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FOCUS ON THE
WorkForce

Creating a Legacy We Can Live With

I've been alive over half a century and many would say that I was born and raised during the golden age of American manufacturing. But I don't see it that way. I think our best days are in front of us—if we can capitalize, right now, on the opportunities. I'm not one to look longingly back to Detroit's place as the world's car manufacturer or to Bethlehem, PA, as our country's steel capital. I'm looking forward to being part of a manufacturing economy that reinvents itself and the world through the use of rapid prototyping, nanotechnology, lasers, automation, cloud computing, and human invention.

So I'm lucky to be sitting in the catbird seat at the Hollings Manufacturing Extension Partnership (MEP) at the National Institute of Standards and Technology (NIST; US Department of Commerce). I was brought on last year to help develop and implement our Next Generation Strategies of Technology Acceleration, Continuous Improvement, Sustainability, Supplier Development and Workforce. My charge is to help small and medium-sized manufacturers better understand workforce as a business system and value generator, and to provide strategies and tools for doing so. Workforce, NIST MEP believes, is critical to the successful implementation of each of the Next Generation Strategies and to ensuring innovation and growth in America's manufacturing sector.

Similar to manufacturing, workforce training and education is changing, but that doesn't mean it's where it needs to be to support next-generation manufacturing. With an estimated 600,000 manufacturing jobs going unfilled, we still need to arm elementary, secondary and post-secondary education providers with the tools and resources to teach the building blocks of manufacturing skills: math, science, technology, engineering (STEM), emotional intelligence, communication, teamwork, decision-making, initiative and collaboration. And manufacturers could really benefit from stronger partnerships with workforce investment boards and community colleges that focus on advanced manufacturing skills and credentials that accelerate the manufacturing workforce pipeline. But more manufacturers also need to turn the mirror onto themselves and think about their workforce investments as just that—investments that can be amortized and valued over time—not as expenses that hinder growth. It is this mental model that will help manufacturers turn the corner on the successful talent management of Baby Boomers, Gen Xers and the Millennials (all of whom are now in the workplace).

> "The world is shifting to an innovation economy and nobody does innovation better than America." – President Barack Obama

IBM, in its publication, "Getting Smart About Your Workforce: Why Analytics Matter", describes the importance of workforce data collection and analysis. Their survey findings explain why workforce analytics are a key capability for driving business strategy and how the implementation of workforce analytics is hindered by technical and skill-related issues. Without data, decisions will always be flawed. Systematizing workforce development reduces unnecessary risk and speeds good decision-making. The value of workforce investment data cannot be overstated. A recent report from the Georgia Institute of Technology and the University of California San Diego states that the value of information in manufacturing, through data collection, is rapidly rising and becoming more integral to process and product innovation.

Jonathan Low and Pam Cohen Kalafut describe in their list of intangibles to company performance that relationships, human capital, intellectual capital, workplace organization, and culture all affect business outcomes. Thus, it would seem financially irresponsible to not align and integrate workforce systems with other business/production systems.

The White House Office of Manufacturing Policy and the Manufacturing Council of the US Department of Commerce both unequivocally state that manufacturing is critical to the nation's economic growth and to the world economy, and, as such, they are putting plans in place to better support American manufacturers, including increasing the number of skilled workers for all US manufacturing jobs. Within the Department of Commerce, the council is actively supporting and promoting next-generation manufacturing in high schools and post-secondary schools, developing marketing efforts to help change the public's perception of manufacturing careers, participating in curriculum development for STEM education in the K-12 system, identifying best practices and valuable public/private partnerships in workforce investments, and creating industry-driven metrics to support those investments. MEP is concomitantly encouraging and supporting innovation and growth for America's small manufacturers, and is doing so with myriad partners, including the Society of Manufacturing Engineers. As an integral component in the National Association of Manufacturers' Skills Certification System, SME is offering much-needed credentials to individuals interested in manufacturing careers. These credentials are important not just to job seekers, but to manufacturers who need to be certain that job applicants have the skills they say they have. SME's credentials introduce reliability and validity into the recruitment process that help streamline the process and eliminate unnecessary costs such as additional vetting and training.

Photo courtesy Kristen Dill, Dill and Co.

Patric Sazam (right), regional product director for the Impact Washington MEP Center, discusses an issue with Richard Bogert, president and founder of The Bogert Group, Pasco, WA. Bogert has benefitted from Impact Washington's advice since 2006.

By 2018, the economy will create 46.8 million openings—13.8 million brand-new jobs and 33 million replacement jobs for workers who have retired or permanently left their occupations. Almost two-thirds of the 46.8 million jobs will require workers with at least some education after high school. About 33% will require a bachelor's degree or better, while 30% will require some college or a two-year associate's degree. Only 36% will require workers with just a high school diploma or less. The manufacturing industry will provide 2 million job openings between 2008 and 2018 and many, if not most, of those (good) jobs will require some post-secondary education that offers a reliable credential.

Because manufacturers and other business owners don't usually quantify their workforce investments and assess them against business goals, they are often left with more questions than answers when trying to determine the value of a training or recruiting program. Typical questions include the cost of "buying talent" versus "growing" it, deciding which budget training funds will come from, to whom training should be provided and when, and which type of training (on-the-job, community college courses, online) is best and most cost-efficient. Not-so-typical questions include the type of skills needed by the firm to achieve business growth (not just "patch holes"), if the business culture supports innovation from its employees, if employees are compensated competitively, and if succession plans are in place for all critical positions and not just the CEO.

In order to make sound investments, manufacturers must focus as deeply on their workforce investments as they do in new product development or market expansion. In fact, it would be impossible to imagine new products and new markets without tapping into the knowledge, skills and abilities of the people most familiar with the business, the customers and the firm's production processes.

A 2012 report from Deloitte describes how senior executives prioritize their workforce investments: 69% of world-class

talent programs rate the importance of workforce analytics as "high" and 68% rate having a talent functional operating model "high" as well. However, these companies don't see their talent management systems as simply an expenditure. They understand the systems are investments and provide a return to the business that can be measured and assigned tangible (monetary) value.

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At NIST MEP, we are currently creating a talent management system for MEP centers and their clients that will systemize and analyze workforce investments to help manufacturers understand the value of their budgetary allocations in recruitment, training, retention, career management, and succession planning. Called SMARTalent, it will promote a business approach to workforce development that includes emphases on jobs, occupations and concomitant skills, credentials, training, alignment with business goals, and workforce gaps that hinder productivity and performance. It will be deployed to the MEP network in 2013.

NIST MEP envisions an America where small and medium-sized manufacturers play a major role in innovation, exporting, employment and economic growth. American manufacturing already reflects the changing realities of global commerce and plays a substantial role in America's economic resurgence. It's been a wild ride for many of our nation's manufacturers over the last 20 years, but they are meeting the challenges head on and continuing to be the world's progenitors of invention. **ME**