

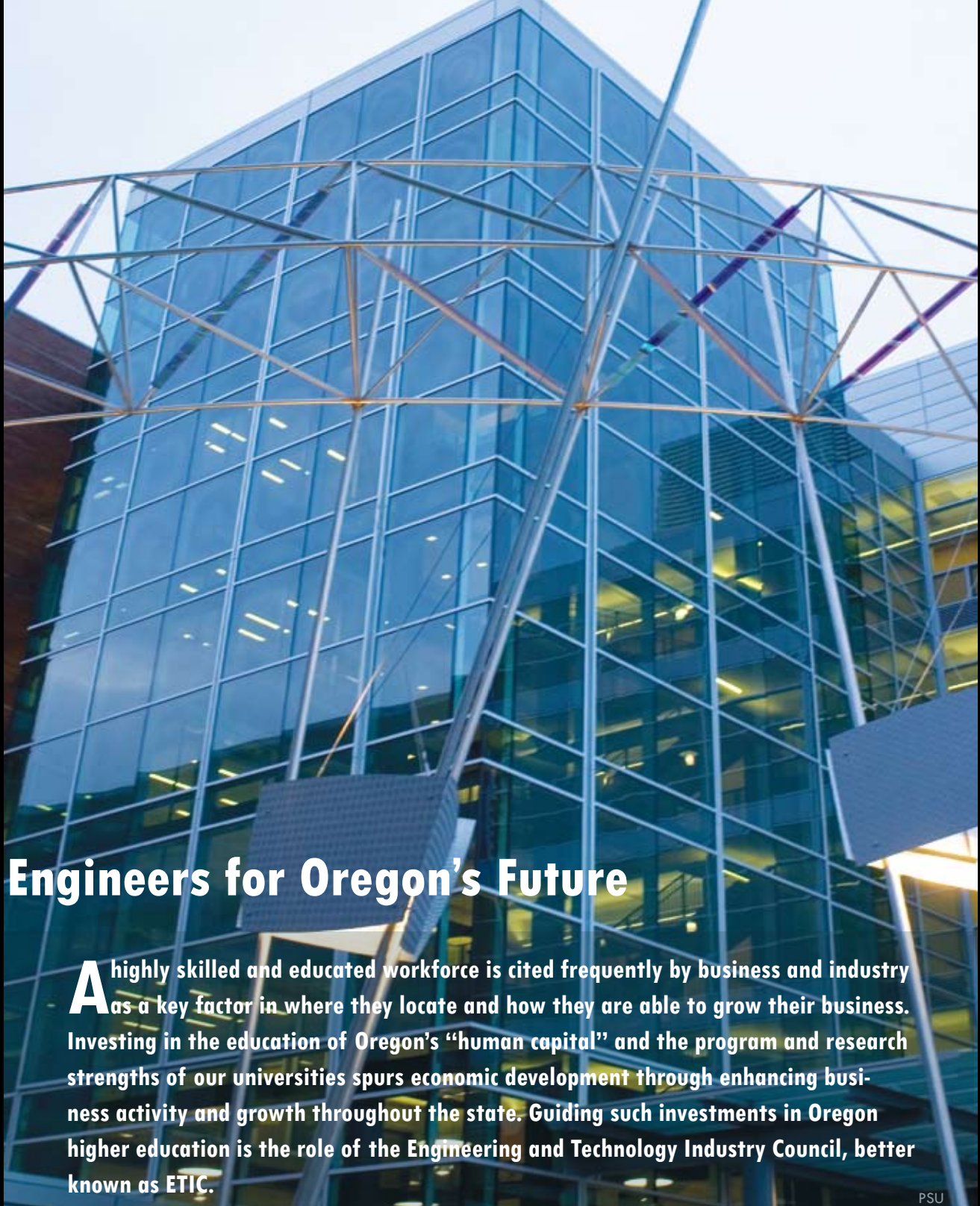


ETIC

**Engineering and Technology
Industry Council** www.oregonetic.org

*Building Oregon's Economy through
Investing in Education and Research*





Creating Engineers for Oregon's Future

A highly skilled and educated workforce is cited frequently by business and industry as a key factor in where they locate and how they are able to grow their business. Investing in the education of Oregon's "human capital" and the program and research strengths of our universities spurs economic development through enhancing business activity and growth throughout the state. Guiding such investments in Oregon higher education is the role of the Engineering and Technology Industry Council, better known as ETIC.

Oregon must determine our own future by ensuring that we have the appropriate capacity of highly skilled knowledge workers trained in the fields of engineering and computer science to sustain a strong, viable and stable economy. ETIC helps meet this need.

Technology is everywhere today. All segments of the economy need skilled engineering and other technical talent. ETIC investments have produced a cadre of engineers and technology workers for all of Oregon's industries, from semiconductors to agriculture, from tourism to forestry, and for other key sectors of our economy such as energy, medical, transportation, manufacturing, "green" industries, and financial services.



Gains for Oregon's Workforce

From its beginnings, ETIC has operated on three key principles: set long-term goals, measure progress every step of the way, and directly involve industry leaders in setting priorities. **Collaboration is essential.** Instead of the various state campuses competing for dollars, they all work together to find ways that each institution can be part of the overall solution.

Many gains have been made through the 10-year ETIC partnership in developing a strong engineering and technology workforce:

- » Increased engineering graduates by 30% to 1,500 per year;
- » Increased federally funded research by 88% to \$56 million per year;
- » Attracted more than \$100 million in private support to university programs;
- » Upgraded student laboratories and internship programs to ensure that students graduate with the high-level skills needed to meet workforce demands;
- » Expanded research programs that support Oregon's existing and emerging industries; and
- » Grown pre-college academic enrichment programs in Science, Technology, Engineering and Math (STEM) to help more students prepare for college and careers.

ETIC investments are leveraged by private dollars—magnifying the benefit to Oregon—and provide up to two dollars in private funding, equipment, scholarships and other support for every dollar of public investment. ETIC investments have established a solid base to ensure that Oregon meets its goals of more than doubling the number of engineering degrees and increasing externally funded research more than five-fold by 2020. Public and private support of ETIC ensures Oregonians greater access to **high-paying, rewarding careers** and the skills necessary to compete nationally and internationally.



"In the last 12 months we have hired 33 engineers, just over half of them we had to recruit and relocate from out of state. We are always looking for good engineers. Having an adequate pool of locally educated engineers would ease our recruiting costs, increase our offer acceptance rate and create a stable workforce of long term employees."

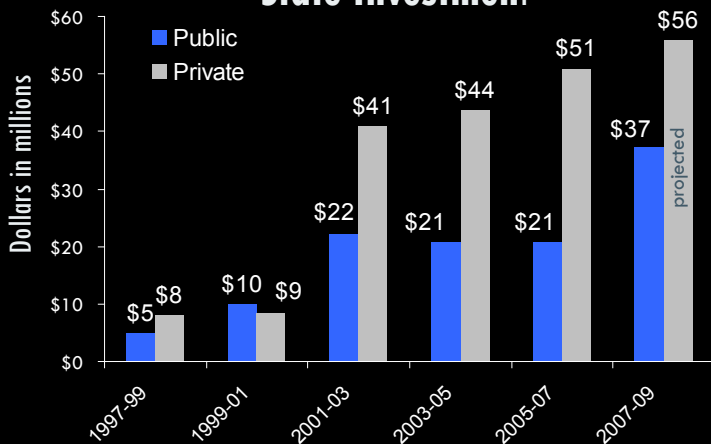
—Ralph Quinsey, President & CEO, TriQuint Semiconductor

History of ETIC

More than 10 years ago the Oregon Legislature, Oregon public universities, and the state's high-tech industry had a big idea: by working together and investing public and private dollars, Oregon could create world-class engineering and computer science programs in the state. The Legislature passed SB 504 in 1997 and thus was born ETIC.

They had big goals: double the number of engineering degrees in Oregon, create world-class institutions, and increase research funding five-fold. Why? To provide new opportunities for Oregon's best and brightest young students to study here at home. To provide skilled and "work-ready" graduates for what has become Oregon's largest industry, and to link universities and companies in research projects to solve problems and invent the products of tomorrow.

Private Support of ETIC Magnifies State Investment



ETIC Investments pay off for Oregon

Year ending June	Total Degrees BS, MS, & PhD	Funded Research (Federal and Private)
1999	1160	\$29.5M
2007	1500	\$55.9M

ETIC investments create opportunities for Oregonians to participate in technical careers in a wide variety of industries. Oregon industries benefit from being able to hire these graduates at the same time they access the growing research base of our engineering programs to maximize their efficiency and the competitiveness of their products and services.

Collaboration among the Oregon University System (OUS) and affiliate campuses with engaged industry leadership has built strong education-career pathways and supports. Business leaders around the state understand that Oregon must think globally, act strategically, and invest in innovation to drive productivity and prosperity. Investments in engineering and technology education and research capability at the eight campuses are key to this process.

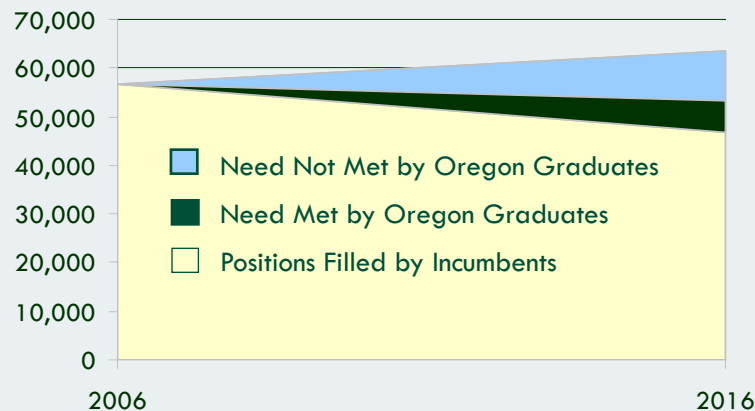
In part due to the growing excellence of the state campus programs, Oregon State University and Portland State University constructed two new, world-class engineering facilities in the past five years. Such projects would not have happened without the ETIC support for new faculty and facilities.

ETIC funding expands university research and **the talent pool to support all Oregon industries**, and is used to:

- » Improve program quality and capacity by increasing the number, breadth and diversity of faculty and support staff;
- » Help purchase engineering facilities and laboratory equipment;
- » Jumpstart research programs geared towards growing the Oregon economy; and
- » Support programs that engage middle school and high school students in the pre-engineering and applied sciences to attract them to college engineering and technology programs.

ETIC investments, guided by the industry leaders on the Council, have and will continue to provide these industries the graduates and research they need to **create innovative products** and services, and **increase organizational efficiency** and competitiveness in our world economy.

Projected Need for Engineering/Technology Professionals vs. Supply of Highly Qualified Oregon Grads (at current graduation rates*)



* Projected demand based on 2006-2016 employment forecast by Oregon Employment Dept. Supply assumes competitive education level for positions.



Jaynie Schonbrod,
OSU Mechanical
Engineering
student, splits her
time between
mechanical engi-
neering, communi-
cation studies and

managing OSU's world champion Mini Baja car racing team. An internship has led Jaynie from OSU to a full-time job.

"I have a job when I graduate, and I want to have some major accomplishments there—I might be getting a patent for a project I'm working on there. I like managing people. My biggest accomplishment at OSU has been leading our Mini Baja car team to first place internationally, which OSU had never done before. It was a really big deal. It makes Oregon State look really good in the automotive industry—it's good for students and good for the university. And we won by a lot."

—Jaynie Schonbrod, OSU Mechanical Engineering student

Growing Oregon's Workforce

Growing capacity and excellence at our universities is only part of the challenge. ETIC investments have and will continue to provide industries with the graduates and research to **create innovative products and services, and increase organizational efficiency and competitiveness** in our world economy.

The Oregon Pre-Engineering and Applied Sciences (OPAS) Initiative fosters collaborations and programs that prepare, motivate, and enable the success of a diversity of students in the technical disciplines. OPAS currently provides grant support to a number of pre-engineering programs offered through colleges, universities, K-12 settings, and community-based organizations.

Some OPAS initiatives include:

- » Working with K-12 on curriculum improvements, and in programs and clubs, that focus on pre-engineering experiences and out-of-school enrichment programs, while developing college going aspirations;
- » Helping universities, community colleges and high schools to align curriculum so students have a smooth transition from one level to the next;
- » Increasing under-represented students in engineering and applied sciences, including students of color and women; and
- » Increasing the freshman retention rate in engineering and computer science so students don't get discouraged or leave the field.

As Oregon industry grows and the current workforce ages, ETIC efforts will be needed more than ever to **help address the need for young, talented, and innovative workers.**



Team Phred from Philomath High School took the trophy for the first annual Oregon Gaming Project Challenge 1.0, a statewide computer game development contest for high school teams sponsored by TechStart Education Foundation and Oregon ETIC.



PSU

“The transportation field is fundamentally about people. It directly affects everyone, so I feel very motivated to help make it safer, more accessible, and more environmentally friendly.”

—Robert L. Bertini, Associate Professor, Civil Engineering, Portland State University

Robert L. Bertini is actively working with industries and public agencies to improve transportation systems. Bertini is the head of the Intelligent Transportation Systems Laboratory. The lab collects and interprets traffic data from 500 road sensors placed throughout the Portland metropolitan area. This information can be used for everything from timing traffic signals to building roads and planning for mass transit. Bertini is also the director of OTREC, the Oregon Transportation Research and Education Consortium. It’s a partnership between Portland State, University of Oregon, Oregon State, and Oregon Institute of Technology to stimulate research, educate future transportation professionals, and help transfer research results where they’re needed.

Return on ETIC Investments

Oregon is the winner when it comes to returns from investing in the many initiatives of ETIC.

In brief, ETIC produces returns for Oregon including:

- » Increases the number of highly trained graduates to meet the needs of Oregon’s key businesses and industries, attract new companies to Oregon, spur economic growth, increase competitiveness with other states and countries, and meet the needs of the 21st century economy;
- » Creates more highly educated, trained and innovative graduates who can immediately help their employers create and improve products and services and keep their companies competitive;
- » Provides “green collar” graduates ready to work in Oregon’s growing sustainability enterprises, such as solar, green building, and bioproducts;
- » Provides research returns from work by faculty and students, and alignment with industry clusters and statewide needs;
- » Gives a competitive advantage to Oregon businesses by advancing practices or products, and developing new products and methods for commercialization;
- » Attracts grant dollars, expertise, and resources to Oregon from throughout the world; and
- » Increases the numbers of “home grown” highly skilled engineers and applied scientists, and thus a reduced need for employers to import technical professionals; providing opportunity for highly paid jobs to Oregonians, decreased employer costs, and making Oregon a more attractive prospective location for companies and start ups.



“Our company relies on the University of Oregon’s Industrial Internship Program as a feeding pool for fresh talent. The ETIC strategic investment has been critical not only to the success of UO’s program but to our company’s future.”

—George Williams, Voxel President and Chief Executive Officer

Working Together

There are many ways that industries, industry groups, legislators, educational institutions, and the public can help ensure a strong, stable Oregon economy by helping ETIC with its many initiatives. Some ways to help include:

- » Mentoring of K-12 and college students;
- » Financial support of pre-college preparation programs;
- » Internships and apprenticeships for high school and college students;
- » Scholarships for students in Science, Technology, Engineering, and Mathematics (STEM) fields;
- » Career awareness presentations at K-12 schools;
- » Support in Salem for ETIC efforts, especially during the Legislative Session; and
- » Research and business collaborations through ETIC, Oregon Innovation Council, and the OUS Research Council.

ETIC Supporters

The following organizations support the various initiatives and efforts of ETIC that strengthen Oregon’s workforce and competitiveness in the global marketplace:

- » AeA, Oregon Council
- » Associated Oregon Industries (AOI)
- » Oregon Business Association (OBA)
- » Oregon Business Council (OBC): ETIC is an initiative of the Oregon Business Plan
- » Oregon Workforce Investment Board
- » Software Association of Oregon (SAO)



ETIC

“...world-class science and engineering...[is] the principal means of creating new jobs for our citizenry as a whole as it seeks to prosper in the global marketplace of the 21st century.”

—Report of The National Academies, 2007



Oregon ETIC Voting Membership:

ETIC is comprised of executives from a wide variety of Oregon industries. A roster of current voting members can be seen at: www.oregonetic.org/members.htm

Contacting University Programs:

Oregon University System (OUS) institutions and affiliate offer highly rated engineering, computer science, and applied science degree programs. For information on specific campus programs and initiatives, please contact the universities:

- » Eastern Oregon University (EOU), www.eou.edu
- » Oregon Institute of Technology (OIT), www.oit.edu
- » Oregon Health & Sciences University (OHSU), affiliate, www.ohsu.edu
- » Oregon State University (OSU), www.oregonstate.edu
- » Portland State University (PSU), www.pdx.edu
- » Southern Oregon University (SOU), www.sou.edu
- » University of Oregon (UO), www.uoregon.edu
- » Western Oregon University (WOU), www.wou.edu

For more information:

See www.oregonetic.org or contact Bruce Schafer, ETIC Executive Director, Bruce_Schafer@ous.edu or (503) 821-1132.

© 2008 Oregon University System (OUS), www.ous.edu