Ellen Bies of Buhler Inc., a Swiss company with its North American headquarters in Plymouth, Minnesota

Apprenticeships prove to be a successful investment in human capital for one Minnesota operation

A Civic CaucusFocus on Human Capital Interview

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Present

John Adams, Ellen Bies, Paul Gilje (executive director), Sallie Kemper, Dan Loritz (chair), Dana Schroeder, Clarence Shallbetter, Fred Zimmerman. By phone: Dave Broden (vice chair), Amir Gharbi, Randy Johnson. Others present included Rich Davy of the Minnesota Department of Labor and Industry (DLI) Apprenticeship Office, Hennepin Technical College faculty and officials, and Bosch Packaging Technology representatives.

Biography

Ellen K. Bies is director of human resources at Bühler Inc., of Plymouth. Bies joined Bühler in the U. S. in 1996 and has held various positions there, moving into full-time human resources in 2009. Previously, she has worked as executive assistant to the president, chief financial officer and in sales functions for several international companies, both in Germany and the U.S.

Bies's educational background includes the completion of an apprenticeship in business administration in Germany and being the first graduate of the University of Minnesota's College of Continuing Education's HR Mastery Program. She holds the Senior Professional in Human Resources (SPHR) designation.

Background

Bühler Inc., whose world headquarters are in Uzwil, Switzerland, is a technology leader in manufacturing equipment for the food industry, focusing on the supply of flour-production plants and pasta- and chocolate-production lines. The business requires highly skilled employees, whom it has found difficult to find. In order to help fill its need for highly trained customer service engineers, Bühler decided to start its own local apprenticeship program in Plymouth, Minnesota, the location of its North American headquarters. Bühler Apprenticeship Academy, under the leadership of Bernd Weber, director of field services for the company, and Ellen Bies, started on Aug. 1, 2012, and currently enrolls 15 students.

The Civic Caucus was invited to this special information session and tour at Bühler's Plymouth campus to learn about the operation of the Apprenticeship Academy and how Bühler has used it to help meet its workforce needs. The session was part of the Civic Caucus's current focus on Minnesota's human capital challenges and opportunities now and in the coming years.

Discussion

Bühler has about 750 employees in the North American region. The company has a total of 11,000 employees, is active in 140 countries and has a high innovation rate of four to five percent of turnover. Seventy-five percent of the world's wheat flour is produced on Bühler-made equipment, along with 40 percent of the world's pasta, 75 percent of the world's silver paste and 75 percent of the world's beer malt.

Bühler's North America business has hundreds of employees who work directly with customers in its sales and manufacturing facilities, which are located throughout North America. The company installs and repairs equipment and provides on-site training of its customers' operations personnel.

As technology has evolved, Bühler couldn't find people in the marketplace with the skills the company needs.

Bühler started its Apprenticeship Academy to fill the company's pipeline for qualified Customer Service Engineers. The position requires a mixture of mechanical, electrical and electronics skills, according to Bühler's Ellen Bies. Customer service engineers are primarily responsible for the repair, installation, inspection and modification of machinery at customer sites. They also provide training for Bühler employees and for its customers.

The apprenticeship program, which takes three years to complete, has been operating for three years. The first apprentices will graduate in 2015.

The European apprenticeship concept is a dual system of schooling and work experience. Bies noted that Europe has had apprenticeship programs for over 100 years. She said that in Europe, 75 percent of students do an apprenticeship prior to higher education. After completing an apprenticeship, they can go to college for a program geared to the skills they have learned.

Students finish nine to 10 years of school first, Bies said, and then apply to a company for an apprenticeship. In Germany alone, there are 350 different apprenticeships, lasting from two to four years. She explained that the vocational education system set up to support the apprenticeships.

Bies noted that apprentices in Germany, who are paid by the companies running the programs, go to school from one to two days a week, with the schooling costs funded by the federal government. So, Bies said, for two to four years, apprentices are going to school and applying their learning as they go. "Students are much more interested in learning in an apprenticeship program than when they're going to school by itself," she said. At the end of the apprenticeship program, students take a final examination.

She said the system works because of cooperation among all social partners: the federal government, industry, education and the trades. The partners work together to provide standardization among the different apprenticeships. Then, she said, the companies that hire former apprentices know they have a certain base of training. The companies can build on that to train them for their specific needs.

The apprenticeships are driven by the needs of industry. Bies said the federal government then recognizes the training needs and puts in place the requirements for training and examinations. "The government and industry work together," she said.

The U.S. has had apprenticeship programs for a long time, as well. Bies said, in the U.S., apprenticeships have been most often associated with blue-collar jobs. But, she noted that we need apprenticeships for more technical skills, as well, since, for example, machinists today need computer-programming skills.

Bühler adopted the European concept for its apprenticeship program and tweaked it, so it would work in the U.S. Bühler's apprenticeship is a three-year program to train customer-service engineers, also known as industrial specialists for machine and process technology. It offers academic and hands-on training to its students. The program is divided into segments of 8 to 12 weeks, with modules of classes at Dunwoody College of Technology in Minneapolis rotated with modules of classes at Bühler's Apprenticeship Workshop in Plymouth. The classes at Dunwoody are totally customized, with only the five Bühler apprentices in each class.

Some Bühler apprentices from Switzerland come to Bühler's Apprenticeship Academy in Plymouth for a rotation and might also spend time in China or other international locations.

The first year of the program concentrates on mechanical training; the second year is electrical and electronics training; and the third year is in-the-field training. "This creates a flexible base with which apprentices could fill a variety of positions in a number of companies," Bies said. "It gives us a flexible workforce."

Bühler pays for the apprenticeship program and also pays the apprentices a stipend while they are training. Each apprentice earns certificates from both Dunwoody and Bühler, as well as a Journey Worker card. Bies said Bühler is working on getting the program accredited, so apprentices could earn college credit and an associate's degree. There are enough credits just from the Dunwoody classes, she said, to qualify for an associate's degree.

When the company visits area high schools to explain its program, parents are one of the biggest barriers. Bies said parents tend to think their students should go to college, rather than do apprenticeships.

The target group for the program is the high school graduate, but it is also open to other qualified individuals. The program accepts five to six students each year. "We want to be sure the students will succeed, because we're investing a lot of money in this long-term project," Bies said. The acceptance process is a comprehensive one, she said. Bühler holds open houses, invites the parents in and interviews prospective apprentices. Ability and personality assessments are part of the selection process. "We want to make sure it's a successful experience for both the company and the apprentice," she said. There is no commitment required of apprentices to stay on at Bühler after they complete the program. "If we can't convince them that this is a place where they'd like to work and how interesting and exciting it is, then we've failed," she said.

Apprenticeship programs in Europe are much less expensive than Bühler's North American program. Bies said here, Bühler must pay for the small, customized classes at Dunwoody. If other companies had more apprenticeships, she said, Bühler and those companies might be able to jointly send their apprentices to a public vocational school. "We could share the classrooms and the schooling would be paid for publicly," she said. "Why can't we have a school set up in Minnesota, where we could send the students from a variety of companies to, say, Hennepin Technical College and it would be funded through state money, like it is in Europe?"

Applicants for the Bühler program must be 18 or over so the apprentices can rent cars and conform to various safety requirements. An interviewer noted that in the U.S., the high school curriculum is not set up to release people at age 16 into an apprenticeship program like Bühler's. He believes we need to encourage students to take more technical courses through the state's Postsecondary Enrollment Options (PSEO) program, through which students in grades 10 through 12 can take courses, paid for by the state, at any college in Minnesota.

Many students would benefit from going to high school through 10th grade and then doing an apprenticeship. Bies said she thinkssome students are tired of school by then and the apprenticeship program could show them what's out there in the work world and help them to grow up. Instead, many students finish high school, enroll in college and then drop out.

If parents and high school students could see an apprenticeship program like Bühler's up close, parents would change their minds from thinking college is the only path, suggested Rich Davy of the Minnesota Department of Labor and Industry.

Many companies are doing company-specific training, but that only benefits the company. Bies pointed out that there are things that overlap among the companies' training. "We all need a certain base that's the same," she said. "If we could share the cost of providing the base training with other companies, then each company could train the students who've completed the apprenticeship to meet its own needs."

Perhaps a technical associate's degree could do away with the general education requirements. An administrator from Hennepin Technical College said the higher education system is changing quickly and the system could, in fact, do that.

There are lots of informal apprenticeships in Minnesota. An interviewer gave the example of Alexandria Extrusions, which works with the Alexandria Technical and Community College, to train people in the skills the company needs. He also said Remmele Engineering has a big apprenticeship program.

It's our duty to teach our kids skills so can they can survive on their own. Bies said this shouldn't stop at high school, because the kids can't survive with just that level of training. The needed skills training can happen at college or in apprenticeship programs.

An interviewer pointed out that many kids don't know much about the world of work and have never been in a modern manufacturing facility. He also said there is a cultural bias against "the doing of useful work." One way to overcome that, he said, is to show people what's going on at places like Bühler.

For apprenticeship programs to succeed, students in the programs must be able to get an associate's degree and the programs must be more affordable for companies, perhaps by joining forces with other companies.

The Minnesota Pipeline Project was created by the 2014 Legislature, under the leadership of State Senator Terri Bonoff, to encourage apprenticeships. Bies praised the Pipeline Project for working to make more apprenticeships available in Minnesota. Pipeline stands for **P**rivate**I**nvestment, **P**ublic**E**ducation,**L**abor and**In**dustrial **E**xperience. The project is designed to move the focus outside of traditional apprenticeship industries to new areas of economic demand and potential growth. The goals are (1) to develop a path for individuals to obtain a degree and career; and (2) to allow employers to obtain highly-trained workers in the important areas of advanced manufacturing, agriculture, healthcare services and information technology.

(At the Minnesota Pipeline Project website, you can view the video, "Success in the New Economy," which describes the misalignment between education and our workforce now and into the future. The video was shown at the meeting at Bühler. You can also get a transcript of the video .)

Highlights of the video include the following:

- The perception of higher earnings for having a four-year college degree has fueled a "college for all" philosophy, resulting in 66 percent of high school graduates in the U.S. enrolling in higher education right after high school. But the reality is that most drop out and only a quarter of those who enroll will finish a bachelor's degree.

- With rising education costs, a shrinking job market and the oversaturation of some academic majors in the workforce, the conventional wisdom that a university degree guarantees a higher salary is now a myth for the majority of students.

- In 2018, only 33 percent of all jobs will require a four-year degree or more, while the overwhelming majority will be middle-skilled jobs requiring technical skills and training at the credential or associate's degree level.

- The true ratio of jobs in our economy is 1:2:7. For every job requiring a master's degree or more, two professional jobs require a four-year university degree and seven jobs require a one-year certificate or two-year degree. And these technicians are in very high-skilled areas that are in great demand.

- The "college for all" rhetoric is often interpreted as "university for all." The message needs to be significantly broadened to "a post-high school credential for all."

- Nationally, 50 percent of associate degree workers earn between $27,000 and $68,000, with 25 percent earning less than $27,000 and 25 percent earning more than $68,000. Fifty percent of bachelor's degree recipients earn between $34,000 and $97,000, with 25 percent earning less than $34,000 and 25 percent earning more than $97,000.

- Our world has changed and in this new economy, the university degree is no longer the guaranteed path towards financial success that it was for previous generations. New and emerging occupations in every industry now require a combination of academic knowledge and technical ability.

- Community colleges are in a position to provide over 70 percent of tomorrow's workforce with an education combined with applied technical skills, industry-driven credentials and specific preparation for employment.

Conclusion

" We need college, but we also need technical skills," Bies said. The economy needs people entering the workforce both with technical skills and with academic training. "For those who wish to go to college, why not get a degree after an apprenticeship?"