

# Tech industry undertakes effort to improve schools

*Quality public education is seen as vital for a qualified workforce and attracting talent*

**EDITOR'S NOTE:** Local business and economic development officials have identified technology as the first sector of the economy to target in a new initiative to create more well-paid jobs in Lane County.

BY SHERRI BURI McDONALD  
blue chip

Earlier this year, a group of 30 local tech executives were asked, "What would make the Eugene-Springfield area more fertile ground for software publishing firms and startups?"

Their top answer was: Change the way local colleges and universities teach computer science so students learn what they'll actually need to know on the job.

Put simply: "Turn out graduates that we can employ right out of the gate," said Todd Edman, CEO of Lunar Logic, a Eugene digital marketing firm, and incoming chairman of the Lane Workforce Partnership, a workforce development agency.

Realizing that changes in higher education alone won't satiate their industry's ravenous appetite for computer specialists, the executives also are working on a longer-term goal, improving local education from kindergarten to high school. They want to expose a broader range of young students to science, technology, engineering and mathematics, the so-called STEM fields, so more are interested in pursuing higher education and careers in those areas.

Concern in the tech industry about local public education has reached a boiling point. There's a sense of urgency that schools must be improved in order to strengthen the local econ-



Todd Edman

omy, expand the pipeline of potential tech workers, and attract talented workers from elsewhere who like the local lifestyle and want to raise their families here, but aren't impressed with the schools, tech leaders say.

Oregon schools received a "C" grade, for example, in Education Week's 2014 "Quality Counts Report" on K-12 education. And the state's on-time graduation rate was 72 percent in 2014, one of the worst in the nation. Schools also have one of the highest rates of absenteeism in the nation.

"Schools are becoming the weak link for recruiting," said Joe Maruschak, chief startup officer and director of the Regional Accelerator and Innovation Network (RAIN) in Eugene.

"Good schools are critical," Edman said. "The type of people who are going to be attracted to this area are quality-of-life people, and if they've got kids, the first thing they're going to look at is the quality of the schools."

Virtually every local software publisher has open positions and there are not enough top-notch computer programmers, developers and software engineers to go around, tech executives said.

"The biggest problem across the board is hiring qualified folks in tech," Edman said.

"Eugene-Springfield has over 4,700 tech positions with an average wage of \$66,620, and all of us sitting around the room would hire more people if we could find more qualified people," he said. "I have four positions open right now."

That shared urgency is bringing together people in industry, government and education to try to come

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change started  
able revolution."

- Kate Brown, Oregon Governor



deposit, Big Return.



for demonstrating abilities

By **SHERRI BURI McDONALD**  
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**E**ugene tech executive and serial entrepreneur Wayne Skipper wants Oregon to show the rest of the country — perhaps even the world — a whole new way of looking at learning.

Through the nonprofit Oregon Badge Alliance that he founded last year, he's bringing together people from government, education, nonprofits and business to roll out a system in Oregon where people from all walks of life can show what

**Wayne Skipper**

#### Open Badges.

Any credential that can be issued on paper could be issued in digital form, Skipper said.

The problem in the past, he said, is that various groups issued what they called digital microcredentials, but they were tied to that issuer and couldn't be moved throughout the Web.

Mozilla, with the support of the MacArthur Foundation, addressed that by creating an "open badge" system that runs on free software and an open technical standard, enabling any organization to create, issue and verify the digital badges. The person

working sites.

Skipper wants Oregon to be at the forefront of this growing national movement.

"This is a great opportunity for innovation," he said.

"It's a situation where we can take what is traditionally seen as a negative about our state — a small, homogeneous population — and turn that into a benefit because we can be agile. That's why I think Oregon has a real chance to be an innovation leader around the world. My goal is to create an ecosystem model in Oregon that can be transported to other states and even other countries."

Similar in concept to the badges

digital badges show what someone has learned both in and outside of school.

A high school student applying for a summer job, for example, could digitally display the badge she earned on a math skill assessment in school, next to a badge awarded for her service in a river clean-up program, next to a badge for her participation in an after-school program tutoring students in math and science.

Each badge image links back to the issuer with information verifying that she earned the badge and what she did to earn it.

The result is a much fuller and

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up with solutions — and quickly.

The forum for getting that work done is six Lane Workforce Partnership work groups that formed in response to the priorities identified in mid-February by a group of 30 software executives.

The workforce partnership has zeroed in on software publishing as a high-wage sector that already has taken root in Lane County and could grow to create more jobs and bolster the local economy.

One of the work groups is focused on a "business-driven curriculum," or updating computer science curricula in higher education. Another work group is focused on K-12 education.

Steve Fickas, professor of computer and information science at the University of Oregon, sits on the two education work groups with other members from the tech sector, government and local K-12 education.

With input from these groups, Fickas recently submitted two grant proposals. One is for \$699,000 over three years from the Engineering and

Technology Industry Council, which the Oregon Legislature established in 1997 to support engineering and technology in higher education.

It would help to establish a new one-year minor in data science at the UO, with plans to also offer it online in three years.

"Data science is a whole new world that has emerged with the advent of 'big data,'" Edman said. "It has to do with mathematics to correlate data with outcomes."

"That's going to be an increasing area of demand," he said. "I'm really excited that the UO is going to have a program about that."

The other grant request is for \$2.5 million over five years from the National Science Foundation to roll out two computer sciences courses at each of the five Eugene School District high schools over five years.

The input coming from the local tech community will help improve computer science education at the UO, Fickas said.

"We have been revamping our software engineering track in the department and feedback from industry

has helped with the details," he said.

Although relatively small, the Eugene-Springfield area's custom software publishing industry is growing rapidly. The rate of jobs created here outperformed both the state as a whole and the nation in 2012, according to the state Employment Department.

Software publishing in Lane County is projected to grow by 1,105 jobs by the year 2020 and an additional 1,258 jobs will need to be replaced in the sector by that time.

This need for more than 2,000 skilled computer professionals is happening against the backdrop of a global shortage of these professionals.

Local school districts have a number of projects that aim to improve STEM education, including math-science partnership grants for math and science teachers to work together and build relationships with industry to show students how math and science are integrated in engineering and design.

Arts & Technology Academy, a Eugene middle school, received a \$700,000 one-year grant as one of

four STEM lab schools throughout the state. The program emphasizes exposure to business and industry by bringing students into the workforce and representatives from the workforce into the classroom, said Kim Finch, STEM administrator for the Eugene School District.

Tech executives said they hope that exposing students to technology early on will spark their interest, and increase the number of people who enter the field, including more women and other groups underrepresented in the industry.

"I believe if we put an effort behind (STEM) curriculum that it really, truly can make an impact," Edman said.

"I think there's a lot of hunger and people in underserved populations who see tech as a way to change the trajectory of their lives."

Edman said he thinks the Lane Workforce Partnership's work over the past six months on the software sector "has been extremely effective."

"I think a lot of people had the will, and it was getting the people together" to find the way, he said.