

Engineering & Technology Industry Council

RECOMMENDATIONS FOR THE 2003–2005 BIENNIUM

Executive Summary

February 19, 2003

Summary

Continue the 10-year investment strategy established by the Oregon Legislature in 1997. Create job opportunities for Oregonians through investments that support the global competitiveness of the Oregon's industries and the technical skills of Oregonians. Invest \$40 million in public funds over the two-year period starting July 2003. Leverage this investment with over \$67 million in private funds – a dramatic increase over past years in spite of the current recession.

Use these funds to make targeted investments that enhance engineering education capacity and excellence. Measure the results against a detailed set of metrics including doubling the number of technical graduates over ten years and dramatic improvements in national rankings. Expand upon strong five-year track record, as evidenced by private funds exceeding forecasts and by major increases in both graduate rates and research programs.

Objectives

Stimulate economic development, create jobs, and increase tax revenues by continuing successful investments in the capacity and excellence of engineering education programs that will result in

- Doubling the number of engineering and computer science degrees granted by Oregon colleges and universities between 1999 and 2009.
- Improving the quality of all Oregon college and university engineering and computer science education programs, as measured by national rankings of select colleges, departments, and programs.
- Providing and increasing opportunities to Oregonians whether they are new to the workforce, entrepreneurs, or displaced by changes in our economy.
- Enhancing the technical readiness of all college and university graduates.

Recommendations

Achieve the above objectives by investing \$40 million in public funding matched by over \$67 million in private funding during the 2003-2005 Biennium. Use these funds to

- Support recently hired faculty and hire new faculty members.
- Enhance Oregon's ability to educate its young people and its working professionals in the areas of engineering and computer science.
- Generate additional research grants and contracts from federal and private sources that are greater than the salary costs of the new engineering faculty.
- Make our programs more attractive to top-quality students and faculty and enhance their value to Oregon's economy as key centers of innovation.
- Expand laboratories to serve the needs of the increased student population and ensure the quality of the educational offerings and the work-readiness of our graduates.
- Increase the quality and diversity of engineering and computer science students.
- Enhance programs in elementary, middle, and high school that allow young people to explore engineering and technology at an early age, thus increasing the likelihood they will pursue these careers in college.

Background

Starting in 1997 the Oregon legislature set Oregon on a course to address this issue by passing Senate Bill 504, establishing strategic goals for increasing investment in engineering education. Since that time, substantial progress has been made in increasing the capacity and quality of

Oregon's engineering education programs. Graduation rates are rising, strong programs are becoming stronger, and mileposts for strategic goals to move programs, departments, and colleges up in national rankings are being attained.

The Engineering & Technology Industry Council was established in 1997 to advise the Oregon University System on the needs of industry. It is made up of executives from Oregon's leading engineering companies. In addition to making recommendations it carefully monitors the progress of the engineering programs based on pre-established metrics aligned with these long-term goals.

Senate Bill 504 and the creation of the Engineering & Technology Industry Council were in response to dramatic changes going on in Oregon and the rest of the country. Over the last twenty years Oregon's economy has changed in several ways:

- It has gone from a resource-based economy to a diversified economy with the largest sector being high technology.
- Oregon's high technology companies compete with companies worldwide based on their ability to exploit new research and bring innovative and productivity-enhancing technologies to market.
- All of Oregon's industries have found access to technically skilled workers essential to their success now and looking into the future.

Ballot Measure 5 and other constraints kept Oregon's output of technical degrees relatively flat at a time when demand skyrocketed. Oregon's companies filled the growing skill gap by importing talent from out of state. Companies considering establishing operations in Oregon expected to do the same. In the short term this solution has seemed to work, but in the long run it is a recipe for disaster because

- Many of the best opportunities go to those from other states rather than our own children and neighbors.
- The time and money required to import talent from out of state puts existing and prospective Oregon companies at a competitive disadvantage and gives these companies a reason to consider other locations for making new investments.
- The resulting shortage of in-state technical talent makes it more difficult to generate new technologies and grow new businesses.

These same constraints limited the depth and breadth of engineering research programs at Oregon's universities, forcing Oregon companies to go outside Oregon to find the research programs with which to form partnerships and in which to make investments.

A more effective solution is for Oregon to "grow" a majority of its own technical professionals while still recruiting some from out of state, thereby obtaining a diversity of technical skills and backgrounds. Investing in the capacity and excellence of our universities and college's engineering and computer science programs gives us several key benefits:

- The cost of hiring is reduced.
- The professionals hired from Oregon's colleges and universities are more likely to stay in Oregon as their professional skills grow, further benefiting Oregon's economy.
- Opportunities are available to those who are already residents of the state, whether our young people starting their first career or those displaced by changes in the economy.
- Companies considering establishing facilities in Oregon are confident that they can hire the people they need to grow their business in Oregon.
- World-class research helps Oregon's existing companies compete more effectively, attracts new businesses from out of state, and provides the genesis for start-up companies through technology transfer and "spin-outs."

For a detailed version of the recommendations described here, see following web site: www.oregonetic.org