



*Vancouver-Camas IPZ
Applied Digital Technology
Accelerator*

*Business Plan
Update
2017-2021*



IPZ Business Plan Update 2017-2021

Executive Summary

In 2013, the Washington Department of Commerce approved the Vancouver-Camas application for the four-year designation of two Innovation Partnership Zones (IPZ) dedicated to the development of Applied Digital Technology. Over the next four years, the IPZ partners began developing a recognizable and powerful brand for the region that now serves as a recruiting tool to attract entrepreneurs, world-class researchers, talent and build influence with local leaders and investors. In 2017, Department of Commerce renewed the Vancouver-Camas IPZ, and the partners followed with this update of the 2013 business plan. The IPZ partners intend to continue to build a culture that inspires students, researchers, and entrepreneurs for the next five years.

Mission

The mission of the Vancouver-Camas IPZ is to grow the need and market for applied digital technologies in areas such as business, education, health and medicine, and communication by fostering education, research and economic partnerships.

The City of Vancouver has assembled a multi-disciplinary management team to oversee this proposed zone. City government, top-tier research, workforce training, successful global firms, innovative start-ups, and regional economic development organizations are working together to meet the growing demand for these new and promising markets. The emergent energy and opportunity is focused in the Vancouver downtown core and the 192nd corridor on the border of Camas, the boundaries of the proposed Innovation Partnership Zone (IPZ).

2017-2021 Goals

After receiving the re-designation, the IPZ partners met at a retreat to revise their action plan. Guided by the industry findings of the CREDC Economic Development Strategy (Appendices A & B) and a survey of IPZ partners (Appendix C), the previous business plan was updated and a new Action Plan was created with these revised goals:

Goal 1 Business Development/Recruitment/Retention/Expansion: Increase the number of applied digital technology businesses locating in Vancouver and Camas.

Goal 2 Placemaking and Infrastructure: Support public infrastructure policy and investments that attract and keep talent.

Goal 3 Talent and Human Capital: Foster a supportive educational and research climate that provides access to a trained workforce.

Goal 4 Marketing and Administration: Provide the capacity to administer, measure, and market the activities of the IPZ.

2017-2021 Action Plan

Business Plan Deliverable	Lead	Timeline
<p>Goal: Marketing & Administration</p> <ul style="list-style-type: none"> Update IPZ digital strategy, including branding, social media, website Conduct Innovation Showcase Launch Mayor's Innovation Cabinet- Establish metrics for measuring success and tracking outcomes 	<ul style="list-style-type: none"> City of Vancouver All Partners City of Vancouver, CREDC City of Vancouver 	<ul style="list-style-type: none"> Year 1 Year 2 Year 1 Year 1
<p>Goal: Placemaking & Infrastructure</p> <ul style="list-style-type: none"> Continue and expand successful placemaking strategies that enhance the entrepreneurial climate and add complementary businesses Increase supply of coworking space available to tech businesses Create a formal innovation center in Vancouver's downtown core in concert with WSUV and private sector partners Continue to support and promote networking and events focused on technology businesses and/or access to resources, including Grow Clark County, Vantechy and WSUV MAP Collective 	<ul style="list-style-type: none"> City of Vancouver, City of Camas, CREDC City of Vancouver, City of Camas, CREDC City of Vancouver, WSUV, CREDC, Woobox CREDC, WSUV 	<ul style="list-style-type: none"> Year 1 Year 4 Year 3 Year 1
<p>Goal: Business Development/Recruitment/Retention/Expansion</p> <ul style="list-style-type: none"> Grow commercialization efforts to include more WSUV faculty, programs and private partners Launch a Clark County specific seed fund with support from Oregon Angel Fund Investors who reside in SW Washington Host additional seed and angel funding forums to connect scalable tech businesses with local and regional investors on a recurring basis Encourage connections between WSUV CENS and Business colleges to better facilitate innovation activities 	<ul style="list-style-type: none"> WSUV, CREDC Woobox, CREDC, GPI CREDC, GPI WSUV, CREDC 	<ul style="list-style-type: none"> Year 3 Year 3 Year 1 Year 2
<p>Goal: Talent & Human Capital</p> <ul style="list-style-type: none"> Continue to expand workforce training for technology industries and clusters; increase worker training programs WSUV will launch new Entrepreneurial program in 2017 Centralize and increase number of internships and work study opportunities available to Clark and WSUV students via IPZ partners Work closely with WSU Office of Commercialization and WSUV Associate Vice Chancellor for Research and Graduate Education to cultivate and support research deliverables 	<ul style="list-style-type: none"> Workforce SW Washington WSUV All Partners WSUV, CREDC 	<ul style="list-style-type: none"> Year 1 Year 1 Year 1-2 Year 2-3

Leadership and Governance

The IPZ Management Team comprises one or more representatives from each partner organization and meets on a regular basis to monitor progress, check in on reporting, and supports relationship building and a collaborative culture within the IPZ. Representatives of organizations, not on the management team, are occasionally invited to ad-hoc meetings of larger stakeholder groups to cast a wider net as well as increase engagement of more community members and organizations in support of the IPZ. Executive sponsors (e.g. signing authority for the Memorandum of Understanding) provide direction to the management team as needed.

IPZ Partners

City of Vancouver
City of Camas
Clark College
Columbia River Economic Development Council
Southwest Washington Workforce Development Council
Washington State University Vancouver
Greater Portland, Inc
Woobox

IPZ Zone Administration

As the Zone Administrator, the City of Vancouver has invested financial resources and significant staff-time to manage the IPZ and will continue to provide in-kind management resources to this effort. Management team partners are asked to attend standing meetings to update and review progress on identified initiatives to support networking and collaboration with the IPZ and continue to work to develop a sustainable financial plan for this effort.

Partner Involvement and Investment

Each partner is committed to providing the human resources necessary for the Vancouver-Camas IPZ to be successful.

Executive Sponsors

Name	Title	Organization	Role
Eric Holmes	City Manager	City of Vancouver	Executive Sponsor
Scott Higgins	Mayor	City of Camas	Executive Sponsor
Robert Knight	President	Clark College	Executive Sponsor
Mike Bomar	Director	Columbia River Economic Development Council	Executive Sponsor
Mel Netzhammer	Chancellor	Washington State University Vancouver	Executive Sponsor

Management Team

2017 Redesignation Team Member Role	2017 Redesignation Organization	2017 Redesignation Team Member	2017 Redesignation Team Member Title
Zone Administrator	City of Vancouver	Teresa Brum*	Vancouver Economic Development Division Manager
Zone Administrator	City of Vancouver	Rebecca Kennedy*	Vancouver Long Range Planning Manager
Administrator	City of Camas	Phil Bourquin	Camas Community Development Director
Research & Commercialization	Washington State University	Carolyn Long*	Director of Strategic Partnerships
Workforce Development	Clark College Corporate and Continuing Education	Kevin (Kussman) Witte	Vice President of Economic & Community Development
Economic Development	CREDC	Max Ault*	Vice President and Director of Business Development
Workforce Development	SW Washington Workforce Development Council	Jeanne Bennett	Director
Commercialization & Partnerships	Woobox	George DeCarlo	Founder and CEO
Economic Development	Greater Portland, Inc.	Janet LaBar**	President

*Staffing reassignment within the partner organization.

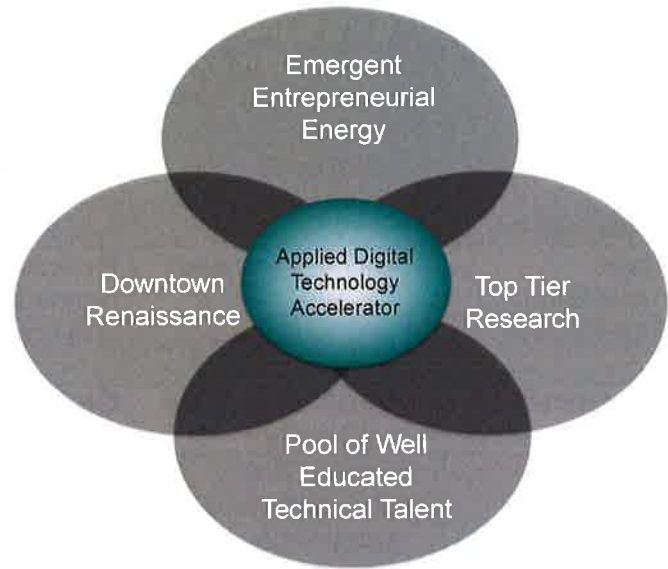
**New Partner

Sustainability Plan for 2017-2021

The proposed IPZ management team continues to explore a variety of options to sustain the work contemplated in this plan including: in-kind leasing of commercial space for the creation of an incubator and sponsorship of IPZ-endorsed events and activities. The management team will establish an operational plan that will include an estimated budget and potential revenue sources to pursue.

Strengths of the Applied Digital Technology Accelerator

The selection of Downtown Vancouver and the 192nd corridor as the proposed boundaries for the Applied Digital Technology Accelerator was a natural choice, because they sit at the nexus of activities that are already building momentum for new technology industries (see diagram on right). Geographically, the area is also big enough to allow for growth with vacant land around the downtown waterfront and available industrial land at 192nd, but small enough to focus in on a targeted industry and collaborative research opportunity. The proposed zone is also well regarded for livability and is supported by 400 route miles of fiber, proximity to an international airport and a non-landlocked port, as well as a nascent downtown renaissance.



The table below lists the strengths of the Applied Digital Technology Accelerator by category.

Technology	Human Capital	Infrastructure
<ul style="list-style-type: none"> • 8 commercial research labs located within the zone • "Top Tier" research institution within boundaries <ul style="list-style-type: none"> ○ Commercialized technology pilots from WSUV in progress with private sector partners • Diversified technology industry (hardware, robotics, mobile apps, web software, etc.) 	<ul style="list-style-type: none"> • Relevant occupations projected to increase higher than national average • Pool of technical talent <ul style="list-style-type: none"> ○ 3 STEM high schools within zone ○ Clark College trained and certified students ○ Interns and graduates from WSUV's research labs ○ Senior "silicon forest" talent from firms such as HP and Intel • Award-winning researchers 	<ul style="list-style-type: none"> • International gateway with close proximity to an international airport and non-landlocked port • Vacant industrial lands in downtown Vancouver and the 192nd Corridor • 400 route miles of fiber • Streamlined permits and business assistance

Commercialization Plan

Washington State University's significant number of research labs in a wide variety of engineering and technology disciplines positions the proposed IPZ well for commercialization opportunities. But the key ingredient, according to a March 2012 *Harvard Business Review* article, must be providing links between these entities and activities.¹ In 2013, Instructional Technologies, Inc. funded \$37,000 in fellowships to WSUV's Creative Media and Digital Culture (CMDC) Program faculty and students to work with the company to develop software for iPublishing, a multimedia interactive environment, dubbed AppBook. The project that became the student's "test case" was a publication for Pearson Education, who joined the partnership in order to innovate its online book offerings. Over the next four years, WSU Vancouver will continue commercialization while providing links with a variety of disciplines.

¹ Kanter, Rosabeth Moss, "Enriching the Ecosystem," *Harvard Business Review*, March 2012.

Measuring Plan and Reporting

The management team will work to set initial benchmarks and shape an inclusive program that both monitors progress over the next four years of designation and builds a collaborative culture to encourage business growth.

Reporting measures include:

- Number of IPZ management/partnership meetings
- Number of events that help expand collaboration between research, workforce, and private sector
- Number of additional IPZ private business partners
- Number of students receiving degrees and/or certifications related to applied digital technologies
- Creation of a branded hub within the zone and a digital strategy to highlight activities, events, and successes
- Future applied digital technology occupation projections
- Number of businesses sited due to IPZ research and/or other activities
- Amount of available incubator space
- Evidence of commercialized research

ATTACHMENT A

**Excerpt from
Columbia River Economic Development Council
Economic Development Strategy 2018-2023**

Industry Clusters and Skills Base

Industry Clusters and Skills Base

Industry clusters are groups of similar and related traded sector businesses in a defined geographic area that share common markets, technologies, worker skill needs, and which are often linked by buyer-seller relationships. Industry clusters represent distinct qualities of a community and help define what makes one community different from another. As they convey distinct qualities, it is important to be specific in the definition of a cluster. For example, rather than promoting “high-tech,” a community should focus on “software or computer and electronics” to convey the type of product being manufactured and its unique workforce and supply chain needs. Promotion of clusters helps reinforce to existing businesses and interested outside talent the unique community assets and why it is a good place to stay and grow. The following key industry clusters drive the Clark County economy:

- Computer and Electronics
- Clean Tech
- Software
- Metals and Machinery
- Life Sciences

Each cluster benefits from partnership with the higher education assets of WSU Vancouver and Clark College. Furthermore, the infrastructure, unique assets, and existing company base within Clark County serve to support these industries. In defining specific clusters and fostering collaboration, new business opportunities arise, workforce training needs can be met, and physical site expansion needs can be addressed.

As outlined in the following table, the 2017 proposed clusters are largely more specific definitions of the prior clusters identified in 2011. Furthermore, the proposed clusters align with many of the greater Portland-Vancouver region and State of Washington clusters, which is appropriate due to the regional workforce, legacy industries and inherent assets. However, as described in the following summaries, these updated CREDC 2017 clusters are more refined to align with Clark County assets. For example, Clark County’s cluster is only “software” and not “software and media” as with the greater Portland region, as there is minimal media company presence or talent in Clark County.

Table 3. Industry Cluster Comparison

CREDC 2011 Clusters	Greater Portland 2020 Regional Clusters	State of Washington Clusters	CREDC 2017 Proposed Clusters
Technology Services	Software and Media	Information and Communication Tech	Software
Technology Products	Computer/Electronics		Computer and Electronics
	Clean Tech	Clean Tech	Clean Tech
	Metals and Machinery	Aerospace	Metals and Machinery
Healthcare administration	Health Sciences/Technology	Life Sciences/Global Health	Life Sciences (manufacturing)
Agricultural Processing		Agriculture and Food Processing	(local sector opportunity)
Wealth Management			(driven by local demand)
Logistics & Distribution			(workforce focus)
	Athletic and Outdoor		
		Maritime	
		Military and Defense	
		Forest Products	

The following cluster summaries provide an overview of the data that was evaluated to determine why these clusters were identified as having the most opportunity for Clark County. The key indicators are location quotient (LQ) for companies and skills existing within Clark County. According to the U.S. Bureau of Economic Analysis, “A location quotient is an analytical statistic that measures a region’s industrial specialization relative to a larger geographic unit (usually the nation). An LQ is computed as an industry’s share of a regional total for some economic statistic (earnings, GDP by metropolitan area, employment, etc.) divided by the industry’s share of the national total for the same statistic.” For example, an LQ of 1.0 in software means that the region and the nation are equally specialized in software, while an LQ of 1.8 means that the region has a higher concentration in software than the nation.

It is important to build a cluster strategy driven by data to ensure ongoing efforts will enhance an existing economic foundation and attract new business that will want to see quantifiable data that there is a strong workforce and industry base in the region under consideration. A detailed analysis of the cluster competitive advantages and associated workforce skills has been provided as separate appendix documents. It is LCG’s belief that CREDC staff will be able to utilize the research and data to help drive ongoing business retention and recruitment efforts.

Computer and Electronics

Overview

Clark County is a driving force behind the greater Portland-Vancouver region's reputation as "Silicon Forest." With companies like Logitech, TSMC, Silicon Forest Electronics, SEH America and others calling Clark County home, computer and electronics is a strong legacy cluster for the county but also a growth opportunity as the world sees growing demand in clean technology, automation, especially in autonomous cars, and computer hardware needs.

Defining the Cluster

Collaborating closely with CREDC, as well as analyzing the cluster make-up and definition of other competitive communities throughout the country, LCG utilized the following NAICS codes to define the cluster:

- Semiconductor and Related Device Manufacturing (334413)
- Electronic Connector Manufacturing (334417)
- Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing (334511)
- Data Processing, Hosting, and Related Services (518210)
- Electronic Computer Manufacturing (334111)
- Pottery, Ceramics, and Plumbing Fixture Manufacturing (327110)
- Computer Terminal and Other Computer Peripheral Equipment Manufacturing (334118)
- Other Electronic Component Manufacturing (334419)
- Printed Circuitry Assembly (Electronic Assembly) Manufacturing (334418)
- Semiconductor Machinery Manufacturing (333242)
- Optical Instrument and Lens Manufacturing (333314)
- Computer and Storage Device Manufacturing (334112)
- Bare Printed Circuit Board Manufacturing (334412)
- Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing (334416)
- Industrial Design Services (541420)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's computer and electronics cluster include the following:

- A strong regional traded cluster, laying a foundation for CREDC business recruitment and retention efforts.

- Approximately 50 firms, with an LQ of 1.11, or 11 percent greater than the national average. Firm formation for this cluster in Clark County has increased 25 percent from 2012 to 2016.
- Employment tops 3,000 workers, with an LQ of 2.89, which is nearly three times the national average. Employment grew 10.7 percent from 2012 to 2016.
- Clark County has a significant capability in semiconductor production (LQ of 2.88); however, there is very little activity in the production of semiconductor manufacturing equipment.
- The county has a competitive advantage in navigation system and instrument manufacturing with an LQ of 1.39 – 39 percent greater than the national average.
- Hardware development for data hosting capability is present within the county (LQ of 1.24).
- 3D printing is not a strength, as measured by industrial design services.

Skilled Workforce

Clark County has a deep talent pool for the computer and electronics cluster. A detailed skills analysis examined occupational data – a data set that provides a specific look at the workforce skills of a community – LCG’s analysis found the following takeaways (a detailed workforce analysis is provided in Appendix C):

- Nearly 4,600 Clark County workers have skills associated with the computer and electronics cluster.
- The electronics skill base is more than nine times that of the U.S. average.
- The cluster’s talent base is expected to grow by an additional 15 percent in the next decade.
- On average, workers with electronic skills earn \$49,000 annually.
- Education levels required for this cluster include: high school diploma, some college and technical training.

Software

Overview

The greater Portland region has earned a reputation as a growing startup and software hub for those firms that want an alternative to areas like Silicon Valley, San Francisco, and Seattle. Research suggests that emerging software and startup businesses are now looking for communities that offer a high quality of living and access to a strong talent pool. Given the county’s location and growing software community anchored by companies such as DiscoverOrg, Safetech and Ontario Systems/Columbia Ultimate and many others, Clark County has a strong opportunity to grow its own computer software cluster with unique specializations in network and systems design, web development, and the emerging fintech sector.

Defining the Cluster

LCG utilized the following NAICS codes to define the cluster:

- Internet Publishing and Broadcasting and Web Search Portals (519130)
- Software Publishers (511210)
- Data Processing, Hosting, and Related Services (518210)
- Computer Systems Design Services (541512)
- Other Computer Related Services (541519)
- Custom Computer Programming Services (541511)
- Computer Facilities Management Services (541513)
- Teleproduction and Other Postproduction Services (512191)
- Business to Business Electronic Markets (425110)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's software cluster include the following:

- A strong regional traded cluster, laying a foundation for CREDC business recruitment and retention efforts; this cluster is also at the center of any startup activity in Clark County.
- An estimated 490 firms, with an LQ of 1.11, or 11 percent greater than the national average. Firm formation for this cluster in Clark County has increased significantly – up 44 percent from 2012 to 2016.
- Approximately 2,400 workers, with an LQ of 0.75, which is 25 percent smaller than the U.S. average. Employment grew 32 percent from 2012 to 2016.
- There are a large number of firms in this cluster with small employment bases, presenting the opportunity for business expansion efforts.
- Specializations for this cluster in Clark County include internet publishing (LQ of 2.12) and software publishing (LQ of 1.56), and computer systems design services (LQ of 1.22). Examining the occupational data for this cluster suggests a focus on networking and system development.
- Given the presence of a growing software cluster and a heavy financial services firm and talent base, Clark County may explore establishing capabilities in the fintech sector. In the focus group conversation conducted with startup businesses, this was identified as a potential emerging sector in Clark County.

Skilled Workforce

Clark County's computer software talent pool is one of its strongest. Utilizing the occupational data, LCG's analysis found the following takeaways (a detailed workforce analysis is provided in Appendix C):

- Nearly 3,200 Clark County workers have skills associated with the computer software cluster.
- The skill base is more than 18 percent larger than the U.S. average.
- The cluster's talent base is expected to grow by an additional 16 percent in the next decade with nearly 105 new openings annually.
- On average, computer software workers earn \$102,000 annually – some of the county's highest earners.
- Significant talent specializations are present for computer hardware engineers (LQ of 2.07), software developers and system software (LQ of 1.66), web developers (LQ of 1.36), computer and information research scientists (LQ of 1.24) and computer systems analysts (LQ of 1.10).
- High levels of education levels are required for this cluster: associate degrees, bachelor's degrees, and doctoral or professional degrees.

Clean Tech

Overview

The U.S. solar energy sector had a record year in 2016. The sales for electric vehicles in the United States jumped more than 37 percent in 2016. These trends in clean technology are very good news for Clark County. With a strong legacy in computer and electronics, available employment/industrial lands, and a skilled workforce, Clark County has a competitive foundation for supporting growth in clean technology with a specific focus on the technologies associated with solar energy and battery production.

Defining the Cluster

LCG utilized the following NAICS codes to define the cluster:

- Storage Battery Manufacturing (335911)
- Pump and Pumping Equipment Manufacturing (333911)
- Semiconductor and Related Device Manufacturing (334413)
- Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing (333612)
- Mechanical Power Transmission Equipment Manufacturing (333613)
- Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables (334513)
- Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals (334515)

- Electromedical and Electrotherapeutic Apparatus Manufacturing (334510)
- All Other Miscellaneous Electrical Equipment and Component Manufacturing (335999)
- Heating Equipment (except Warm Air Furnaces) Manufacturing (333414)
- Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing (334511)
- Septic Tank and Related Services (562991)
- All Other Plastics Product Manufacturing (326199)
- Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology) (541712)
- Power and Communication Line and Related Structures Construction (237130)
- Plastics Material and Resin Manufacturing (325211)
- Remediation Services (562910)
- Commercial, Industrial and Institutional Electric Lighting Fixture Manufacturing (335122)
- Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing (333413)
- Switchgear and Switchboard Apparatus Manufacturing (335313)
- Analytical Laboratory Instrument Manufacturing (334516)
- Other Electronic Component Manufacturing (334419)
- Solid Waste Collection (562111)
- Relay and Industrial Control Manufacturing (335314)
- Hazardous Waste Treatment and Disposal (562211)
- Environmental Consulting Services (541620)
- All Other Miscellaneous Waste Management Services (562998)
- Materials Recovery Facilities (562920)
- Other Engine Equipment Manufacturing (333618)
- Other Waste Collection (562119)
- All Other Basic Organic Chemical Manufacturing (325199)
- Solar Electric Power Generation (221114)
- Wind Electric Power Generation (221115)
- Electric Bulk Power Transmission and Control (221121)
- Electric Power Distribution (221122)
- Turbine and Turbine Generator Set Units Manufacturing (333611)

- Totalizing Fluid Meter and Counting Device Manufacturing (334514)
- Other Measuring and Controlling Device Manufacturing (334519)
- Electric Lamp Bulb and Part Manufacturing (335110)
- Residential Electric Lighting Fixture Manufacturing (335121)
- Hazardous Waste Collection (562112)
- Other Nonhazardous Waste Treatment and Disposal (562219)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's clean tech cluster include the following:

- An emerging traded cluster, built upon the foundation of the county's computer and electronics cluster and consistent with the community's brand of sustainability and environmental stewardship.
- Approximately 142 firms, with an LQ of 1.02, or two percent greater than the national average. Firm formation associated with this cluster in Clark County has increased 19 percent from 2012 to 2016.
- Nearly 4,000 workers, with an LQ of 2.12, which is more than two times the U.S. average. Employment grew five percent from 2012 to 2016 and is expected to grow 14.7 percent by 2026.
- Firms in this cluster have large employment bases.
- Specializations for this cluster in Clark County include storage battery manufacturing (LQ of 2.12), semiconductor and related device manufacturing (2.88), and mechanical power transmission equipment manufacturing (LQ of 2.12).
- Clark County's specialization in semiconductor manufacturing is a strong foundation for supporting manufacturing of solar-related materials.
- Given the aforementioned capabilities, Clark County has a significant capability in battery manufacturing, as well as various other power generation devices.
- Clark County does not have capabilities in actual solar or wind energy production, turbine production and manufacturing and waste remediation.

Skilled Workforce

Clark County's clean tech sector will draw upon the same talent pool as the county's computer and electronics cluster:

- Nearly 4,600 Clark County workers have skills associated with the computer and electronics cluster.
- The electronics skill base is more than nine times that of the U.S. average.
- The cluster's talent base is expected to grow by an additional 15 percent in the next decade.

- On average, workers with electronic skills earn \$49,000 annually.
- Education levels required for this cluster: high school diploma, some college and technical training.

The clean tech cluster will also need to draw upon engineering talent as well:

- Approximately 2,600 Clark County workers have engineering skills – this skills cluster is 87 percent larger than the U.S. average.
- Engineering talent in the county is expected to increase 15 percent by 2026 with 119 annual openings.
- Engineers in Clark County earn \$85,000 annually on average.
- High levels of education levels are required for this cluster: associate degrees and bachelor's degrees.

Metals and Machinery

Overview

With companies such as Northwest Steel, Farwest Steel, Thompson Metal Fab, Columbia Machine and others, Clark County has a storied history of metals and machinery manufacturing. While production employment across the U.S. is declining, Clark County has withstood this trend. This is in large part because of its specialization in this sector has centered on the advanced skills such as motor manufacturing, pump manufacturing, and sophisticated steel fabrication. Not to mention, as the analysis below outlines, Clark County has a skilled talent base from which to draw expertise in this sector.

Defining the Cluster

LCG utilized the following NAICS codes to define the cluster:

- Rolled Steel Shape Manufacturing (331221)
- Air and Gas Compressor Manufacturing (333912)
- Fluid Power Pump and Motor Manufacturing (333996)
- Fabricated Pipe and Pipe Fitting Manufacturing (332996)
- Other Aluminum Rolling, Drawing, and Extruding (331318)
- Metal Tank (Heavy Gauge) Manufacturing (332420)
- Nonferrous Metal Die-Casting Foundries (331523)
- Other Fabricated Wire Product Manufacturing (332618)
- Fluid Power Cylinder and Actuator Manufacturing (333995)
- Fabricated Structural Metal Manufacturing (332312)
- Plate Work Manufacturing (332313)

- Machine Shops (332710)
- Iron and Steel Mills and Ferroalloy Manufacturing (331110)
- Metal Window and Door Manufacturing (332321)
- Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers (332812)
- All Other Miscellaneous Fabricated Metal Product Manufacturing (332999)
- Ornamental and Architectural Metal Work Manufacturing (332323)
- Other Motor Vehicle Parts Manufacturing (336390)
- All Other Miscellaneous General Purpose Machinery Manufacturing (333999)
- Sheet Metal Work Manufacturing (332322)
- Prefabricated Metal Building and Component Manufacturing (332311)
- Other Metal Container Manufacturing (332439)
- Cutting Tool and Machine Tool Accessory Manufacturing (333515)
- Industrial Mold Manufacturing (333511)
- Electroplating, Plating, Polishing, Anodizing, and Coloring (332813)
- Special Die and Tool, Die Set, Jig, and Fixture Manufacturing (333514)
- Abrasive Product Manufacturing (327910)
- Iron and Steel Pipe and Tube Manufacturing from Purchased Steel (331210)
- Steel Wire Drawing (331222)
- Alumina Refining and Primary Aluminum Production (331313)
- Secondary Smelting and Alloying of Aluminum (331314)
- Aluminum Sheet, Plate, and Foil Manufacturing (331315)
- Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding (331491)
- Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum) (331492)
- Iron Foundries (331511)
- Steel Investment Foundries (331512)
- Steel Foundries (except Investment) 331513
- Other Nonferrous Metal Foundries (except Die-Casting) (331529)
- Custom Roll Forming (332114)
- Powder Metallurgy Part Manufacturing (332117)
- Precision Turned Product Manufacturing (332721)

- Bolt, Nut, Screw, Rivet, and Washer Manufacturing (332722)
- Industrial Valve Manufacturing (332911)
- Fluid Power Valve and Hose Fitting Manufacturing (332912)
- Ball and Roller Bearing Manufacturing (332991)
- Mining Machinery and Equipment Manufacturing (333131)
- Measuring and Dispensing Pump Manufacturing (333913)
- Elevator and Moving Stairway Manufacturing (333921)
- Power-Driven Handtool Manufacturing (333991)
- Welding and Soldering Equipment Manufacturing (333992)
- Packaging Machinery Manufacturing (333993)
- Industrial Process Furnace and Oven Manufacturing (333994)
- Scale and Balance Manufacturing (333997)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's metals and machinery cluster include the following:

- A legacy traded cluster, both a regional strength in greater Portland and Clark County; offers a continued opportunity and pathway for family-supporting jobs.
- An estimated 106 firms, with an LQ of 1.02, or two percent greater than the national average.
- Firm formation associated with metals and machinery in Clark County has declined four percent since 2012, presenting an opportunity for a business retention effort in the county.
- Approximately 1,925 workers, with an LQ of 0.96, which is just four percent smaller than the U.S. average. While firm growth has declined, employment grew a significant 33 percent from 2012 to 2016.
- Interestingly, there are more people employed in Clark County's computer software cluster than metals and machinery.
- Specializations for this cluster in Clark County include various metals manufacturing such as: rolled steel shaped manufacturing (LQ of 3.98), fabricated pipe manufacturing (LQ of 2.51) and aluminum shaping (2.36), machine shops and (1.39), compressor manufacturing (3.98) and pump and motor manufacturing (2.75).
- The aforementioned strengths present Clark County with an opportunity to consider other cross sectors such as aerospace and transportation manufacturing.
- Composites also should be considered an element of the metals and machinery cluster, offering an opportunity to work with companies and employers to "reimagine" the future of Clark County's metals cluster.

Skilled Workforce

Clark County's metals and machinery sector will draw upon the skilled manufacturing talent:

- Nearly 7,000 Clark County workers have skills associated with the manufacturing talent cluster.
- Clark County's manufacturing skill base is 28 percent greater than the U.S.
- The cluster's talent base is expected to grow by an additional 14.9 percent in the next decade.
- On average, workers with manufacturing skills earn \$42,000 annually.
- Education levels required for this cluster include: high school diploma and technical training.

The metals and machinery cluster will also need to draw upon mechanical talent as well:

- Approximately 2,200 Clark County workers have mechanical skills – this skills cluster is 87 percent larger than the U.S. average.
- Mechanical talent in the county is expected to increase 8.4 percent by 2026 with 74 annual openings.
- Engineers in Clark County earn \$49,700 annually on average.
- Education levels required for this cluster include: high school diploma and technical training.

Life Sciences

Overview

With Northwest Natural Products, Inc., Pacific Nutritionals, Bayer Corporation, McKesson, Northwest Life Science Specialties and other companies, Clark County's life sciences cluster is an emerging cluster for the county that offers a strong opportunity for job creation and firm formation. While life sciences can be a broad cluster analysis, LCG's quantitative cluster analysis suggests that Clark County's life sciences strengths and competitive advantages are centered around manufacturing for this sector.

Defining the Cluster

LCG utilized the following NAICS codes to define the cluster:

- Medicinal and Botanical Manufacturing (325411)
- In-Vitro Diagnostic Substance Manufacturing (325413)
- Other Basic Inorganic Chemical Manufacturing (325180)
- Testing Laboratories (541380)
- Pharmaceutical Preparation Manufacturing (325412)
- Drugs and Druggists' Sundries Merchant Wholesalers (424210)
- Blood and Organ Banks (621991)

- Medical Laboratories (621511)
- Diagnostic Imaging Centers (621512)
- Research and Development in Biotechnology (541711)
- All Other Basic Organic Chemical Manufacturing (325199)
- Biological Product (except Diagnostic) Manufacturing (325414)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's life sciences cluster include the following:

- Considered a regional traded cluster for the greater Portland-Vancouver region, presenting the opportunity for business development efforts.
- Clark County's strength in the life sciences cluster is associated with manufacturing: 12 firms specializing in biomedical, pharmaceutical, and chemical manufacturing, with LQs ranging from 4.79 to 1.13.
- An estimated 73 firms, with an overall cluster LQ of 0.87, or 13 percent smaller than the national average.
- It is worth noting that the size of the cluster (by firms) is driven by a large presence of testing laboratories (16), drug wholesalers (21) and medical laboratories (12).
- An estimated 20,250 workers, with an LQ of 1.54, which is 54 percent larger than the U.S. average. From 2012 to 2016, employment grew 8.8 percent and is forecasted to increase an additional 12.5 percent by 2026.
- Pharmaceutical and biological manufacturing, as defined by NAICS codes, are broad categories; interviews should be conducted to understand key specializations within Clark County.
- In regards the future of this cluster, CREDC should complete an inventory of space and real estate ability for potential life sciences firms.

Skilled Workforce

Clark County's life sciences sector will draw upon the research and science talent cluster:

- Approximately 690 Clark County workers have specialized skills associated with research and science.
- This talent cluster specialization is nine percent larger than the U.S.
- The cluster's talent base is expected to grow by an additional 3.2 percent in the next decade with 17 openings annually.
- On average, workers with research and science skills earn \$77,000 annually.
- Education levels required for this cluster are very high: bachelor's degree, master's degree or doctoral/professional degree.

The life sciences cluster will also potentially draw upon the healthcare professional talent cluster in Clark County:

- An estimated 6,400 Clark County workers have healthcare professional skills – seven percent higher than the U.S. average.
- Specialized healthcare talent in the county is expected to increase 11.9 percent by 2026 with 238 annual openings.
- Healthcare professionals in Clark County earn \$103,000 annually on average.
- Education levels required for this cluster are also very high: bachelor's degree, master's degree or doctoral/professional degree.

Finally, the life sciences cluster will also potentially draw upon the medical services talent cluster in Clark County:

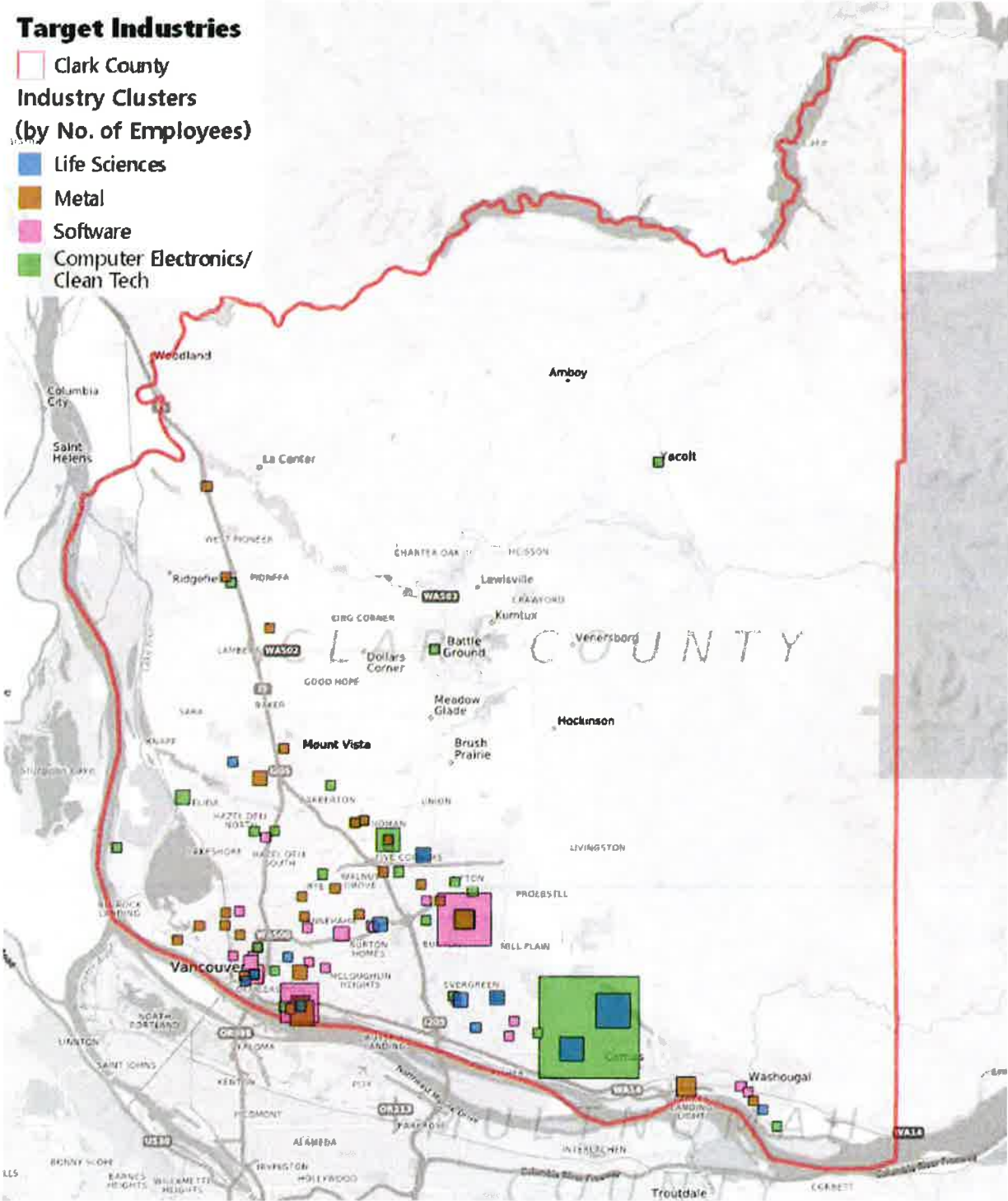
- 7,985 Clark County workers have medical services skills – 41 percent higher than the U.S. average.
- Medical services talent in the county is expected to increase significantly by 37.9 percent by 2026 with 322 annual openings.
- Medical services talent in Clark County earn \$42,000 annually on average.
- Education levels required for this cluster include: associate degree, high school diploma and some technical training.

ATTACHMENT B

**Excerpt from
Columbia River Economic Development Council
Economic Development Strategy 2018-2023**

Representative Locations of Clark County Industry Clusters

Figure 15. Representative Locations of Clark County Industry Clusters



Source: ESRI, Leland Consulting Group.

ATTACHMENT C

**City of Vancouver
IPZ Partner Survey Analysis, November 2017**

IPZ Partner Survey Analysis November, 2017

In preparation for the IPZ Business Plan update, IPZ Program Assistant Skye Troy created and administered a survey of the IPZ partners, to help gauge their level of interest and expectations. A summary of the survey results is reported here.

- 65% of the partners say that their perception of IPZ progress greatly exceeded expectations
- 77% of respondents want to focus the first year on retaining existing businesses
- Overall it was agreed that the technology goals should be all be focused on in the first 3 years
- 100% of respondents said that Year 1 priority is continuing workforce development and training support for business sector
- 55% of people agree that establishing an IPZ administrative budget for partner contributions and fundraising should happen Year 1
- Increasing WSUV presence was evenly distributed throughout the four years
- 66% of people said Year 1 priority is rebranding IPZ logo & design
- Human capital goals were ranked as priorities to be focused on in Year 1 and 2. This includes supporting WSUV's new entrepreneurial program, increasing internships and establishing new funding sources for internships.
- 75% of partners agree Vancouver-Camas place making strategies should be focused in Year 1

- Majority of partners agreed that Year 2 should focus on launching a Mayors innovation cabinet
- Partners agreed that focusing on Vancouver-Camas regional promotion, and telling the IPZ story in an effective way needs to be an IPZ priority
- 66% of partners stated that highlighting successes of IPZ was a Year 1 priority
- Having a trained workforce and getting access to a talent pipeline has been identified as an area to focus on for IPZ over the next years
- 62% of partner's want to focus on increasing expansion assistance for Vancouver businesses in Year 2

ATTACHMENT D
Vancouver-Camas IPZ Flyer



**PRIOR
ACHIEVEMENTS**

- Connected businesses with Washington State University Vancouver (WSUV) students
- Developed Clark College programming curriculum
- Created IPZ digital strategy
- Excelled in business development and recruitment efforts
- Designated high-growth, high-demand Technology sector for WSW
- Refreshed Grow Clark County and PubTalk series

GOAL 1: TECHNOLOGY

- Conduct the Innovation Showcase
- Increase research deliverables via strategic partners
- Create an innovation center
- Expand regional industry collaboration efforts with Technology Association of Oregon and Washington Technology Industry Association
- Develop defined IP network with strategic legal partners
- Expand regional supply chain/contracting opportunities

GOAL 2: HUMAN CAPITAL

- Secured \$1.8M RebootNW grant
- Contributed to bi-state tech workforce collaboration
- Hosted several tech industry events
- Developed TechTown Talent: Strategy Plan
- Funded teacher externships, youth experiences, and job placements
- Introduced the Director of Strategic Partnerships

- Enhance WSUV commercialization efforts
- Launch new entrepreneurial degree
- Centralize college-level internships and work study opportunities
- Increase WSUV's downtown presence
- Encourage connections between WSUV engineering and business programs
- Cultivate and promote research

GOAL 3: INFRASTRUCTURE

- Established a placemaking strategy for the City of Vancouver, including adaptive reuse and fee waiver programs
- Created Vantechy events
- Launched two co-working spaces: Columbia Collective and Colab
- Enacted formal partnerships with Oregon Angel Fund and the Technology Association of Oregon

- Launch Mayor's Innovation Cabinet focused on strategic policies and advocacy
- Continue City of Vancouver placemaking strategies
- Launch seed fund with support from the Oregon Angel Fund
- Host seed and angel funding forums
- Increase co-working spaces

**ANTICIPATED
ACHIEVEMENTS**

In partnership with:



300%

increase in tech firms
in downtown in 4 years
(from 13 to 45)

22

new Full Time Equivalent
employees hired within
the IPZ from WSU
Vancouver's Creative
Media & Digital
Culture Program

Washington State
University (WSU)

THE IPZ

AVAILABLE SITE

COLLEGE OR UNIVERSITY

\$1.8 million

training grant secured by the Southwest
Washington Workforce Development Council

Southwest Washington STEM network
provided professional development to over

100 teachers

in 16 school districts, which impacted

12,000 students

Port
of
Vancouver

DWTN

Clark County
Main Campus

Vancouver, WA

Waterfront
Development

Clark College
Columbia Tech



Portland
International Airport

Camas, WA

Portland, OR

**JOBS CREATED
DOWNTOWN**

- DiscoverOrg: 250
+ Reubriq: 2
- Tripwire: 35
- Perfect Company: 12
- Webfor: 15
- AbSci: 6