

Advanced Technology – High Tech

Advanced Technology-High Tech is a leading employment cluster in both Clackamas County and the State of Oregon, paying higher wages and projecting favorable long-term growth prospects. Oregon has grown into one of the largest exporters of high tech goods nationwide.

Clackamas County's high tech cluster includes industries that manufacture a variety of electronic components and software systems for computers, energy, transportation, aerospace, motor vehicles and defense-related products. Leading high tech employers in Clackamas County include: Flir Systems (thermal sensing devices for defense and civilian use), TE Connectivity (electromagnetic connectors and relays), OECO (electromagnetic and power conversion devices for defense, commercial aerospace and medical sectors), Johnson Controls (auto and energy devices) and Xerox Corporation (production equipment and software). These industries export their goods and services throughout the U.S. and the world and represent many of Clackamas County's largest business establishments. Local high tech businesses within Clackamas County are fairly concentrated in Wilsonville, and small to mid-size businesses are located in Kruse Way, Milwaukie and Canby.



Economic Benefits to Clackamas County and Region

Clackamas County's advanced technology-high tech cluster is one of the largest clusters in the County. This cluster is comprised of nearly 250 businesses with over 8,000 employees throughout Clackamas County.

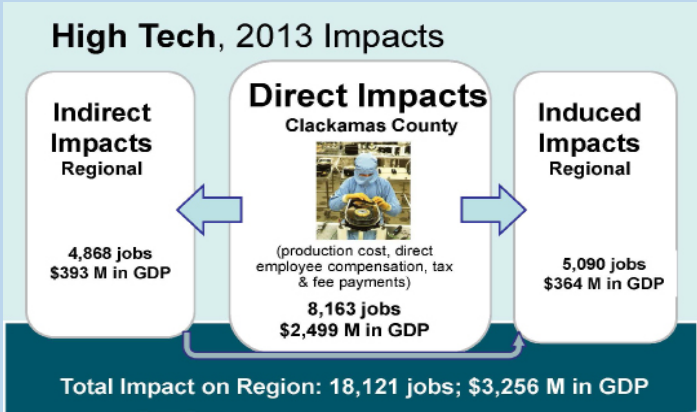
Key advantages of this cluster include: high wage rates; strong growth expectations; and multiple career opportunities with a range of skill levels from administration and sales/marketing to engineering managers and technicians.

As a direct economic benefit, production costs, employee compensation, and tax payments account for nearly \$2.5 billion in direct value added GDP in Clackamas County, and leverages an additional \$757 million in secondary regional GDP from supply chain purchases and employee spending multipliers.

**Advanced Technology - High Tech Cluster
Current Stats for Clackamas County**

- Gross Domestic Product (GDP): \$2.5 B
- Cluster Share of County GDP: 13.6%
- Export/Sales from Outside Region: 74%
- Direct Employment: 8,163
- County Businesses: 243
- Number of Businesses in the Top 100: 7
- 10-year Job Growth Forecast: 5%
- Cluster Location Quotient (LQ): 0.53

Source: compiled by FCS GROUP based on IMPLAN (2013), adjusted to 2015 dollars. 10-year forecast provided by the Oregon Employment Department. GDP = gross domestic product. Location Quotient (LQ) depicts relative share of this industry's contribution in Clackamas County compared to this industry's contribution in the 9-county Metropolitan Statistical Area.



CLACKAMAS COUNTY ECONOMIC LANDSCAPE
Advanced Technology – High Tech

Advanced Technology-High Tech: Annual Economic Benefits

	2006	2010	2013
Industry Location Quotient	0.95	0.60	0.53
Contribution to County GDP	2.0%	0.4%	13.6%
Business Establishments in County	n/a	n/a	243
Average Labor Income (per job)	\$71,571	\$70,420	\$80,599
Labor Income in County	\$550,590,000	\$581,810,000	\$657,930,000
Employment			
Direct Jobs in Clackamas County	7,693	8,262	8,163
Secondary Employment	8,390	5,372	9,959
Total Direct & Secondary Employment	16,083	13,634	18,122
Direct GDP and Output in Clackamas County			
Total GDP (Value Added)	\$724,100,000	\$805,470,000	\$2,498,510,000
% Traded Outside Region	n/a	74%	91%
Output	\$2,317,660,000	\$1,941,040,000	\$4,089,030,000

GDP = Gross Domestic Product.

Source: analysis by FCS GROUP. All data in this table with the exception of business establishments, are based on 2006, 2010, 2013 IMPLAN estimates. Employment reflects total jobs (full and part time workers as well as the self-employed). Estimated business establishments are derived from the Oregon Employment Department. Location quotients are based on Clackamas County's relative propensity to attract employers within this cluster in comparison to the nine-county Portland-Vancouver Metropolitan Statistical Area (MSA). *Note: Dollar figures are adjusted to 2015 dollars.*

Advanced Technology – High Tech Strategic Market Opportunities

- Global demand for Oregon's high tech exports is expected to expand in the future as the U.S. emerges from its current recession. China emerged as Oregon's leading trade partner in 2009, and Portland International Airport provides convenient direct air freight cargo access to China and other international markets.
- Clackamas County's high tech economy was not significantly impacted by the most recent economic recession as it primarily focuses on energy, electronic parts, electromagnetic devices, transportation, aerospace and defense-related products.
- The expanding "green economy" is providing a new source of job growth and business investment in Clackamas County for products such as high efficiency appliances, renewable energy generation and storage devices, high-efficiency building products, and low-emission fuels. The role of advanced technologies, such as high tech manufacturing and systems design, are critical in the expanding green economy and should benefit existing and emerging technology companies within Clackamas County.
- The Oregon Employment Department forecasts most new job growth in the high tech cluster to occur in service sectors, such as systems design and software publishing.
- Clackamas County's existing mix of high tech companies, convenient location (access to Portland, PDX Airport, Washington County and the I-205 and I-5 corridors), mix of entry level and executive housing options, variety of neighborhoods, Class A office and industrial employment centers and proximity to recreational areas (such as Mt. Hood, and the Clackamas and Willamette rivers) makes it an ideal place for creative professionals to live and work. The ability to appeal to both young creative class individuals and upper-income executives are positive assets for attracting high tech employees and investment.

Advanced Technology - High Tech Cluster North American Industrial Classification System (NAICS) Categories

334: Computer and Electronic Product Manufacturing

This includes establishments that manufacture computers, computer peripherals (such as printers), medical instruments, communications equipments and electronic components used in a wide variety of consumer and defense -related products.

335: Electrical Equipment, Appliances and Component Manufacturing

Industries in this sector manufacture products that generated, distribute and use electrical power. This includes both small and major electrical appliances and parts, such as motors, generators, transformers, gauges and switches. Devices that store electrical power (e.g. batteries) or transmit electricity (e.g., insulated wires and cables) are included in this sector.

371-372: Computer Programming and Systems Design

511210: Software Publishers

This is comprised of businesses that are primarily engaged in computer software publishing and/or reproduction. These businesses carry out the operations necessary to design, produce, document, distribute and provide related high tech support services.

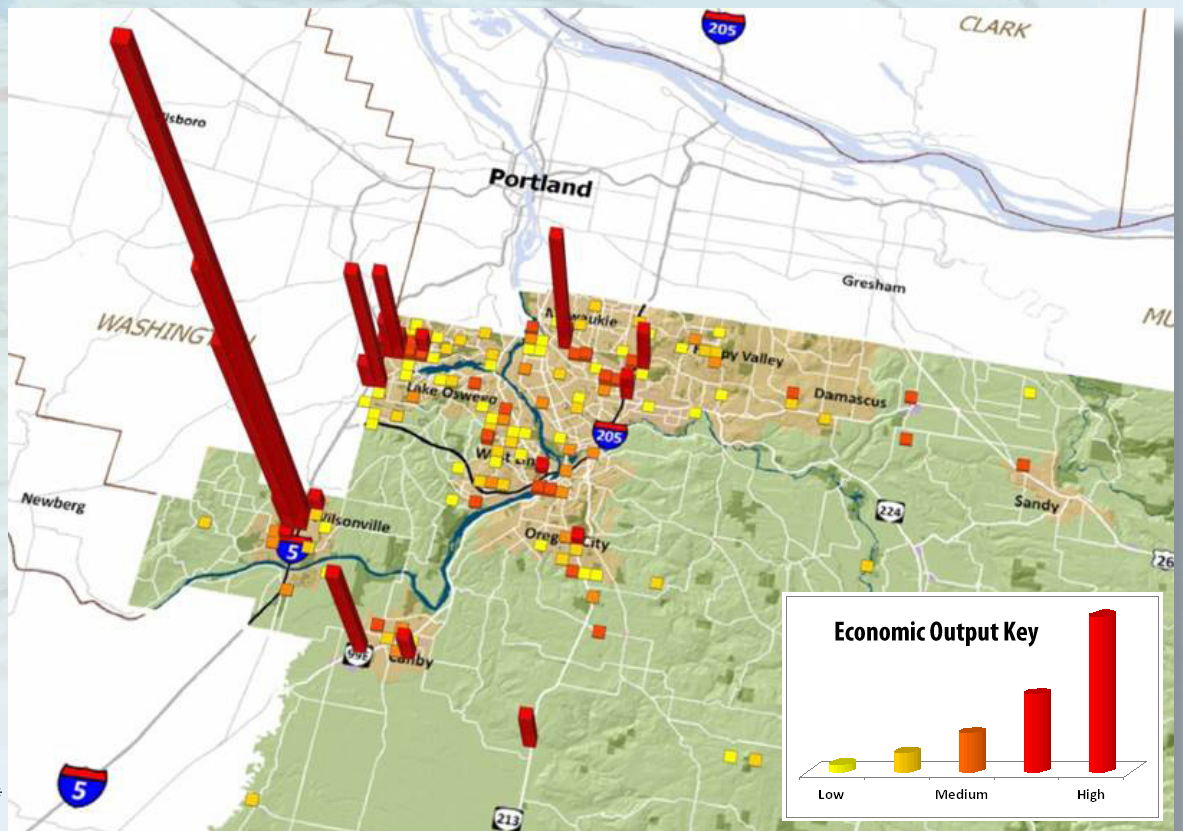
Sample of High Tech Companies in Clackamas County

Flir Systems Inc. *
Johnson Controls Battery Group Inc. *
MEC Northwest
Mentor Graphics Corp *
Micro Systems Engineering Inc. *
Oeco LLC *
Rockwell Collins Inc. *
Sunstone Circuits Inc.
TE Connectivity *

Source: Oregon Employment Department; FCS GROUP
 * Indicates top 100 County Business Listing



Existing Advanced Manufacturing – High Tech Businesses: Annual Economic Output by General Location*



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Career Opportunities

The Oregon Employment Department forecasts new job openings for occupations in the high tech cluster. The leading job occupations in this cluster include:

- Semiconductor/electrical/electronic assemblers
- Industrial engineering technicians
- Computer hardware engineers
- Engineering managers
- Engineering technicians
- Managers and supervisors
- Computer software and systems engineers
- Sales engineers
- Executive assistants



Resources

Clackamas County Business & Economic Development
www.clackamas.us/business

Business Oregon
www.oregon4biz.com

Clackamas Workforce Partnership
www.clackamasworkforce.org
 Clackamas Community College
www.clackamas.edu

TechAmericaOregon
www.techamerica.org/oregon

Technology Association of Oregon
www.

Oregon Institute of Technology
www.oit.edu/portland/programs

Marylhurst College
www.marylhurst.edu

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