Shaye Mandle of LifeScience Alley

Adopt aggressive strategies to attract and keep highly-trained talent

A Civic CaucusFocus on Human Capital Interview

October 17, 2014

Present

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Summary

The Twin Cities form the most densely concentrated medical technology community in the world, according to Shaye Mandle of LifeScience Alley. "Minnesota is med tech, more so than any other place in the world," he says. LifeScience's 600 healthcare-related member businesses employ nearly 300,000 Minnesotans, mainly in the Twin Cities.

Minnesota has enjoyed an advantage over the years in having a good education system and a highly skilled workforce, but Mandle warns that other places are closing in on that advantage. He believes that neither the U.S. nor Minnesota is meeting the increasing needs for a highly trained technical workforce. The med-tech companies with whom he works are heavily dependent on talent in engineering, chemistry, biochemistry and research and they are unable to find sufficient qualified applicants for a number of their job openings. He cites a real deficiency in technical talent in software and software development as a particular challenge facing the region, because it's not producing enough software developers. Further, those we do produce often don't stay here and those produced elsewhere do not come here.

Mandle believes his organization and others need to promote nationally and even worldwide Minnesota's expertise in med tech and its tight supply chain. He sees the need to engage young people in their 20s about the job opportunities, the culture and other quality-of-life amenities the area offers. Once people come to Minnesota they tend to stay, he says, but the problem is we don't have enough people coming here relative to the number of people who *do* leave. Our problem importing talent is a significant inhibitor to our ability to stay competitive and grow. He also recommends that we focus our energy internally on getting Minnesota students in the K-12 and early postsecondary years engaged and interested in pursuing technical fields.
He notes that Minnesota lacks a world-class private research university, like Harvard, MIT, Stanford,

Northwestern or the University of Chicago. Such private institutions, he says, have more flexibility than large public universities. But he points out that the University of Minnesota is highly ranked in many areas and is among the top five research universities in the country in terms of federally funded research, drawing in almost $1 billion a year.

Background

LifeScience Alley's support of life science businesses in Minnesota prompted the Civic Caucus to invite the group's president and CEO, Shaye Mandle, to discuss the role of this important industry sector in Minnesota's economic competitiveness, with an emphasis on the human capital challenges facing the sector.

For 30 years, LifeScience Alley has played a leadership role in growing Minnesota's Medical Alley, a geographic swath that starts in St. Cloud, passes through the Twin Cities area and reaches down to Rochester. This area is home to more than 600 medical technology companies and healthcare organizations.

The non-profit trade association Medical Alley, a precursor to LifeScience Alley, was founded in 1984 to support Minnesota's healthcare industry. It focused on legislative issues, education, and investment in Minnesota as a major center of healthcare achievement, research, and innovation. MNBIO was founded in 1991 as a nonprofit trade association to serve as the eyes, ears, and voice of biotechnology in Minnesota. In 2005, the two organizations merged, drawing on the strengths of both to become LifeScience Alley. In 2010, LifeScience Alley and The BioBusiness Alliance of Minnesota, a nonprofit organization focused on industry development for high-knowledge sectors, announced their affiliation. Today, LifeScience Alley, and its subsidiary, The BioBusiness Alliance of Minnesota, work to strengthen the regional economy by nurturing the growth of established and emerging enterprises and attracting new companies, talent, and capital. The nonprofit trade association continues to focus on the life sciences business sector, which include healthcare achievement, research and innovation, as well as biotechnology.

Biography

Shaye Mandle is president and CEO of LifeScience Alley, a position he has held since May 1, 2014. Previously, Mandle served as the association's executive vice president and chief operating officer and was responsible for aligning internal operations with organizational strategy and overseeing advocacy efforts and key external relationships. From 2011 to 2013, he served as vice president of government and affiliate relations.

Mandle has 20 years of experience in government, the private sector and academia. Prior to joining LifeScience Alley, he served as executive director of the FedEx Institute of Technology at the University of Memphis, where he launched the University Office of Technology Transfer and led the University's corporate partnership, entrepreneurship and economic development programming. Earlier, he led business development and government affairs for the Reconnaissance and Surveillance Operation of Science Applications International Corporation (SAIC), a Fortune 500 company specializing in defense and homeland security technologies.

Mandle also served as chief executive of two industry and economic development organizations, the East-West Corporate Corridor Association and the Illinois Coalition. He has extensive policy and political experience, having managed state and federal political campaigns and served on the policy staffs of former U.S. House Speaker J. Dennis Hastert (R-Illinois) and former Illinois Governor Jim Edgar.

Mandle has a J.D., cum laude, from the Duquesne University Law School and a B.A. from Illinois Wesleyan University.

Discussion

LifeScience Alley is the nation's largest trade association focused on healthcare-related businesses at the state or regional level. According to Shaye Mandle, nearly all of its 600 members are Minnesota businesses. But in the last few years, the organization has attracted some international companies that also do business in the state, as well as some U.S. companies headquartered elsewhere doing business in Minnesota. He said the organization represents large companies like 3M, Medtronic, St. Jude Medical and Boston Scientific, as well as most of the early-stage and small med-tech companies. The 600 member companies of LifeScience Alley employ nearly 300,000 Minnesotans, mostly in the Twin Cities.

The Twin Cities are the most densely concentrated medical technology community in the world. Mandle said total employment in medical technology in the Twin Cities is about the same as in the Los Angeles area. Boston also has quite a significant number of med-tech companies, as does Ireland and some other places around the world.

But, he said, in terms of workforce relative to population, the Twin Cities are the most densely concentrated by a factor of about three. "Minnesota is med tech," he said, "more so than any other place in the world."

In the past year, LifeScience Alley has been doing more research and producing more reports. Looking at investor data over the past five years, the organization has discovered, Mandle said, "about twice as much money being invested in early-stage companies in Minnesota as we or the rest of the world thought. Part of our role relative to competitiveness isn't just to look at where we're weak, but also at where we're doing better than others to make sure that story gets told."

When the report on this data came out, Mandle said he started to get calls from investors outside Minnesota wanting him to connect them to innovative companies here. "That recruitment of money into the state lends itself to the bigger discussion of the current state of the workforce, needs relative to the workforce over the next couple of decades and where Minnesota really sits," he said.

In any industry today, higher education levels and particular technical skills are more and more in demand, but high school education and college education aren't what they were 20 years ago. "For a long time, we have been operating on the assumption that if kids go to college, they will have the earnings potential we've seen for the past couple of generations," Mandle said. "Statistically, that isn't true any more. Today, we have constantly increasing levels of educational achievement, without the social and economic impacts that prior generations have had."

Also, Mandle said, there are cultural differences between generations in the softer skills, such as general business acumen, the ability to solve problems and analytical skills. He said a Harvard study concluded that Americans in the 55-to-65-age range are exceptional relative to their peer groups around the world and Americans 35 to 55 are on par. "But as you continue to work down to the next two generations, we're falling behind other places," he said.

Employers have told Mandle that students coming out of college today are significantly deficient, compared to prior generations, in their ability to adapt quickly and to problem-solve on their own. And that's despite their growing up in a world that's changing every day, he commented.

Neither the U.S. nor Minnesota is meeting the increasing needs for a highly trained technical workforce. The companies LifeScience Alley works with are very heavily dependent on talent in engineering, chemistry, biochemistry and research, Mandle said. They have a significant number of jobs posted that do not draw sufficient applicants or qualified people.

LifeScience Alley has worked to increase opportunities for H1B visas in order to get more technical talent in the short run. The organization has worked with the K-12 education system and higher education to produce more technical talent in the longer term. Minnesota has one of most highly educated workforces in the world, he said, and has had one of the best K-12 systems in the world. "We've had significant levels of achievement to compete," he said.

One big challenge Minnesota and the U.S. face is how to keep our achievement level higher than the rest of the world. "That gap continues to close," he said. "We tend to struggle with what we're doing wrong, but in some ways, it's what the rest of the world is doing right." Even in the U.S., other states are closing the gap on the advantage Minnesota has always enjoyed, he said.

A real deficiency in technical talent in software and software development is a big emerging challenge for the Twin Cities. "This is a tremendous challenge that Minnesota is way behind on," he said. "In the Twin Cities, this will be a really big issue over the next few years. We have to find a way to meet it or it's going to degrade a lot of the jobs in related industries."

Mandle said the University of Minnesota, the private schools and the community colleges should be training students to meet the demand for software developers. "We have an amazing education system," he said. "The issue is not that the software developers we produce aren't capable, it's that we don't produce enough of them. And more importantly, they don't stay here and they don't come here from other states." He said lots of Minnesotans in the software field go to places like Silicon Valley; Austin, Tex.; Silicon Alley in New York; Research Triangle Park in North Carolina; or, lately, Chicago.

Part of the role of LifeScience Alley is to amplify the expertise in this community and to promote it around the country. "We have the greatest, tightest supply chain in the world," Mandle said. "It's a great place to do business." He said it's also really important to be engaging people in their twenties about the advantages Minnesota has to offer.

One of the challenges in training people for highly technical fields today is that the cost relative to participation is not as efficient as in some other places, especially in the life sciences. Mandle said there are a smaller number of students and a higher cost per student to

deliver that type of training and education than in many other fields. So, if officials are looking for places to cut, they might decide to cut a highly technical program and focus on more general education. For example, he said, Minneapolis Community and Technical College (MCTC) has had a great two-year biotechnology program that is now on the cutting block because of cuts in state funding.

We should focus our energy more on getting students engaged and interested in pursuing technical fields. Mandle said LifeScience Alley is involved in Minnovator, a program that also draws other trade organizations and higher education institutions. Minnovator is looking at how to make college freshmen aware of emerging fields that might interest them and to get more people interested in entrepreneurship and technical fields.

One of the glaring absences in Minnesota, compared to our competitive peers, is that of a world-class private university, like Northwestern, the University of Chicago, Harvard, Stanford or MIT. According to Mandle, this lack inhibits the state's ability to compete with other regions that have both top-notch private *and* public universities. "There is some valuable flexibility in private schools that big public universities don't have," he said.

Any new research installation in the state would be very beneficial. But, Mandle said, many companies are not growing research and development today as much as they would like. The research and development strategy for some companies is via acquisition.

An advantage Minnesota has in med tech is that not only are we a center of research and development, but also of manufacturing. For example, Mandle said, Medtronic has a facility in Brooklyn Center that employs 1,000 people manufacturing high-grade lithium batteries for the company's own use.

There is a very noticeable absence of women and minorities in leadership positions in the med-tech and pharmaceutical industries. The reason for that, Mandle said, is the historically large number of men relative to women in technological industries. He said companies are actively trying to find and recruit women and minorities with engineering and scientific degrees. "It starts with K-12," he said. "The solution is to attract more females and minorities into STEM education."

Mandle believes that, over the years, companies have pulled back from programs that used to take them into K-12 schools. "The disconnect of industry from the K-12 system has had an impact," he said. "That's a place where we could explore getting more industry folks involved. And it's important to get more women leaders from tech industries into the schools."

Having more crossover among industries could help retain people who are already in the workforce here. An interviewer commented that a number of people who had worked in the defense industry in Minnesota moved into the med-tech sector, as defense declined here. Mandle commented that the model of one industry producing another industry through cross-fertilization was much more likely to happen when people already here wanted to keep living here. "But that's not how the world works anymore," he said. "Graduates of the University of Minnesota now ask, 'Where do I want to be?' or 'What kind of field do I want to be in and where is the action in that field?' In terms of the emerging generation making choices to stay here or people wanting to come here, we have to be able to sell an economy and lifestyle that is attractive."

It would take a lot more money to move the University of Minnesota (U of M) up substantially in the rankings of great research universities in the country. "Part of the challenge," Mandle said, "is that in order for Minnesota to move up, it must pass other schools having the same conversation. There are many areas of the U of M that are highly ranked and it's one of the top five in attracting federal research funding."

The U of M is one of the five biggest research universities in the country in terms of federally funded research, drawing in almost $1 billion a year. "Part of the blessing and the curse of the big research universities in the Midwest is that people across the whole world come here," Mandle said. "But the question is what do they do when they're done?" he asked. "There should be a more concerted effort to connect graduate students coming to the U of M to industry in the Twin Cities, so they're not just going back to wherever they came from. I'm not sure how much better we need to be in terms of being a research enterprise, because there are only a couple of universities ahead of us."

Physical infrastructure is not this region's problem. An interviewer commented that the Metropolitan Council has said the region needs a massive investment in a fixed-guideway transit system that goes from downtown to "wherever," with none of it going to the places where med-tech companies are located. Mandle pointed out that the area from Fridley to Eden Prairie is the Silicon Valley of the med-tech world. But he doesn't see the med-tech companies getting heavily involved in the infrastructure issue, because "nobody does government and infrastructure better than Minnesota." He said our traffic congestion doesn't compare with that of Chicago, Washington, D.C., or Los Angeles.

With Destination Medical Center , the massive expansion planned for Rochester over the next 20 years, Mandle believes we will need a much more economical connection between Rochester and the Twin Cities. He pointed out that Mayo Clinic has employees in every county of the state, although not all of them commute to Rochester. "There's a lot of activity between the Twin Cities and Rochester that's incredibly inefficient," he said. "We would be advocates for much better and more efficient transportation between Rochester and the Twin Cities. That's an economic pitch. A lot of research that's going to create new companies is happening there and it needs to connect to the Twin Cities business and investor community. I think that's important to Minnesota's economic future."

The Twin Cities' problem is getting people to know the story, to know what opportunities exist here and to be interested in taking a look here. "Transportation's not our problem," Mandle said. "For the concentration and quality of the workforce here and the quality of government services, we're trying too hard to fix things that aren't our biggest challenges and aren't competitive disadvantages for us. We're not spending enough time letting the rest of the world know that their future success could be here."

Long term, the supply of human capital now and in the coming years is a critical issue for Minnesota's med-tech industry. Mandle said the large companies LifeScience Alley works with can hire whomever they want and bring them here. People move from all over the world to work for Medtronic and 3M. "What you don't want someday," he said, "is for companies to only be headquartered here and not really do anything here. That doesn't contribute to our economy."

"As research and development doesn't happen as much here, my fear is that our biggest companies are shrinking here to grow in other places," he continued. "As access to innovation, to early-stage companies and to the investor environment gets harder, more people leave the state than used to. We're third among the states in retaining our people. Minnesotans like to stay or, at least, come back. But we're 23rd of the top 25 metro areas in attracting new talent."

Our problem importing talent is a significant inhibitor to our ability to stay competitive and grow. Mandle said our number-one need is marketing what we have here to the next generation of talent around the country. "That's what I would do, if I could do one thing," he said. "I would go to Boston, San Diego, Austin, Research Triangle Park, Chicago, Indianapolis, Milwaukee, Denver and Salt Lake City and tell 16-to-25 year-olds why they should be here and why their quality of life will be better. Once people come here, they won't leave. The problem is we don't have enough people coming here relative to the number of people who do leave. We need a bunch of people in their 20s to decide to move here. We need to tell them that the cultural amenities and the cool factor once you're in the Twin Cities are off the charts."

Venture capital is critical. Companies need it to get started, Mandle said. But it's also important culturally, he said. Boston, the San Francisco area and Los Angeles are Minnesota's biggest competitors in the med-tech industry. And Nashville is a major competitor in the health care and IT sector. "California is the worst place in the country to do business. But people go there, because they know there will always be companies there, since 80 percent of the venture capital in this country resides there."

Mandle said LifeScience Alley is trying to get venture capital companies to come to the Twin Cities. Ten to 20 years ago people raised big funds to invest in med tech, he said, but now two things are happening that are bad for the field:

(1) Med tech is not such a good investment anymore, because it takes too long to get your money out.

(2) All the pioneers who raised big funds to invest in med tech are coming to the ends of those funds and aren't necessarily raising more. There are many fewer venture funds headquartered in the Twin Cities than 10 or 20 years ago.

We need more state and local business subsidies. "The world today is flat and small," Mandle said. "The incentives piece is important. Minnesota is near the bottom in terms of incentives it will provide for companies. The 2014 Legislature did put more money into that through DEED (the Department of Employment and Economic Development) and Greater MSP. But other states will throw crazy money at companies and have been doing that for about a decade. So, a state can buy you, but if you can't get the workforce or supply chain you need, it's not a good location."

Mandle said businesses are getting much more sophisticated about doing a full-scale evaluation before making location decisions. This makes Minnesota reasonably competitive in certain industries, despite the smaller incentives the state offers. "While Minnesota's business climate is not great," he said, "compared to California and Massachusetts, it's not so bad."

"The incentives piece is relevant," Mandle said. "It's a dangerous game to get into, but one which we would be silly not to think more about."