

# ETIC WORKS

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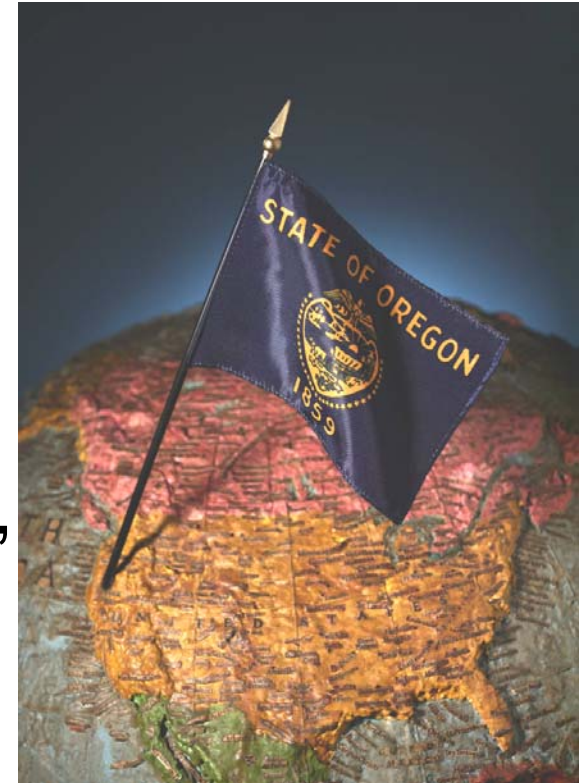
**Aligning Oregon's Stars:**  
Building education and skill  
levels to meet workforce and  
economic needs

**Engineering & Technology Industry Council**

# High stakes for all Oregonians...

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“Oregon’s civic health, prosperity, and success in creating good jobs...depends on its ability to increase college success for *all* students, including low-income and first generation college-goers, adult learners and students of color.”

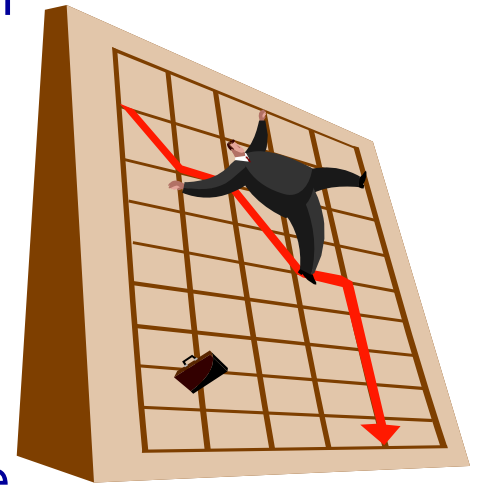


*Adding it Up: State Challenges for Increasing College Access and Success; The National Center for Higher Education Management Systems and Jobs for the Future, Fall 2007*

# Falling short, falling fast...

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- **Today:**
  - Oregon ranks on par nationally with percentage of adults (24-65) with college degree
- **Tomorrow:**
  - Oregon expected to fall behind nationally on this measure in 2025
- **Result:**
  - State will be short of college-educated population needed to meet workforce demands and compete with best-performing nations

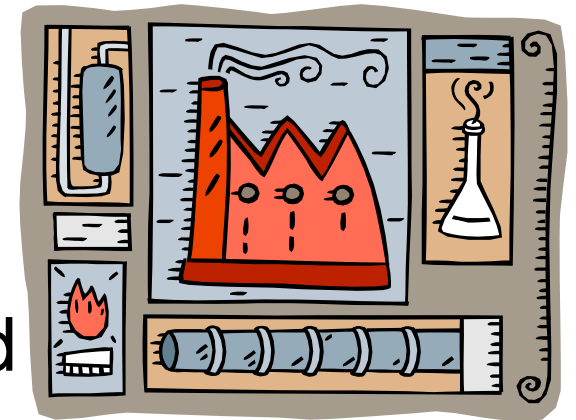


*Adding it Up: State Challenges for Increasing College Access and Success; The National Center for Higher Education Management Systems and Jobs for the Future, Fall 2007*

# Action needed NOW

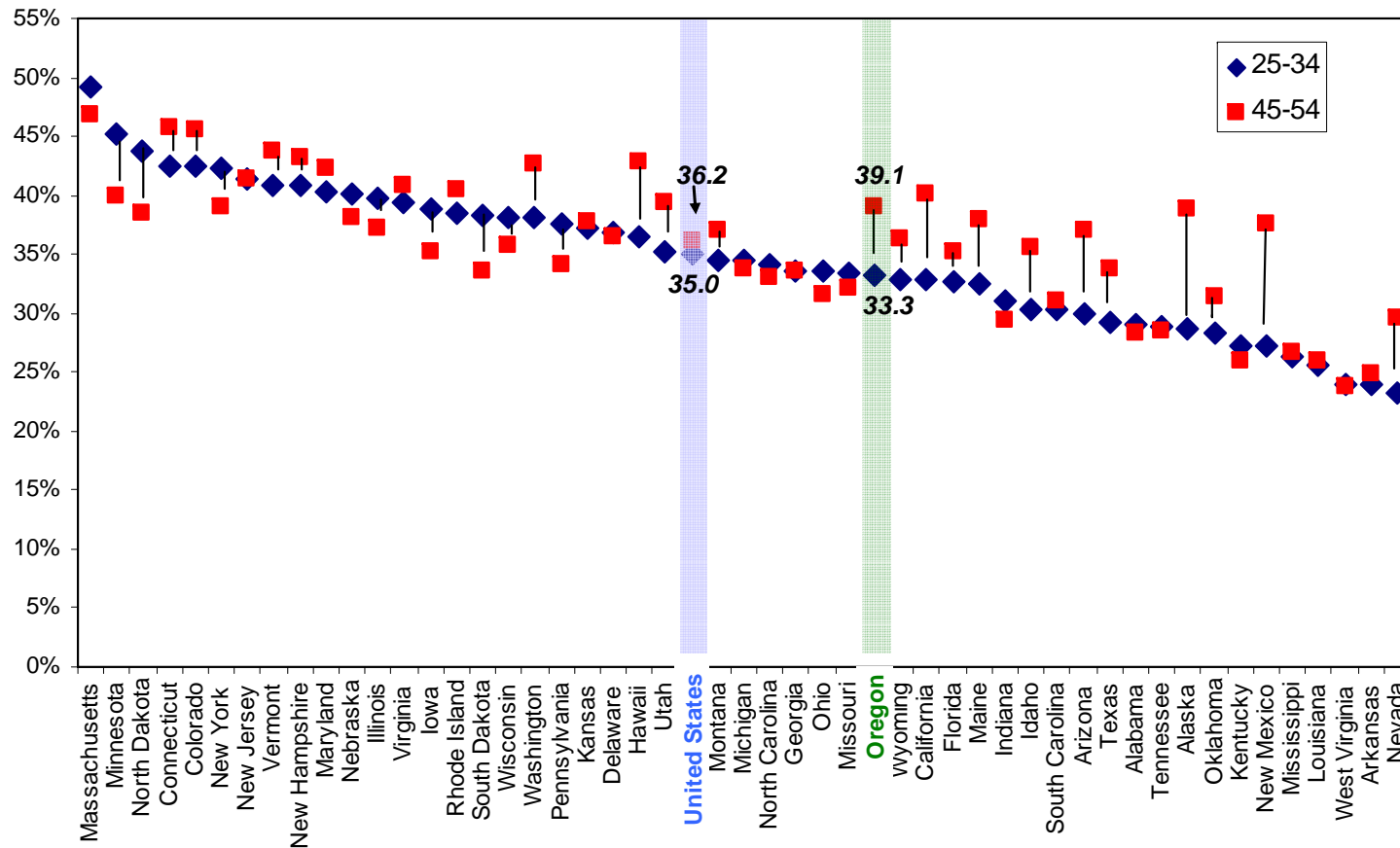
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- **Today**, Oregon's pipeline of highly skilled workers is slowing
- **Today**, we're not moving fast enough to make the pipeline drip into a flow
- **Tomorrow's** demographics mixed with today's mediocre educational attainment efforts make for a dangerous cocktail for Oregon



# Differences in College Attainment between Young and Older Adults in the 50 States, 2000

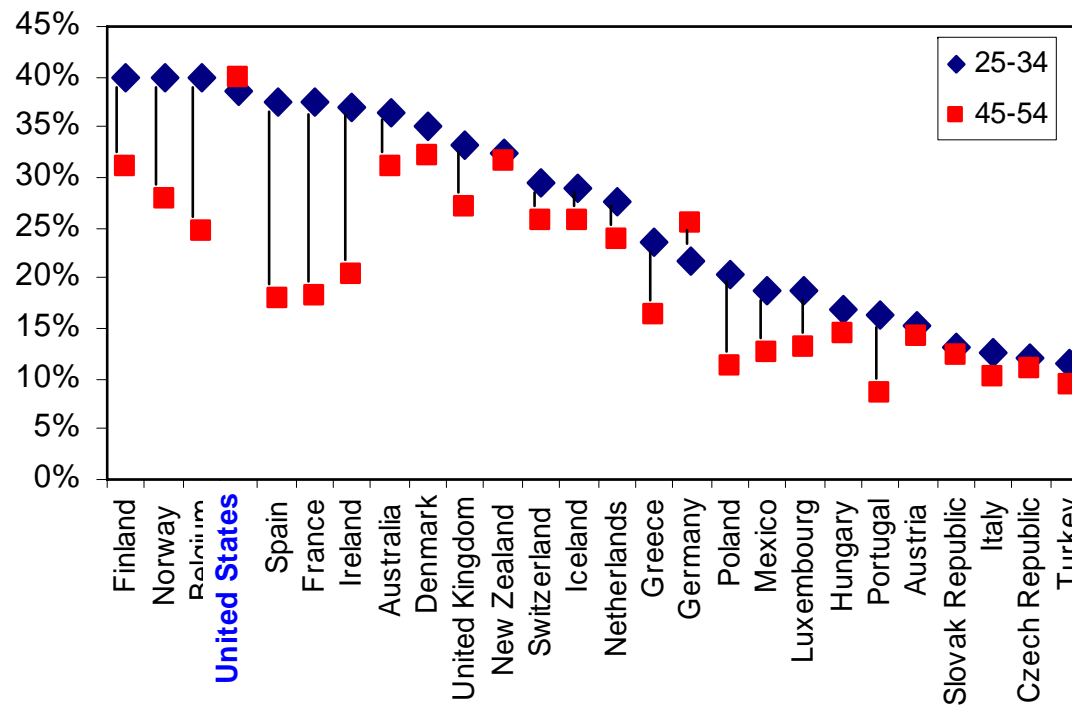
Percent of Adults with Associate Degree or Higher



Sources: (1) U.S. Census Bureau, American Community Survey; (2) National Center for Higher Education Management Systems (NCHEMS).

# U.S. college attainment trailing internationally

## Differences in College Attainment Between Young and Older Adults in OECD Countries, 2000

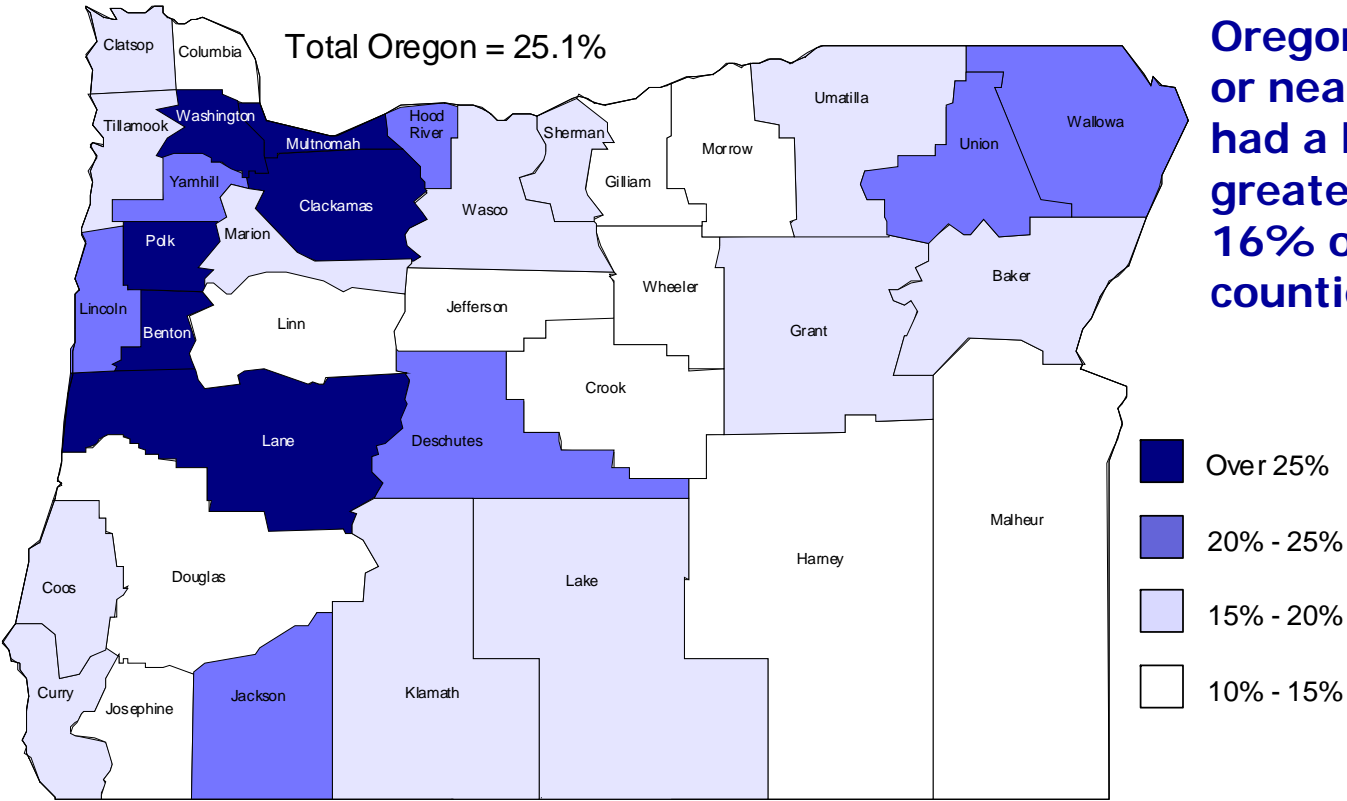


Percent of Adults with Associate Degree or Higher

Sources: (1) Organisation for Economic Cooperation and Development; (2) National Center for Higher Education Management Systems (NCHEMS).

# College attainment by county shows imbalance

Percent of Oregon adults 25 and older with a bachelor's degree, by county (2000)



In 2005, over 30% of Oregonians in metropolitan or near-metropolitan areas had a bachelor's degree or greater, compared to only 16% of Oregonians in rural counties.

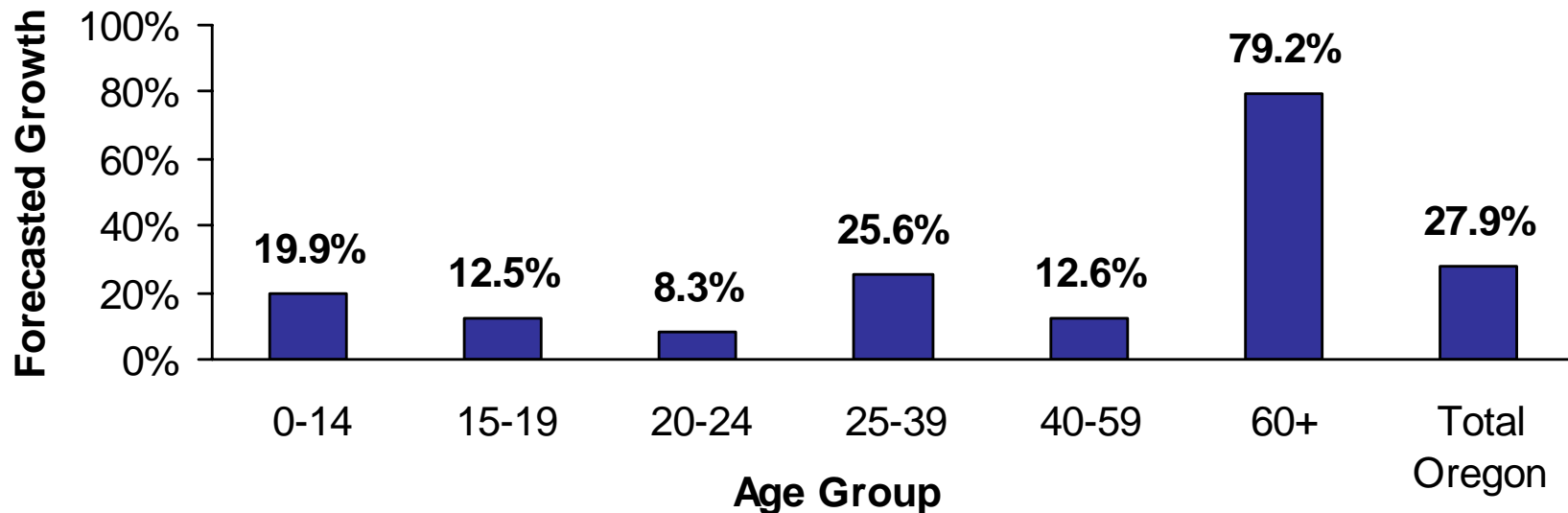
Sources: (1) Oregon Progress Board (from U.S. Census data); (2) U.S. Census Bureau, 2005 American Community Survey, Public Use Microdata Sample

# Large aging baby boomer cohort: We don't have "replacement parts"

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Oregon is projected to have the 4<sup>th</sup> highest proportion of elderly in 2025

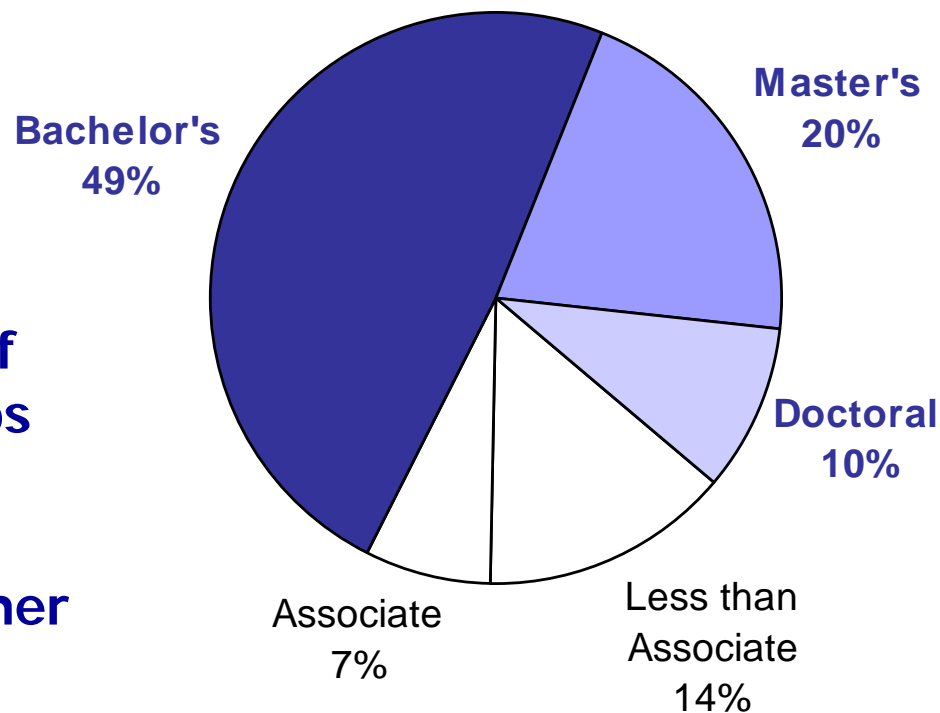
**Oregon Population Forecast by Age Group:  
2005 to 2025**



Sources: (1) Portland State University, Population Research Center; (2) Oregon Office of Economic Analysis, population forecast April 2004; (3) U.S. Census Bureau, Population Division, *Population Paper Listing #47*.

# High wage jobs require more education...

Education Level Needed for High Wage Jobs in Oregon by 2014  
(\$45,000 annual salary or more)

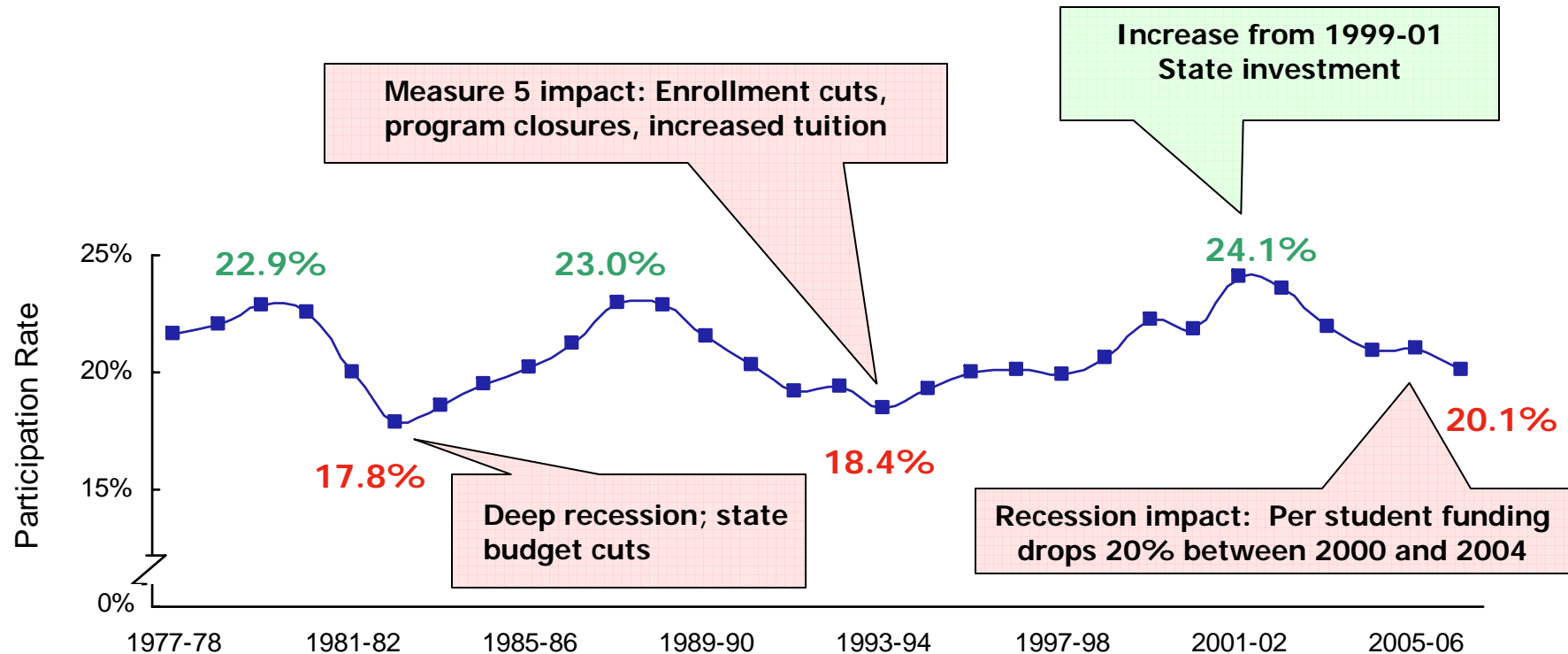


Nearly 80% of high wage jobs will require a bachelor's degree or higher

Source: Oregon Employment Department.

1,000 more Oregonians with a bachelor's degree means over \$2.5 million more in state taxes would have been paid in the 2007-2009 biennium compared to those who have only a high school diploma.

# Student participation rises and falls with state investment and disinvestment

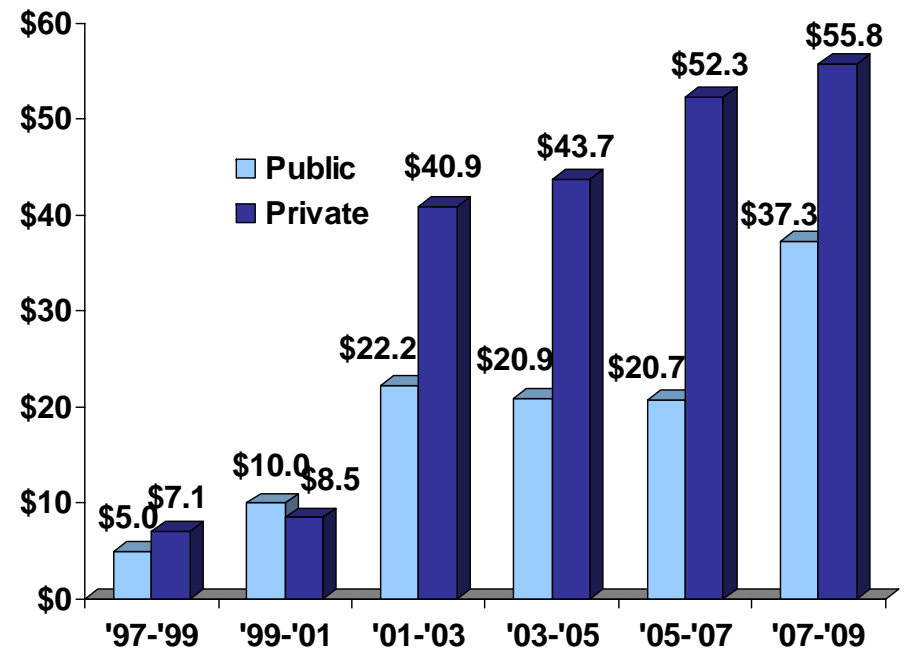


An annual increase above 1% in freshman participation is significant; the jump to 24.1% in 2001-02 was unprecedented in OUS history in at least the last 30 years.

# ETIC's birth spurred engineering, technology related investments

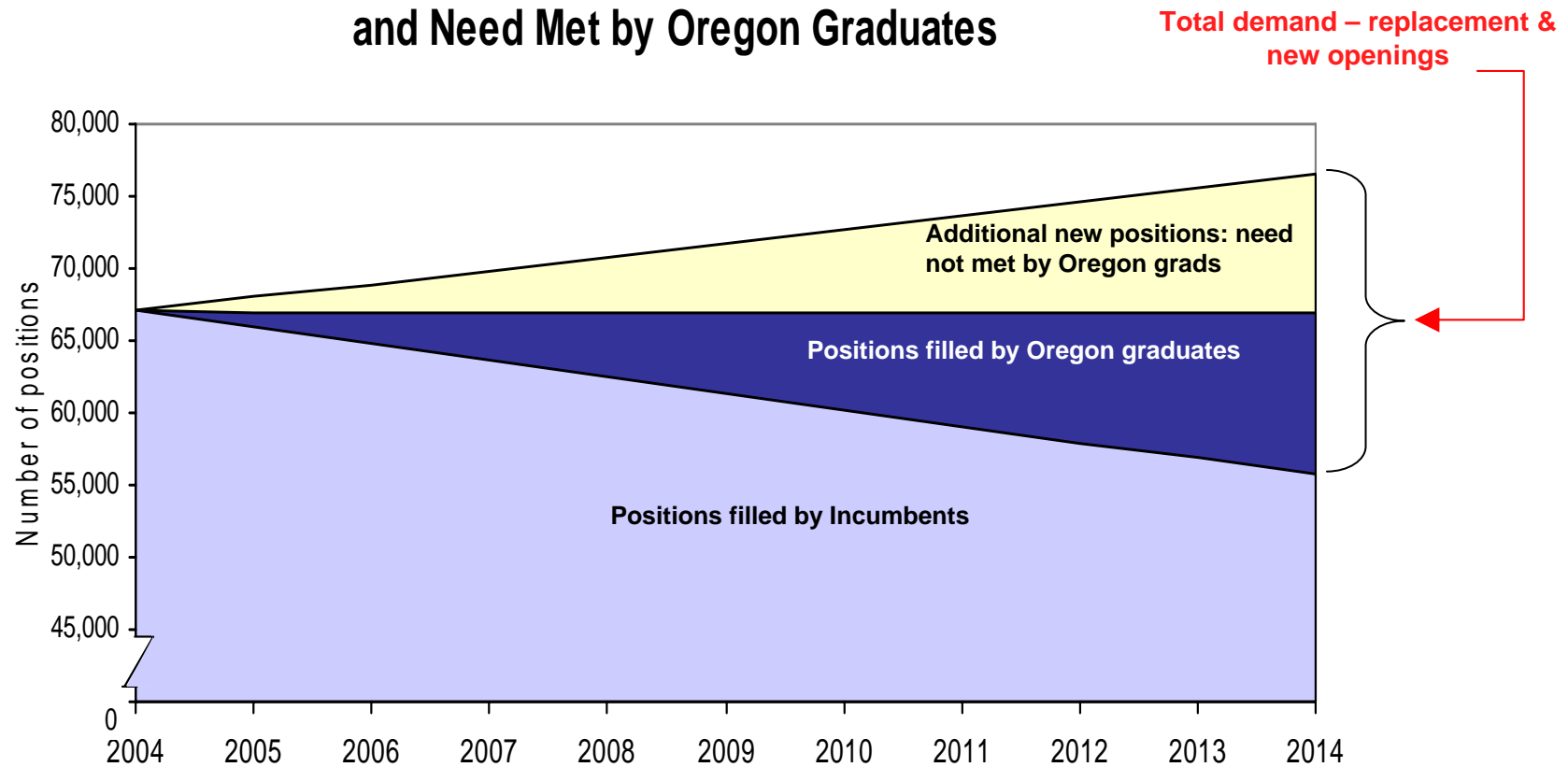
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- Starting in '97: focus on investing in engineering education to serve industry needs
- ETIC established to advise OUS
- Goal of investing \$100M in public funds over 10 years
- Private support leveraged growth in state support



# The supply-demand gap is growing

## Demand for Engineering & Technology Positions and Need Met by Oregon Graduates

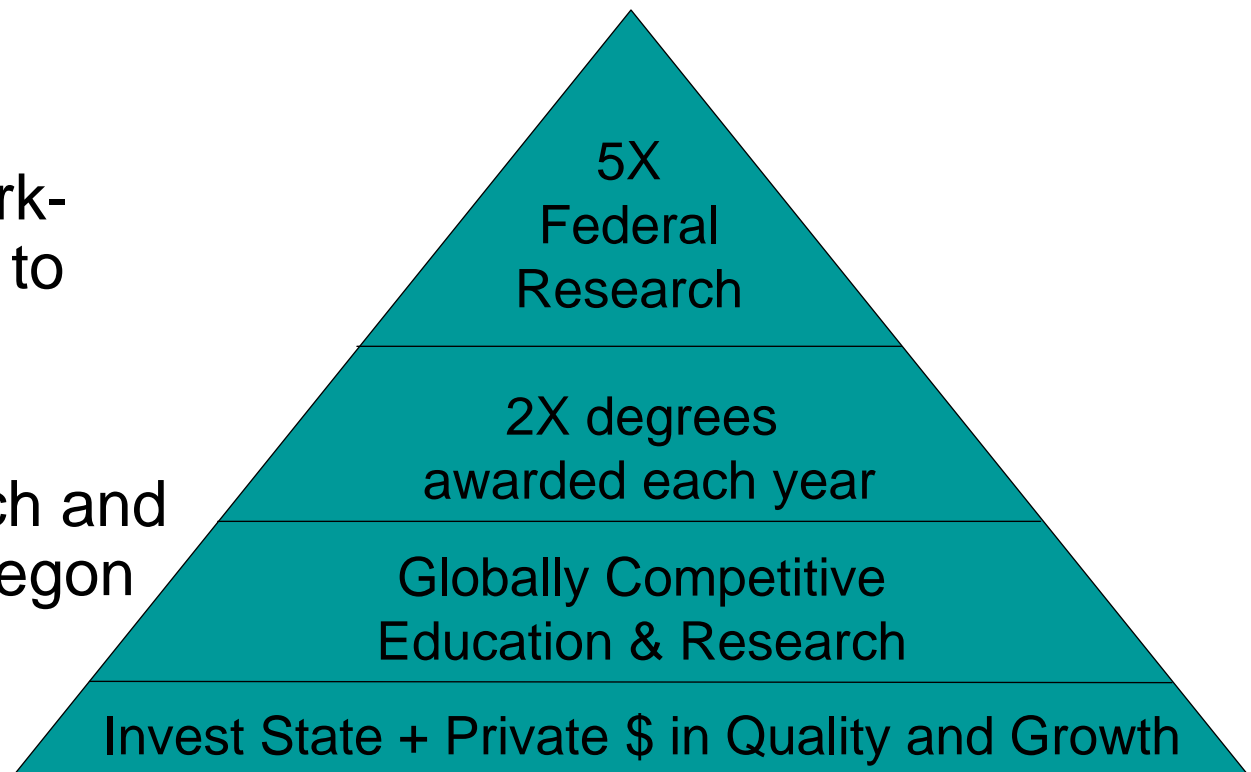


Source: Oregon Employment Department

# ETIC Goal: Grow Oregon's innovation capacity

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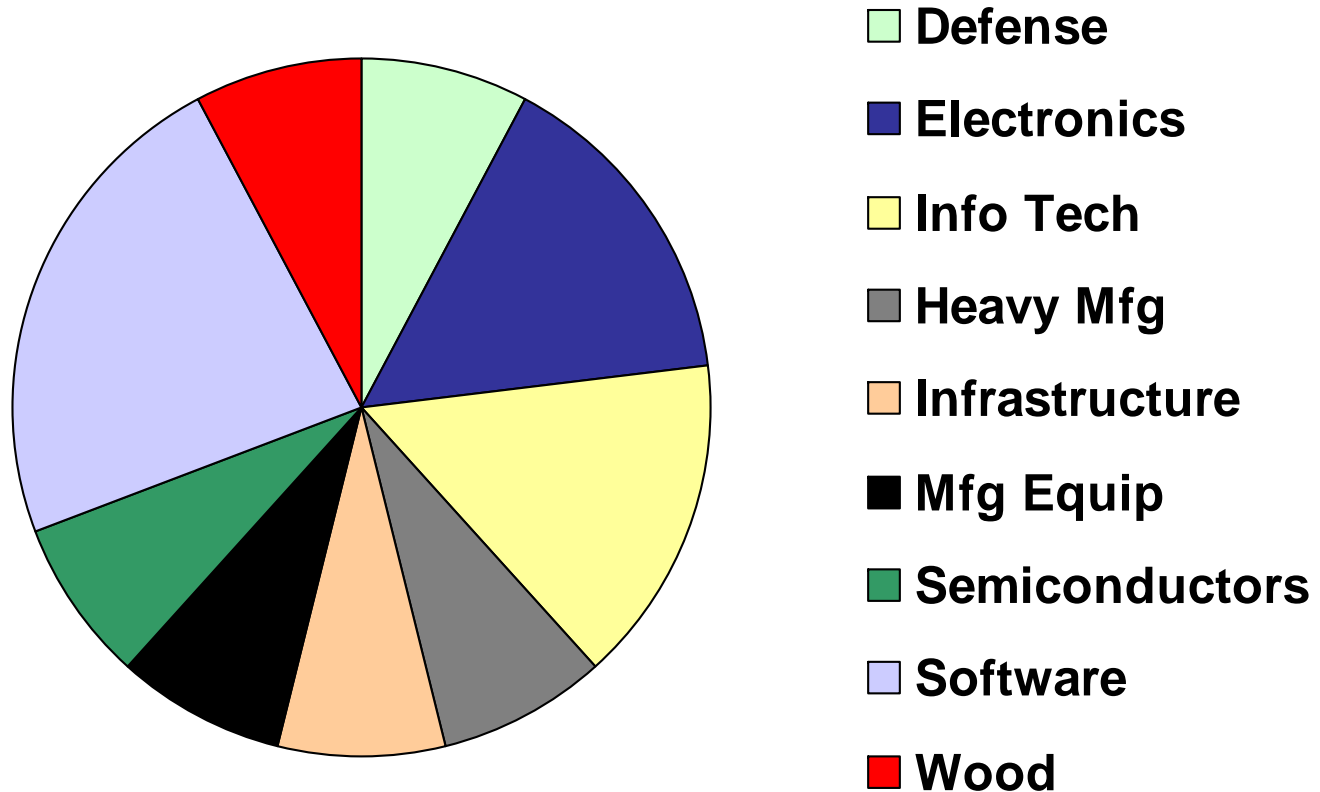
- Deliver more work-ready graduates to Oregon industry
- Increase research and link results to Oregon industry needs
- Build up and integrate K12-community college-university "pipeline"



**Goals: Growth, Quality, Research**

# ETIC support matches the diversity of Oregon industries

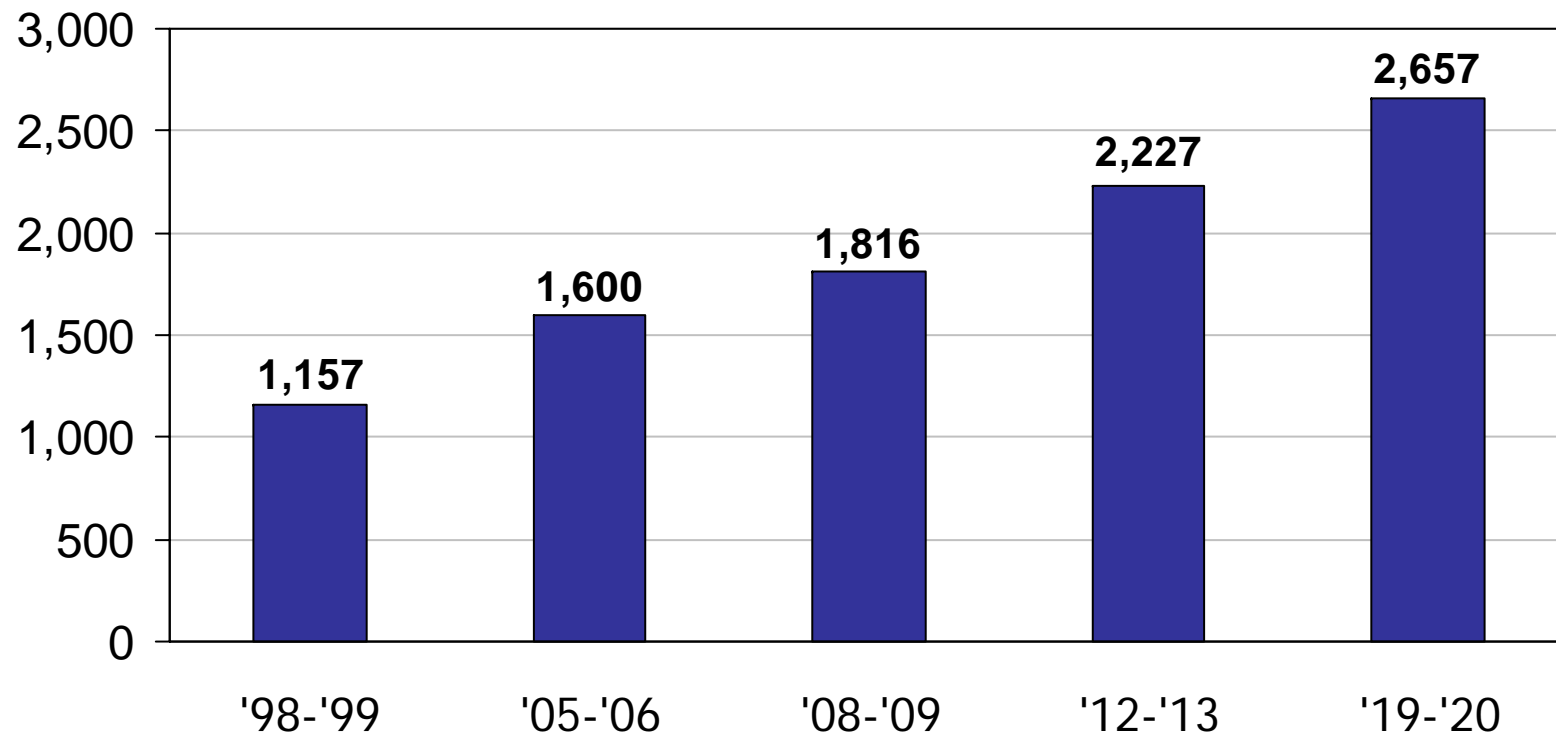
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# 2X goal: double the engineering graduates in Oregon

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## Bachelor's, Master's, and Doctoral Degrees

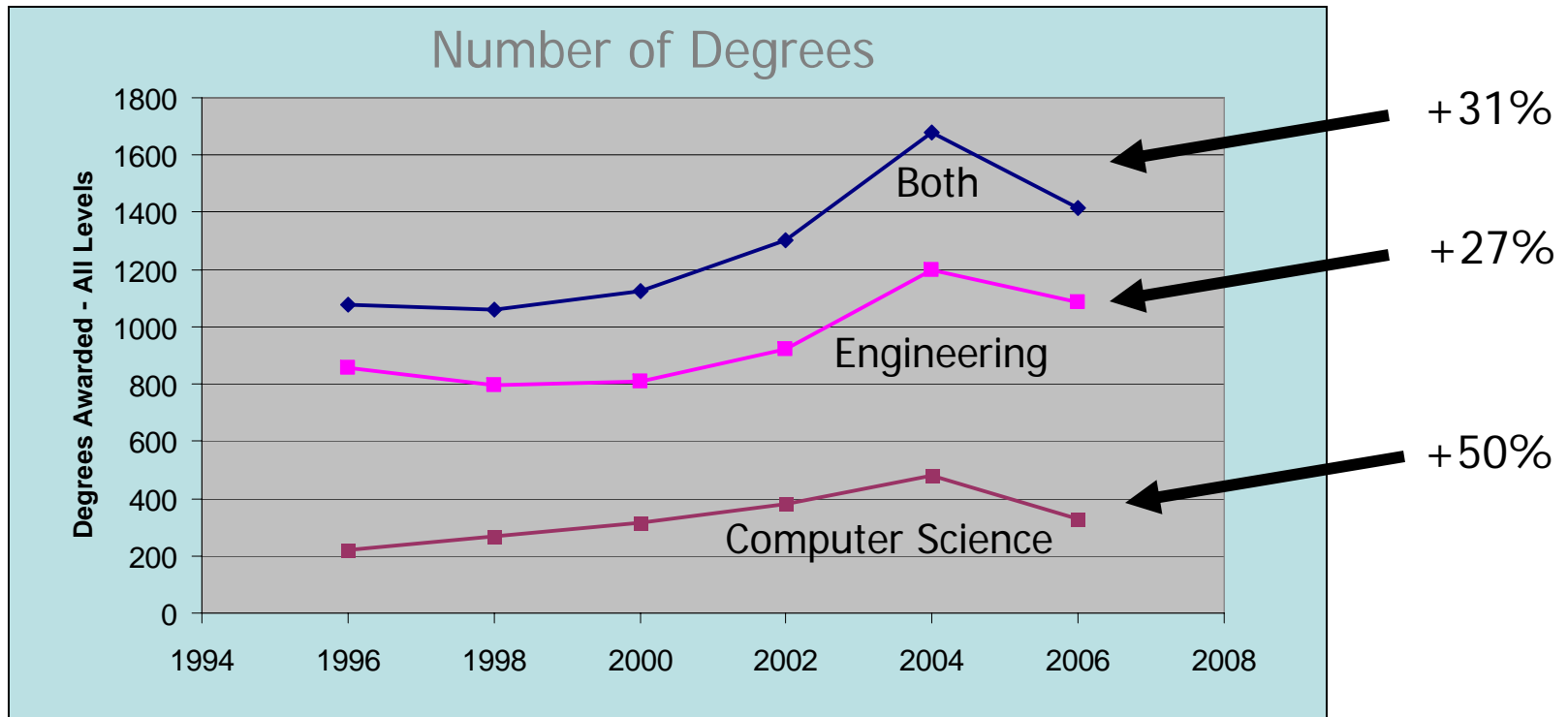


Actual and Projected Degrees

# A Snap Shot of Progress

## OUS Degrees Granted 1996-2006

Note: All OUS degrees increased by 37% in this period

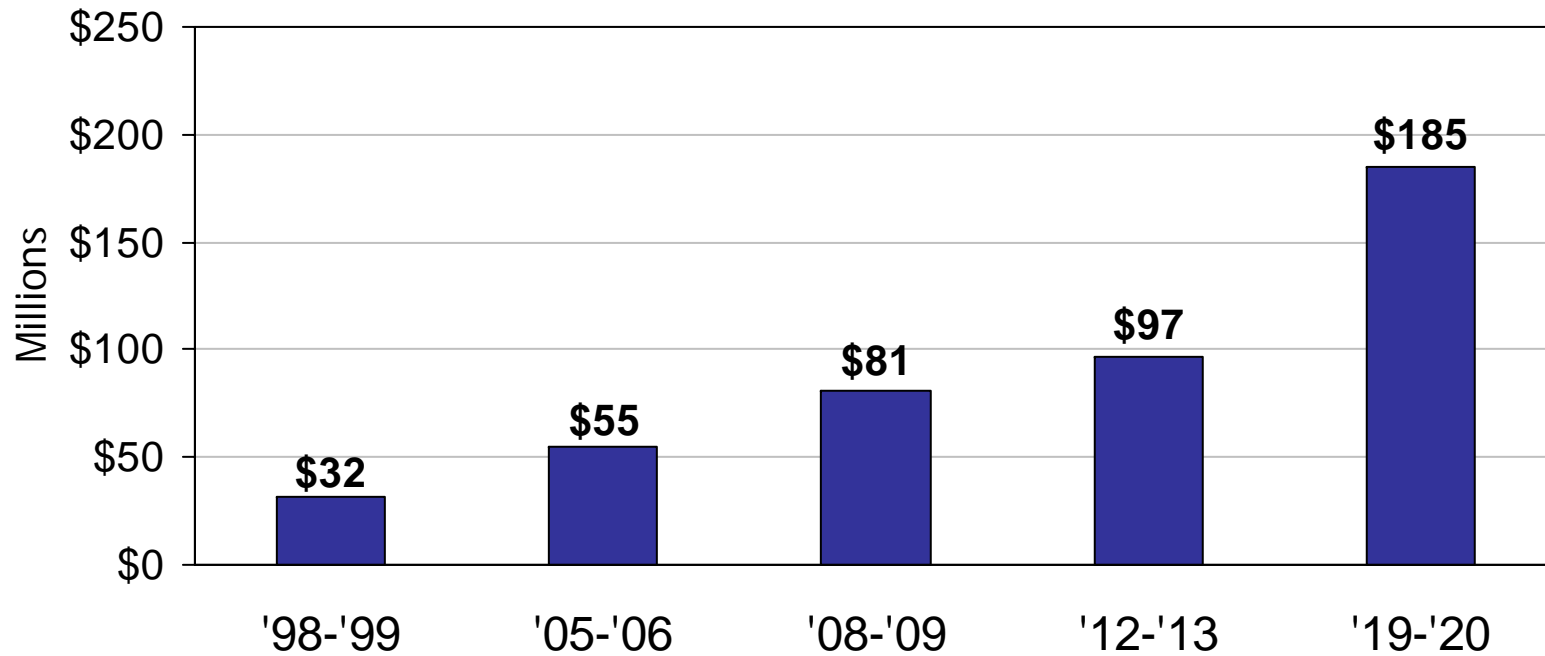


Mix: Bachelors 75%  
 Masters 22%  
 Ph.D. 3%

# 5X goal: Grow Oregon's innovation capacity

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## Research Dollars (millions)



Actual and Projected Research Investments

# ETIC:

## Growing Oregon's Pipeline to the future

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Plan: launch a 6 year transformation of pre-college education by investing \$4.5M/biennium to bring engineering and computer science to all students

- **In Class Programs:** expand opportunities to explore careers and master skills through rigorous pre-engineering and computer science classes
- **Out of School Time Programs:** expand clubs, challenge events, and internships (for students and teachers) with special focus on underrepresented students

**Goal:** Over 50,000 Oregon students per year will participate in pre-engineering and computer science programs

# Oregon Opportunity: increase pre-college exposure to Engineering

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## Strategy

- Build on proven successes
- Address critical pre-college gaps
- System-wide expansion of opportunities

In Class Programs	<b>Extend national exemplar pre-engineering program</b> to high schools and middle schools statewide (OIT is current OUS host university )
Out-of-School Time Programs	<b>Expand access to computer science</b> by building on collaboration created by Oregon Computer Science Teachers Assoc. and the Software Association of Oregon
	<b>Expand proven programs addressing minority/under-represented</b> students through collaborative team projects: ORTOP, SMILE (OSU), MESA (PSU), 4-H Tech Wizards, and similar high potential new programs
	<b>Seed engineering challenge programs</b> which create exciting opportunities for advanced projects, mentoring, and scholarships
	<b>Create summer internships</b> for teachers and high potential students in industry and universities
Marketing	Focus <b>state-wide communications/marketing</b> to students, parents, teachers and counselors on STEM education and career paths

# ETIC, OUS research linked to Oregon's economic strengths, needs and future...

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## Developing Economic Strengths

Nanotechnology  
Sustainability  
Clean energy  
Medical/Healthcare  
Green building

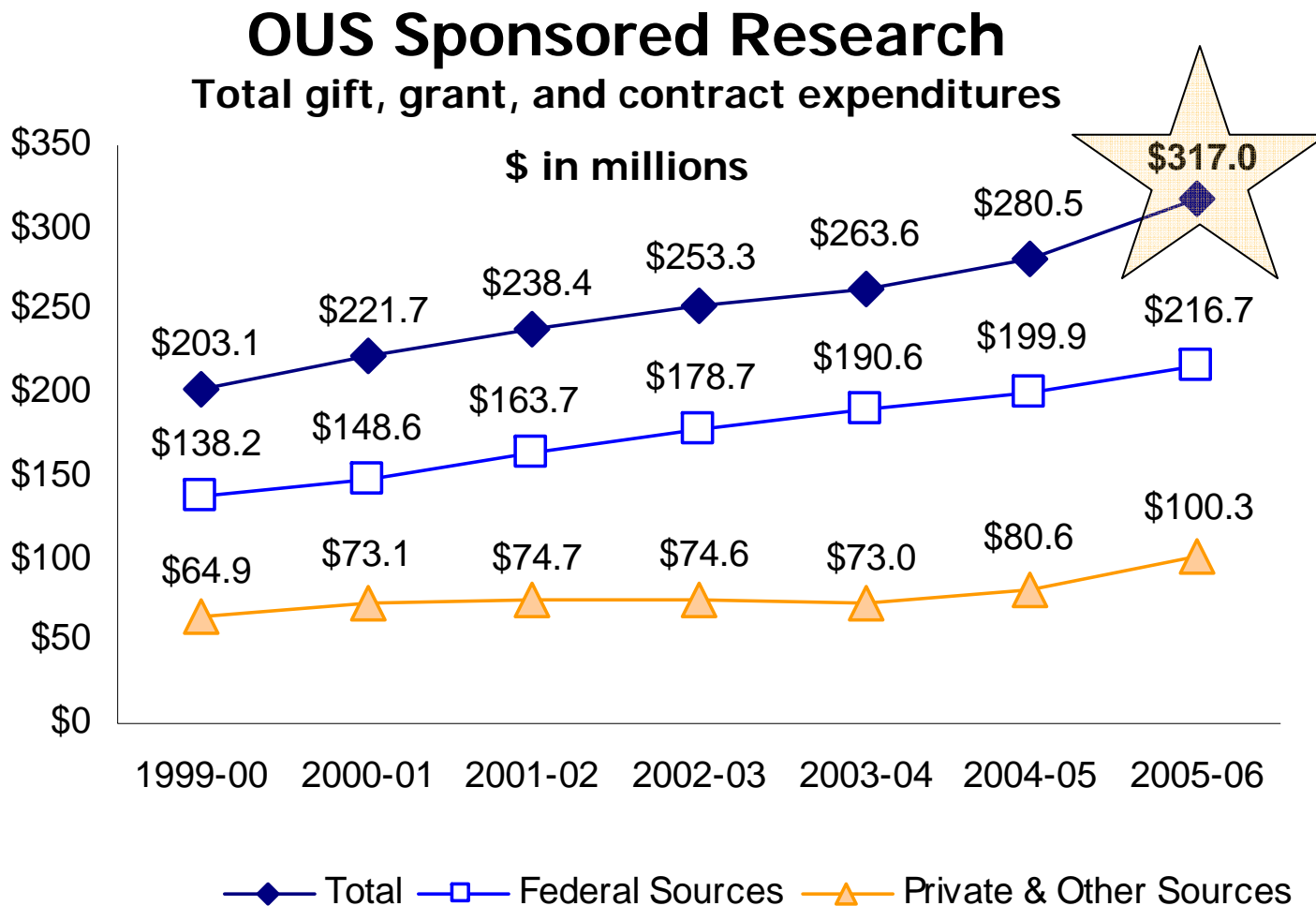
Funding to  
Innovation Plan  
through Oregon  
Innovation Council

## Traditional Economic Strengths

Technology  
Agriculture  
Forestry  
Manufacturing

- ONAMI\*
- ORTRADI\*
- OregonBEST\*
- Wave Energy Research
- Oregon Solutions
- Natural Resources Institute
- ETIC\*
- Statewide Public Services
  - Forest Research Lab
  - Agricultural Experimental Station
  - Extension Service

# OUS faculty among most productive nationally



**Federal R&D  
per OUS  
faculty ranks  
7<sup>th</sup> in the  
U.S.**

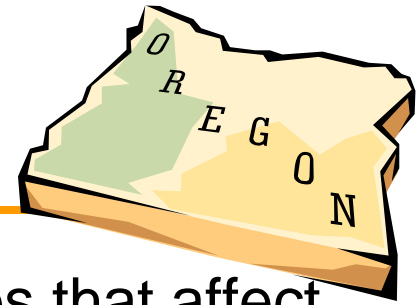
# ETIC work tied into overall Board of Higher Ed work

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- **Increase student participation and completion**
  - Build capacity in pre-college academic prep, aspirations, college readiness
  - Ensure support systems that keep students in college once enrolled
- **Obtain state funding for graduate education and research**
- **Build on Portland higher ed initiatives including development of a research corridor, university centers at community colleges**

# What's in it for Oregon business?

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- Address inadequate educational attainment rates that affect state economic growth and stability, global competitiveness
- Produce returns for Oregon, including
  - ✓ Increased numbers of highly trained graduates to meet needs of business and industry, attract new companies to Oregon, and meet the needs of the 21<sup>st</sup> century economy
  - ✓ Research returns, and alignment with Oregon Inc clusters, sustainability, and statewide needs
  - ✓ Increase the healthcare and technology work force to spur economic growth and sustainability
  - ✓ Expanded student access, affordability and ability to stay in college
  - ✓ Improve retention and graduation rates, and rural enrollment
  - ✓ Improved academic quality and delivery leading to faster student completion; and faculty recruitment and retention

# Working together as partners with business community

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- **Business can support building the workforce through ETIC:**
  - Mentoring and financial support of pre-college prep programs
  - Student scholarships, with mentoring component
  - Internships and apprenticeships for high school and college students
  - Support in Salem for ETIC efforts, especially during Session
  - Collaborations through ETIC, Oregon INC, OUS Research Council

