that list is a need to attract a new generation of manufacturing employees prepared for 21st-century jobs. Our research results were clear: Manufacturing is severely challenged by an old, negative image; an education and training system that does not understand or promote careers in manufacturing; and public policies that are not supportive of a robust manufacturing sector.

Unless the industry finds a compelling way to communicate a positive image and address education and training issues effectively, manufacturing could experience a shift from merely having a talent shortage to facing a serious labor crisis. This could foreshadow a significant decrease in manufacturing's competitiveness and accelerate the movement of American productive capacity and well-paid manufacturing jobs overseas. These events could deliver a decisive blow to an already fragile economy and even undermine national security.

Manufacturing industries must quickly address these problems. Other industries and sectors such as health care are organizing to address similar skills issues. Manufacturing must do likewise. To this end, the National Association of Manufacturers (NAM) has committed "to make manufacturing careers a preferred career option by the end of this decade" through an integrated awareness, career-planning and public education campaign. The NAM also will energetically advocate for education, training, taxation, regulation, trade and monetary policies that will enable manufacturing to maintain its position at the core of a productive U.S. economy.

The urgent goal is to energize and focus the sector's many resources to solve its common problem. To that end, the NAM has issued four challenges:

- **To the President of the United States:**
Declare U.S. manufacturing a national priority.
- **To the United States Congress:**
Establish "National Manufacturing Day" to recognize this priority.
- **To manufacturers in the United States:**
Open your plants and facilities to young people, teachers and parents on National Manufacturing Day.
- **To educators in the United States:**
Bring your students and guidance counselors to a modern manufacturing facility on National Manufacturing Day.

U.S. manufacturing can emerge from this period of transition stronger and better equipped to compete on a global basis and maintain its core contributions to the American economy. The NAM invites all interested parties to join in this effort.

