MAKING A REGION

LIVABILITY, STEWARDSHIP, AND THE TECHNOLOGY ASSOCIATION OF OREGON

JANUARY, 2015
MAKING A REGION:
Livability, Stewardship, and the Technology Association of Oregon

Portland State University
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EXECUTIVE SUMMARY

Every year, students in the Master of Urban and Regional Planning degree program of the Toulan School of Urban Studies and Planning at Portland State University, explore an issue of regional significance. This year, the class has taken up a project brought to it by the Technology Association of Oregon (TAO). The knowledge and innovation economy is making it easier for workers to choose where and how they would like to work. With location increasingly a matter of choice, places need to be able to distinguish themselves from other competing locations.

TAO has made it clear that tech firms and professionals value the distinctive quality of life in Oregon and the Pacific Northwest, and do not want this place to become “like the (Silicon) Valley.” To the contrary, TAO wants to be viewed both within and outside the industry as an advocate for both the success of tech firms and of this region. They want tech firms here to have a longer-term commitment to being in Oregon, and like other Oregonians, to view contributing to the stewardship of this place as part of the reason for being here.

TAO has presented an important question to the class: what needs to be done to develop and sustain the region’s brand so as to maintain the Portland area as a destination of choice for talented and creative knowledge economy workers? To answer this question, the class was divided into five groups:

- THE PORTLAND REGION BRAND – what is it, what do we know about it, how can it be characterized?
- KNOWLEDGE ECONOMY WORKERS AND THEIR CHOICES – who are they, what do they do, what do we know about why they’re here?
- COMPETITOR REGIONS AND THEIR STRATEGIES FOR ATTRACTING AND RETAINING TALENT – what are other tech regions doing with respect to managing and enhancing livability?
- TECH FIRMS IN THE REGION AND THEIR CONCERNS – through interviews with leaders in area tech firms, what are the issues here in this region? Concerns?
- POLICIES AND PLANS AND THE STEWARDSHIP OF THE BRAND – what are the tools and efforts already underway?

The tech community in the Portland region wants to do the right thing. Seeing protesters blocking Google busses in the Bay Area, and now opposing the new Google campus in Boulder, stands as a reminder that the tech industry is viewed both as beneficial and as potentially detrimental to the very quality of life and livability that makes this region attractive to tech workers and others alike. By asking what needs to be done to develop and sustain the region’s brand so as to maintain the Portland area as a destination of choice for talented and creative knowledge economy workers, the Technology Association of Oregon is asking how it can be understood as a contributor to the long-term livability of this region, rather than merely as a consumer of the riches of this region.

This report provides a first step in developing a strategy for engaging the region, and for being understood as a committed steward for the region's livability. Further work needs to be done to better characterize the brand, and for TAO, through its own discussion process with both members and external interests, to synthesize its own lessons from this and other information. Nonetheless, we do believe that this material provides a solid starting point and a number of clear lessons.
Generally speaking, the first step is to recognize that there is a Portland “way” of becoming a part of sustaining the livability of this place. In Portland, contributors to our livability and quality of life are:

- **ENGAGED** – policymaking occurs through engagement in public processes, where views get exchanged among a wide range of individuals and community interests. We meet, and meet, and meet again, and being part of the solution means not bypassing or ignoring the process.

- **COLLABORATIVE** – anything of consequence occurs through a partnership among public, private, and nonprofit sector actors. If necessity is the mother of invention, collaboration is the tool that has been required to move ideas from inception to construction. All good things happen here through partnerships.

- **ACCESSIBLE** – people in Portland don’t need to get permission to start things. The famous Nike tag line, “Just Do It,” could easily describe the ethos of like-minded residents of the region. Being available, accessible, and open to contact is a hallmark of effective people and organizations in this area.

- **AUTHENTIC** – the challenge here is not to become a better Silicon Valley, but the best “Portland” that this can be. This is not a race to become a bigger, faster, brighter version of somewhere else, but to build on the qualities of place and culture that have enabled this region to emerge in the first place.

More specifically, the following “lessons learned” emerge from our work to date:

- **COMPACT DEVELOPMENT, RESOURCE CONSERVATION, AND LIVABILITY** – Context matters. This region is committed to finding points of harmony and balance with the working and wild landscapes surrounding the metropolitan region. The urban growth boundary has specific legal meaning, and real cultural significance as a commitment both to the land resources that have made this an abundant place for millennia and to the notion of sustainability and the multigenerational commitment that comes with it. Location matters here, and the locational choices of firms have consequences. Some locations confer great costs on the public, while others do just the opposite. Where and how firms locate makes a difference, and it’s noticed. In the Portland region and in Oregon land use plans have specific meaning, and they matter. Though a piece of property may look vacant, it sits within a context already provided by history and plan, and operating consciously with respect to that context is important.

- **EDUCATION MATTERS, BUT OUR LOCAL PIPELINES ARE INCOMPLETE** – Competitor regions are currently our number one source for talented workers. Meanwhile, our own infrastructure for educating the next generation of creative, innovative, and marketable tech workers is undistinguished. Though every tree planting effort can use more volunteers, industries that seek the best and brightest need to be seen both as being attractive to talented people wherever they are as well as contributing to making the best local opportunities available to local folks. Keeping the Portland region livable includes making the next generation of Portland residents competitive for the best jobs our economy has to offer. The fundamental question is about the breadth of the educational opportunities available here, not just about the narrower vocational interests of the tech industry. Though the needs of tech will and must be met, a broader commitment to a wider range of concerns, the humanities as well as the sciences, STEM as well as STEAM, is the context that has to be established.

- **LEVERAGE LOCAL SUCCESS INTO LOCAL INVESTMENT** – Portland region firms tend to be small and as they grow, to be acquired and owned elsewhere. Finding ways to recycle economic success through the provision of investment capital and other support will be critical in the years ahead. Too often, unlike in our competitor regions, success means the movement of capital and talent to other places. We need to turn the tide on this trend, to make local success the catalyst for further local success, rather than a one-time celebration or momentary point of pride.
**Walk the Talk with Operations** – Sustainability is a public value here and an important idea. It isn’t easy being green, but it’s a challenge we aren’t willing to pass by. How firms operate, who they choose to buy from, how the operations of firms can address issues of income inequality and create ladders of prosperity for workers and supplier firms alike, are all visible manifestations of the promise to join in the struggle for sustainability. Leading the effort to lighten the footprint while advancing community objectives and helping to meet real social needs are vital ways to show commitment to what makes this place livable and different.

**Make the Portland Brand Part of the Organization Brand** – Associating the values of the region for sustainability, being green, synergy with nature, and a commitment to the future with the brand values of TAO and of tech firms generally, helps to cement the relationship between being here as a matter of choice, rather than simply as a matter of convenience. The choice of Portland means something specific to residents and in-migrants alike. Reinforcing the validity and power of that choice helps to reinforce the notion that we are all in this together.

Again, we thank TAO for the opportunity to engage in this project. We found it to be an interesting, even exciting project, and hope that it helps to advance the efforts of TAO to be fundamentally engaged in the life of this region in an authentic and meaningful way.
Prævolore, a sincti aut earum quam incilitior asit, sus, veliquiam, sum faccaborempe et.
INTRODUCTION

Every year, the students in USP 549: Regional Planning and Metropolitan Growth Management, a course offered in the Master of Urban and Regional Planning degree program of the Toulan School of Urban Studies and Planning at Portland State University, explore an issue of regional significance. In the past, these projects have included studies of the Cascadia “ecopolis,” assessing the impact of jurisdictional fiscal capacity on the Portland metropolitan region, proposals for the development of a regional system of long trails in Northwestern Oregon and Southwestern Washington, and a study of the potential increase in migration to the Willamette Valley due to changing conditions in the southwest and elsewhere due to climate instability. These past projects can be found at: http://www.pdx.edu/usp/research/student-work

This year, the class has taken up a project brought to it by the Technology Association of Oregon (TAO). The knowledge and innovation economy is making it easier for workers to choose where and how they would like to work. With location increasingly a matter of choice, places need to be able to distinguish themselves from other competing locations. Further, there is a growing awareness, if not wariness, on the part of places when it comes to the impact of the tech industry on quality of life and local identity. Rapid growth, quick wealth, and growing inequality are emerging alongside the most successful tech industry locations, leading some to question whether it is beneficial to follow the same path as more established tech centers in the nation.

TAO has made it clear that tech firms and professionals value the distinctive quality of life in Oregon and the Pacific Northwest, and do not want this place to become “like the (Silicon) Valley.” To the contrary, TAO wants to be viewed both within and outside the industry as an advocate for both the success of tech firms and of this region. They want tech firms here to have a longer-term commitment to being in Oregon, and like other Oregonians, to view contributing to the stewardship of this place as part of the reason for being here.

This is ultimately about the Portland and Oregon “brand” and to develop a strategy for engaging in the active development and stewardship of that brand, TAO has asked the students in USP 549 to develop materials needed to better frame their efforts moving forward. TAO has presented an important question to the class: what needs to be done to develop and sustain the region’s brand so as to maintain the Portland area as a destination of choice for talented and creative knowledge economy workers?

To answer this question, the class was divided into five groups:

- **THE PORTLAND REGION BRAND** – what is it, what do we know about it, how can it be characterized?
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- **POLICIES AND PLANS AND THE STEWARDSHIP OF THE BRAND** – what are the tools and efforts already underway?

This report provides a synthesis of these reports and “lessons learned” in response to the charge given to the class by TAO. Please note: when we refer to “Portland,” we are referring to the Portland metropolitan region unless specifically indicated otherwise. We are tremendously grateful to Skip Newberry and TAO for sponsoring this work, and to all those who have helped to inform this investigation. However, all information presented and opinions expressed are the responsibility of the class and not of TAO or of the tech industry generally.

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Place branding attempts to encapsulate the mixture of qualities, values, and experiences that give meaning to a particular city, region, or community. Successful branding efforts offer incisive descriptions for what already exists in a place, while disingenuous branding efforts that fall flat fabricate an identity for a region. The following chapter attempts to distill a genuine brand for the Portland region that the tech industry can use to understand their own relationship to this place. Efforts to brand Portland have ranged from the institutional to the satirical. Some have called Portland the ‘City of Roses’. Others have called it ‘Stumptown’, ‘Bridgetown’, ‘beervana’, and most recently, ‘Portlandia’. 
Although these concepts play a role in promoting Portland’s characteristics within the realm of place-marketing and regional specialization, the question remains as to how useful it is to have a ‘brand’ that reflects the place more than the communities that reside within it. Bikes, beer, and beard alone have not made up the “real stuff” of Portland’s renowned ‘livability.’ Each of these branding concepts is a marketed artifact of how we collectively perceive what it means to live and work in Portland. These amount to more than superficial branding efforts: they hint at the qualities that make Portland a place where people come to live, recreate, and do business—differently.

Driven by innovation and transformation, the industry has little incentive to stop marching to its own drumbeat. Some would say this has been the case in Portland. Some say it has been the case in the Silicon Valley—but does it have to be the case in Portland?

In an increasingly competitive society, industry leaders, planners, and economic development strategists have set out to do ‘place marketing,’ which seeks to leverage branding knowledge for economic development. In a technology-dominated society, however, the question remains as to why the tech industry should be paying much attention.

This chapter does not intend to strengthen or dispel the aforementioned branding concepts. We mean to communicate these concepts in a way that is meaningful to a high-impact technology sector by exploring Portland’s civic, environmental, and cultural history to arrive at a set of characterizations that illuminate keystones of the Portland brand: a connection to the natural environment, urban “livability,” a bootstrapping maker culture, and a place that works differently.

PORTLAND’S NATURE CULTURE

Portland’s sits at the confluence of the Columbia and Willamette Rivers, at the North end of the Willamette Valley, nestled between the coast and the Cascade mountain ranges. For centuries, the Willamette Valley has been inhabited due to its abundant resources for human civilization. Well before any ‘branding’ efforts were ever made, timber, salmon, a mild climate, long growing seasons, and water were the defining qualities of the Portland area. Like many American cities, Portland’s identity was shaped by the surrounding environment. Perhaps more than many other cities, however, Portland’s image remains closely associated with these natural elements, even in the “modern, hyper-green” city we experience today.

Portlanders enjoy easy access to many worlds: forested wilderness, alpine recreation on Mt. Hood, Oregon’s coastal beaches, rural lands in the Willamette Valley, and the Columbia River Gorge are all within an hour of the downtown. Civic leaders have upheld the protection of these natural resources and lands as far back as the 1950’s, and the planning and legislation that emerged preserves these values today.

The Portland region is distinct that it was the first to institute an elected regional council of governments (Metro), which oversee land use and city collaboration in the Portland area. Metro is responsible for administering Portland’s urban growth boundary, which prevents sprawl outside the city and agricultural land from development.

In the 1960s and 1970s, Portland became known for effectively avoiding the problems of sprawl experienced by other metropolitan areas through careful planning. Modern precedents for Portland’s ‘green’ reputation were also set by early planners who integrated parks and green spaces into the city’s layout and protected scenic views.

SMALL CITY WITH BIG LIVABILITY

For the first 100 years of Portland’s history, it followed the course of many other U.S. cities. Then, in the late 1960s and early 1970s, Portanders chose public transportation projects over neighborhood-clearing highways, they created a plan for a functional and vibrant (if small) downtown, neighborhoods were officially invited into the planning process. These actions initiated a progressive urban planning tradition that has helped create Portland’s unique brand of “livability.”

Planning is taken seriously here, and the deliberate, organized effort to impart these features in our communities is a huge reason why Portland has earned it’s reputation for “livability.” Portland’s urban qualities and “green” features have become so well known, that they are now being used to market Portland’s brand of livability abroad. Portland’s relative affordability compared to the Silicon Valley also remains an important advantage for businesses.

wanting to relocate here. However, this is not the only factor enticing so many young and educated individuals to come to Portland. A high quality urban transportation system, for example, allows professionals to easily travel between the central city and neighborhoods throughout the region. Among the young and educated, Portland is known as a “cool” and “livable” place to live, work, or go to school. It is possible to live in the city and work in the suburbs, and vice-versa, giving a large number of people and extensive array of choices.

PORTLAND WORKS DIFFERENT

Today, Portland’s values are emphatically embraced by a young, creative, and entrepreneurial maker culture. The maker culture has been defined as “democratizing the means of production,” and while there is no single definition for this DIY, hyper-local ethos and economy, this description seems to fit well with Portland’s foundational values.8

The ‘Maker Movement’ has encouraged many to move here to experience Portland’s unique culture of artisans, makers, and “do-it-yourself” idealism. These elements have greatly contributed to Portland’s success at creating a place where the young and educated want to live. Throughout the last decade, Portland’s young and educated workforce has been steadily increasing. In fact, Portland’s young and educated population represented nearly one-sixth of the metropolitan workforce by 2008.9 And contrary to the Portlandia meme, they aren’t coming here to retire. Portlanders like to experience life outside their cubicle, but that doesn’t mean they don’t work hard—they just work different. One in ten of Portland’s young and educated are self-employed artists, entrepreneurs, or artisans.

In Portland, makers and young technology workers enjoy a creative community that strongly promotes the sharing of resources, collaborative workspaces, and integrative solutions to challenging business problems. Function, design, and talent are core ingredients in the creation of Portland’s cultural exports. Portland is a community of consumers who are excited to support the next big idea. Portland’s maker culture has acted as a test bed for entrepreneurs, who over time have developed the capacity to expand their businesses beyond Portland’s borders. This is the underlying culture that has put Portland on the map for microbrews, restaurants, and hand-made bicycles. These qualities have created no shortage of young, creative talent ready to work on the next big thing.

OREGON’S TECHNOLOGY LEGACY

Although Portland is only thought of as a recent contributor to the high-technology landscape, the roots of the industry in Portland can be traced back to a single firm, Tektronix. Tektronix, a large and diverse technology company, planted its flag in Portland in 1946 with the motto “Enabling Innovation.”10 Founded on the premise of innovation, Tektronix serves as an early example for what is possible by doing things a little differently.

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In contrast to much of the competition, Tektronix was an early promoter of “Portland-style” business practices. This kind of interorganizational innovation focused on forming a company with an “inclusive environment, where everyone knew everyone” rather than maintaining a bullish pursuit of rapid expansion and market takeover. At Tektronix, profits came second to innovation and a tight-knit community. On the inside, Tektronix’s informal business culture fostered an environment that championed creativity and learning, evident in its commitment to research and development. Tektronix’s liberal policies towards funding employee-led research resulted in a diverse repertoire of innovations in the industry, fueling the company’s growth. Tektronix quickly grew to become a world-leading designer and manufacturer of high-tech components.

The most important element in the success of Tektronix was the workers they employed. A rigorous recruiting and selection process allowed Tektronix to bring in extremely bright and imaginative individuals. The company’s policy of attracting talented people created a pool of highly skilled labor in the region. Without the benefit of recruiting locally from a world-leading educational institution, Tektronix compensated by establishing an extensive in-house education system to continue employee training and create upward mobility within the company. Tektronix’s senior level management positions were generally filled internally while entry-level positions were filled by outside candidates. This system of training and hiring from within allowed engineers to be exposed to the corporate side of the industry, rather than just the technical aspects.

Despite Tektronix’s early success, increased financial difficulties during the 1980’s lead to downsizing of the company. This downsizing would be one of the key factors that led to massive expansion of technology firms in the Portland region. The inability to pursue the innovations created in their laboratories due to cutbacks led to the separation of many talented employees. Engineering and business training provided by the company allowed these employees to pursue the ideas that were being developed but had which had yet to hit the market. The resulting flow of labor from Tektronix to other established and new firms carried with it the values associated with innovation and discovery, of working differently than in other firms and communities just as Portland’s commitment to planning, controlled growth, and livability combine to describing what it means to work “differently” in Portland.

DOING BUSINESS—THE PORTLAND WAY

Even the most sincere branding effort has its limitations. Some of the place branding literature has shown that forcing a branding system on a community or industry can effectively leave out the narratives of many, leading to resistance or resentment. It’s better to look to data to support the positive effects of branding, and to provide guidelines and resources instead of rules and regulations.

This hits on two important and final points. First, we cannot expect to arrive at an all-encompassing brand to distinguish or justify the Portland “way”. We can extrapolate meaning from the various qualities that distinguish Portland from other places, but it’s important to keep in mind that a singular brand can never tell the full story. This is not to say that branding concepts are weak artifacts of our collective experiences; they can be used to capture the key qualities, features, and values that draw people to particular places. Brands can be beacons, or guiding values for the next generation of Portland’s technology sector.
Without clear direction in a rapidly expanding industry, it’s far too easy for firms to get swept up in global markets while losing sight of local conditions. This is not the Valley. Working in Portland “Portland-style” means melding technology industry aspirations with local and regional goals. The Portland brand can create purpose for the tech sector, and can be used to guide organizational decision-making, reframe strategy, and provide a unified approach to doing business in which both firms and places thrive.14

Second, the tech industry wields more than just enormous purchasing power—they have lots and lots of data. The future of the brand, as well as the ability of tech firms to leverage its value for business gains, depends on the ability to unlock the full potential of big data. Big data can be used as a rich source of innovation—a way to identify and commercialize breakthrough ideas and create new markets. Data can inform the brand, which subsequently creates more value for the end-user, creates platforms for collaboration, and new insights on local innovation that continually evolve and improve the brand. However, it’s important to keep in mind that even while big data can help brands understand who their customers are today; it’s less useful in predicting what those customers will want in the future.15

In sum, we’ve discussed only a few keystones of the Portland brand: a connection to the natural environment, urban “livability,” a bootstrapping maker culture, and a city that works differently. What are we leaving out? And how can what we’ve presented here help Portland’s emerging tech industry use the brand to create value for the end-user? These questions are addressed at various capacities throughout the remainder of this report.

15 Ibid.
To inform work here in Portland we looked at competitor regions from across the United States. We selected Metropolitan Statistical Area (MSA) regions that were similar to Portland in size or stage of growth—either where we are or where we are going. Our final selection includes four regions that are in the growth stages of technology industry development comparable to Portland—Pittsburgh, Salt Lake, Denver/Boulder, and Austin—along with two regions that are in the developed stages—Seattle and San Francisco/San Jose.
Several themes link these regions; the most important are a university-educated labor force, a range of opportunities for recreation, diversity and a socially progressive atmosphere, and some degree of an established tech sector. One divergent theme was the different ways growth has occurred in the tech sectors. The challenges facing each area, however, are as diverse as the areas themselves.

One common element among the regions is a highly educated populace that is often anchored by one or two major universities. Not only do these universities provide education for the people of the region, they also act as catalysts for ideas and research that often lead to new companies. Each region has its own flagship university with ambitions of becoming the next hotbed of innovation.

Another common theme is easy access to natural and cultural recreational opportunities. Mountain recreation opportunities are highlights of the Denver/Boulder, Pittsburgh, Salt Lake City, and Seattle regions while the music and performing arts scene is a major staple in Austin and Seattle.

The rising millennial generation is on the forefront of social change, leading the liberal movement, and each of our selected regions is notable for its acceptance of liberal ideals and principles. Even the conservative Salt Lake region is marked by Salt Lake City’s rapidly liberalizing political culture. Meanwhile, Seattle and Boulder are often looked to as leaders in the progressive movement. This progressive culture is often reflected in the transportation networks of the regions that emphasize a focus on walking, biking, and public transit.

Many of the regions have a well-established tech sector anchored by large corporate campuses. Seattle, Denver, and Austin each have the headquarters of at least one major tech company, while all five regions have satellite offices of multiple large tech companies. The presence of these national and worldwide players is accompanied by large numbers of locally grown tech companies at varying stages of growth.

The way these regions’ tech sectors have grown differs in each case, however. Boulder stands out among the regions as exhibiting a ‘bottom-up’ growth process—development was championed by individual groups or associations not affiliated with the state or city government. This is mirrored by similar organizations in Salt Lake, Seattle and TAO itself. Other regions, such as Denver, Austin and Salt Lake benefit from deliberate government efforts to attract large tech companies utilizing public/private partnerships to develop business parks, as well as offering other incentives. Both approaches have resulted in growth in the tech sector, each blazing their own path.

Challenges to tech growth exhibit some common themes, though each region’s problems are unique. Funding for new start-ups is something of a shared issue, with some areas much more limited in their funding opportunities than others. Consternation associated with gentrification and cultural clashes has plagued some of our selected regions. Austin and Boulder have embraced their ‘weirdness’ and made it their calling card while others struggle to find the right balance between progressivity and respect for existing regional values and populations. The Silicon Valley is the poster child for these issues, while other regions like Salt Lake and Seattle also struggle with integrating the new millennial culture into their existing ethos.
Pittsburgh is the central point of the seven-county Pittsburgh Metropolitan Statistical Area (MSA). Historically, the region was the heart of American manufacturing. Indeed, between the War of 1812 and the collapse of the steel industry in the United States, Pittsburgh was synonymous with that industry. Today, Pittsburgh is emerging as a tech powerhouse, with a focus on cybersecurity and robotics.

This trend is augmented by strong tech programs offered at both Carnegie Mellon University (CMU) and the University of Pittsburgh, which bolster Pittsburgh’s focus on biotech, robotics, and computing. CMU has solid connections to technology-based research through CyLab, the CIO Institute, and their very own Intel Research Lab all located on campus. CIO Institute offers programs for business-technology executives and CyLab is an international leader in cyber security research.

While Pittsburgh’s tech industry is still in the early stages, it is rapidly growing. Google has been in Pittsburgh since 2006, and has ramped up their presence in recent years. In 2010, Google moved from their offices at CMU to an expanded facility in Bakery Square. Picking up on Pittsburgh’s steel industry roots, the tech giant renovated a defunct Nabisco factory in the East End, keeping many of the original factory elements, incorporating them into the design and branding of their offices. The office has expanded many times since and is now over 200,000 square feet.

Google’s website touts Pittsburgh’s transformation:

“Isn’t Pittsburgh an industrial city? Only in old books and movies. Back in the day, this was a steel town, known for its smokestacks and smelters. Today, it’s a technology hubbed, a model for cities trying to transition from an industrial past to a knowledge-based future. Home to Carnegie Mellon and the University of Pittsburgh, the ‘Burgh produces some of the finest engineering talent in the world. It’s also one of the most livable places in the U.S. Don’t take our word for it, though. Ask Forbes and the Economist.”

LIVABILITY

As stated above, Pittsburgh is a very livable city and has been referred to as such in various rankings. An example of this notable livability, Pittsburgh was recently ranked the ninth most walkable city in the United States, considered an attractive amenity to young professionals. It is also home to Schenley Park, a 456-acre park with outdoor summer concerts and events. The city also connects to the Great Allegheny Passage, 150-mile trail through Maryland and Cumberland that is part of the Potomac Heritage Scenic Trail, perfect for those in need of an outdoor experience.

STRATEGY FOR TECH

Not long after the decline of the steel industry in Pittsburgh, the city started branding their turn around, focusing on tech research. In the 1990s, the city was branded as “Roboburgh” and it seems to be living up to the self-applied moniker. Pittsburgh is currently home to over 28,000 tech jobs, a number which is growing by about 3.8% annually.

The Technology Collaborative is an economic development organization representing the combined efforts of Pittsburgh Digital Greenhouse and the Robotics Foundry. It focuses on supporting a regional industry cluster focused on the advancement of electronics, cyber security, and robotics. The Robotics Foundry was formed in 2003, the result of a merger between various robotics centers in the region dating back to the late 1990s. The region was dubbed the “RoboCorridor” and stretches well beyond the City of Pittsburgh.

Pittsburgh Technology Council, a member-based trade association founded in 1983, is the largest technology trade association in North America. They host conferences, events, publish a newsletter, and created the Tech50 awards for innovative tech companies in the region.

Pittsburgh is also part of the Power of 32, a regional visioning process initiated in 2010. It includes a 32 county region that spans 4 states and resulted in Vision 2025. The vision includes industry driven education programs that which benefit the tech industry as well as the creation of a regional venture fund. Currently, there is about $35 million in venture capital available in Pittsburgh.

There is strong political will supporting the tech industry in Pittsburgh. Mayor Bill Peduto, elected in 2014, is touting the tech sector as a driving force for the economic future of Pittsburgh and the region.

BUSINESS CLIMATE

In contrast to most of the rest of the U.S., wages in the Pittsburgh region are increasing, especially in the tech industry, while cost of living is still significantly lower than...
the national average. Housing costs are particularly low, a compelling factor for those considering relocation. CMU and the University of Pittsburgh are more than simply pipelines of tech talent, but offer professional development for established professionals, which entices potential recruits. Google offers shuttle buses to CMU for employees who also teach at the university.

CHALLENGES

Pittsburgh is not known for diversity or progressive views on issues of equality. This could hinder employers' ability to recruit young talent. There is also a shortage of skilled workers, despite the presence of CMU and The University of Pittsburgh. The area still struggles with high unemployment.

TAKEAWAYS

△ Jump-start on branding (called “RoboBurgh” since the 1990s) and Rust Belt Rebound branding seems to be very compelling
△ Google and Carnegie Mellon anchor tech to the region.
△ Good livability and walkability, but not particularly progressive

The Salt Lake City/Wasatch Front region is an up-and-coming region for the tech sector with several home-grown and national companies located in the area. The Wasatch Front region can include the whole urbanized area from Brigham City in the north to Payson and Nephi in the south, but this report will focus mainly on the Salt Lake Valley and northern end of Utah valley.

Utah was first settled in the mid 19th century by the Mormon pioneers and has been home to several early tech firms including Novell, Word Perfect, and Caldera (developers of an early business-oriented Linux distribution). Semiconductor pioneer Fairchild Semiconductors operated a manufacturing and assembly facility in West Jordan until its 2014 closure.

The University of Utah, located in Salt Lake City, has played an important role in the development of computer generated graphics and is the home of the famous ‘Utah Teapot,’ one of the first computer-generated 3D models. Another product of the U is Ed Catmull, who completed his undergraduate and masters degrees in physics and computer science there before later co-founding Pixar. The U also has a large research park focusing heavily on biomedical research.

Several large tech firms including Microsoft, eBay, and Adobe currently have locations in the Salt Lake area. The hardware side of the sector is alive and well with the IM Flash plant in Lehi, Utah, churning out NAND flash chips for USB drives and camera memory cards.

LIVABILITY

The Wasatch Mountains are home to numerous recreational opportunities including hiking, mountain biking, and, in the winter, skiing and snowboarding. There are four ski resorts within 30 to 45 minutes of downtown Salt Lake. In addition the immediate recreational opportunities, the Salt Lake area is close to the picturesque red-rock deserts of the Colorado Plateau, home to all five of the state’s National Parks.

Downtown Salt Lake City has a rich cultural heritage, dating back to its pioneer days and an emerging culture that is much more modern and progressive than the surrounding areas. Historic Temple Square draws millions of visitors a year to view its iconic structures and beautifully kept grounds. The arts scene is alive and well with the Utah Symphony and Opera, Ballet West, and numerous acting companies, along with a new Broadway-level performing arts center under construction on Main Street.

While Utah is known for its conservative political leanings, Salt Lake City proper (like many other urban areas) has become a liberal enclave with a flourishing nightlife and relatively progressive attitudes towards the LGBT population. This progressivism is also exemplified by the city’s recent investments in cycling infrastructure and the GREENbike bike share program. The Utah Transit Authority has recently completed a drastic expansion of its TRAX light rail system that links many of the suburbs within the Salt Lake Valley to downtown, the U, and the airport. TRAX is augmented by the recent completion of the first two...
phases of its FrontRunner commuter rail line linking the major communities along the Wasatch Front. However, Salt Lake City is considered only average in terms of walkability.

Salt Lake is a relatively inexpensive place to live; while the cost of living in Salt Lake City proper is 3.2% higher than the national average, it is significantly cheaper than the Bay Area. It is worth noting that Salt Lake’s suburbs have even lower costs of living. This relatively modest cost of living is also reflected in a lower average wage in the Computer and Mathematical Occupations of $71,600 compared to California’s $95,320 or Oregon’s $75,920.

**STRATEGY FOR TECH**

There are two technology associations working to make the area better for tech businesses. Silicon Slopes started as an organization to promote the tech community and has become the unofficial brand for the area (especially the southern end of the Salt Lake Valley and the northern end of Utah Valley). The Utah Technology Council is a statewide organization that strives to grow and protect high-tech companies and has been an instrumental advocate for the tech sector in many state policy decisions. Both provide networking structures for fundraising and other business growth opportunities.

**BUSINESS CLIMATE**

The state of Utah is very business friendly for many types of business including the tech sector. The overall business climate, combined with tech infrastructure, technology alliances, and funding opportunities makes the Salt Lake region fertile ground for companies to grow.

The Salt Lake area has decent internet coverage region-wide with a few high-speed enclaves. The urban area is covered by Comcast cable and CenturyLink DSL, both of which offer multi-megabit per second connections to the majority of customers. Several cities in the region banded together in the last decade to create a municipal fiber broadband network called UTOPIA, offering symmetrical 100 megabit per second speeds to residents and businesses; however, this network has been fraught with difficulties and setbacks and has an unclear future. To the south, Provo (home of Brigham Young University and the former headquarters of Novell) has seen the buyout of their iProvo municipal fiber network by Google Fiber, which now offers high-speed access at more competitive pricing.

One local star of internet connectivity is XMission, a local ISP and colocation provider that has been in the headlines recently for standing up to warrantless requests for data by government agencies. XMission also provides free wifi in several locations across Salt Lake City itself.

Utah also has a decent range of funding opportunities available, including over 30 venture capital firms that helped the state rank 11th in the nation for venture capital amounts in a 2013 study. The state government also provides assistance in the form of the USTAR program that aims to help create startups out of research performed at state-funded universities. Towards this end, the state created the Technology Commercialization & Innovation Program with a total of $1.4 million available for grants in 2015 to help bring such research to market.

**CHALLENGES**

One of the greatest challenges facing the Salt Lake region is the cultural clash between progressive Salt Lake City and the conservative surrounding suburbs. There seems to be an us-versus-them mentality between the two groups that can lead to tensions when Salt Lake City tries to enact progressive programs. The overall conservative slant of the state can also block progressive issues at the state level.

These dynamics have resulted in a more dialogue-minded approach from liberal groups that has enabled them to gain traction on some issues without completely antagonizing the conservative majority. This model of cooperation could provide an example for other regions mired in debates between a liberal city center and conservative suburbs.

**TAKEAWAYS**

- **Work with state government and local universities to commercialize research efforts.**
- **Work with local agencies to both brand and protect natural amenities—mountains, deserts, wilderness areas, lakes and streams, and winter sport opportunities.**
- **Advancing a liberal agenda in a traditionally conservative socio-political environment requires collaboration, not competition.**
DENVER & BOULDER

The Denver and Boulder regions have become synonymous with technology innovation and entrepreneurship. Historically ranked highly in terms of health, recreation, and livability, in recent years both are regularly named top regions for start-ups and young entrepreneurs by industry experts. This evolution can be traced to the 1970s. The development of the Denver Tech Center (DTC), an 850-acre suburban business park, resulted in low rents and increased availability throughout the region. These favorable attributes attracted and retained technology giants including IBM, Oracle, AT&T Broadband and Lockheed Martin.

Initially dominated by cable, hardware, aerospace and energy, Denver and Boulder have recently experienced a shift towards the software and bioscience sectors. IBM and Ball Aerospace relocated to Boulder during this time, while their growing natural foods movement saw the formation of companies like Celestial Seasonings. These independents branched out in the 20 years that followed to fund and start software, data services, and biotech companies.

Denver and Boulder boast the first and fourth highest concentrations of residents with a bachelor’s degree in the U.S., respectively. The University of Colorado campuses in Denver and Boulder are major hubs of innovation and pipelines of talent. In addition to these major universities, 40 additional colleges and universities are located within 50 miles of each city center. Boulder is also home to the National Center for Atmospheric Research and the National Institute of Standards & Technology.

This combination of technology firms and university anchors is responsible for the first wave of startups in the 1990s that set the foundation for the growth seen today.

LIVABILITY

Lower real estate and construction costs for residential and commercial space, coupled with comparable salaries to other tech regions make both Denver and Boulder appealing. The region’s progressive political orientation also contributes to desirability for young tech professionals. Colorado has been among the first states in the nation to push for environmental regulations, renewable energies, gay rights, legalized marijuana.

Denver has moved away from the business park model, developing districts like LoDo and the Downtown to be dense and vibrant multi-use areas with numerous tech startups. Approximately 11,000 millennials have moved to the Denver Metro area every year since 2006, more than any other city in America. While Boulder is less urban with fewer opportunities for live-work zoning, their downtown is full of creative brick and timber office spaces mixed amongst eclectic shops, craft breweries, bike shops, and natural food stores such as The Pearl Street Mall, four city blocks of shops for pedestrians and bicyclists only.

The multiple options in both regions for dining, nightlife, shopping, and entertainment close to where people live and work is highly appealing to employees and startups. The expanding Metro public transit system that serves Denver and Boulder, access to an international airport, and planning that reflects a priority for walkability and bikeability, are also valuable. Denver recently ranked 14th in walkability, the lowest rank considered “Moderate Walkable Urbanism”. However, it is the only metro included in this report that is expected to improve, ranking 9th on future walkable development.

Equally important to the livability of these urban centers is the climate and natural beauty of Colorado. Denver and Boulder have mild winters and summers, minimal rain and snow, and more than 300 days of sunshine per year. The area is known for the adjacent Rocky Mountains, rivers, and trails that are a short distance from Denver and Boulder. Outdoor enthusiasts can spend their weekends hiking, snowboarding, trail riding, camping, rock climbing or any number of such activities.

TECH STRATEGY

The state of Colorado is committed to developing a 21st century workforce at the regional level, attracting workers and startups while developing a talent pipeline to sustain their success. In 2012, The Colorado Workforce Development Council launched Sector Partnerships, an initiative that involves employers from the tech industry with education, training, and support services groups to create and strengthen career pathways within each region. The Colorado Technology Association is also very active in supporting regional groups and projects, as is Built in Colorado, a start up tech community run by and for Denver and Boulder startups.

Denver’s city government is active in developing the technology sector and attracting seed money for startups. These efforts include the development of the Denver Capital Matrix, which lists more than 400 funding sources for startups, as well as facilitating Denver Start Up Week and the Citywide Business Plan Competition.

Boulder exhibits a much more bottom-up approach to growing its technology sector. The region has no single slogan, but several such as “Location is Everything,” “Quality of Life,” and “A Magnet for High Tech Start Ups”. This diffuse branding reflects the litany of groups involved outside
of city government. In 2006, local entrepreneurs created TechStars, a business boot camp designed to recruit and provide a training ground for new talent. Dedicated to creating 10 Internet companies a year, participants go through an intensive 90-day program with access to an established entrepreneur that prepares them to seek seed funding.

A monthly Tech Meetup was established, providing additional opportunities for collaboration within the tech community. Attendance at these meetings quickly exploded, as did the formation of conferences like Ignite Boulder and Boulder Start Up Week. Boulder’s first-in-the-nation status in terms of startups and patents per capita is bolstered by the fact that entrepreneurs that start there typically stay there.

BUSINESS CLIMATE

Denver and Boulder have branded their regions as new, progressive and collaborative places, fostering innovation that stands in contrast to the more restrictive, conservative, and costly Silicon Valley. With median ages of 35 and 28, respectively, they focus on attracting millennial talent. Together, they boast more than 70,000 high tech workers, accounting for 4.5% of the workforce in Denver and 15.4% of the workforce in Boulder. Boulder is also home to the heaviest concentration of software engineers and patents in the nation.

The Downtown Denver Partnership is a non-profit business organization focused on promoting, marking, and tracking the successes of downtown startups. In 2013, Denver added 80 startups, bringing their total number to 373. Thirty-nine of these startups raised nearly $200 million in venture capital.

“Downtown Denver is the place that creative, innovative and passionate people want to be to grow their startups. The center city has an incredible entrepreneurial energy that invites people to get engaged and think big, and we will continue to provide the resources and tools that help entrepreneurs and startups succeed in our community.” – Tami Door, DDP CEO and President

CHALLENGES

Like other areas with a substantial tech sector, Denver and Boulder have experienced an increase in real estate prices. While rent per square foot is nearly three times less in Denver than San Francisco, rent for office spaces in LoDo have gone up 10% in the past year. Similar and more extreme trends are impacting Denver’s residential real estate. Businesses in Boulder, where rents are already high due to a lack of supply and zoning flexibility, are scouting locations in Denver and surrounding areas to relocate. Both of these scenarios have impacts beyond the tech industry as they threaten existing communities with dislocation and gentrification. North Denver, once predominately Latino, is seeing a shift in its neighborhood. Locals and their shops are priced out by development and tech workers, a situation for which no solution has been found or implemented.

TAKEAWAYS

△ Build a serviceable workforce
△ Affordability is key
△ Location is everything
Located on the eastern edge of the American Southwest, Austin is the capital of the state of Texas. The city dates back to the 1830s, when the first Anglo-American settlers arrived in the area, then part of Mexico. In 1837, settlers founded the village of Waterloo on the banks of the Colorado River, the first permanent settlement in the area. By 1839, Waterloo would adopt the name Austin and the frontier town would become the capital of the Republic of Texas. The City is named for Stephen F. Austin, the “Father of Texas.” The city grew throughout the 19th century and became a center for government and education with the construction of the Texas State Capitol and the University of Texas at Austin. After a lull in growth from the Great Depression, Austin resumed its development into a major city and, by the 1980s, it emerged as a center for technology and business.

The University of Texas at Austin is a state research university and the flagship institution of the UT system. Founded in 1883 as “The University of Texas,” its campus is located approximately 1 mile from the State Capitol. UT has the fifth-largest single-campus enrollment in the nation, with over 50,000 undergraduate and graduate students served by over 24,000 faculty and staff. The university has been labeled one of the “Public Ivies,” a publicly funded university which provides a quality of education comparable to those of the Ivy League. Thousands of graduates each year from the engineering and computer science programs at the University of Texas at Austin provide a steady source of employees that help to fuel Austin’s technology and defense industry sectors. One distinguished alum, Michael Dell, founded Dell when he was student at UT Austin.

**LIVABILITY**

The culture of Austin is well documented. Austin is considered “The Live Music Capital of the World,” a reference to the many musicians and live music venues within the area. Austin’s music scene is enabled by the many nightclubs on 6th Street and an annual film/music/interactive festival, South by Southwest (SXSW). The concentration of restaurants, bars, and music venues in the city’s downtown core is a major contributor to Austin’s live music scene. Indeed, the zip code encompassing the downtown entertainment district hosts the most alcohol-serving establishments in the U.S.

The longest-running concert music program on American television, Austin City Limits, is recorded at The Moody Theater. Austin City Limits and C3 Presents produce the Austin City Limits Music Festival, an annual music and art festival held at Zilker Park in Austin. In addition to the music scene, the annual Austin Film Festival draws films from all over the world. In 2004 the city was first in Movie Maker Magazine’s annual top ten cities to live and make movies. Austin has a strong theater culture, with dozens of itinerant and resident companies producing a variety of work.

Additionally, Austin is well known for its outdoor recreation. The Austin Parks and Recreation Department received the Excellence in Aquatics award in 1999 and the Gold Medal Award in 2004 from the National Recreation and Park Association. Austin is known as a “clean air city” for the city’s stringent no-smoking ordinances that apply to all public places and buildings, including restaurants and bars.

Given this strong urban-outdoor ethos, it is odd that Austin ranks very low in terms of walkability.

Years before Portland usurped the slogan, Austinites championed “Keep Austin Weird”. This has become a de facto brand for the liberal bastion of Texas. It speaks to Austin’s sense of independence, a desire to protect small, unique, local businesses from being overrun by large corporations. This motto has not only been used in promoting Austin’s eccentricity and diversity, but is also meant to bolster support of local independent businesses, an important consideration for millennials.

**TECH STRATEGY**

There are two technology associations working to improve Austin for tech business. Microelectronics and Computer Technology Corporation (Microelectronics and Computer Consortium - MCC) is one of the largest computer industry research and development consortia in the United States. Member companies bought shares in MCC and chose to participate in one or more of four programs that covered seven main research areas; software technology, semiconductor packaging, VLSI computer-aided design, parallel processing, database management, human interfaces and artificial intelligence/knowledge-based systems.

More than twenty companies joined MCC. Later participants included Microsoft, Boeing, GE, Lockheed, Martin Marietta, Westinghouse, 3M, Rockwell and Kodak. Since MCC’s founding, Austin has enjoyed a high-tech boom. IBM, Dell Computer, Texas Instruments, Tracor, Sun, Motorola, Intel, Advanced Micro Devices, Rolm, Tandem and many other companies have chosen to establish or expand operations in the Austin area. Another association, the SEMATCH semiconductor R&D consortium, attempt to accelerate its members’ success by addressing challenges in semiconductor manufacturing technology. SEMATCH have built a global network of alliances with equipment and material suppliers, universities, research institutes, consortia and government partners to leverage resources, foster innovation and sustain manufacturability. Meanwhile, Austin adopted the moniker “Silicon Hills” in the 1990’s.
BUSINESS CLIMATE

The region’s rapid growth has led Forbes to rank the Austin metropolitan area number one among all big cities for jobs for 2012 in their annual survey and WSJ Marketwatch to rank the area number one for growing businesses. By 2013, Austin ranked No. 14 on Forbes’ list of the Best Places for Business and Careers (directly below Dallas, No. 13 on the list).

CHALLENGES

Funding for high tech companies in Austin largely depends on economic conditions, which makes access to capital inconsistent.

TAKEAWAYS

△ Leverage unique cultural attributes
△ Tech associations are critical for industry growth
△ Tech legacies (such as Dell or T.I.) pay dividends

Seattle, like most Pacific-Northwest settlements of the 1850s, primarily focused their economic efforts around the export of timber. The adjacency of Puget Sound made Seattle a focal point for the export of lumber to rapidly expanding San Francisco. This flurry of export activity lead to a tiny boom in Seattle, though nothing compared to the Yukon gold rush of the late 1890s. Opportunistic men equipped themselves in Seattle for their expeditions, generating another economic boom for the fledgling city. This cemented Seattle as the premier city in the Pacific Northwest.

The University of Washington provides the city a pipeline of 250 top-notch computer science graduates annually. Considered the sixth-best computer science undergraduate program in the nation, UW graduates often elect to remain in the Puget Sound Region.

Seattle, along with the greater Puget Sound region is, in many ways, synonymous with the high tech sector. From the sprawling campus of Microsoft in Redmond to the garage startups which mirror Bill Gates’ post-Harvard-drop-out pipe dream, the Puget Sound region stands among the giants of tech. Seattle’s home grown tech giants such as Amazon and Zillow are growing into dominant players in their field. Meanwhile, Silicon Valley icons such as Google and Facebook move to the city to pick up talent from Seattle’s stable of tech workers. These companies, and many more like them, have come to Seattle to take advantage of the strong cloud computing cluster which has formed in the city. Estimates have pegged the value of Seattle’s cloud computing firms in the billions of dollars.

LIVABILITY

Seattle’s livability might be most meaningfully encapsulated by Hewlett-Packard Vice President of cloud computing, Bill Hilf. He observed of tech players in Seattle “The only thing driving anyone away from here is the weather”. That is to say, Seattle has a lot of what high tech workers want.

Coined by Richard Florida, the “three T’s” of technology, talent, and tolerance are all measures to assess the creative environment for cities, and Seattle is endowed with all of them. The region has one of the nation’s highest levels of educational attainment. Over 35% of residents over 18 years of age have at least a bachelor’s degree, and almost 70% have at least some college training or their Associate’s degree.

The outdoors have been a strength of Seattle for some time. Take, for example, that venerable outdoor recreation retailer REI was founded in the city in 1938. Seattle boasts numerous bodies of water close by, each of which provides opportunities to kayak, and water ski or just go for a dip. Meanwhile, adjacent Mt. Rainier offers hiking and mountain climbing. Ski and snowboard resorts are located between 118 and 129 miles in virtually every direction from the city.

Seattle takes pride in its history as a center of musical expression. The city boasts 80 live music venues and is the home of alternative music festival Bumbershoot, which draws visitors from across the nation. Seattle also boasts a strong, unique network of neighborhoods providing...
residents variety in their choice of amenities when selecting a place to live. Seattle’s restaurant scene has garnered attention from tourist publications across the nation.

Tolerance in the city is exemplified by the outcome of Washington’s 2012 election. Washington was among the first in the nation to reverse the trend of same-sex marriage ballot initiatives, making the practice constitutional. Meanwhile, 2012 voters also legalized the use and possession of recreational marijuana.

Seattle benefits from bold leadership in their efforts to mitigate the impacts of congestion on the region. This strategy includes a light rail plan, which will link vibrant areas with the central city. Already, the city boasts a link from downtown to Sea-Tac International Airport as well as a line under construction, which will connect to the University District. Additionally, the region has plans to add streetcar lines within Downtown Seattle. Bicycle infrastructure has been a point of emphasis as well. Within the city, bikeways link neighborhoods throughout while the 2014 Bicycle Master Plan calls for additional investment intended to help residents of the central city with outlying suburban employment centers. Seattle’s walkability ranks 6th nationally and is considered highly walkable urbanism, a trend which should continue with future development.

**TECH STRATEGY**

Within the City of Seattle, 75% of residents enjoy connection to the internet. Meanwhile, the City government has undertaken efforts to encourage competition between internet providers in order to ensure high speed internet access throughout the city.

The Washington Technology Industry Association, based in Seattle, heads up the efforts of advancing tech in the State. Their efforts include lobbying lawmakers in Olympia to fund STEM education in the state, both on the K-12 and University level. A less industry-centric organization, Society for Information Management - Seattle Chapter, meanwhile, is focused on how IT workers might give back to the community. Their events include networking for IT professionals as well as lectures, which explain potential benefits IT might provide to society at large.

**BUSINESS CLIMATE**

Washington State has made a concerted effort to make the general business climate there the most friendly on the West Coast. Forbes Magazine cites the efforts the state has made to reduce “red tape” by adding the Office of Regulatory Assistance. The effort has paid off, yielding Washington the highest rate of businesses openings per capita in the last three years.

**CHALLENGES**

Venture capital in Seattle itself is limited. Only one venture capital firm, Madrona, calls Seattle home and while their portfolio includes 50 tech firms, the vast majority of venture capital comes from Silicon Valley. This means that most startups based in Seattle are forced to search for funds outside of their local market.

**TAKEAWAYS**

- The presence of local capital is crucial
- Tech history should be leveraged where possible
- Utilize and augment local tech pipelines (universities)
THE BAY AREA

The city of San Francisco, situated on a bay in the center of California, has been a focal point of human commerce for centuries. San Francisco was a magnet for migrants looking to find riches in the 1849 California Gold Rush, an event which announced the city’s arrival on the national stage. In the meantime, the city has experienced devastating earthquakes and enlightening cultural expression, all the while economically prospering with big businesses and entrepreneurs alike.

The Bay Area has carved out a name for itself that is synonymous with technological innovation. Stanford University has served as a catalyst for the sense of innovation and entrepreneurship in the region. David Packard and William Hewlett, Stanford graduates, first established their electronics company in 1939 in a garage in Palo Alto. This became known as the “Birthplace of the Silicon Valley.”

Another crucial moment in the startup scene was one dispute in 1957 between disgruntled employees of Shockley Semiconductor and the namesake business owner. Eight employees, later known as the Traitorous Eight, left the company to form Fairchild Semiconductor; soon after, several other employees left Fairchild, and so on, until 65 new enterprises were born from Fairchild Semiconductor over the following 20 years, including Intel. These companies and the people who started them, called Fairchilders, were indeed the seeds of the tech industry in the region, and many permutations of Fairchild unfold today.

LIVABILITY

The Bay Area has arguably one of the most pleasant climates to live in in the United States, with average summer temperatures in the low-80s, winter temperatures in the mid-40s, and little precipitation. The region’s topography affords its residents a variety of tropes within a 90-minute drive: ocean, mountains, desert, and forest.

The region accommodates a wide variety of people and many different lifestyles. The demographic composition is diverse, with a minority-majority white population and large percentages of Hispanic/Latino and Asian. Same-sex marriage is permitted in the state of California, and possession of marijuana is decriminalized. This tolerant and diverse atmosphere has something for everyone, and creative class workers thrive in this type of environment.

Public transportation via Caltrain and Bay Area Rapid Transit provide excellent access to many parts of the region. In addition to public transit, several firms provide their employees with private mass-transit shuttles, including Google, Apple, Facebook, and EA. Many neighborhoods are walkable and bikeable, which helps afford people a car-free lifestyle.

The cost of living is high, but local wages have increased to compensate. In fact, real per capita personal income in 2012 was $57,600 in San Francisco MSA; when adjusted for the regional price parity, it was $44,800—over $2,500 more than Portland MSAs adjusted per capita personal income.

STRATEGY FOR TECH

The Bay Area offers a wealth of resources for tech entrepreneurs and new companies looking to locate to the area. San Francisco MSA ranked second after D.C. in its proportion of the population 24 or older with a Bachelor’s degree or higher in 2012—over 45%, and over 70% have at least some college training.

The most concentrated industries include information services, computer and electronics manufacturing, data processing, and professional/technical services. The major tech-industry clusters today include bioscience, environmental technology, computers and electronics, multimedia and telecommunications. Google, Apple, Facebook, Yahoo, Cisco, E-Bay, Oracle, Intel, Adobe, and IBM are just a few companies that have major operations in the region.

This critical mass of tech companies leads to no shortage of tech associations to advocate for the interests of the community. An excellent example of tech giving back to the community is the San Francisco Citizens Initiative for Technology Innovation (SFCITI). This organization spearheaded programs which encourage young women to pursue tech as a career and advocate for affordable housing. Additionally, SFCITI successfully championed income tax reform to reduce barriers to entry for potential start-ups.

BUSINESS CLIMATE

In a recent survey of 78 business leaders across the region, 56% described the region as a good or excellent place to do business. Views of the business climate itself was more mixed, 40% were satisfied while 27% were neither satisfied nor dissatisfied.

Venture capital (VC) has played a crucial role since 1995. Between 1995 and 2011, annual VC investments increased from about $500 million to just under $3 billion, and most of the growth came from high value-added sectors like software, semiconductors, and computer and peripherals manufacturing. This significantly changed the nature of new business formation.
The region's economic development efforts vary in focus. One strategy is to grow the region's firms instead of luring them from other places. Some regional partners are looking into an innovation-driven approach to economic development. Another area of focus is on the low- and middle-income earners, with workforce development strategies to prepare such individuals to enter higher-paying jobs and efforts to raise the minimum wage. Other strategies include strengthening the public education system and maintaining industrial lands.

CHALLENGES

While the Bay Area may be blessed with numerous amenities, a talented and tolerant populace, access to venture capital, entrepreneurial spirit, and concrete support from large institutions, it has a host of problems. Several challenges include the cost of living; housing affordability; income inequality; traffic congestion and inter-county travel; sensitive habitat degradation; loss of family-wage jobs.

These issues are in one sense related to the topography of the region. Mountains and water limit the nature of growth by concentrating it in smaller areas, such as the peninsula. This limit on land availability is a similar challenge that Portland faces. The urban growth boundary of Portland acts like the water and mountains of the Bay Area. However, other parts of the region, including South Bay and Contra Costa county, are the frontiers of urban sprawl.

TAKEAWAYS

△ Land scarcity can stymie growth
△ Proximity to natural amenities helps keep and lure talent
△ Spin-off success is key
BY THE NUMBERS

Four figures help to shed light on how each region stacks up against one another:

△ **FIGURE 1**: This shows real regional per capita personal income. The cost of living of each region varies significantly. By adjusting for this cost using a regional price parity index, we can compare the regions more accurately. Pittsburgh fares the best, with almost $50k per year. Portland falls behind Seattle by over $3k per year. (Bureau of Economic Analysis, 2012—in 2008 chained dollars.)

△ **FIGURE 2**: The proportion of the population with a Bachelor’s degree or higher is highest in Boulder and the Bay Area. Pittsburgh has the highest share of people with a high school diploma or less. Almost 70% of Portland’s workforce has at least some college experience. (Census Bureau, ACS 2013 3-year data.)

△ **FIGURE 3**: All regions increased in size between 2010 and 2013, but where did the increase come from? Pittsburgh experienced more deaths than births in this period, so most of its population growth came from out of the country. The Bay Area also relies heavily on international migration. Portland and Seattle had about the same components of growth, with more domestic in-migration occurring in Portland. (Census Bureau, Population Estimates 2013.)

△ **FIGURE 4**: How does the total population and the employed population compare across each region? The Bay Area and Seattle have the highest population. Pittsburgh and Portland have about the same population, but Pittsburgh has more people not in the labor force. (Census Bureau, ACS 2012 5-year data.)
In this section we highlight several key insights into the region’s technology workers to frame our discussion of their needs and preferences in future sections. We use an occupational analysis to decipher the unique composition of tech workers in this region, compare that composition to peer regions around the country, and discuss the demographic makeup of each occupation and the tech sector as a whole. Occupations are a useful way to analyze an industry’s workers because they offer insights into the type of work being done in the region and potential for developing communities of exchange and collaboration.
The region has produced high concentrations of web developers, as well as other tech occupations not easily categorized into standard classifications, a possible indication that the region hosts a high number of non-conventional tech workers. Software developers in the region tend to focus on systems software over applications. Portland’s occupational mix is more specialized than Austin or Denver, seems to aspire to be something like San Francisco, but presently has more in common with Salt Lake City than any other peer region. The region may be in a losing battle with Seattle to attract more programmers, software developers and managers. Finally, tech occupations in the region are far less diverse than the region as a whole; the White, Asian and male populations are disproportionately represented compared to the region’s total workforce.

Many of the region’s tech workers don’t fit standard occupational classifications.

The most highly specialized occupation in the region is actually the “all other” classification, with a location quotient of 2.55 (Figure 1). The location quotient compares the share of workers in an occupation in a region to the national share of workers in that occupation; a location quotient of 1.00 indicates regional employment in the sector is proportional to national employment. The higher the location quotient, the more highly concentrated the region’s workers are in that occupation. The Portland region has the highest location quotient of “all other” workers among all eight competitor regions. The “all other” bucket is not a small, miscellaneous category, either—it is the second largest tech occupational category in the region (Figure 2) with a relatively high median annual wage of $81,220 (Figure 3).
Two possible explanations shed light on this finding. First, the region’s tech workers might have job responsibilities that straddle multiple occupations to a greater extent than workers in other regions. For example, a software developer might also function as a manager, programmer or support specialist, a common scenario within smaller, less well-established firms. Secondly, tech workers in the region might have multiple jobs—either with different firms or as a self-employed freelance worker—that span multiple occupations. A part-time programmer might also work independently as a web developer.

Both explanations point to a dynamic, diverse skill set of regional tech workers, but also might indicate precarious and unstable job arrangements that have been attributed to Portland’s relatively weak labor market. Either way, if workers are willing to accept less stable employment—or actively seek it because it furthers their career goals—then this speaks to the region’s ability to attract tech workers for other reasons, such as social values, affordability, or other amenities. This “all other” concentration should be explored further to understand if there is an underlying principle to the way Portland organizes tech work, and tech jobs, that might offer a unique competitive advantage and contribute to the vitality of the local tech community.

Web developers are the single most specialized occupation in the region. Among the standardized occupational classifications, web developers are most highly concentrated in the region. Portland ranks third among the eight peer regions for specialization in web developers. The occupation is not very large, however—it represents just 5.7% of all tech sector jobs in the region. It is also one of the lowest paid tech occupations in the region with a median wage of $61,250 (Figure 3). Still, the high concentration of web developers indicates that the region has developed a competitive advantage in attracting these workers.

This may be driven by Portland’s strong presence of advertising and media agencies, but may also be complemented by high levels of freelance work in the region; both are common career options for web developers. With so much attention focused on software start-ups, it might be productive for the region to reflect on how web developers working in advertising and media might be linked into the software sector to provide a wider range of options for employment and capitalize on a deep local talent base.

Other growing and highly concentrated occupations include systems software developers, user support specialists, and managers. Software developers working on system software—as distinct from application
software—are the fastest growing and one of the most concentrated occupations in the region. This finding is consistent with views held by some that Portland has developed a competitive niche in the behind-the-scenes development of the systems underlying more the visible applications often created by Silicon Valley firms. This perception might also be driving down employment in software application developers; employment in this occupation decreased by 4% between 2003 and 2013 (Figure 2) and the regional location quotient fell from 1.94 to 1.09 (Figure 1).

The growth of support specialists is also consistent with a regional narrative: many firms are opening branch offices here to house support functions, often capitalizing on a highly educated population willing to accept wages lower than many competitor regions. User support specialists are the lowest paid tech occupation with a median wage of $44,710 that has dropped 13% since 2003 (Figure 3). The growing concentration of managers is a positive trend for a maturing tech sector—firms need experienced managers to move beyond start-up phases into sustainable growth. Managers are also the highest paid tech occupation with a median wage of $118,886 (Figure 3).

**Portland's occupational mix is similar to Salt Lake City and more specialized than Austin or Denver.**

It is useful to consider the region's occupational mix in the context of competitor regions (Figure 4). The Austin and Denver regions are more deeply concentrated in tech occupations overall and more specialized in software development than Portland, but there is less variation across tech occupations. Pittsburgh also has less variation than most other regions, but is far less concentrated in tech occupations overall.

The Portland region's occupational mix most closely resembles Salt Lake City. Both regions host a deep concentration of web developers and similarly minor concentrations in most other occupations. Salt Lake, however, boasts a greater specialization in programmers, while Portland skews heavily toward the "all other" category. This might indicate that Portland and Salt Lake have matured to a similar stage as a second-tier tech region, but are on different trajectories for future growth. Salt Lake is specialized in a narrower range of skill sets, focusing on strengths in web development and programming.

Due to an abnormally high concentration in the "all other" group, Portland's tech future is less clearly defined, yet possibly ripe with potential to capitalize on advantages conferred by new combinations of skill sets or unconventional working arrangements. A more eccentric mix of tech workers could be a competitive advantage for the region, but it also might indicate a need for local tech workers to improvise in the face of limited job opportunities. Either way, it would be useful to explore what Salt Lake City might be doing to leverage its high concentration of web developers into a sustainable regional advantage.

San Francisco's occupational mix might offer an aspirational goal for the Portland region. San Francisco's workers have a similar collective skill set to Portland, with high concentrations in systems software development, web development and managers. Yet San Francisco's overall specialization in tech is deeper and far more well-established than Portland. To match San Francisco's skill mix, Portland will need to attract more programmers and managers, and continue to develop a local talent base in systems software development.

Seattle, however, might present a barrier to achieving this goal. Seattle is more specialized in programmers and slightly more concentrated in managers. Because the region is similar to Portland in other ways—especially social and political climate—it is feasible that Seattle may be drawing programming and management talent away by providing a deeper labor market with more employment opportunities, especially with larger firms like Amazon and Microsoft that are headquartered in the region. The Portland region must reflect on its competitive relationship with Seattle to better understand the factors driving tech worker choices.

**Figure 5. Race/Ethnicity of Tech Occupations, Portland, 2010**

![Figure 5](image_url)

**DEMOGRAPHICS**

It is also important to understand the demographic composition of the Portland region's tech workers. Race, ethnicity, gender and age influence whether and how people choose to engage in a community, and even how connected they feel to that community. Further, systemic inequities disadvantage certain groups from attaining well-paying, rewarding careers like those in tech.

About 78% of tech workers are White, a similar share to the Portland region as a whole.
However, the distribution of people of color is drastically different than the region. Asians account for 4 percent of tech workers, yet only 6 percent of the region. All other people of color—Hispanics/Latinos, African-Americans, Native Hawaiians or Pacific Islanders, American Indian or Native Alaskans, or those of two or more races—make up just 7 percent of tech workers but make up 17 percent of the region as a whole. Only three occupations exhibit shares of people of color that are close to the regional share.

Web developers, network architects and network administrators are either 5 percent or 6 percent Hispanic/Latino, somewhat close to the 7 percent share of the region’s population. Web developers and network administrators earn below-average wages for the tech sector but well above the median wage for all workers in the region, and network architects are one of the highest paid occupations. It might be instructive to further explore the educational pathways and recruiting practices within these occupations to understand if they offer insights into strategies that can be replicated to bring more people of color into other tech occupations. It is clear, however, that people of color are not well-represented in tech occupations. Efforts to diversify the tech sector—such as TAO’s Center for Inclusive Innovation—are necessary if the tech community aspires to be a catalyst for social mobility and opportunity for historically disadvantaged groups.

The Portland region’s tech community is also disproportionately male. Women represent just 24 percent of tech occupations, and 30 percent of the tech industry as a whole. The representation of women in the tech industry has not changed in the last decade (Figures 7a, 7b). However, there is significant variation in the share of women across occupations. Systems analysts are 34 percent female, while programmers are just 16 percent female (Figure 6).

In an interesting corollary to race and ethnicity trends, web developers are one of the top occupations for women. It would be useful to study the educational and recruitment pathways that might make web development a more accessible occupation for women, as with people of color. Management might also present a compelling opportunity to increase the representation of women in the tech workforce; women already makeup 32
percent of tech managers, and managers are the highest paid occupation in the tech sector. Conversely, programmers, network architects and software developers are overwhelmingly male, and these occupations are also some of the most highly paid in the region. More insight is needed into the barriers women face to entering these occupations if the regional tech community is to be inclusive at all levels.

The age distribution of the tech workforce has changed in the last decade, but not in the direction one might expect given the influx of young migrants to the Portland region. The age distribution of tech workforce has skewed significantly older since 2003. In 2003, tech workers between the age of 22 and 35 made up 35 percent of the tech workforce (Figures 8a, 8b).

By 2014, that share has dropped to 22 percent. Younger women, in particular, are a smaller share of the workforce in 2014 than they were in 2003; women between the ages of 22 and 35 dropped by 10% to 7% of the tech workforce. Most of this change can be explained by the wider demographic trends of the baby boomer generation growing older and beginning to leave the workforce; the share of tech workers between 55 and 64 has doubled in the last decade. These trends largely hold true when removing the manufacturing-oriented tech sectors. The non-manufacturing sectors of software, internet, and data systems firms are only slightly older and less disproportionately male than the tech workforce in the aggregate.

The aging of the tech workforce has important implications. Middle-aged and older tech workers may be less likely to engage in industry events and informal networking if they have more established careers and family lives. Participating in the collaborative tech community may become more difficult for tech workers who are raising children and managing family life. If these tech workers continue to represent a growing share of the total workforce, it might detract from the vitality of the tech community.

Additionally, these experienced tech workers can offer important perspectives and contributions honed over years of experience and reflection. While there is much to be said for fresh perspectives—especially in the rapidly changing context of tech—the region’s tech community might consider how experienced tech workers feel about the accessibility of the tech scene given more constraints on their time, and the receptiveness of their perspectives by younger workers.

**PORTLAND’S UNIQUE TECH CULTURE**

**The region has historically fostered a collaborative and engaged tech community**

A common refrain is that tech needs to be in close proximity to a large research university in order to thrive. Yet great universities were not necessary for building a high-tech industry cluster in Portland, where two “focal” firms created spillover effects that contributed to high-tech industry growth. Tektronix and Intel contributed to the development of the sector in fundamentally different ways. Tektronix created a university-like R&D operation that encouraged innovation, networking, and creative problem solving. The R&D operation created many innovations, but the firm was not commercializing many of them.

As Tektronix declined from a peak of near-monopoly in their industry, layoffs in the R&D operation led to an outflow of talented and innovative labor into the broader Portland region. They brought the collaborative and innovative culture of the R&D department with them when they left Tektronix. Intel, by contrast, has tightly integrated R&D operations into their manufacturing processes. In part learning from Tektronix’s missteps around commercialization, Intel’s venture and R&D activity is firmly focused inwards. However, Intel is a magnet for international and national talent coming to the region, impacting the workforce and entrepreneurship in different and complementary ways compared to Tektronix.

As described by Mayer (2005), there are four key factors for the ‘innovation milieu, or the institutional and social environment within which innovation occurs in Portland. The four factors include related and competing firms, business support services, the political environment, and quality of life. The competing and related firms and the business support services developed out of Tektronix and Intel over time as a natural market function of thriving industries. The political environment played a role in securing tax breaks to encourage the types of capital investments we have seen from Intel throughout the region, and grew out of the long tradition of ‘intentional’ Oregonian politics.

Finally, quality of life is identified as a primary factor driving innovation in the Portland region, and it doesn’t just have to do with things like food carts and Mt Hood. It also specifically has to do with ‘collaboration created through informal networking’ occurring spontaneously throughout the Portland region. Spurred on by the innovation culture of Tektronix, this culture of informal networking continues to this day and has developed over time to accommodate a wide range of high-tech industries.

This is exemplified by calagator.org, where events, meetups, hackathons, and mentoring occurring in Portland are posted publicly, and by ePDX, which connects businesses and workers in the open source community. In an informal survey of calagator.org, it appears that at least one event occurs each day of the year and the events are put on by a remarkably wide variety of organizations. Because the region lacks a strong research university, and the Intel’s R&D and training are tightly integrated with their business operations, this informal networking acts as the surrogate for innovation generation in the region.

Anecdotal examples of the informal networking present in Portland being of real value to firms abound, but it is useful to highlight some to demonstrate this value more concretely.

**Self-selection has continued to generate a unique tech culture**

Portland’s collaborative tech scene is often cited as unique to the industry. Tech workers and firms in Portland are more likely to collaborate than compete. Rick Turoczy of Pie believes his peer-to-peer mentorship model depends on the Portland tech scene to thrive, because the techniques would likely seem too collegiate in other regions that are more competitive.

A supportive work environment is a top priority for most workers, but it is especially valued by Portland’s tech workers. Individuals seek not only financial achievement but also quality of life. Portland attracts tech workers through a culture of openness and tolerance, which many large metros have, but also through the strong network of experienced

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workers available for mentoring and collaboration. This is exemplified by the feelings expressed by Mozilla employees who recently moved to Portland.18 Mozilla values the network of existing Mozilla volunteers in the region (connected with the rest of the open source scene here), and will build their operations here on that existing base.

Mat Ellis of Cloudability notes that existing firms are willing to share access to their networks with newcomers, which amplified Cloudability’s success. He thinks it is rare for a region to view newcomers as adding value, rather than viewing them as new competition, making Portland uniquely able to harness informal networking as a source of value.19 In addition, startup firms that participated in the Portland Development Commission’s Startup PDX Challenge said that the informal networking of firms and workers allows for risk management and collaborative problem solving:

But cubicle culture did not suit them. They felt isolated amid a sea of people with clearly delineated roles helping a large insurance company run its business. The startup challenge offered a way in to a different experience.”This was a great way to be around other startups,”Vahle says. She values the monthly roundtables with her counterparts, where they discuss how to get their websites higher in Google searches, which technologies are useful in building their products, and how to tap into new markets.

No more than 20 feet from her desk, the Walker Tracker team has been selling their product to corporate wellness programs, a channel Vahle is pursuing as well. “It’s the knowing you’re not alone,”Vahle says. “When you leave corporate America and leave a steady paycheck and health benefits, it’s just a little unsettling, and it’s good to be around other people in the same situation. It reminds you that you need to be scrappy, that you need to push the boundaries.”20

The collaborative culture presents both opportunities and constraints

Portland’s collaborative tech culture is the most important asset to the region’s continued success in sustaining a strong tech sector. Collaboration and learning are critical to innovation, and Portland’s proclivity for openness and exchange can continue to facilitate new thinking and new approaches. However, as the tech sector matures and formalizes, it is possible that a more competitive, zero-sum ethos could pervade this collaborative community and undermine Portland’s unique advantage and differentiation. TAO must explore a range of strategies for continuing to support the culture of open exchange, sharing, and mutual learning.

TAO member firms should consider how their workplace policies and norms relate to this collaborative culture. Are employees provided enough time and resources to engage with their peers outside their own firm? Is collaboration with peers from other firms—not in direct competition with the firm—actively supported, not discussed, or discouraged? TAO firms might consider providing paid time off for employees that engage in local tech events, including both formal conferences and informal meet-ups and “hackathons” at the local brewpub. Firms should embrace a broad perspective on what constitutes a legitimate learning experience. TAO and its member firms might also consider creating events or providing spaces to host events.

TAO might also consider how it can support tech workers who are working in unconventional ways. Both within the tech industry and outside it, Portland is known for a high concentration of self-employed, freelance and part-time workers. This is both celebrated as an indication of the city’s independent culture and derided as an indication of a weak labor market with limited opportunities for full-time employment. Whether by choice or necessity, these workers must face more instability and precariousness than their full-time counterparts.

Yet, they are an essential element in what makes Portland a special tech community. Supporting these workers can range from simple actions like finding ways to provide them free or low cost working spaces or technological resources to more complex arrangements that attempt to extend some of the stability and benefits of full-time employment to these workers, such as subsidized child care or transit passes.

Informal networking provides both educational as well as entrepreneurial opportunities for individuals and workers from all firms in the region as a collective, socially generated resource. TAO should encourage employee and executive participation in informal networking, and provide support for events.

This informal network of tech workers is a self-reinforcing system that generates innovation and jobs. But how does Portland attract tech workers? As found by Schrock and Jurjevich, Portland’s ability to attract new young talent (young, college educated individuals) does not depend on available jobs, but instead on a self-selecting group’s willingness to pay for the quality of life they perceive to be available in Portland.21 In particular, they are willing to forego secure employment and higher wages in exchange for engaging in the social and political culture of Portland. As this process continues over time it is also self-reinforcing, like the innovation milieu. It produces an emergent political sensibility about work and the labor market, one that subordinates the pursuit of material gain in favor of meaningful and rewarding work, often through self-employment and entrepreneurship. TAO should encourage cultural engagement and entrepreneurial activity among its members’ employees; this is not a zero-sum situation.

Firms are willing to share access to their networks with newcomers.

18 “Mozilla and Portland’s New Tech Migration” Medium.com
20 Ibid.
The tech scene is part of the broader Portland culture

Portland’s collaborative tech culture is nested within and fostered by a broader culture of social experimentation and community engagement. Much of what makes Portland’s tech scene special fits within wider social norms and values in Portland. It’s easy to dismiss Portland’s eccentricity as an interesting or even simply amusing cultural phenomenon, but it does have a legitimate and important economic function in facilitating unique interactions and ideas that can lead to new ways of working and living.

As an organization, TAO should explore ways they can engage with and support Portland’s wider culture of experimentation and collaboration. One avenue would be to consider how TAO could lend support to local artists, who are often at the forefront of both reflecting on and activating the region’s social and cultural activities, such as First Thursday in the Pearl District or Last Thursday in the Alberta Arts District. One such organization is the Falcon Art Community, an organization that provides suitable living and working spaces for artists, facilitates interaction within the local art community, and helps artists find patrons for their work.  

Experimentation and collaboration isn’t limited to expressive arts, however; recent research has articulated Portland’s vibrant artisan culture and economy. A prominent local organization in support of this artisan economy is ADX, a membership-based cooperative that provides shared tools, space and education for Portland artisans. The Artisan Economy Initiative has documented the work of ADX and other local artisan movements extensively. TAO support and engagement with these unique cultural institutions may be an effective way for the organization to show their support for the regional culture of collaboration and experimentation.

TAO member firms can also play a role in supporting this broader culture. Employees need time and flexibility to participate in this culture of experimentation and exchange. Member firms might reflect on the extent to which their policies and organizational norms enable employees to participate in local culture. This is not simply a work-life balance issue; employees that are given enough time to engage deeply with local organizations and cultural activities are probably more likely to want to stay with the company and in the region, and are exposed to new ideas and ways of thinking they can bring back to the workplace to foster real innovation. More strategic firms might even put in place semi-structured activities that attempt to take what employee’s learn through their local cultural immersions and apply it to real business problems.

AFFORDABLE HOUSING AND TRANSPORTATION CHOICES

Affordability is one of Portland’s most important locational amenities

A literature review of knowledge worker preferences indicates that a variety of hard and soft factors attract them to a region. Hard factors include classic economic determinants such as career opportunities and housing affordability. Soft factors include cultural openness and local amenities. Throughout various studies, knowledge workers ranked hard factors over soft factors when it comes to location preference. Soft factors may still be appreciated, but they are secondary to jobs and housing. It would appear that this is less so in Portland, where workers rank outdoor recreation as a primary reason for living here. Still, affordable housing and transportation choices play a large role.

Knowledge workers are obviously not a homogenous unit with one set of preferences. Age and lifestyle lead to different housing choices within a region, with younger workers preferring the central city and older workers raising children in the suburbs. Yet regardless of lifestyle, housing affordability plays a central role for all knowledge workers.

The literature is supported with anecdotal evidence, as Portland’s affordable housing market is an oft repeated selling point among tech workers. Tilde, an open-source software startup, recently moved from San Francisco to Portland. All five of the co-owner developers rented in San Francisco, but four of them bought houses when they moved to Portland. Software engineer Tom Dale noted on his blog, “In Portland, my mortgage payment will be the same price as the rent I pay in San Francisco. The only difference is that, instead of sharing a small house with two other dudes, I can have a larger house to myself.”

Another Tilde developer noted that her mortgage payment is only half the rent she was paying in San Francisco. Elemental CEO Sam Blackman has lived in Portland his whole life, and cannot see why recent STEM graduates would consider living anywhere else. The culture, tech and otherwise, cannot be beat, and “the house will cost you half of what it does in Seattle.”

Tech workers are being priced out of homeownership in other cities. Many still

26 Survey responses.
29 “San Francisco, I love you but you are bringing me down.” July 8, 2013. Tomdale.net
aspire to be homeowners, and Portland’s housing market puts homeownership well within their reach. This is a significant financial and lifestyle benefit for tech workers in the region; it is likely as important as the oft-touted local amenities like the food scene and access to nature. The vibrancy of the local food and restaurant scene has even been linked to the availability of disposable income that results from affordable housing and transportation.

**Tech workers want a decent commute time and multiple transportation options**

Tech workers show a preference for regions with good walking, cycling, and public transit access. Proximity to work and commuting time are also important factors when deciding where to live. Interviews with local tech workers reflect this finding. Employees with eBay’s mobile branch frequently utilize the MAX or bicycle to work. “Bay Area burnout” is directly related to countless hours lost in traffic, which Portland workers rarely face. A reasonable commute time that can be accomplished multiple ways is a big selling point for tech workers.

A trend analysis of the residential location of tech workers in the metro indicates a movement toward transit connected blocks. Figures 9a and 9b below show an increase in tech workers in northeastern, central, and southeastern blocks of the metro. Yet many tech workers reside in the suburbs, where investments in mass transit remain low. A regional transit network is needed to better match the regional distribution of tech workers and tech firms. As more firms locate in dense transit areas, it is likely the number of employees residing near transit will continue to increase since proximity to work is an important factor for tech workers.

Tech firms have already begun to contribute to furthering affordable and sustainable transportation in the region. Firms themselves are providing amenities like bike facilities, and employees are finding ways to apply their valuable skills to technological solutions for transportation problems.

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33 Frenkel et al. (2013), op cit.

34 Interview with Kevin Hurst of eBay.

35 Interview with Rick Turoczy of Pie.

36 Frenkel et al. (2013), op cit.
Transportation planning is a field rich with data and modeling, so synergies with the software industry are almost unlimited. To help explore these opportunities, TAO might consider engaging with local experts and advocates, such as the Bicycle Transportation Alliance or transit planning guru Jarrett Walker.37

**Housing and transportation costs are still relatively low, but quickly rising**

Housing and transportation costs are key factors attracting knowledge workers to the region. Traditionally, the portion of income spent on housing and transportation is used to assess the affordability of housing and transportation. The ensuing analysis on housing and transportation examines these costs in relation to where knowledge workers reside throughout the region.

The number of households was categorized into quartiles and shown in Table 1. The first column is the average number of households in each quartile. The second column is the average housing and transportation costs as a percent of incomes. The third and fourth columns are the percent of income spent on housing and transportation respectively. The last two columns represent car ownership rates and number of transit trips for each category. Although, on average, the combined housing and transportation cost account for over half of incomes, the transportation component is only 22%- making transportation costs an attractive force for tech worker (see Table 1 below).

There appears to be a mismatch between housing and transportation affordability and location of tech workers. Although Table 1 shows that tech workers live in locations where households spend far less on transportation and make many transit trips, most are living in areas less connected by transit (Figure 9b).

Table 1. Housing and Transportation Costs
Table 1 here

Recent trends indicate that housing costs could rise substantially in the near term. A report released in October, 2014 by real estate research firm Marcus and Millichap demonstrated that despite historic levels of new apartment construction, vacancy rates will still end the year at 3.1%, one of the lowest rates of any metropolitan area in the country.38 This tight rental market will continue to drive rents up, in addition to the construction of a number of luxury apartment buildings. The report directly connects the strength of the tech industry in the region with explaining the continuing growth of rents and housing prices.

TAO and its member firms should reflect on how they can bring the strengths of the technology industry to bear on housing and transportation issues. These sectors are rich with opportunities to apply technological innovation to tough issues. On the housing side, Portland Mayor Charlie Hales recently announced intentions to apply a new form of housing stock—the tiny house, or accessory dwelling unit—to addressing homelessness, as has been done by the Opportunity Village project in Eugene.39,40

Smaller, more efficient housing options are also gaining traction in the private real estate market. Hundreds of homeowners have built accessory dwelling units in their backyards over the last several years, and two large micro-apartment developments are in the works.41 Affordable housing advocates are embracing these new housing forms as viable and important strategies for expanding the supply of relatively affordable housing in highly desirable neighborhoods.

TAO might consider partnering with this movement to explore ways that tech firms and employees can contribute to removing some of the barriers to advancing these housing innovations. A tech industry association in San Francisco has recently expanded their commitment to supporting affordable housing, both through advocacy efforts such as writing letters of support to reduce illegal evictions of low-income renters and through forming a committee to explore ways the organization can play a part in the local affordable housing movement.

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39 “Portland Plans Tiny Houses for the Homeless.” August 26, 2014. TIME.
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We heard over and over that Portland is not the Bay, or Seattle, and decidedly so. Our task then becomes to unpack what Portland is, according to the tech community themselves. What is Portland doing? What are we good at? We heard that Portland’s tech scene is evolving, and it is not singular: hardware, software, and increasingly life sciences and biotech firms, among others. Rick Turoczy described Portland’s tech scene as a “pickax culture…” We’re in the gold rush, but we’re not the ones out mining for gold. Rather it is a diversified market composed of established companies, as well as startups, and we’re the ones selling the pickaxes… so that all those gold miners can go strike it rich…” In other terms, Portland firms tend to play a supporting role via backend and platform product development, rather than developing game-changing products themselves.
Portland firms may not be the biggest or have access to the most capital, but they evoke a certain ethos that people want to be a part of. The Portland brand was characterized by several interviewees as a “craft culture.” That is, a culture that celebrates early adoption of innovations and reflects a home-grown flavor that typifies Portland products such as craft brews, food carts and hand-made goods. According to Laura Stepp of Puppet Labs, entrepreneurs in Portland want to build companies with their own hands, slowly, sustainably and solidly. In addition to craftsmanship, niceness, and collaboration, a spirit of social responsibility pervades the Portland tech industry.

The following chapter digs deeper into what makes the Portland region desirable or undesirable for tech workers and firms, how public policy can address current opportunities and barriers facing the tech industry, and how to build a brand that will survive the “Portland moment.” Following an initial meeting with Skip Newberry, Executive Director of TAO, our team developed an eight question survey to identify factors related to livability and employment in the region, and actions the public sector could take to advance livability in ways that may benefit the tech industry.

The survey was distributed by TAO to their Members in November 2014. One hundred twenty-seven (127) tech workers completed the survey.\(^42\) See Figure 1 for a breakdown of tech industries represented (non-tech workers indicated in red). We also conducted ten key informant interviews between October and November 2014 with the intent of learning about Portland’s tech cultures from those in the industry, and their perspectives on livability factors and tech’s future in the region. Full interview summaries and survey data are included in the appendices. Information presented in the following narrative was obtained through the survey and interviews conducted by the authors for this project.

1. THE PORTLAND LIFESTYLE

“We pursue employees who have goals that go beyond compensation. We’ve found it much easier to attract people who want to do well, get paid well, but also want to see their families, maintain a healthy lifestyle and do things other than work in their life.”

– Mat Ellis, Cloudability

Quality of life distinguishes Portland as a competitive region, and draws and retains talented knowledge workers. Urban amenities, outdoor recreational amenities, transportation, housing affordability, food, and beer and wine culture are elements of that quality of life. Over 90% of tech workers surveyed indicated that urban and outdoor recreational amenities were important factors in their decision to live in the Portland region.\(^43\) Nearly 40% of all survey respondents identified personal reasons and lifestyle factors as their primary reason for locating in the Portland region.\(^44\) Comparatively fewer tech workers rated factors related to employment in the tech industry as important to

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\(^{42}\) 168 total participants completed the survey, 76% of whom were employed in the tech industry. Those not employed in the tech industry were given a shortened version of the survey, which asked their primary reason for locating in the region.

\(^{43}\) See survey results for question 5.

\(^{44}\) 38% of tech workers surveyed identified “friends, family, or other personal reasons” or open-responses related to lifestyle factors as the primary reason for locating in the Portland region.
their decision to live in the region (44% vs. 72%), or as their primary reason to live in the region (20%). 45

“There are things that Portland can’t compete on, but [livability] raises our level of competitiveness. We don’t have Google and we don’t have Apple, but look at the lifestyle… people are more than willing—excited—to move here for that,” said Emily Barrett of Elemental. Knowledge workers increasingly recognize Portland as a viable place to build a career, as well as a life. Despite job and financing opportunities available in other markets, Portland is desirable to young urbanites to whom the tech industry caters, as well as those looking to buy a house, start a family and settle in for the long term.

“We’re starting to get this small trickle of Bay Area burnout,” Rick Turoczy of PIE explained. Since the Dot-Com days, Portland tech has become increasingly recognizable among tech workers around the country. “People don’t tend to come to Portland to work. They come to Portland because they like Portland… But we’re starting to develop [a] safety net now, where people are comfortable moving to Portland for a job… because they realize there are six or seven other jobs exactly like that in town,” said Rick. Keeping Portland’s tech industry competitive to existing and would-be talent, firms, and investors requires preserving and enhancing livability of the region. Given continued investment in livability here, the tech industry is predicted to grow in size and desirability.

2. A PLACE TECH CAN THRIVE

“Portland has a great track record for certain types of planning decisions and sustainability… we’re an early adopter to a lot… there is a desire to think and use Portland as a learning laboratory.”

– Joe Zehnder, City of Portland

It was evident in our interviews that tech workers respect the region and recognize that special things can happen here. There is a desire for tech to connect with the wider community, and a growing need for public investment and planning decisions to consider the tech industry. Vibrancy and livability of the downtown core emerged as key to creating and sustaining a place where the tech industry can thrive. Over the last several decades, Portland’s tech industry has migrated from the suburbs to the central business district and inner-lying areas, meanwhile transitioning from a hardware-focused to a software-focused industry. “…Livability of the core is what, I think, is driving the movement of tech to the downtown areas…,” said Rick Turoczy of PIE, which is located in the Pearl District.

Concentration of firms downtown means opportunities for talent mixing and collaboration. Workers are able to move more freely between the office and the immediate community- encouraging encounter, informal interactions, and networking. Amenities available in the downtown core (bike, transit options, restaurant/bar culture) attract tech workers, and produce a creative and collaborative environment on which tech firms thrive.

Clear interest in maintaining and enhancing the connectivity, vibrancy and livability of the core was expressed in surveys and interviews conducted for this project. A variety of strategies were mentioned in open-ended responses to what the public sector could do to advance livability in the region in a way that would benefit the tech industry. The following key themes emerged:

- Improve connectivity to the downtown core from outer-lying areas via investments in transportation infrastructure and transit services.
- Enhance walkability and bikability of the downtown core through provision of quality infrastructure.
- Ensure needs for commercial space are met, and a variety of options exist for incubators and coworking spaces.
- Increase housing stock, and affordable housing stock, available downtown via new housing projects and increased density.
- Address issues of homelessness downtown.

Aspirations to improve livability downtown reflect values of tech workers and the tech industry, but also their desire to contribute to the social good. Transportation, housing, and environmental policies suggested not only improve livability for tech workers, but also seek to address regional issues of equity and quality of life.

3. A CULTURE OF COLLABORATION

“There’s a broader sense of community that transcends the individual business.”

– Mat Ellis, Cloudability

Portland’s collaborative culture came up in almost every interview we conducted. We heard about ongoing meetups- particularly within the startup community- to share ideas and work together. We heard of CEOs engaging in joint problem solving, cooperating to get talent, and giving feedback and advice to each other. We heard that the Portland tech industry is not as cutthroat or combative as in other regions. We heard about fruitful partnerships that have formed out of informal collaborations. Mat Ellis of Cloudability discussed how the culture of collaborative, alive in Portland, led to success of his startup. Mat discussed how network connections help strengthen credibility of a startup to funders and to the tech industry at large.

Opportunity to work in a connected/networked tech community was important to 72% of survey respondents when deciding to live in Portland. Opportunity to work in a connected/networked tech community was rated as more important than any other employment-related factor. A culture of collaboration is not necessarily unique to Portland, however. “Maybe we got there a little sooner, but it’s going on down in the Bay Area… and in New York,” said Kevin Hurst of Ebay. While collaboration may be a hallmark of Portland’s tech scene, it is part of a larger story about diffusion of ideas and innovations, and generating mutual gains through collaboration.
4. INTERFACING WITH THE PUBLIC SECTOR

“...I don’t think technology companies have all the money or all the power, but they play a role in creating dialogue, or...encouraging new ways of thinking...”

– Mac Brown, Globe Sherpa

Despite the lifestyle appeal to tech workers and the connectedness within the tech community, Portland’s tech industry is vulnerable. Portland lacks anchor companies, besides Intel, that act as industry cornerstones, to help stabilize local markets. According to Mike Rogoway, tech writer for the Oregonian, Portland’s tech industry was hit harder than bigger, more diversified markets, during the “Dot Com Bust” because enduring companies had not yet been built. Relocation of headquarters in pursuit of needed capital and talent is also a threat. Tax policies in competitor regions may be relatively more attractive to tech workers and firms. When asked, only 38% of tech workers agreed that public policies favorable to the tech industry.

Consistent leadership from within the public sector is needed to ensure and enhance Portland’s appeal to tech workers and firms. Inconsistent political backing from City leaders, for instance, is linked to recent declines in startup activity and investing. Those interviewed for this project regard the tech industry as an important part of the region’s future. Growth in Portland’s tech industry likely means increased employment and potentially higher wages, expanding the tax base and benefiting the regional economy.

Policies to preserve and enhance quality of life are needed for Portland’s tech industry to maintain its edge and influential role in the region’s future. “The voice of tech should be louder and more influential on public policy around livability” said Emily Barrett of Elemental. She noted that there is “true authentic interest in using tech’s privileged place in the economy right now for social and community good,” evidenced by civic and corporate responsibility, and potential outcomes of partnerships between public sector organizations and tech firms (i.e., technology products, quality end user data, and educational programs). Public sector actors should capitalize on current momentum from within the tech industry to positively impact the greater community.

5. UNLOCKING LOCAL POTENTIAL

“...People are saying, ‘I’m going to build a business in Portland no matter what it takes, and no matter how hard it is to raise that money... because they have an appreciation for Portland’

– Rick Turoczy, PIE

When asked what the public sector could do to advance livability in the region in a way that would benefit the tech industry, over a quarter of all respondents mentioned tax reform and other pro-business strategies in their open-ended responses. It was noted that changes to tax structure have the opportunity to increase the region’s relative competitiveness for workers and firms. Capital gains tax reform, tax credits for relocated workers, SBIR-matching funds, State-sponsored “technology funds” and entrepreneurial programs, and tax incentives for redevelopment of blighted urban areas were mentioned by tech workers surveyed.

Other ideas included various policies and programs to attract venture capital, encourage startup ventures, and fund innovation and entrepreneurship. Exportation of profits from the region is a fundamental challenge. Even if a local company makes it big, returns will go to investors outside the region. Infusion of local capital emerges as an important aspect of a vibrant local tech industry, one which can be targeted by public sector advocates. Capital gains respite, for example, reinforces the cycle of local entrepreneurship by redistributing monies generated through capital gains tax to other local startup ventures.

To date, Portland’s “startup scene has never really completed the cycle” Rick Turoczy of PIE explained. “What makes [other markets] run really well is that [they] have entrepreneurs who get funded, do well, have a successful exit, and the financial gain from that liquidity event... [is reinvested] into the startup scene... it becomes this cyclical thing.” To prevent the cycle’s stall out, Rick continued, later-stage capital that is local is needed. “How do you create that kind of wealth, or attract that kind of wealth, that’s going to support later-stage companies from a venture capital standpoint?” he asked, “… We’ve never been able to do it before, but maybe this time’s the time that it can happen.”

Rick and others interviewed for this project acknowledged a sense of being afraid to fail and afraid to win here. There is a propensity to take mitigated risks, as success of the tech industry in Portland has been modest. “I think that’s where policy can be effective... in helping to unlock some of that capital, and that drives more tech activity,” said Rick. Unlocking local capital requires brand recognition- people invest in what they know, and a fear of “missing out” on big opportunities that Portland has to offer. Public partnership with tech firms, such as TRI-MET’s partnership with Globe Sherpa, enhances visibility of Portland tech products and elevates the Portland tech brand. The public sector should pursue opportunities to harness local potential. Doing so may open doors to later-stage capital and appeal to needed executive talent to take Portland’s tech industry to the next level.

6. TECH WORKERS OF TOMORROW

“You have to be able to hire the talent that you need... if you can’t, it doesn’t matter how good [Portland’s] wine [culture] is...”

– Emily Barrett, Elemental Technologies
7. PLANNING A LIVABLE FUTURE

“If people don’t want to live in a city it falls apart.”
– Mike Rogoway, The Oregonian

Workers and firms have a stake in maintaining livability in the Portland region. Eighty-eight percent (88%) of tech workers surveyed agreed that the tech industry should actively engage the public sector to enhance livability. “We want to have fun. We want to continue to make great products, and not be hamstrung by lack of parking, lack of transit services... We need to create a viable city where people can walk to things,” said Mac Brown of Globe Sherpa.

Issues of housing affordability, transit service and transportation infrastructure, and inequitable access to high-speed internet infrastructure were particularly salient among tech workers surveyed. Public policies that seek to provide a range of housing options, and reliable and efficient public transportation throughout the region will help Portland meet needs of growth while reaching goals of equity.

“I think that if you look at Oregon’s brand and what we’re about- things like the urban growth boundary, the big play into trolleys and mass transit- we’ve got a great start already… [to assure] that growth [keeps Portland livable],” said Kevin Hurst of e湾. “These are… awesome things and we need to not let off on doing [them].” Maintaining the region’s uniqueness and building upon its values are essential to success of the Portland region and the tech industry here. Preserving and enhancing quality of life through education, housing, transportation, and environmental policies will help secure an equitable, gainful and livable future.

Talent is either imported or grown. Talented workforces are essential elements of high performing markets. To date, Portland’s tech industry has relied on attracting knowledge workers from outside the region. In fact, 80% of survey respondents relocated to Portland from elsewhere, and over 50 survey respondents have been in Portland for less than five years. While infusion of outside talent increases workforce capacity, markets are best served by a quality local workforce.

Portland’s tech industry, however, is presently constrained by educational quality and opportunities. According to tech writer Mike Rogoway “Education is [a] constraint... and [lack of academic] research... [and] supply of employment.” Educational investments at all levels, particularly in STEAM fields, will build the workforce to continue powering Portland’s tech industry. When asked what the public sector could do to advance livability in the region in a way that would benefit the tech industry, educational investment was the most frequently given response—18% of tech workers mentioned educational investment in their open-ended responses. Connections with local universities, accessible vocational training for would-be tech workers, outreach to and investment in K-12 education, and recruitment of women and populations of color to the tech field were given as ways to address educational quality.

Improving education locally also appeals to would-be imported talent. “If you want to bring education population[s] to town... education for their kids is going to be the number one attractor,” said Laura Stepp of Puppet Labs. Although wages in Portland tend to drag behind other West Coast markets, cost of living and quality of life in the region give Portland an edge. Ensuring access to quality education will be essential to supporting the tech industry and creating a more livable future for all.

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47 80% of all survey respondents (includes tech and non-tech workers) identified as having relocated from outside the Portland region.

48 See survey question 6 for more information.
Every place wants to be livable. No community in America or the world is seeking to become less livable, healthy, or supportive. However, for some communities, livability has become a more important goal than for others. Portland is one such place. Though it hasn’t always been the case, the Portland region and the Willamette Valley more generally has, since the mid-1960s, been consciously and successfully pursuing the maintenance and enhancement of livability as a signature community goal.
To some degree, this pursuit of livability emblematic of the very nature of the northern temperate rain forest, one of the oldest continuously inhabited places in North America. This is and has been an abundant place for millennia, a particularly good place for people to live. Water, food, and materials can be found here in abundance today just as they were over 12,000 years ago for our earliest inhabitants.

That essential livability, forgotten for a time as industrialization turned the Willamette River into a biological desert and mid-20th century lifestyles contributed to air quality standards being exceeded 360 days a year, has been reclaimed in recent decades through careful, patient work. Oregon has become known for its innovations—bottle bill, beach bill, land use planning, energy conservation, alternative transportation, metropolitan government, and the list goes on—and most of those innovations are really innovations of preservation, steps taken to preserve and enhance what we found here rather than what we created.

Today, the livability of our region continues to attract a new generation of migrants. Positioned midway between ocean shores and mountain crests, the Portland metropolitan region has become a magnet for young, college-educated people seeking a livelihood and a life. Decades ago, Oregon economist Ed Whitelaw coined the term “second paycheck” to refer to the benefits conferred on Oregon residents by their landscape, access to landscapes and places that people in other places can’t have at any price.

Today, despite generally lower wages than other places, and the sense that underemployment is far too prevalent to keep young migrants here for their careers, the Portland metropolitan region continues to be a location of choice for those seeking access to a lifestyle matched to this place. Simply put, perhaps more than most places, livability continues to be an essential, maybe the essential defining characteristic for what makes being in Portland the right choice. People in Portland do have an extraterritorial sense of place and quality of life. It’s not described well by jurisdiction, but instead, better described by region.

The tech community in the Portland region wants to do the right thing. Seeing protesters blocking Google busses in the Bay Area, and now opposing the new Google campus in Boulder, stands as a reminder that the tech industry is viewed both as beneficial and as potentially detrimental to the very quality of life and livability that makes this region attractive to tech workers and others alike. By asking what needs to be done to develop and sustain the region’s brand so as to maintain the Portland area as a destination of choice for talented and creative knowledge economy workers, the Technology Association of Oregon is asking how it can be understood as a contributor to the long-term livability of this region, rather than merely as a consumer of the riches of this region.

This report provides a first step in developing a strategy for engaging the region, and for being understood as a committed steward for the region’s livability. Further work needs to be done to better characterize the brand, and for TAO, through it’s own discussion process with both members and external interests, to synthesize its own lessons from this and other information. Nonetheless, we do believe that this material provides a solid starting point and a number of clear lessons.

Generally speaking, the first step is to recognize that there is a Portland “way” of becoming a part of sustaining the livability of this place. In Portland, contributors to our livability and quality of life are:

- **ENGAGED** – policymaking occurs through engagement in public processes, where views get exchanged among a wide range of individuals and community interests. We meet, and meet, and meet again, and being part of the solution means not bypassing or ignoring the process.

- **COLLABORATIVE** – anything of consequence occurs through a partnership among public, private, and nonprofit sector actors. If necessity is the mother of invention, collaboration is the tool that has been required to move ideas from inception to construction. All good things happen here through partnerships.

- **ACCESSIBLE** – people in Portland don’t need to get permission to start things. The famous Nike tagline, “Just Do It,” could easily describe the ethos of like-minded residents of the region. Being available, accessible, and open to contact is a hallmark of effective people and organizations in this area.

- **AUTHENTIC** – the challenge here is not to become a better Silicon Valley, but the best “Portland” that this can be. This is not a race to become a bigger, faster, brighter version of somewhere else, but to build on the qualities of place and culture that have enabled this region to emerge in the first place.

More specifically, the following “lessons learned” emerge from our work to date:

- **COMPACT DEVELOPMENT, RESOURCE CONSERVATION, AND LIVABILITY** – Context matters. This region is committed to finding points of harmony and balance with the working and wild landscapes surrounding the metropolitan region. The urban growth boundary has specific legal meaning, and real cultural significance as a commitment both to the land resources that have made this an abundant place for millennia and to the notion of sustainability and the multigenerational commitment that comes with it. Location matters here, and the locational choices of firms have consequences. Some locations confer great costs on the public, while others do just the opposite. Where and how firms locate makes a difference, and it’s noticed. In the Portland region and in Oregon land use plans have specific meaning, and they matter. Though a piece of property may look vacant, it sits within a context already provided by history and plan, and operating consciously with respect to that context is important.

- **EDUCATION MATTERS, BUT OUR LOCAL PIPELINES ARE INCOMPLETE** – Competitor regions are currently our number one source for talented workers. Meanwhile, our own infrastructure for educating the next generation of creative, innovative, and marketable tech workers is undistinguished. Though every tree planting effort can use more volunteers, industries that seek the best and brightest need to be seen both as being attractive to talented people wherever they are
as well as contributing to making the best local opportunities available to local folks. Keeping the Portland region livable includes making the next generation of Portland residents competitive for the best jobs our economy has to offer. The fundamental question is about the breadth of the educational opportunities available here, not just about the narrower vocational interests of the tech industry. Though the needs of tech will and must be met, a broader commitment to a wider range of concerns, the humanities as well as the sciences, STEAM as well as STEM, is the context that has to be established.

**Leverage Local Success into Local Investment**

- Portland region firms tend to be small and as they grow, to be acquired and owned elsewhere. Finding ways to recycle economic success through the provision of investment capital and other support will be critical in the years ahead. Too often, unlike in our competitor regions, success means the movement of capital and talent to other places. We need to turn the tide on this trend, to make local success the catalyst for further local success, rather than a one-time celebration or momentary point of pride.

**Walk the Talk with Operations**

- Sustainability is a public value here and an important idea. It’s not easy being green, but it’s a challenge we aren’t willing to pass by. How firms operate, who they choose to buy from, how the operations of firms can address issues of income inequality and create ladders of prosperity for workers and supplier firms alike, are all visible manifestations of the promise to join in the struggle for sustainability. Leading the effort to lighten the footprint while advancing community objectives and helping to meet real social needs are vital ways to show commitment to what makes this place livable and different.

**Make the Portland Brand Part of the Organization Brand**

- Associating the values of the region for sustainability, being green, synergy with nature, and a commitment to the future with the brand values of TAO and of tech firms generally, helps to cement the relationship between being here as a matter of choice, rather than simply as a matter of convenience. The choice of Portland means something specific to residents and in-migrants alike. Reinforcing the validity and power of that choice helps to reinforce the notion that we are all in this together.

Again, we thank TAO for the opportunity to engage in this project. We found it to be an interesting, even exciting project, and hope that it helps to advance the efforts of TAO to be fundamentally engaged in the life of this region in an authentic and meaningful way.