Glendale Tech Strategy

A ROADMAP FOR GROWING GLENDALE'S TECH SECTOR

GLENDALE

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A Roadmap for Growing Glendale's Tech Sector

Letter from Advisory Group Committee
January 24, 2017

Glendale City Council
City of Glendale
613 E Broadway
Glendale, CA 91206

Dear Glendale City Council,

On behalf of the members of the Tech Advisory Council, we are pleased to present to you the Glendale Tech Strategy, a roadmap to guide city staff in collaboration with key stakeholders, in promoting a tech and innovation ecosystem in the City of Glendale.

The Tech Advisory Council, convened at the request of the City Council, met at major milestones during the project, and offered feedback and insight as the consultants conducted their research.

This Tech Strategy should be a dynamic living document that is used by staff to guide the allocation of time and resources. We recommend that city staff use the Tech Strategy to set performance metrics and report back on progress on a yearly basis, including: actions taken during the previous year, a plan for the coming year, and recommendations to recalibrate and adjust strategy to meet the changing needs of the tech ecosystem in Glendale.

The city has shown great leadership and foresight in investing in the development of objectives and strategies to grow the tech sector in Glendale. Now the city must engage in collaboration and partnership with local stakeholders who share the same entrepreneurial spirit. There is tremendous opportunity for the city, engaged with residents and businesses, to make Glendale the next hub for technology and innovation in Southern California.

Sincerely,
Glendale Tech Advisory Council

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Executive Summary

The City of Glendale's Tech Strategy is a roadmap for growing Glendale's technology-based sector. It provides a working definition of what comprises the technology sector, identifies key factors to growing a sustainable tech cluster, and measures the industry's presence in the City of Glendale as it compares to the rest of Los Angeles County. The Tech Strategy also identifies Glendale's qualitative strengths and weaknesses as a tech cluster, as gathered through approximately twenty-five interviews with stakeholders in the private, non-profit, and educational sectors. The Strategy then details a series of recommendations to address the role the city, in collaboration with key partners, can play in promoting the tech industry. For the tech sector to truly thrive in Glendale, leadership from among the ranks of Glendale's entrepreneurs and business people must emerge to organize, connect and cheerlead the growth of a robust, deeply networked tech community.

The "tech industry" generally refers to companies involved in the research, development, and/or distribution of technologically-based goods and services. Historically, the Los Angeles region has led innovation in legacy tech sectors such as aerospace and entertainment. However, the tech industry has diversified over time to include a range of industries, from biotech to computer software. For purposes of this report, we rely on the Los Angeles Economic Development Corporation's (LAEDC) ***High Tech in LA*** report, which identifies 12 subsectors to tech. They include: 1) Aerospace Products; 2) Architectural and Engineering Services; 3) Biopharmaceuticals and Medical Devices, 4) Computer Products and Electronics Manufacturing, 5) Computer Software, Design, Services, and Online Publishing, 6) Food Technology, 7) Machinery and Equipment Manufacturing, 8) Management, Scientific, and Technical Consulting, 9) Media, 10) Petroleum and Chemical Products Manufacturing, 11) Telecommunications, and 12) Wholesale Activities related to High Tech. Jobs in these subsectors tend to pay above average salaries, thus contributing to the overall economic prosperity in a region.

There are several factors necessary for the growth of a tech sector in a given region. Key to most technology hubs is the access to a pool of information and innovation via nearby universities, which usually results in the co-location of tech firms around these institutions. Furthermore, venture capital (VC) infrastructure can provide the critical financing to start-ups that enable a region to incubate innovation and attract and retain talent. A high-density of start-ups or sector specific companies can facilitate the growth of a tech cluster. Firms working in close proximity in related industries benefit from a skilled labor force, as well as from technology spillover effects, which in turn enhances the development of competition. Though tech clusters benefit from business-friendly cities and

regions, it's clear that an existing concentration of like businesses, funding, and innovation matter more. Lastly, many smaller tech hubs, such as Research Triangle in North Carolina and Boulder, Colorado, have gained prominence in recent years due to their quality of life. Regions that offer assets outside of simply work life helps attract not only new firms but new workers.

To assess the strength of Glendale's tech sector, the research team used data from firms falling within the 12 high tech industry categories from the High Tech in LA report. Our NAICS code analysis examined the number of firms, number of employees, gross sales of firms, and the concentration of tech companies in Glendale relative to the concentration of tech companies in each subsector in Los Angeles County. There are 1,029 firms in the City of Glendale that identify as tech firms. Glendale's tech firms employ approximately 41,000 people and yield approximately $5.3 billion in total sales. Glendale's resident workforce is fairly well-equipped to work in the tech industry. Nearly a third of working age Glendale residents hold a bachelor's degree or higher. Thirty-two percent of all Glendale residents with an advanced degree have their degrees in a Science, Technology, Engineering, Math (STEM) related field.

Our data analysis revealed the following:

- Glendale enjoys a diverse grouping of high tech subsectors. With firms in multiple economic specializations operating in the city, the local economy is not dependent on any one aspect of the tech industry for either sales or employment.

- The subsectors that employ the most people include: Biopharmaceuticals & Medical Devices, Wholesale Activities Related to High Tech, and Architectural & Engineering Services. Firms in the Biopharmaceuticals & Medical Devices category employ 20,547 people, over half of the high tech workforce in Glendale.

- The manufacturing sector, though relatively small in Glendale, is a legacy sector for the city, and accounts for a considerable amount of overall sales, compared to other subsectors.

- Analyzing the location quotient (LQ) of each tech subsector in Glendale offers a deeper understanding of the relative strength of Glendale's tech scene by comparing the significance of the employment in each subsector in Glendale to the employment in Los Angeles County as a whole. Using the LQ, the strongest sectors are:

  1) Biopharmaceuticals & Medical Devices,
  2) Architectural & Engineering Services, and
  3) Wholesale Activities Related to High Tech.

To gain a more qualitative view of Glendale's potential to grow its tech sector, the project team interviewed key stakeholders throughout the city. These interviews provide a window into how Glendale is perceived, its strengths, weaknesses, opportunities and challenges in retaining and attracting tech businesses. Overall, participants had a very positive general impression of Glendale: the quality of life, its location relative to other major destinations in the region, its vibrant Downtown, and its business friendly practices. Weaknesses also surfaced, including: Glendale's lack of a discernible tech brand, its lack of quality office space, delays in permitting for build outs, as well as a lack of adequate bandwidth, particularly along Brand Boulevard. Appendix D contains a list of interviewed stakeholders for this project. It is important to note that the city has taken steps to address these deficiencies, including: launching a Tech on Tap Series to better connect tech companies and entrepreneurs, a Business Concierge program that acts as a "one-stop" shop for businesses, as well as hiring a consultant to develop a Roadmap for GWP's dark fiber service.

Glendale's tech strategy should build on the city's strengths and expand and sharpen the initial steps that have already been taken to address the weaknesses identified during the research phase of this effort. The recommendations for Glendale's tech strategy, tactics and steps for implementation comprise the remaining sections of the study and are summarized on the following pages.

RECOMMENDATIONS	TACTICS	STEPS TO IMPLEMENT
Promote Internal Marketing of Glendale as a Tech Hub	**Establish a Technology-Focused Advocacy Organization**	Identify leaders in the tech community willing to lead the effort. • Work with core leaders to brainstorm a path forward. Tasks for the group may include: identifying a mission statement and priorities of the organization, developing a coherent brand, developing a website, suggesting additional participants or partners, developing a strategy for soliciting funding. The city could supply the initial funding for the development of a business plan, promotional materials, website development for the organization, as well as assist with the paperwork and process of creating a 501(c)(3), if applicable.
	Build Civic Technology Infrastructure	Continue to track city performance metrics online, gradually adding more data. Engage key partners in the private, non-profit, philanthropic, and private sectors to develop hackathons or related programming focused on civic innovation. Seek out grant funding for technology education programming. Leverage Glendale's robust tech network, including its soon-to-be renovated Central Library, or a company who is willing to open their doors to host local hackathons. The city can commit to piloting top innovations based on ideas at hackathons or other tech-centered events.
Promote External Marketing of Glendale as a Tech Hub	**Leverage Industry Networks**	Raise the city's profile in tech by conducting regular outreach to various tech based and affiliated trade organizations.
	Attract Conferences and Events	Identify key, credible tech organizations that also regularly hold events, conferences, or trade shows of importance to the tech community. Create an online tourism map or infographic of Glendale, highlighting points of interest. Create a city webpage to promote Glendale as a great place for events – include pages like "Search for Venues," "Why Glendale?," "Incentives," and "Planning Resources." Leverage local hotels' current marketing activities. Work with Glendale-based firms to identify high-profile conferences they may already attend/participate in, and outreach to organizers to encourage interest in Glendale.
Promote a Business Friendly Environment (continued on next page)	**Develop Creative Office Space: Brand Boulevard**	Encourage high quality office space along Brand Boulevard through the following strategies: • Expedite permitting for interested landlords interested in providing upgraded office or co-working space. • Also, the city could work to identify landlords willing to set aside a small amount of square footage at a reasonable rate for flexible or short-term leases in order to help drive startup firms to locate in Glendale. The city, along with local brokers, can jointly market the available space in order to attract companies. • Further, the city should move forward with its current activity of augmenting its dark fiber network, thus offering companies along Brand access to speedy internet service.

RECOMMENDATIONS	TACTICS	STEPS TO IMPLEMENT
Promote a Business Friendly Environment	**Retool Current Business Concierge Program**	Make a specific webpage for the Business Concierge program with contact information clearly listed. Give a "face" to the Concierge, with an identifiable staff member who specializes in the needs of tech firms. Create a separate "Tech Toolkit" to go along with the business toolkit already in existence that outlines steps to start a business and other resources. Feature tech companies each month in a newsletter with current operations, why they located in Glendale, why they stay, etc. Cultivate relationships with companies/partnerships with corporations, connecting established companies to amenities and networks, and assisting new companies in navigating city processes and locating business resources. Be savvy about existing incentives and credits that exist at the local, regional, and state level for businesses. Refer businesses to existing workforce development and training programs. Work with residential developers to market housing options to JPL, Caltech, and Occidental students and faculty.
Creating a Space for Tech	**Preserve and Maintain Industrial and Manufacturing Space: West Glendale**	We recommend that the city take a proactive, supportive stance on industrially zoned land and commit to the preservation and rehabilitation of its infrastructure. Direct city staff to review Glendale's zoning code. Should the industrial zone be permissive to non-industrial uses, the city should strengthen the language surrounding industrial zoning, reinforcing the uses of its present and future manufacturing economy and maintaining key employment sectors and jobs. Take stock of infrastructure needs in West Glendale, and seek grants for storm water management, sewer improvements, utility upgrades and other improvements as needed. An infrastructure study could also act as a precursor for the creation of an Enhanced Infrastructure Financing District (EIFD) within the city to finance infrastructure development needed to attract the next generation of advanced manufacturing and fabrication.
	Attract Medical Related Uses: North Glendale	Support medical related uses in North Glendale to further bolster the city's robust healthcare network: The city can play a significant role in encouraging uses to support the hospital, such as medical offices, research facilities, and other medical related uses. City staff should meet with USC Verdugo Hills Hospital staff to get a better sense of their needs in the area and the potential for expansion of uses and supporting facilities.
	Tech Incubators/ Accelerators	Develop an accelerator program to be operated for a time-limited period, such as 90 days, once a year. Partner with a high-quality co-working space. The city could consider pledging a guarantee of a certain amount of occupancy for a predetermined number of seats for a fixed amount of time each year in order to provide a degree of revenue certainty. The presence of other co-working spaces should be carefully considered before the city makes such a commitment. Actively build relationships with investors – angels, seed-stage funds and venture capitalists – so that demo days will be well attended.

RECOMMENDATIONS	TACTICS	STEPS TO IMPLEMENT
Create and Support a Tech Workforce	**Career Awareness**	Actively market and support existing technology partnership programs between Glendale Community College and local K-12 schools. GCC currently runs the GCC Science Center and Planetarium which offers hands-on science activities at no cost to students. GCC already runs a popular dual enrollment program, which allows high school students to take college courses for high school and/or college credit. Workforce development partners may wish to work with GCC and explore the possibility of offering dual enrollment courses focused on the STEM fields. The Glendale Central Library can also be a space for innovation for youth. Being an accessible space, both geographically and financially, youth would greatly benefit from technology classes, hackathons, and access to coding software or educational programs to propel them into the world of technology.
	Work Experience	The city and interested workforce partners should co-design a Tech Academy aimed at connecting promising GCC students to paid summer internships in the tech industry. The goal of the Tech Academy is to nurture the next generation of Glendale-based tech entrepreneurs.
	Continuing Education	The city, in collaboration with its various workforce development partners, should undertake the following to support continuing education and support for its tech workforce. • Support and maintain a suite of workforce development and training programs that are responsive to the needs of the tech businesses. • Creatively and proactively market the suite of workforce programs to tech companies, by participating in the recurring Tech on Tap series, working with the potential tech focused advocacy organization, and other credible tech venues and networks. • Develop a set of marketing materials to market workforce training programs to tech companies and job seekers. These materials should succinctly describe the purpose and benefit of a given program, as well as a singular point of contact for more information. • Support the Verdugo Workforce Development Board “Beyond Jobs” initiative, aimed at supporting tech’s contingent workforce. The city and interest stakeholders should support VWDB efforts in acquiring private or philanthropic funding for this initiative. • Broadly market the low or no cost various training resources available to tech companies and job seekers: The Professional Development Center at GCC, Studio Arts, GCC’s Robotics and Advanced Manufacturing Facilities, and others.
Support Glendale’s Quality of Life	**Transportation**	Promote easy transportation options along Brand Boulevard to link a perceived disconnect. Explore the possibility of implementing bike share and autonomous vehicle options (long-term). Continue to support activities such as such as #GlendaleWalks, Meet Me on Brand, and the Maryland Paseo that increase pedestrian activity.
	Public Space	Continuing to support legacy projects that create a sense of place is an important component to creating a flourishing community.
	Public Sector Innovation	Consider establishing an Office of Innovation, to launch projects that promote local democracy and adapt new technologies.

Introduction and Purpose

Building on its strengths in retail, commercial and mixed-use developments, the Glendale City Council directed staff to explore opportunities to further diversify Glendale's economy. This strategy includes an emphasis on attracting high-paying growth sectors by focusing on attracting technology companies. Glendale is already home to many technology-based companies such as YP, Legal Zoom, and Age of Learning. The city's relative proximity to movie studios (e.g., Disney and DreamWorks) and institutions of higher learning (e.g. Caltech, the Jet Propulsion Laboratory, and Glendale Community College) also gives the city a competitive advantage that can be leveraged for further industry growth.

The City of Glendale has successfully leveraged infrastructure and redevelopment investments to encourage top-flight retail, commercial, residential and mixed-use developments in the city. In the post-redevelopment era, the Glendale Economic Development Division[1] aims to further maximize Glendale's economic activity by promoting an "18-hour City," reducing Class A office vacancies, and improving city services to businesses. The Economic Development Division's efforts, along with an improved economic outlook, have led to an increasingly vibrant Downtown Glendale. Residential development is at an all-time high, and Glendale's vacant office space rates are on par with its counterparts, Burbank and Pasadena.

This Tech Strategy combines quantitative and qualitative analyses, including over 25 interviews with representatives from Glendale's tech industry and related fields. It assesses the current condition of Glendale's tech sector, identifies opportunities, recommends strategies and proposes initiatives to grow the city's tech industry. The Glendale Tech Strategy is a roadmap that offers clear, actionable steps that the city and interested stakeholders can take to support the tech industry, promote start-ups and grow good-paying jobs.

[1] The Economic Development Division was formerly known as the Glendale Economic Development Corporation.

Defining "Technology" and What Makes a Tech Cluster

What do we mean by "tech?"

The "technology sector" encompasses not only a diverse set of high tech industries, but a broad set of tech-oriented jobs. The "tech industry" generally refers to companies involved in the research, development and/or distribution of technologically-based goods and services. Historically, the Los Angeles region has led innovation in legacy tech sectors such as aerospace and entertainment. However, the high tech industry has diversified over time to include a range of startup industries, from biotech to computer software.

This analysis of Glendale's tech landscape employs the Los Angeles Economic Development Corporation's (LAEDC) definition of high tech industries from the Institute for Applied Economics' report, *High Tech in LA: Its Employment and Economic Contribution in 2013*.[2] The *High Tech in LA* report used research conducted by the Bureau of Labor Statistics to identify and define 34 industry groups that are considered "high tech" using the North American Industry Classification System (NAICS). LAEDC then aggregated these 34 high tech industries into twelve subsector specialization categories. Table 1 lists the twelve LAEDC subsectors along with an example of a business located in Glendale that falls within each of the categories.

In general, the tech sector pays well, with annual mean wages ranging from a low of $51,480 in electrical equipment manufacturing – as part of the Computer Products and Electronics Manufacturing category – to a high of $99,160 for software publishers in the Computer Software, Design and Services and Online Publishing category.

TABLE 1

Aerospace Products	Glenair
Architectural and Engineering Services	Alajajian Marcosi Architects
Biopharmaceuticals and Medical Devices	Quest Diagnostics
Computer Products and Electronics Manufacturing	Hi-Tech Electro Design
Computer Software, Design, and Services and Online Publishing	LegalZoom
Food Technology (Additional category created for this report)	JH Biotech Europe-Africa LLC
Machinery and Equipment Manufacturing	Mechanical Concepts
Management, Scientific, and Technical Consulting	Liftoff
Media	Disney Interactive Media Group
Petroleum and Chemical Products Manufacturing	Avery Dennison
Telecommunications	Regus
Wholesale Activities related to High Tech	Weil Aquatronics

[2] Los Angeles Economic Development Corporation (2014). *High Tech in LA: Its Employment and Economic Contribution in 2013*. http://laedc.org/wp-content/uploads/2014/10/High-Tech-in-LA_20141006_FF.pdf

TABLE 2

National Wage Data – Bureau of Labor Statistics

INDUSTRY	NAICS CODE	MAY 2015 - ALL OCCUPATIONS MEDIAN HOURLY WAGE	MEAN HOURLY WAGE	ANNUAL MEAN WAGE
Aerospace Products				
Aerospace Product & Parts Manufacturing	336400	$33.33	$36.71	$76,350
Electronic Instrument Manufacturing	334500	$30.95	$36.68	$76,300
Architectural & Engineering Services				
Architectural, Engineering, & Related Services	541300	$31.66	$36.59	$76,100
Scientific R&D Services	541700	$38.77	$44.39	$92,330
Biopharmaceuticals & Medical Devices				
Pharmaceutical & Medicine Manufacturing	325400	$25.40	$32.22	$67,010
Medical Equipment & Supplies Manufacturing	339100	$18.98	$25.31	$52,640
Medical & Diagnostic Laboratories	621500	$20.67	$26.82	$55,790
Computer Products & Electronics Manufacturing				
Computer & Peripheral Equipment Manufacturing	334100	$42.87	$46.39	$96,480
Communications Equipment Manufacturing	334200	$30.03	$36.06	$75,000
Audio & Video Equipment Manufacturing	334300	$25.17	$32.48	$67,560
Semiconductor & other Electronic Component Manufacturing	33A4400	$26.28	$33.97	$70,660
Magnetic Medical Manufacturing & Reproducing	334600	$23.93	$32.46	$67,510
Electrical Equipment Manufacturing	335300	$20.74	$25.85	$53,780
Other Electrical Equipment Components	335900	$19.38	$24.75	$51,480
Computer Software, Design, & Services and Online Publishing				
Software Publishers	511200	$44.39	$47.67	$99,160
Data Processing, Hosting & Related Services	518200	$30.79	$36.36	$75,620
Other Information Services	519100	$36.08	$43.66	$90,800
Computer Systems Design & Related Services	541500	$39.14	$43.50	$90,470
Food Technology				
R&D in Biotechnology - development laboratories or services in food science	541711	N/A	N/A	N/A
R&D in Physical, Engineering, & Life Sciences - development laboratories or services in food science	541712	$39.73	$45.13	$93,870
Machinery & Equipment Manufacturing				
Industrial Machinery Manufacturing	333200	$23.18	$29.11	$60,550
Commercial & Service Industry Machinery Manufacturing	333300	$21.70	$27.68	$57,580
Engine, Turbine, Power Transmission Equipment Manufacturing	333600	$22.81	$27.42	$57,030
Other General Purpose Machinery Manufacturing	333900	$20.76	$25.05	$52,110
Other General Purpose Machinery Manufacturing	333900	$20.76	$25.05	$52,110
Management, Scientific, & Technical Consulting				
Management, Scientific, & Technical Consulting Services	541600	$29.74	$37.64	$78,290
Media				
Computer Systems Design Services	541512	N/A	N/A	N/A
Motion Picture & Video Industries	512100	$18.20	$27.92	$58,080
Petroleum & Chemical Products Manufacturing				
Petroleum & Coal Product Manufacturing	324100	$30.25	$33.76	$70,220
Basic Chemical Manufacturing	325100	$27.36	$30.92	$64,310
Resin, Synthetic Rubber, and Artificial & Synthetic Fibers & Filaments	325200	$26.47	$29.86	$62,110
Telecommunications				
Wired Telecommunications Carriers	517100	$30.09	$32.19	$66,960
Wireless Telecommunications Carriers	517200	$27.50	$32.64	$67,900
Satellite Telecommunications	517400	$31.44	$35.55	$73,950
Other Telecommunications	517900	$27.01	$32.48	$67,550
Wholesale Activities Related to High Tech				
Commercial Goods Merchant Wholesalers	423400	$24.66	$32.38	$67,350
Electric Goods Merchant Wholesalers	423600	$22.93	$29.92	$62,240
Druggists Good Merchant Wholesalers	424200	$22.05	$30.32	$63,070
Electronic Shopping & Mail-Order Houses	425100	$23.49	$31.60	$65,720

What makes a Tech Ecosystem?

Tech clusters all share common factors that support a growing hub of innovation: a labor-skills match and supplier network, information and knowledge-sharing, and the availability of venture capital dollars. Additionally, physical location and quality of life can play a significant role in tech company location decisions. While each individual cluster is unique, some key features are critical for successful tech clusters:

1 Universities/Talent Pipeline

In every list of top technology hubs, all highly-ranked areas share one thing in common: access to a pool of information and innovation via universities. Silicon Valley has Stanford, Boston has MIT and Harvard, and Austin has UT Austin. These are all feeder schools to the local tech economy. Universities traditionally provide educational and research functions, but a shift to promoting knowledge-transfer and technology-transfer has further spurred tech firms to agglomerate around these institutions.

2 Venture Capital Firms and Support Organizations

Innovators with ideas for new products and services attempting to start from scratch outside of existing, well-established firms typically struggle to secure sources of financing. Venture capital (VC) infrastructure can provide the critical financing to start-ups that enable a region to incubate innovation and attract and retain talent. VC firms can also promote community and connection between organizations and entrepreneurs by hosting in-person events, panels and dinners.

Tech hubs also benefit from strategic and functional relationships among start-up support organizations such as VC firms, incubators, accelerators, etc. These organizations foster the exchange of information and a culture of collaboration.[3] Overlapping mentorship relationships and board memberships on start-ups among leaders of various support organizations, and attendance at each other's networking events create the crossover relationships and communications that further collaboration.

3 Density and Knowledge-Sharing

A high density of start-ups or sector-specific companies can facilitate the growth of an industry cluster. Firms working in close proximity in related industries benefit from a skilled labor force, as well as from technology spillover effects; this, in turn, enhances the development of competition.[4]

4 Business Climate

Tech clusters have developed around both regions that offer heavy incentives, as well as those with restrictive business environments. Overall, the existence of industry concentration, funding, and innovation may matter more than the general business climate of a community. However, a business-friendly environment where, for example, information about permitting requirements and city processes is easily accessible and readily available can make it easier for tech businesses to stay and grow in a community.

5 Quality of Life

While business climate, investment and innovation all play a role in developing a strong technology cluster, the quality of life in a region is almost equally important. Smaller tech hubs like Research Triangle in North Carolina and Boulder, Colorado have gained appeal for their low cost of living compared to Silicon Valley and New York. Geographically, regions like Seattle and Boulder easily attract residents looking for an outdoor lifestyle. A region that offers assets outside of work life helps attract new firms and new workers.

[3] Motoyama, Y. (2014). Examining the Connections within the Startup Ecosystem: A Case Study of St. Louis. *Kauffman Foundation Research Series on City, Metro, and Regional Entrepreneurship.* http://www.kauffman.org/~/media/kauffman_org/research%20reports%20and%20covers/2014/09/examining_the_connections_within_the_startup_ecosystem.pdf

[4] Cortright, J. (2005). Making Sense of Clusters: Regional Competitiveness and Economic Development. *Brookings Institution Metropolitan Policy Program*.https://www.brookings.edu/wp-content/uploads/2016/06/20060313_Clusters.pdf

What are best practices for promoting a city's tech industry?

Several best practices emerge from a review of the literature among policy think tanks and foundations intent on promoting entrepreneurship and economic development.

1 Understand the Existing Tech Scene in Your City.

The first step in crafting policies is to understand current conditions and assess the relative strengths and weaknesses of your local tech scene. Policymakers should learn what subsectors of the tech industry are already strong in the region, examine whether businesses are clustered in a particular area, and ascertain if there are existing shared supply chains or sources of talent that are key to the existing tech sector.[5]

2 Craft Strategies Based on the Distinct Needs of the Particular Subsector being Targeted.

Different tech sub-sectors prioritize different factors when making location decisions. Based on the mix of technology being used or produced, specific tech industries may prize some factors more highly than others when making decisions about where to locate.[6] Some examples that are particularly relevant to Glendale's core strengths are:

- Biotechnology is largely dependent on university-based associations, a highly skilled workforce, and connection to research and development.[7]
- Advanced technology manufacturing requires affordable space, proximity to materials and resources, as well as access for workers to affordable housing and a manageable commute.[8]

[5] Sommers, P. et al (2000). Ten Steps to a High Tech Future: The New Economy in Metropolitan Seattle. *Brookings*. https://www.brookings.edu/wp-content/uploads/2016/06/SommersReport.pdf

[6] Devol, R. (1999). America's High-Tech Economy: Growth, Development, and Risks for Metropolitan Areas. *Milken Institute*. http://assets1b.milkeninstitute.org/assets/Publication/ResearchReport/PDF/ross_report.pdf

[7] Schweitzer, S.O. Connell, J., and Schoenberg, F.P. (2006). Clustering in the biotechnology industry. *International Journal of Healthcare Technology and Management* 7(6) 554-56.

[8] U.S. Office of Science and Technology Policy. (2012). *A National Strategic Plan for Advanced Manufacturing*. https://www.whitehouse.gov/sites/default/files/microsites/ostp/iam_advancedmanufacturing_strategicplan_2012.pdf

3 Promote and Connect Local Entrepreneurs and Encourage Coordination and Communication among Business Support Organizations that Nurture Business Start-Ups.

The connections among entrepreneurs and formal business support organizations can play a key role in developing a tech ecosystem.[9] Business support organizations have strategic and functional relationships in a tech cluster.[10] In a case study of the St. Louis tech ecosystem, the Kaufmann Foundation found that communication and coordination between support organizations can identify overlaps and gaps in service and also help entrepreneurs navigate through the system to find the group that best fits their needs.[11]

4 Invest in Human Capital via Workforce Training.

Public- and private-sector investment in the skills pipelines is crucial, as the requirements needed for jobs in advanced industries change rapidly. Investment in local industry training ecosystems, beginning as early as grade school, can be important to growing and retaining talent and helping local firms remain competitive.[12]

5 Use Information Technology in thePublic Sector to Increase Access and Promote Transparency.

Cities promoting technology should also be a part of the culture of innovation. Civic hacking uses data provided by local governments to spur ideas and generate mechanisms to improve the quality of life in a city. This has the benefit of increasing and enhancing communications at a city level, which can also improve interaction with residents.[13]

Employing these best practices, the first step in crafting a strategy to grow Glendale's tech sector is to gain an understanding of the types of tech that already exist in Glendale and the city's relative strengths in the key tech subsectors. Next, it is important to evaluate how Glendale is perceived by the tech community; its strengths, weaknesses, opportunities and challenges; and the land use and real estate landscape facing tech companies seeking to locate and grow in Glendale. With this baseline of information, an appropriate set of policy tools can be recommended and considered in light of current conditions and budget constraints.

[9] Motoyama, Y. (2014). Examining the Connections within the Startup Ecosystem: A Case Study of St. Louis. *Kauffman Foundation Research Series on City, Metro, and Regional Entrepreneurship*. http://www.kauffman.org/~/media/kauffman_org/research%20reports%20and%20covers/2014/09/examining_the_connections_within_the_startup_ecosystem.pdf

[10] He, J. and Fallah. (2011). The typology of technology clusters and its evolutions – Evidence from hi-tech industries. *Technological Forecasting & Social Change* 78: 945-952. http://www.intelspace.eu/wp-content/uploads/2012/07/Jiang-He-and-M.-Hosein-Fallah-2011-The-typology-of-technology-clusters-and-its-evolution.pdf

[11] Motoyama, Y. (2014). Examining the Connections within the Startup Ecosystem: A Case Study of St. Louis. *Kauffman Foundation Research Series on City, Metro, and Regional Entrepreneurship.* http://www.kauffman.org/~/media/kauffman_org/research%20reports%20and%20covers/2014/09/examining_the_connections_within_the_startup_ecosystem.pdf

[12] Sommers, P. et al (2000). Ten Steps to a High Tech Future: The New Economy in Metropolitan Seattle. Brookings. https://www.brookings.edu/wp-content/uploads/2016/06/SommersReport.pdf

[13] The City of Chicago adopted a Tech Plan in 2013 that promotes civic tech by focusing on bringing together the public sector, private sector, and residents to fuel innovation. City of Chicago. (2013). *The City of Chicago Technology Plan*. http://techplan.cityofchicago.org/wp-content/uploads/2013/09/cityofchicago-techplan.pdf

The Tech Landscape in Glendale

To assess the strength of the tech sector in Glendale the research team used data from firms falling within the 12 high tech industry categories used in LAEDC's High Tech in LA report.[14] Our NAICS code analysis examined the number of firms, number of employees, gross sales of firms, and the concentration of tech companies in Glendale relative to the concentration of tech companies in each subsector in Los Angeles County.

The use of NAICS codes to conduct a sector analysis is standard practice in the economic development field. However, it is worth noting some limitations of this data source. Firms self-report their NAICS codes and can be classified by more than one NAICS code. This may lead to inconsistencies in how different firms in the same field choose to be categorized or elect to list their primary NAICS code.

How much tech is there in Glendale? How does that compare to Los Angeles County?

HIGH TECH IN THE CITY OF GLENDALE: QUICK FACTS[15]

1,029
Number of High Tech Firms

41,168
Number of people employed by High Tech Firms

$5,383,358,000
Total sales for tech firms in Glendale

$5,613,512
Average sales for tech firms in Glendale

Educational Attainment & Human Capital:

25.6%
% People 25 and older with Bachelor's degree

12.3%
% People 25 and older with Graduate or Professional degree

32.7%
% Graduates with a degree in Science, Technology, Engineering, Math (STEM) or related

Volume and Density

Boasting a total of 1,029 high tech firms in the city, Glendale enjoys a diverse grouping of high tech subsectors. With firms in multiple economic specializations operating in the city, the local economy is not dependent on any one aspect of the tech industry for either sales or employment.

Of the 12 key tech subsectors, the following are represented by a significant number of firms in Glendale: 1) Management, Scientific, and Technical Consulting; 2) Architectural & Engineering Services; 3) Wholesale Activities Related to High Tech; 4) Computer Software, Design, Services, and Online Publishing; and 5) Biopharmaceuticals & Medical Devices (See Table 3).

If we examine the data by the number of firms in Glendale as a percentage compared to the total number of firms in that sector in Los Angeles County, the top subsectors are: 1) Biopharmaceuticals & Medical Devices; 2) Computer Products & Electronics Manufacturing; 3) Architectural & Engineering Services; and 4) Food Technology (See Table 3).

Overall, Glendale is relatively strong in most tech subsectors. High tech firms in Glendale as a whole make up 2.5 percent of all high tech firms in Los Angeles County. Of the 12 different subsectors, nine either have a higher concentration than 2.5 percent or are concentrated around 2 percent.

Drilling down on the Biopharmaceuticals & Medical Devices category, 33 of the 96 firms identified in this subsector are "dental labs." If these firms are excluded from the analysis, the percentage of firms in Glendale in the Biopharmaceuticals & Medical Devices classification would decrease from 4.8 percent to 2.9 percent, still placing it among the city's top tech subsectors.

[14] The twelve high tech industry categories include: 1) Aerospace Products; 2) Architectural and Engineering Services; 3) Biopharmaceuticals and Medical Devices, 4) Computer Products and Electronics Manufacturing; 5) Computer Software, Design, Services, and Online Publishing; 6) Food Technology; 7) Machinery and Equipment Manufacturing; 8) Management, Scientific, and Technical Consulting; 9) Media; 10) Petroleum and Chemical Products Manufacturing, 11) Telecommunications; 12) Wholesale Activities related to High Tech.

[15] American Fact Finder. (2016). Population 25 years and over with a Bachelor's degree or higher attainment. 2015 American Community Survey 1-Year Estimates. http://factfinder.census.gov

TABLE 3

Number of High Tech Firms by Subsector in Glendale and Los Angeles County, 2016

HIGH TECH SUBSECTOR	NUMBER OF FIRMS IN GLENDALE	NUMBER OF FIRMS IN LOS ANGELES COUNTY	PERCENT IN GLENDALE
Aerospace Products	12	628	1.9%
Architectural & Engineering Services	194	6,435	3.0%
Biopharmaceuticals & Medical Devices	96*	2,232	4.3%
Computer Products & Electronics Manufacturing	12	901	1.3%
Computer Software, Design, Services, and Online Publishing	140	4,651	3.0%
Food Technology	26	892	2.9%
Machinery & Equipment Manufacturing	14	1,114	1.3%
Management, Scientific, & Technical Consulting	206	8,775	2.3%
Media	69	3,543	1.9%
Petroleum & Chemical Products Manufacturing	4	289	1.4%
Telecommunications	73	3,418	2.1%
Wholesale Activities Related to High Tech	183	8,247	2.2%
TOTAL	1,029	41,125	2.5%

Workforce and Sales

Over 41,000 people are employed by high tech firms in the city. The subsectors that employ the most people include: Biopharmaceuticals & Medical Devices, Wholesale Activities Related to High Tech, and Architectural & Engineering Services. Firms in the Biopharmaceuticals & Medical Devices category employ 20,547 people, over half of the high tech workforce in Glendale. Firms in the Wholesale Activities and Architectural & Engineering Services together employ about 23 percent of the workforce (See Table 4).

TABLE 4

High Tech Employees by Subsector in Glendale, 2016

HIGH TECH SUBSECTOR	NUMBER OF EMPLOYEES	PERCENTAGE OF ALL HIGH-TECH EMPLOYEES
Aerospace Products	1,830	4.4%
Architectural & Engineering Services	4,278	10.4%
Biopharmaceuticals & Medical Devices	20,547	49.9%
Computer Products & Electronics Manufacturing	651	1.6%
Computer Software, Design, Services, and Online Publishing	3,061	7.4%
Food Technology	224	0.5%
Machinery & Equipment Manufacturing	161	0.4%
Management, Scientific, & Technical Consulting	3,011	7.3%
Media	1,365	3.3%
Petroleum & Chemical Products Manufacturing	485	1.2%
Telecommunications	544	1.3%
Wholesale Activities Related to High Tech	5,011	12.2%
TOTAL	41,168	100%

In terms of sales, the manufacturing sector, although a relatively small proportion of firms in Glendale, represents some of the highest average sales among the city's high tech subsectors. These manufacturing-based firms largely serve niche markets or represent a legacy sector in Glendale (See Table 5). The sales figures for these firms is important to note, as the manufacturing sector is relatively small in Glendale, in both number of firms and number of employees, but it represents some of the top sales in the city's tech sector.

TABLE 5

Top High Tech Firm Sales and Number of Firms, 2016

HIGH TECH SUBSECTOR	AVERAGE FIRM SALES	NUMBER OF FIRMS IN GLENDALE	PERCENT OF FIRMS IN GLENDALE	NUMBER OF EMPLOYEES
Aerospace Products	$38,720,364	12	1.9%	1,830
Petroleum & Chemical Products Manufacturing	$36,875,000	4	1.4%	485
Computer Products & Electronics Manufacturing	$15,719,583	12	1.3%	651
Wholesale Activities Related to High Tech	$13,262,369	183	2.2%	5,011
ALL HIGH-TECH FIRMS	$5,613,512	1,029	2.5%	41,168

Location Quotient: Another Way to Measure Glendale's Tech Landscape

The location quotient (LQ) for each tech subsector in Glendale demonstrates the relative strength of Glendale's tech scene. LQ is calculated by determining the concentration of employment in a specific sector within a relatively small geography. The concentration of employment within the smaller geography is then compared to the concentration of employment within a larger geography (see the formula below). In this case, we are comparing the concentration of high tech sector employment in Glendale to the overall high tech employment picture across Los Angeles County.[16]

Using this calculation, an LQ score of 1.0 for a given sector would mean that the concentration of jobs in

[16] Location quotients greater than 1.0 indicate an area of industry that may have a competitive advantage or various economic opportunities for growth in exporting goods and services; it indicates, in theory, an industry is producing more than is needed in the local area demand, bringing income and jobs into the area. It does not necessarily indicate future employment growth. LQs of less than 1.0 may indicate a deficiency.

Glendale is the same as Los Angeles County on the whole. A score above 1.0 indicates that jobs within that sector are more heavily concentrated in Glendale, when compared to Los Angeles County as a whole. Conversely, a number below 1.0 indicates that jobs within that sector are less heavily concentrated in Glendale, when compared to the County on the whole.

Biopharmaceuticals & Medical Devices had proportionally more workers employed in Glendale than in Los Angeles County with the highest LQ of 5.854. This means that the number of individuals working in this subsector is nearly six times more concentrated in Glendale than in Los Angeles County. This is an extremely high LQ.

The next highest LQs for employment were Architectural & Engineering Services and Wholesale Activities Related to High Tech. With LQs of 1.1 and 0.7, respectively, these industries display a similar concentration of jobs locally, when compared to Los Angeles County. The lowest LQs for the City's high tech subsectors included Management, Scientific, & Technical Consulting, Telecommunications, and Machinery and Equipment Manufacturing, indicating a potential opportunity to develop those industries to meet demand (See Table 4).

In addition to employment, LQ can also be used to compare average sales among various sectors. When calculated in this manner, sectors with the highest LQ for average sales are Aerospace, followed by Food Technology, and Management, Scientific & Technical Consulting (See Table 5). Note that these three subsectors had significantly lower LQs for employment.

Also notable is the relatively low LQ for both employment and sales for the Media subsector in Glendale. The data indicate that the Media subsector is less prominent in Glendale when compared to the County, both in terms of concentration of employment (0.557 LQ) and volume of sales (.859 LQ). We should note that this calculation accounts for the presence of significant, prominent firms such as DreamWorks Animation and Disney in Glendale. This LQ score does not mean that this is an unimportant sector for the City, and exemplifies the relatively limited picture that an LQ score paints. This measure does not account for wages, the role that a subsector plays in incubating and attracting talent, or the cultural prominence of major employers.

DISNEY INTERACTIVE

SECTOR: MEDIA

Founded in 1995, Disney Interactive is a subsidiary of the Walt Disney Company focused on entertaining through digital experiences across platforms. Disney Interactive develops and distributes multi-platform video games, virtual worlds, online entertainment, and parenting websites such as Disney.com and Family.com. Disney Interactive's Glendale campus hosts a variety of job categories, from gaming design to quality assurance.

Calculating location quotients and completing a NAICS code analysis is merely one way of assessing the local tech landscape. It incorporates data that is commonly employed by economic development professionals, but does not give a comprehensive picture of the City's tech sector.[17] The research team also conducted upwards of 25 interviews with local stakeholders to gain a qualitative view of Glendale's tech sector and the potential interconnections and opportunities of the local scene (see Section IV).

[17] Other data sources like Crunchbase and Angelist can provide a more impressionistic view of the tech sector by tracking interconnections, investors, start-ups, and funding rounds of firms in various sectors and locations. For example, Appendix B provides a summary analysis by Mount Wilson Ventures (MWV), a member of the Glendale Tech Strategy research team, of the potential for Glendale developing as a center for the visual effects (VFX) industry. The analysis relies on a database built by MWV and Innovate Pasadena using Crunchbase, Angelist and independent research and interviews

Glendale's Strengths and Weaknesses as a Tech Hub

To gain a more qualitative analysis of Glendale's potential to grow its tech sector, the project team interviewed key stakeholders throughout the city in tech, real estate, finance, investment, education, and other fields. These interviews provide a window into how Glendale is perceived, its strengths, weaknesses, opportunities and challenges in retaining and attracting tech businesses.

Overall, participants had a positive impression of Glendale. It appears that the jurisdiction's efforts to promote Glendale as an 18-hour city is having a positive effect on local and regional perceptions. Glendale is viewed as having a great quality of life and a lower cost of doing business when compared to tech centers on the Westside. Glendale is also seen as a vibrant, urban community that is active seven days a week.

Investments in new housing and amenities, like shopping, restaurants, and health and fitness, promote an environment that not only caters to growing businesses, but to the whole community. Glendale boasts a competitive location, comprehensive municipal services, a strong K-12 public school system, a robust network of community hospitals, and a suite of business-friendly policies and services that can serve as strong attractors for high tech industries and their employees.

Competitive Location

Glendale's location, proximate to other places like Downtown LA, the Bob Hope Airport, Hollywood, the San Gabriel Valley, and four major freeways, makes it convenient for accessing jobs and entertainment. Glendale also offers a variety of housing types, from dense, multi-unit housing downtown, to more suburban, single-family homes throughout the community.

Comprehensive Municipal Services

Glendale is a full-service city, meaning police and fire, municipal utilities, public works, libraries, and parks departments are all city-run. Glendale is also one of the safest cities in the United States based on FBI crime statistics, ranking in the Top 30 cities overall, and in the Top 10 cities with populations between 100,000 and 499,999 in 2014.[18]

High-Performing Schools

The Glendale Unified School District is comprised of 34 schools serving approximately 26,000 students in Glendale, the unincorporated communities of Montrose and La Crescenta, and a portion of La Cañada Flintridge.[19] Twenty-five of the District's schools have achieved California Distinguished School status, the highest honor in the state. The School District is also one of the most diverse, with about two out of three households speaking a language other than English at home.

[18] CQ Press (2014). *City Crime Rankings 2014*. http://os.cqpress.com/citycrime/2013/2014_CityCrimeRankingsbyPopulation.pdf

[19] Glendale Unified School District. (2016). GUSD Enrollment Facts. Glendale Unified School District. http://www.gusd.net/Page/860

Robust Hospital Network

Glendale also has a robust network of community hospitals. Several major facilities are located within city limits, including Dignity Health's Glendale Memorial Hospital and Health Center, Glendale Adventist, and USC Verdugo Hills Hospital. Collectively, these facilities provide quality patient-centered care to Glendale residents.

Business-Friendly Environment

Businesses can turn to the Glendale Economic Development Division for a range of business assistance programs and resources, including site search and selection support, a permit service center, utility consultation, and more. The city also does not have business tax or long distance phone tax. Glendale's economic vibrancy continues to grow, with business registration, building permits, and permit services increasing over the past two years.

In sum, Glendale has a good foundation from which to launch a tech cluster strategy.

Throughout the interviews, the following were consistently cited as Glendale's strengths:

- People like living in Glendale. The general quality of life (good schools, safe neighborhoods, etc.), plus the convenience of living and working in relative proximity, is a significant draw for many people.
- Glendale's location is an advantage. Glendale provides easy access to a significant portion of Los Angeles County, including proximity to the Burbank Bob Hope Airport.
- Brand Boulevard hosts an existing corridor of technology based and related companies, with a density that is likely sufficient to attract and sustain a more technology firms.
- Glendale does not charge a city business tax -- a significant draw for some entrepreneurs.

The following weaknesses also surfaced:

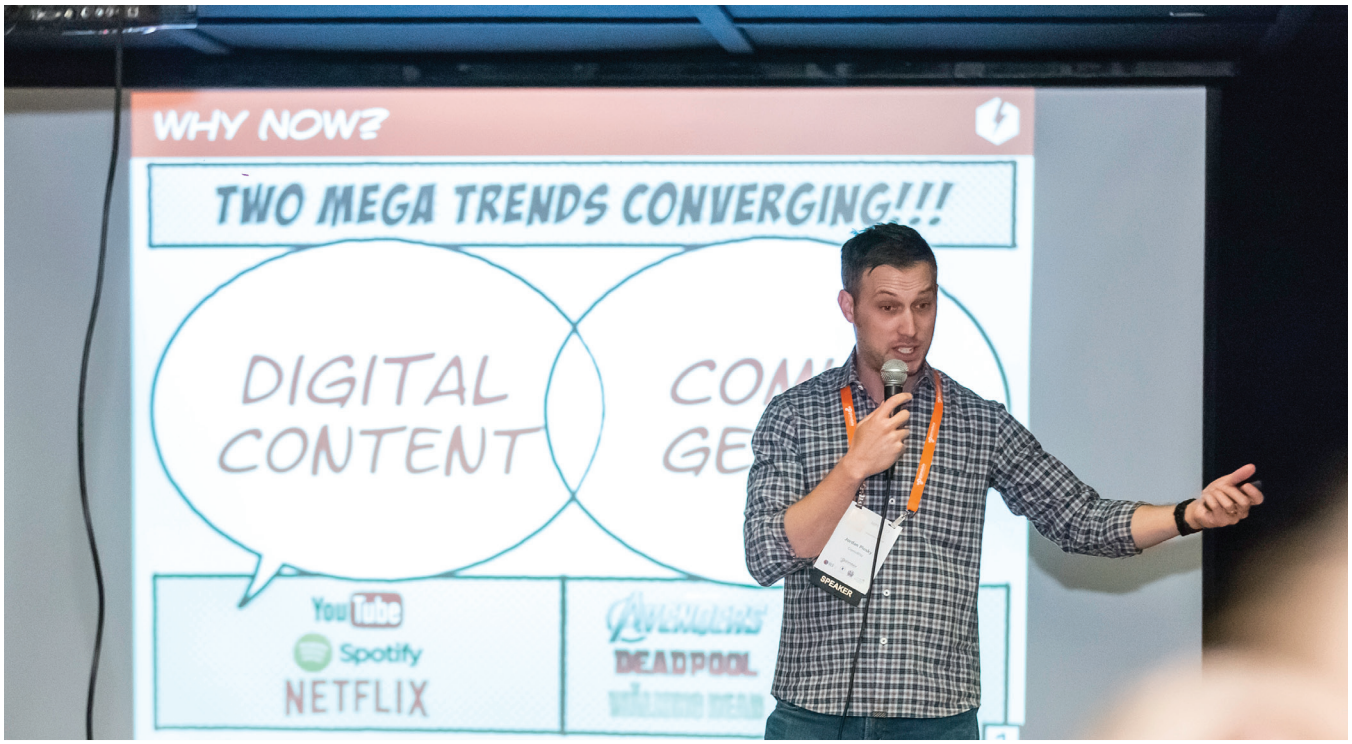
- Glendale is not recognized as a hub for tech and is not generally associated with technology or tech entrepreneurism. Most tech companies in the city operate as islands, with few cross-company connections. As a result, efforts to attract tech employees or companies often must address the question of "Why Glendale?" The Economic Development Division's Tech on Tap gatherings launched in the spring of 2016 and the first annual Tech Week hosted in the fall of 2016 represent the beginnings of a tailored marketing strategy that can effectively address this question. These initiatives can also help to foster an environment of knowledge sharing in the city.
- Office space is more readily available and more affordable in Glendale, when compared to rents and vacancies in neighboring cities and the Westside tech center. But the available space tends to be traditional office space in terms of layout, design and lease terms. This format is often not appealing to–or appropriate for – a start-up. A handful of Glendale based building owners have recognized this deficiency and are beginning to reconfigure their space to be more attractive to the tech end-user.
- Some stakeholders noted delays in obtaining permits for new build-outs, a common concern for new and expanding businesses in any city. Glendale's Business Concierge Program aims to address this issue by providing businesses a "one-stop shop" for permitting assistance, site selection, incentives, and other forms of assistance.
- Stakeholders reported a lack of adequate bandwidth in buildings along Brand Boulevard. The Glendale Water and Power (GWP) has taken a significant first step in addressing this issue by working with Sequoia Telecom Associates on a Fiber Plan Implementation Roadmap for the development of GWP's dark fiber service.

Glendale's tech strategy should build on the city's strengths and expand and sharpen the initial steps that have already been taken to address the weaknesses identified during the research phase of this effort.

SERVICETITAN

SECTOR: COMPUTER SOFTWARE, DESIGN & SERVICES, AND ONLINE PUBLISHING

ServiceTitan was founded in 2012 by two entrepreneurs who wanted to help their fathers manage their home service businesses. Now, they provide management support for a multitude of home service businesses, helping to track sales performance, monitor call booking performance, measure marketing campaigns, and eliminate a company's paperwork. Clients include plumbing companies, air-conditioning companies, and environmental services.


WHY NOW?
TWO MEGA TRENDS CONVERGING!!!
DIGITAL CONTENT
Spotify
NETFLIX
DEADPOOL

SPEAKER

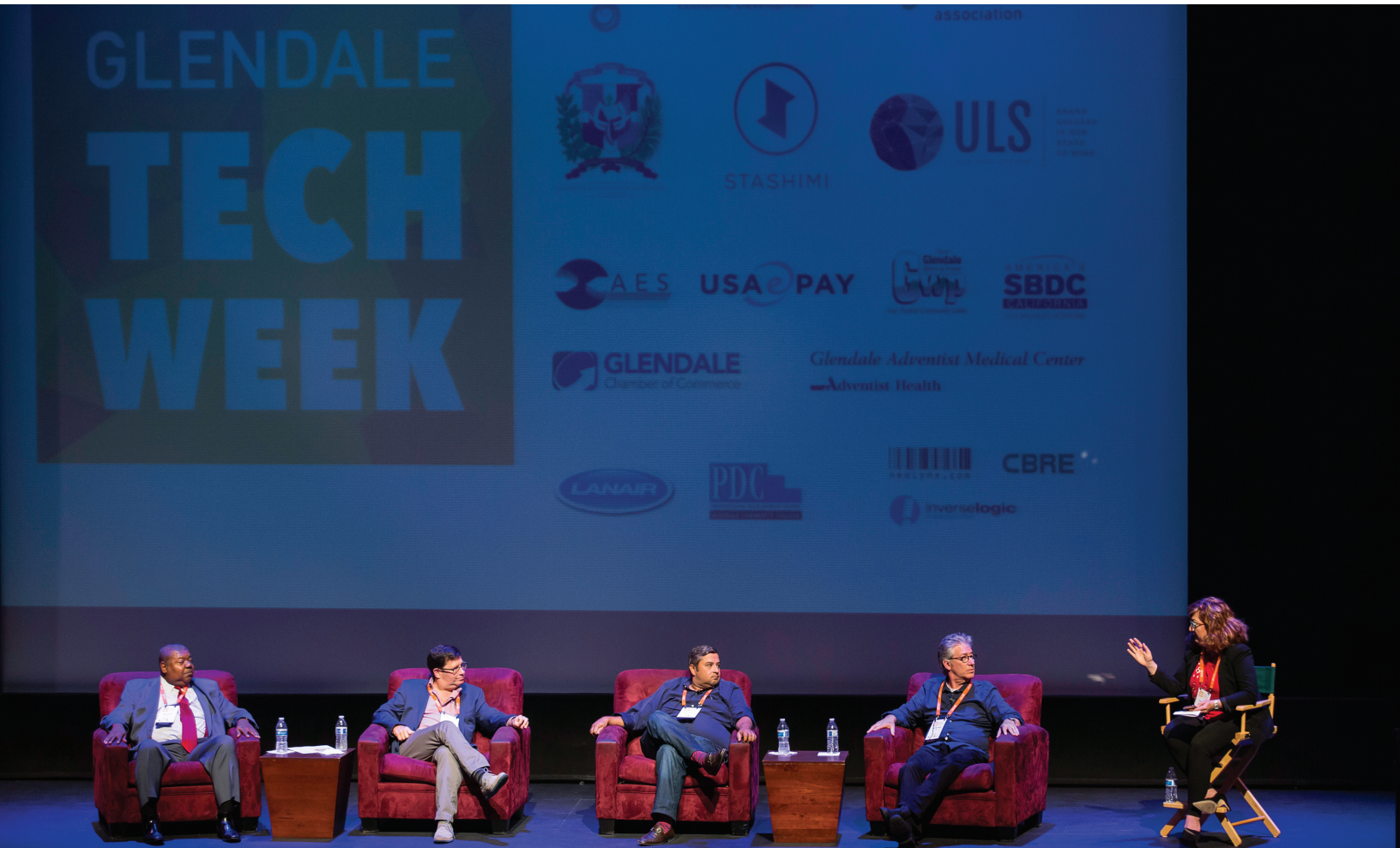
GLENDALE
TECH
WEEK

Recommendations for a Glendale Tech Strategy

Glendale has the makings of a tech hub but lacks the identity and self-awareness of an acknowledged tech center. It enjoys a strong concentration of firms in bioscience, architectural and engineering services and wholesale activities related to high tech. In addition, aerospace, management, scientific and technical consulting and food technology firms post significant sales volumes in the city. Moreover, although the presence of large media companies like Walt Disney Company and DreamWorks Animation does not translate into a large number of direct employees in Glendale, these studios loom large in how the city views itself and how others perceive its potential.

Glendale's reputation as a business-friendly city with a good quality of life is one of its strongest assets. Although Glendale is not generally considered a tech hub, its proximity to universities and institutions of higher education provides a potentially strong pipeline of talent for start-ups and more mature tech companies. The availability of office space that can be repositioned for tech and the existence of a strong, intact manufacturing district also represent valuable assets for attracting tech firms ranging from information technology and digital health to robotics and advanced manufacturing.

The following recommendations address primarily the role that the city can play in promoting the tech industry. However, for the tech sector to truly thrive in Glendale, leadership from among the ranks of Glendale's entrepreneurs and businesspeople must emerge to organize, connect and cheerlead the growth of a robust, deeply networked tech community. The city can play an important supporting role, but industry itself will need to drive the efforts to recast Glendale as a promising place for new and growing tech firms.



Promote Internal Marketing of Glendale as a Tech Hub

Interviews with tech companies and investors in Glendale revealed that existing tech firms in the city are often not aware of the presence of other companies in the same or related market space. The web of tightly networked connections and overlapping relationships that is critical to the development of thriving tech hub does not yet exist in Glendale.

We recommend that the city continue to play an initial convening role in connecting entrepreneurs, investors, funders and other professionals in Glendale. This will help create a stronger network among different firms and individuals within the tech sector and link them to supporting services. Tech on Tap, a monthly event sponsored by the Glendale Economic Development Division, provides tech professionals an opportunity to come together to meet in a social environment. Launched in May 2016, Tech on Tap has gained steady momentum with each passing month. The rapid growth in attendance at the Tech on Tap events demonstrates the unmet need for activities and events that allow the community's entrepreneurs and investors to connect.

As Tech on Tap continues to build momentum, we recommend that the city encourage the formation of a separate entity to organize events and facilitate connections within the tech community over the long-term. This organization should be led by motivated Glendale-based stakeholders who can guide and lend credibility to the effort. The structure and potential role of this organization is described in more detail in the following section.

Establish a Technology-Focused Advocacy Organization

A non-governmental advocacy organization can be a critical component to growing and creating a more visible tech community in Glendale. This organization would be dedicated to creating a vibrant tech ecosystem in the city, and facilitate connections between the tech community and other sectors. The success of such an organization hinges on the active involvement of an engaged technology sector, comprised of start-ups and established companies. This requires not only the involvement of the right people – who are able to devote time to growing the organization – but the right structure. The organization should be fully owned by local tech leaders and entrepreneurs, and should not duplicate the efforts of existing groups. The city can play a supportive role in launching the initiative through modest administrative and financial support, but planning and implementation should be led by local leaders. Appendix C provides a case study of the formation of Innovate Pasadena, a similar initiative launched in June 2013.

We tested this concept during our interviews with stakeholders. Most, if not all, viewed the idea of an organization favorably, and some even expressed interest in participating in its launch.

- The first and most important step is to identify leaders in Glendale's tech community that are willing and able to lead the effort. The city can assume the role of recruiting a "core" team of leaders, who would then become responsible for planning. Once a core team is in place, the city would assume a supporting role.
- Both the city and the core leaders should jointly determine if the initiative should be housed within an existing organization, such as the Glendale Chamber of Commerce, or launched as an independent entity. It is important that the city and the core leaders of the

group meet with key organizations and civic leaders early on in the process to gain support and ensure that efforts are not duplicative.

- Once the structure of the organization is determined, the core leaders should convene to brainstorm a path forward. Tasks for the group may include: identifying a mission statement and priorities of the organization, developing a coherent brand, developing a website, suggesting additional participants or partners, developing a strategy for soliciting funding, and delegating specific tasks to members or creating separate committees in charge of specific tasks. These items can be determined over the course of several meetings. The city may wish to provide administrative support for these meetings. In the course of this process, the group should delegate specific tasks to individual members or create committees to distribute the workload.
- The city could supply the initial funding for the development of a business plan, promotional materials, website development for the organization, as well as assist with the paperwork and process of creating a 501(c)(3), if applicable.

Build Civic Technology Infrastructure

Technology represents perhaps one of the best tools for cities to improve their delivery of services, increase transparency and broaden civic engagement. The goal of Glendale's Tech Initiative is not just to support an ecosystem of tech entrepreneurs, but to also identify ways in which technology can provide tangible benefits to all residents. Civic technology ("civic tech") is the integration of technology and innovation with a civic purpose to improve communities. To support a tech ecosystem, the City of Glendale can invest in civic tech strategies to enhance transparency and civic engagement, thereby making local government more accessible and accountable, and displaying a more comprehensive commitment to technology.

Glendale has already taken steps towards data access and government transparency, creating the Measuring Performance in Glendale (MPG) website which displays data related to the city's budget and other key performance indicators.[20] Other local governments have taken on similar projects related to data and transparency, as well as projects related to public engagement and decision making, data mapping, information crowdsourcing and more.

GLENDALE COMMUNITY COLLEGE'S CIVIC TECHNOLOGY INITIATIVES

GCC has hosted a number of civic tech activities in recent years. Two notable recent examples are the Valley Economic Alliance's Hackathon held on November 13, 2015, and the First Annual GCC Maker Faire on February 27, 2016. These events are intended to engage the local community in issues and advancements concerning education and the workforce in the context of tech, as well to provide valuable hands-on learning opportunities for the students that help plan and host them. GCC is currently developing a Cyber Security team for the National Cyber League, as well as planning for the Second Annual GCC Maker Faire to be held on February 25, 2017. The Computer Science/ Information Systems Department is also interested in hosting CyberPatriot competitions, which is part of the National Youth Cyber Education Program created to inspire students toward careers in Cyber Security or other science, technology, engineering, and mathematics (STEM) disciplines.

Hackathons are some of the most popular civic tech activities. By bringing together coders, students, government staff, engineers and other participants, these events use government data to develop solutions and build technology to address municipal challenges. One local example is Hack for LA, the official LA chapter of Code for America, which hosts Civic Hack Nights at Los Angeles Cleantech Incubator (LACI). Other ideas and projects from Hackathons in other cities have included real-time transit apps, online voting for neighborhood council elections and online requests for services and permits.

Implementing and expanding civic tech initiatives can be costly, but they can also save time and increase efficiency over the long run. It is estimated that more than $6.9 billion U.S. dollars will be spent on civic tech in 2015. While this is only about one quarter of total state and local government spending on IT, spending on civic tech has grown 14 times faster than traditional IT in recent years. Moreover, civic tech companies have attracted $431 million in private and philanthropic investment from 2011-2013.[21]

[20] City of Glendale (2016). Measuring Performance in Glendale. City of Glendale. https://performance.glendaleca.gov/

Many philanthropic entities are enthusiastic about propelling and supporting civic tech and entrepreneurship – including the Kauffman Foundation, Knight Foundation, and Bloomberg Philanthropies. This has increased the opportunity to access funding for tech education, tech entrepreneurship and civic tech programs.

The tech advocacy organization recommended above could take the lead in identifying and seeking out these funding sources for civic tech and tech education and training.

Strategies to support an infrastructure for civic tech include:

- Continue to track city performance metrics online, gradually adding more data;
- Engage key partners in the private, non-profit, philanthropic, and private sectors to develop hackathons or related programming focused on civic innovation;
- Seek out grant funding for technology education programming;
- Leverage Glendale's robust tech network, including its soon-to-be renovated Central Library, or a company who is willing to open their doors to host local hackathons;
- The city can commit to piloting top innovations based on ideas at hackathons or other tech-centered events.

Promote External Marketing of Glendale as a Tech Hub

Leverage Company Networks

To broaden Glendale's reach beyond the city and the region, the networks of various local firms and organizations, such as Armenian Engineers and Scientists of America (AESA) or Biocom, are valuable in making national and international connections to the Glendale tech scene.

AESA has chapters in New York, DC, Detroit and Northern California, and has already developed organic, global relationships with companies and students in Armenia; this includes Venture Armenia, a new two-week networking trip that AESA members take to Armenia to encourage education, professional development and global collaboration. Additionally, showcases and conferences like HyeTech bring together start-ups and exhibitors from the US and Armenia to connect them to investors, as well as each other. With public support and marketing for projects like these, tech organizations could find the key to their next stages of growth through funding, mentorship, new space or necessary equipment.

OCEANLAB
SECTOR: FOOD TECHNOLOGY

Oceanlab develops systems for distributed mapping and intervention in aquatic settings using swarm robotics, or the coordination of multiple robotics. Specifically, the "Data Diver" collects water surface and depth measurements, up to 100m, and provide measurement results in near real time. It was created as a tool to revolutionize the way scientists can study the ocean and other bodies of water, as well as a platform for testing for swarm robotics.

Biocom is a Southern California life science trade organization with approximately 700 member companies statewide. Biocom has recently opened its first office in Los Angeles, indicating an interest in fostering the life science industry in the Los Angeles

[21] Government Technology (2014). $6.4 Billion to be Spent on Civic Tech in 2015, Report Says. *Government Technology*. http://www.govtech.com/budget-finance/6-9-Billion-to-be-Spent-on-Civic-Tech-in-2015-Report-Says.html

region. Biocom's various member committees allow for companies to maximize their memberships and increase networking between tech sectors. Biocom also hosts over 75 events annually, including a Global Life Science Partnering Conference, which brings together senior executives, venture capitalists and business development professionals from around the world to network and do business. The group also hosts DeviceFest, an event highlighting the newest industry technologies. Glendale could work with Biocom to carry out joint marketing activities, or to act as a resource to Biocom members in need of space within the city.

Attract Conferences and Events

Conference and trade show planners are always looking for large spaces with amenities, often in cities with access to projects or facilities of importance to that particular program. The sheer number of Glendale-based tech companies, as well as the city's proximity to film studios, institutions of higher learning, entertainment amenities etc., make it an attractive location for tech based events, conferences and trade shows. Promoting Glendale's current amenities and planned enhancements could be a way to attract events to the local area.

There are currently 600 new hotel rooms already planned or in progress in Glendale at the Hyatt, Hampton Inn, Starwood Aloft, IHG Hotel Indigo and Marriott AC Hotel. Culturally significant spaces (e.g., The Museum of Neon Art and the Alex Theatre), or large spaces that corporations utilize for events, including the offices of YP or Legal Zoom, provide both the City of Glendale and local businesses with creative spaces to promote. The 40,000 square foot Civic Auditorium presents another option for a large-scale meeting venue.

LIFTOFF

SECTOR: MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING

Liftoff "helps passionate entrepreneurs turn great ideas into great companies." Their team has assisted in the creation of over 70 products and companies and the acquisition of over $50 million in capital throughout their careers. Liftoff helps those with ideas save on time and money by helping them develop their vision into a business strategy. Some recent clients have included Thrively, Love Lab, Dials, and 3Diligent.

Recently, the City of Glendale experimented with hosting a multi-venue conference in Glendale with its first Glendale Tech Week, held September 14-17, 2016. Close to 1,000 people attended nearly 30 events hosted throughout the city; gatherings were held at a number of local venues, including the Verdugo Job Center, CBRE, Alex Theatre, Eden on Brand, MGN Five Star Cinema, the Maryland Paseo, Glendale Community College, YP, Legal Zoom, the Moose Den, Hollywood Production Center, Bourbon Steakhouse and many more. The successful event went beyond facilitating the development of the tech ecosystem in Glendale; it was an important first step in demonstrating that the city can house large scale conferences and summits.

While attracting conferences and events may prove financially beneficial in the short term, the real benefit to attracting tech related events is to raise Glendale's profile and credibility in the tech community.

Strategies to attract conferences and events include:

- Identify key, credible tech organizations that also regularly hold events, conferences or trade shows of importance to the tech community.
- Create an online tourism map or infographic of Glendale, highlighting points of interest.
- Create a city webpage to promote Glendale as a great place for events; include pages like "Search for Venues," "Why Glendale?," "Incentives," and "Planning Resources."
- Leverage local hotels' current marketing activities.
- Work with Glendale-based firms to identify high profile conferences they may already attend/ participate in, and outreach to organizers to encourage interest in Glendale.

Promote a Business Friendly Environment

Glendale has worked hard to create a business-friendly environment for local firms. In 2014, it was recognized as Los Angeles County's "Most Business Friendly City" at LAEDC's Eddy Awards for its commitment to economic development. It has no business tax and offers a one-stop, expedited permitting process, site search selection assistance, utility consultation and more. To further enhance the experience for businesses, especially for the tech community, the city should retool its current Business Concierge program to provide various supportive functions for the tech sector.

THE GLENDALE MASONIC TEMPLE
SECTOR: MEDIA

The Glendale Masonic Temple, located at 234 S. Brand Boulevard, recently underwent a dramatic renovation into a Class A open-floor-plan office space. The nine-story, 1929 art deco building is now home to CBRE's North Los Angeles office, which relocated from Studio City. The office lacks assigned seating, and uses an app to book conference rooms. This is part of CBRE's "Workplace 360" initiative to encourage collaboration across departments. The workspace also includes a concierge service, which assists employees with everything from grocery shopping to dry cleaning.

Strategies to enrich a business-friendly environment include:

- Make a specific webpage for the Business Concierge program with contact information clearly listed.
- Consider an online portal for inquiries instead of just the phone number.
- Move some Concierge resources or services online.
- Give a "face" to the Concierge, with an identifiable staff member who specializes in the needs of tech firms.
- Create a separate "Tech Toolkit" to go along with the business toolkit already in existence that outlines steps to:
  - Start a Business. For example, the LA Business Portal is a new, online Start-Up Guide run by the City of Los Angeles that assists with planning, creating, managing and growing a business. The "Assistant" leads visitors through questions to determine what steps they need to take to start a business within the city.
- Feature tech companies each month in a newsletter with current operations, why they located in Glendale, why they stay, etc.

Another strategy includes creating a professional role of "Business Concierge" or a Coordinator. In this capacity, the Business Concierge would be charged with providing tailored services the tech industry and wider business community, with responsibilities that may include the following:

- Work with commercial landlords to upgrade outdated office space .
- Identify commercial landlords willing to provide short-term/flexible leases for start-ups.
- Cultivate relationships and partnerships with companies and corporations by connecting established companies to amenities and networks, and assisting new companies in navigating city processes and locating business resources.
- Be savvy about existing incentives and credits that exist at the local, regional and state level for businesses.
- Refer businesses to existing workforce development and training programs.
- Work with residential developers to market housing options to JPL, Caltech and Occidental students and faculty.
- Author a monthly tech newsletter.

400-450 N BRAND
SECTOR: MEDIA

400 and 450 North Brand office buildings together make up a full city block in Glendale's Central Business District. On-site services and amenities include free Wi-Fi, onsite gym, a full service restaurant, 24-hour security, a courtyard, and conference facilities. It has comprehensive parking options, executive parking, car pool and electrical car parking, Zipcar cars available on site, an alternative transportation program, as well as a car wash service. The buildings are home to several tech based companies, including Regus (Co-working space) and Black Diamond Ventures (Venture Capital Firm).

COLLAB&PLAY
SECTOR: MEDIA

Collab&Play, located at 1800 S. Brand Boulevard, is a family friendly co-working space for entrepreneurs, freelancers, and business owners who also happen to be parents. Collab&Play not only provides a comfortable work area for adults, but also offers onsite childcare. Trained staff are on hand to provide care for children 3 months to 4 years old. Collab&Play also offers parent-child classes, professional workshops, a women's group, and more offered to members each month.

REGUS
SECTOR: TELECOMMUNICATIONS

Regus has been providing workplace solutions globally since 1989. It manages office space, virtual offices, video conferencing, and IT, telephone, and Wi-Fi support on a contract basis for companies of all types – from startups and entrepreneurs to established, corporate businesses. It has two business centers located in Glendale at 450 N. Brand Boulevard and 655 N. Central Avenue, and a new location in Downtown Glendale at 201 N. Brand Boulevard.

Create a Space for Tech

Creating a physical environment that attracts and promotes the growth of tech requires a strong focus on upgrading real estate and infrastructure, as well as developing a strategy to provide coveted amenities. Based on our stakeholder interviews, we identified the following geographic areas of focus:

Creative Office Space: Brand Boulevard

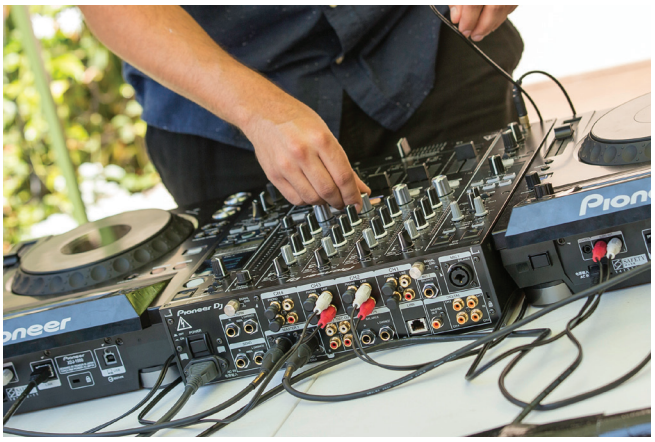
Brand Boulevard is Glendale's primary commercial and office corridor. Nationally recognized companies have operations located on or near Brand Boulevard, including Nestle, Avery Dennison, Whole Foods, LegalZoom, YP and others. Until recently, much of the office space along Brand was out-of-date and unappealing to tech companies. Moreover, many of these office buildings offer multi-year rental agreements, which are challenging for early stage companies that may need to unexpectedly expand or scale back depending on the success of their businesses. Interviews with local brokers indicate that landlords along Brand are increasingly interested in upgrading their office space. This trend is further bolstered by local successes such as the CBRE Masonic Temple and 400-450 N. Brand Boulevard projects.

Furthermore, creative, co-working spaces play a large part in the evolution of the contemporary office. Co-working spaces are shared working environments, comprised of individuals or companies who are still working independently, but may share common goals or values. Co-working spaces offer users quality space with low overhead and shared costs. Perhaps most importantly, co-working spaces offer the chance to network and collaborate with others, which in turn may lead to innovation. Some of these spaces already exist within Glendale, such as cowork100, Collab&Play, Hollywood Production Center and an upcoming Regus co-working space in Downtown Glendale.

- The city can support this trend further by expediting permitting for interested landlords interested in providing upgraded office or co-working space.

  Also, the city could work to identify landlords willing to set aside a small amount of square footage at a reasonable rate for flexible or short-term leases in order to help drive startup firms to locate in Glendale. The city, along with local brokers, can jointly market the available space in order to attract companies.

- Further, the city should move forward with its current activity of augmenting its dark fiber network, thus offering companies along Brand access to speedy internet service.



GLENAIR

SECTOR: AEROSPACE PRODUCTS, WHOLESALE ACTIVITIES RELATED TO HIGH TECH

Glenair was founded in 1956 as a producer of electrical connector accessories and has evolved to produce a broad range of military qualified and commercial devices that connect and protect electronics, including wires and cables, power connectors, fiber optic connectors, electrical conduits, and more. Its innovations continue to serve the aerospace, armored vehicle, naval and marine, railway, and telecom markets. Its headquarters are located in West Glendale at 1211 Air Way.

It is worth noting that the City is already taking steps to making creative space available to not only the tech industry, but to the Glendale community at large. The Glendale Central Library's $15 million renovation will include audio/visual equipment, a maker space, a design studio and a Chromebook center and loaning desk for students. There will be meeting rooms, a computer literacy center, an auditorium and arts and culture pop-up installations financed for the next two years. This will be a public space available for businesses, entrepreneurs, creatives, students and families.

DREAMWORKS ANIMATION

SECTOR: MEDIA

DreamWorks Animation is one of the most recognized names in family entertainment with a history of developing and producing animated films such as Shrek, Kung Fu Panda, and How to Train Your Dragon. It also creates original TV series, interactive media, consumer products, and innovative technologies. Founded in 1994, DreamWorks Animation's campus is located near the Los Angeles River in Glendale.

Fiber Optic Business Plan

Many tech companies and start-ups have lamented the lack of a robust fiber optic network in Glendale. Recently, the Glendale City Council noted and filed a report regarding a Utility Fiber Optic Business Plan for Glendale Water and Power (GWP) – a plan based on research by Sequoia Telcom Associates (STA) completed in March of 2016. GWP is considering expanding its current dark fiber to include broadband services to commercial and carrier customers. The plan confirms a strong demand for high bandwidth services, especially in areas with concentrated tech firms, and notes GWP's ability to engineer, furnish and install fiber. Based on these findings, STA proposed a two-year implementation plan for GWP to build, test and implement network servicing by 2018.[22] The roll out of fiber access would create a tiered system of service, prioritizing areas in the city where it is most beneficial.

Industrial and Manufacturing Space: West Glendale

Glendale's industrially zoned areas are few and far between, and are largely located on the west side of the city, along San Fernando Road and the Los Angeles River. Interviews with local brokers reveal a keen developer interest in redeveloping industrially zoned parcels into commercial or residential use. Industrial land is a critical component of any prosperous city. Industrial land offers space for firms with jobs at various skill and education levels, and in multiple business sectors. Advances in technology are replacing auto dismantlers and "smoke stack" industries with light manufacturing, biomedical, and creative industries. Industrially-zoned land offers entrepreneurs and businesses a space to grow and expand, as well as transition to full production and distribution of products, a function that may be prohibited in commercially zoned areas.

Industrially zoned land is critical to two of Glendale's most prominent sectors: aerospace defense and entertainment. Aerospace is a legacy industry in the city, given its proximity to Lockheed Martin in Burbank and Hughes Aircraft Company (which was founded in Glendale). Stakeholders noted that aerospace defense companies still exist in Glendale, but must increasingly diversify their base and adopt technology (automation and robotics, cybersecurity, additive manufacturing, etc.) to remain competitive in the market. Similarly, Glendale's major studios such as Disney Interactive and DreamWorks are major job creators in the city. Their location on and near industrially zoned land allows for

[22] City of Glendale (August 30, 2016). Agenda Item: Presentation of the Final Glendale Water & Power Fiber Utility Business Plan. City of Glendale. http://www.ci.glendale.ca.us/government/council_packets/Reports_083016/CC_8b_083016.pdf

ENHANCED INFRASTRUCTURE FINANCING DISTRICTS (EIFDs)

Cities can create EIFDs to finance public facilities, development, and projects of communitywide significance through a number of financing mechanisms. These mechanisms include using tax increment revenues to secure bonds (with 55% voter approval); securing loans from cities, counties, or special districts that are located within the EIFD; levying a number of fees or assessments; as well as securing financial assistance from the private sector.

the co-location of complementary production, post-production and visual effects companies.

Glendale's industrial land is an invaluable asset to the tech industry. Tech is likely to look very different in 20 years. Industrial land allows for the flexibility for cutting-edge sectors of tomorrow to grow, while retaining businesses and jobs today. We recommend that the city take a proactive, supportive stance on industrially zoned land and commit to the preservation and rehabilitation of its infrastructure.

- Direct city staff to review Glendale's zoning code. Should the industrial zone permit non-industrial uses, the city should strengthen the language surrounding industrial zoning, reinforcing the uses of its present and future manufacturing economy and maintaining key employment sectors and jobs.
- Take stock of infrastructure needs in West Glendale, and seek grants for stormwater management, sewer improvements, utility upgrades and other improvements as needed.
- An infrastructure study could also act as a precursor to the creation of an Enhanced Infrastructure Financing District (EIFD) within the city to finance infrastructure development needed to attract the next generation of advanced manufacturing and fabrication.

Medical Related Uses: North Glendale

The community of North Glendale (which includes Verdugo City and Montrose) is characterized by its rural suburban character and its proximity to open space. The area is also home to the USC Verdugo Hills Hospital, a community hospital that offers world-class care in programs ranging from orthopedics, cardiac rehabilitation, critical care, physical therapy, and bariatrics among others. Their affiliation with the Keck School of Medicine at USC allows for patient access to clinical trials and renowned specialists. USC Verdugo Hills Hospital, along with other Glendale hospitals, is also a significant job generator in the city, offering employment at varying skill levels.

- The city can play a significant role in encouraging uses to support the hospital, such as medical offices, research facilities, and other medical related uses. Given North Glendale's relative proximity to the Jet Propulsion Laboratory in La Cañada Flintridge, there may be an opportunity to attract tech-related firms eager to locate away from the city's traditional business hubs as well.
- USC's presence and commitment to North Glendale can play a significant role in locating more health care uses in the area. We recommend that the city meet with Verdugo Hills Hospital and USC staff to get a better sense of their local needs and the potential to expand uses and create additional supporting facilities.

Tech Incubators/Accelerators

The terms "accelerator" and "incubator" are often used interchangeably. For the sake of clarity, we rely on the distinction drawn by Brad Feld in his book *Startup Communities*.[23]

Accelerators are highly competitive, cohort based programs that include mentorship and educational components and often culminate in a public pitch event or demonstration event. Prospective applicants

[23] Feld, Brad. (2012) Startup Communities: Building an Entrepreneurial Ecosystem in your City. *John Wiley & Sons, Inc.*

are rigorously screened, and only a small percentage of applicants are accepted. Accepted applicants have access to experienced entrepreneurs and mentors and are often given some seed money in return for equity in the company.

Incubators tend to be year-round, space driven, and focused on economic development. Incubators will provide space, other infrastructure and advice in exchange for a fee and, in some instances, some amount of equity. Incubators lack the competitive dynamic of an accelerator, and de-emphasize the role of the experienced entrepreneur as mentor, often focusing more on filling vacancies.

Incubators are valuable to the tech industry, but we believe that all of the key benefits can be provided by the private sector in the form of high-quality co-working spaces. Some of these spaces already exist within Glendale: cowork100, Collab&Play, Hollywood Production Center, and others. Other high quality spaces such as Cross Campus and WeWork are year-round and space driven, but in order to make their spaces more appealing to investors they have invested heavily in programming relevant to the start-up community. Should Glendale wish to pursue an incubator it would be far more cost effective, and just as beneficial, to partner with a co-working space versus building a space from scratch.

Similarly, Glendale could also pursue the development of an accelerator in partnership with the private sector and non-profit sector. In fact, should the city move forward with the creation of a tech focused advocacy group, that organization may wish to take the lead in organizing an accelerator program. By collaborating with partners and leveraging its existing base of tech entrepreneurs, it is possible for Glendale to craft a program that provides significant benefits to the tech community.

If Glendale pursues a partnership with the private sector to create an incubator or accelerator, the following comparison chart showing different options and various trade-offs may be helpful:

	INCUBATOR	ACCELERATOR	NO ACTION
PROS	• Low cost • Easy to administer • Supports entrepreneurs • Incentive for a high-quality co-working space	• Moderate cost • Supports entrepreneurs • Incentive for a high-quality co-working space • Focused effort (limited time) • Highest-quality start-ups • Active outreach to whole ecosystem	• Zero cost
CONS	• Year-round effort • Inconsistent quality of start-ups; success measured by occupancy, not outcomes	• Difficult to administer/ operate a program well • Hard to source good entrepreneurs • Hard to find good mentors	• No support for entrepreneurs • No incentive to encourage high-quality co-working space

- Multiple networking events, in particular a demo day at the program conclusion.
- Glendale-developed partnerships with angel investors, venture capital firms and other seed-stage investors that would be willing to listen to, and potentially fund, "accelerated" companies.

We do not believe that Glendale should pursue a general focus technology incubator or accelerator if it were to do so in a fashion that competed with, as opposed to complemented, private sector efforts. A go-it-alone strategy is expensive, time consuming, risky and likely outside of the city's core strengths. In contrast, a strategy done in partnership with the private, non-profit, and educational sectors would provide many mutual benefits. Assuming an accelerator pursued in partnership with the private sector, we recommend the following:

- Develop an accelerator program to be operated for a time-limited period, such as 90 days, once a year. Should the first cohort or two prove successful, the city can always increase the frequency of the program. An accelerator program requires more effort and greater intensity than an incubator, but

An incubator program could include:

- Subsidized desk space at a Glendale-based co-working facility or office building with flexible space, perhaps with time limits on tenancy.
- Discounted services from Glendale based companies, such as YP and LegalZoom.
- Assistance from an assigned Glendale business concierge on permitting, incentives, marketing, etc.– but especially for transition into space in Glendale post-incubator residency.
- Multiple community events.

An accelerator program could include:

- Program promotion and outreach to draw a large number of applicants, from which the best candidates can be selected.
- A competitive grant program that provides one to four cohorts of entrepreneurs/companies each year with subsidized desk space at a Glendale based co-working facility for a short period of time.
- Mentorship from a select group of experienced volunteer mentors who are willing and able to spend at least a few hours a week with the entrepreneurs/companies with which they work.
- Discounted services from Glendale based companies, such as YP and LegalZoom.
- Assistance from an assigned Glendale business
- Concierge on permitting, incentives, marketing, etc.– but especially for locating within the City of Glendale post-program.

QUEST DIAGNOSTICS

SECTOR: BIOPHARMACEUTICALS & MEDICAL DEVICES

Quest Diagnostics is a leading provider of diagnostic testing, information, and services for patients and doctors. They provide medical testing services, as well as clinical trials testing and healthcare IT research. Each year, they serve almost 30 percent of American Adults and about half of the physicians and hospitals in the U.S. There are four Patient Service Centers/Testing Locations in Glendale. They provide routine testing, Blueprint for Wellness services for employers to provide healthy living incentives for employees, pediatric specialties, and drug testing services.

we believe the benefits outweigh the negatives. A dedicated, high-impact effort by the city would draw far more attention than an ongoing, more low-key initiative like an incubator. Further, a high-quality, competitive accelerator program will attract and engage much more dedicated entrepreneurs than a non-competitive incubator.

- Partner with a high-quality co-working space. The city could consider pledging a guarantee of a certain amount of occupancy for a predetermined number of seats for a fixed amount of time each year in order to provide a degree of revenue certainty. This could prove to be an inducement for a co-working space considering investment in a local facility. The presence of co-working spaces should be carefully considered before the city makes such a commitment.
- Leverage the work done in developing a regional database/census of technology companies. This data should be the basis for:
  - Sourcing strong candidate entrepreneurs and early-stage companies.
  - Identifying the best entrepreneurs to serve as mentors for the accelerator program.

BIOTECH LEADERS ACADEMY

Biotech Leaders Academy is a program of the non-profit LA Bioscience Hub that aims to ensure that biotech industry reflects the diversity and dynamism of Los Angeles. LA Bioscience Hub partnered with East Los Angeles College (ELAC) for the 2016 Biotech Leaders Academy summer pilot. The Biotech Leaders Academy has two key components: (1) an entrepreneurship academy and (2) paid internships at local biotech firms. The Biotech Leaders Academy pairs students with paid 10-week internships at growing biotech companies and incubators to provide them with hands-on work experience critical in this competitive field. The internship component is modeled after work study programs, with LA Bioscience Hub and participating biotech companies jointly funding student compensation. The five-module entrepreneurship academy exposes students from diverse backgrounds to the spectrum of careers available after completing their education. Students meet local entrepreneurs and industry professionals, learn about different career pathways, and connect to local resources that can support their professional growth and success in Los Angeles.

  - Promotion of program and the more inclusive community events.
- Actively build relationships with investors – angels, seed-stage funds and VCs – so that demo days will be well attended. If necessary, provide small incentives, such as paid travel for investors to come.

A sample budget is shown in the Appendix A.

Create and Support a Tech Workforce

As the Baby Boomer generation approaches retirement, the state of California is facing a void in the workplace, particularly in Science, Technology, Engineering and Math (STEM) as well as healthcare fields. A recent report by the Campaign for College Opportunity states that over the next decade, California will need a total of 1 million STEM workers and an additional 450,000 health care workers to meet the needs of the economy.[24] Of those 1 million STEM workers, approximately 75% of them will require a bachelor's degree or higher. Currently, only 33 percent of California's working-age population have college degrees.

Approximately 37.9 percent of working age Glendale residents hold a bachelor's degree, remarkably higher than the state average. Further, Glendale's educational attainment is to par with its neighbors Burbank (38.2

[24] The Campaign for College Opportunity. (June 2016). Needed: Sy(STEM)ic Response: How California's Public Colleges and Universities are Key to Strengthening the Science, Technology, Engineering, and Math (STEM) and Health Workforce. *The Campaign for College Opportunity*. http://collegecampaign.org/wp-content/uploads/2016/06/2016-SySTEMic-Response-Full-Report.pdf

percent) and Pasadena (49.1 percent). When compared specifically for STEM degrees, however, Glendale's population is the most degree rich, with 32.7 percent of those with a bachelor's degree or higher majoring in a STEM field, compared to Burbank at 26.7 percent, and Pasadena with 30.6 percent.[25]

Glendale's relative advantage in STEM degrees, coupled with the growing statewide demand for STEM workers, presents a unique opportunity for the city to encourage workforce development organizations to work together in creating and strengthening Glendale's current and future STEM workforce. This work should be done in collaboration with organizations such as Glendale Unified School District (GUSD), Glendale Community College (GCC), the Verdugo Workforce Development Board (VWDB), and various public, private and non-profit sector partners.

Jobs in the tech sector require very specific skill sets, making it hard for workers to find entry level positions without some form of training; this is true of digital tech jobs as well as manufacturing jobs. Furthermore, filling the growing employment needs in trending technology sectors, such as cybersecurity or robotics, can be difficult as training programs must regularly refresh their course offerings to keep up with software and skills updates. Creating and marketing a credible and sustainable suite of programs and resources for workforce education and training is key to creating and maintaining a strong tech workforce in the city.

These programs or resources can be grouped into three categories: Career Awareness, Work Experience, and Continuing Education.

Career Awareness

Career Awareness programs are key to generating interest and enthusiasm in STEM and encouraging academic achievement among students. The local tech industry can be further strengthened by continuing to invest in tech-focused youth education and awareness programs. The Glendale Unified School District, in collaboration with Glendale Community College (GCC), and Verdugo Workforce Development Board

AGE OF LEARNING

SECTOR: COMPUTER SOFTWARE, DESIGN & SERVICES, AND ONLINE PUBLISHING

Age of Learning assists pre-k, kindergarten, and elementary school students, access comprehensive and engaging technology-based educational programming. Age of Learning offers subscriptions for home use as well as offers free classroom accounts for schools, libraries, and other educational organizations. Since its flagship project, ABCmouse.com, in 2007, it has provided innovative educational opportunities, especially for children between 2-7 years old. It engages experts in both curriculum development as well as business and technology management. Age of Learning is a partner in the White House ConnectHome Initiative to increase access to digital learning for families.

[25] American Fact Finder. (2016). Population 25 years and over with a Bachelor's degree or higher attainment. *2015 American Community Survey 1-Year Estimates*. http://factfinder.census.gov

(VWDB), and other partners, should continue to pursue grants to fund K-12 STEM programs. Potential existing partnerships that can be bolstered include:

- Strengthening the existing technology partnership programs between GCC and local K-12 schools. GCC currently runs the GCC Science Center and Planetarium which offers hands-on science activities at no cost to students.

- GCC already runs a popular dual enrollment program, which allows high school students to take college courses for high school and/or college credit. Workforce development partners may wish to work with GCC and explore the possibility of offering dual enrollment courses focused on the STEM fields.

- The Glendale Central Library can also be a space for youth innovation. Being an accessible space, both geographically and financially, youth would greatly benefit from technology classes, hackathons and access to coding software or educational programs to propel them into the world of technology. Many philanthropic organizations provide funding for tech education and innovation, and for libraries, including the following:

  - Knight Foundation's News Challenge on Libraries: A call for ideas focused on advancing libraries to better serve individuals and communities in the 21st Century.[26]

  - Best Buy Foundation's Community Grants: Provides grants to non-profit organizations or public agencies that are giving teens access to opportunities through technology.[27]

Work Experience

As the City's only public higher learning institution, Glendale Community College is an invaluable asset to building the Glendale's tech workforce. The College offers various career and technical programs in the sciences, manufacturing, engineering and computer technology. GCC's robotics lab and advanced manufacturing facilities are well-poised for a variety of partnership opportunities with local private or public organizations.

Conversations with stakeholders pointed to the importance of connecting GCC students to meaningful, paid careers in the tech industry. Stakeholders noted that students with a history of relevant internships have a much better chance at landing a full-time position upon completion of their studies. Beyond beefing up a resume, internships also provide a student the opportunity to "test out" a career, build a network, and establish relationships with mentors that can prove beneficial down the line. While professors may connect

[26] Knight Foundation. (2016) How might libraries service 21st century information needs? Knight Foundation. https://www.newschallenge.org/challenge/how-might-libraries-serve-21st-century-information-needs/brief

[27] Best Buy. Community Grants. *Best Buy*. https://corporate.bestbuy.com/community-grants-page/

promising students to companies on a one-off basis, there is no dedicated program in place that recruits and matches students with tech companies.

Interns are beneficial to tech companies as well. Interns can take on supportive tasks, allowing employees to focus on projects where high-level expertise is needed.

We recommend that interested parties (such as the City, GCC, Glendale Youth Alliance, VWDB – the tech advocacy organization described earlier in this report– and others) co-design a Tech Academy aimed at connecting promising GCC students to paid summer internships in the tech industry. The goal of the Tech Academy is to nurture the next generation of Glendale-based tech entrepreneurs.

- While one organization can take charge for managing the day-to-day functions of the Academy, it will likely need to seek out and collaborate with other organizations to: gain funding and sponsorships, recruit students, recruit companies and speakers, etc. Participating organizations should have a clear understanding of their roles before moving forward.

- A key step to launching the Tech Academy is identifying funds to pay for student internships as well as to fund one part-time Program Coordinator. This task should be settled well in advance of the program launch, and must be carefully coordinated as some funding sources have very specific eligibility requirements and timelines for disbursement. Though companies should be strongly encouraged to fund their summer intern, the program should be mindful that some start-up companies may not be in the financial position to do so. The LA County Youth Jobs (LACYJ) Program, described later in this report, may be a promising source of funding.

- Once the funding is secured, the Program Coordinator must undertake the time-intensive process of screening and recruiting companies. At the same time, the Program Coordinator must work with GCC to identify a pool of promising students for this program. These tasks must be performed simultaneously as the number of internship slots depend on the number of recruited companies and vice-versa. The Program Coordinator should outreach to existing student groups such as the Robotics Academy and other STEM-focused programs. Similarly, for companies, the Program Coordinator should work through existing networks to identify local companies willing to participate.

- For companies: The Tech Academy should develop a Company Interest Form for companies to fill out, containing at least the following information:

  - Description of Products or Services
  - Preferred Major/Desired Skill Sets
  - Brief Description of Internship

GLENDALE COMMUNITY COLLEGE'S ROBOTICS ACADEMY

GCC's Robotics Academy provides students with a cutting-edge curriculum in the fields of robotics, mechanical and electrical engineering, and computer science, in addition to teaching fundamentals of project planning and execution that are essential to perform at a high level in the modern workplace. Robotics academy faculty work closely with GCC's manufacturing and business departments to infuse a real-world experience for students preparing for careers in engineering. After finishing introductory and intermediate classes, students participate in a capstone course to complete sophisticated engineering projects. This culminating segment of the academy is a two-semester course sequence that has the dynamic of an engineering start-up. It allows students to work in various teams to design and build portions of a complex project requiring integration of multiple subsystems. The projects engage students in intense research, organized teamwork, robust written and oral communication. Projects have included the complete design and fabrication of a human-scale robotics arm, a large format 3D printer, and an autonomous rover, among others.

- For students: The Tech Academy should require that students submit a cover letter and resume. The Tech Academy should require interested students to work with GCC's Career and Employment Services Department to develop and strengthen their materials and interview skills.

- Once the companies and students have been identified, the Tech Academy should organize a "match-making" event, where interested companies will have the chance to meet and interview students that best match the company's needs. Following the interviews, the Program Coordinator can work with companies to send out job offers to selected students and provide support in generating employment agreements.

- A critical part of the Tech Academy is exposing selected students to the spectrum of careers available to them once they complete their studies. Students should meet as a group a few times over the course of the summer for the entrepreneurship portion of the Tech Academy. The Program Coordinator can work with partners to develop a series of entrepreneurship modules that cover a variety of topics such as: product development, securing capital, building a team, etc. Each of the modules can feature local entrepreneurs who can share their real world work experiences.

- The Program Coordinator should remain in continuous communication with students and companies alike to ensure that expectations are being met, and help address any challenges that may arise in the course of the summer.

- The Tech Academy should cap off the program by hosting an "end of summer" event, where students and companies can be recognized for their achievements and participation in the program. This event should be widely publicized, and perhaps include the participation of a keynote speaker and/or local elected official. The goal of the event is not only to celebrate current students and companies, but also to build momentum and support for the coming year.

Continuing Education

Tech is a rapidly changing industry. As such, there is a mismatch between the skills workers have and the skills the market needs. Investing in Glendale's tech workforce is key to keeping and attracting companies in the near and long term. Fortunately, Glendale's workforce development community is proactive in developing workforce development and training programs that are responsive to the tech industry's needs. Unfortunately, many tech companies and job seekers are unaware of these beneficial resources; or, if they are aware, these firms and employees may not understand how the programs can be relevant to their interests.

The VWDB and its partners are looking at strategies to support the tech industry's contingent workers.

Contingent or "gig workers" are common in the tech industry. For example, employment in some areas of entertainment and media are cyclical based on the release of new movies and TV shows. As such, many tech workers are self-employed, moving from one temporary job to the next, and are marginally connected to formal employment. Contingent workers are often ineligible for federally funded workforce services in spite of a lack of employment security. To address the need, the VWDB and regional counterparts are looking at a U.K.-based program called "Beyond Jobs," which calls for the creation of managed online "gig markets." These markets will provide workers with access to stop-gap employment and training opportunities. The goal is not to transition workers to full time employment, but rather help them secure their next assignment and make sure they are up to speed on the latest technology in the field. Though still in its early stages, the Southern California "Beyond Jobs" initiative is a promising effort to design a workforce program that directly responds to the needs of the tech workforce.

In ongoing efforts to engage the tech industry, on September 14, 2016, the Verdugo Jobs Center hosted a Tech Job Fair during Glendale Tech Week. The Tech Job Fair featured over 90 current job openings, including USC Verdugo Hills, Glendale Adventist Medical Center, LegalZoom, CBS Radio, Sierra Group, among others. Moving forward, the city should continue to coordinate with its workforce development partners to directly and creatively market their programs to Glendale's tech community, by participating in the recurring Tech on Tap series, or working with the potential tech focused advocacy organization. The city should also provide current tech businesses, as well as those looking to locate in Glendale with information about existing workforce programs – preferably with a clear one-page fact sheet and singular point of contact should they wish to get more information. The programs below are just a few of the programs that have been or should be deployed for benefit of the tech industry:

Funding Source or Organization	Provides	Existing Resources in Glendale
LA County Youth Jobs (LACYJ) Program	Funding for internships and work readiness training.	The Glendale Youth Alliance is a youth service organization that provides, coordinates, and supports employment opportunities for youth ages 14-24.
Employment Training Panel (ETP)	Funding for employers to assist in upgrading the skills of their workers. Businesses determine their own training needs and how to provide training.	The Professional Development Center at GCC provides custom training programs for companies and job seekers looking to upgrade their skills in the fields of engineering, design, computer software, manufacturing, etc. Studio Arts is a premier 3D animation and visual effects training facility. Studio Arts works with public agencies and private employers to provide training to those looking to upgrade their skills to remain competitive in or return to the workforce.
Transitional Subsidized Employment (TSE)	Funding for temporary paid work experience for work-ready, entry-level workers.	The VWDB uses TSE funding to place workers in entry-level jobs in the Healthcare Information Technology field.

In short, the City of Glendale, in collaboration with its various workforce development partners, should undertake the following to support continuing education and support for its tech workforce:

- Support and maintain a suite of workforce development and training programs that are responsive to the needs of the tech businesses.
- Creatively and proactively market the suite of workforce programs to tech companies, by participating in the recurring Tech on Tap series, working with the potential tech focused advocacy organization, and other credible tech venues and networks.
- Develop a set of marketing materials to market workforce training programs to tech companies and job seekers. These materials should succinctly describe the purpose and benefit of a given program, as well as a singular point of contact for more information.
- Support the VWDB "Beyond Jobs" initiative, aimed at supporting tech's contingent workforce. The city and interested stakeholders should support VWDB efforts in acquiring private or philanthropic funding for this initiative.
- Broadly market low- or no-cost training resources available to tech companies and job seekers: The Professional Development Center at GCC, Studio Arts, GCC's Robotics and Advanced Manufacturing Facilities and others.

STASHIMI

SECTOR: COMPUTER SOFTWARE, DESIGN & SERVICES, AND ONLINE PUBLISHING

Stashimi is a new app that aggregates information across news, music, and video outlets for over 50,000 artists in real-time. Users can personalize their feed with their favorite artists, and can watch videos or live shows, listen to live radio stations, and even stream SoundCloud tracks from within the app. Stashimi's offices are located in Glendale, along Brand Boulevard. According to Stashimi CEO Jürgen Kurz, a Glendale resident, "Glendale offers a perfect mix for our start-up: geographic proximity to some of the world's largest entertainment companies, a young, highly qualified, and passionate workforce, and a competitive advantage in operational expenses." Stashimi is currently free and available in the iTunes App Store.

Support Glendale's Quality of Life

Glendale can continue to support Quality of Life initiatives, projects, and improvements that attract and retain both businesses and residents to the city.

Transportation

Offering and promoting easy transportation options along Brand Boulevard can help link what many view as a disconnect between North and South Brand. In the short term, this could mean promoting local Beeline Bus Routes 1 and 2, and potentially enhancing bus stops to provide real-time arrival information and notifications. Overall, the Beeline shows small, but positive trends for ridership, compared to a larger ridership decline county-wide, exhibiting the potential opportunity for innovation. In the long term, improving transportation options could mean implementing a bike share program – similar to the City of Santa Monica's or LA Metro's – or implementing an autonomous bus, shuttle or car route. An example of this is NuTonomy in Singapore, a taxi trial model that currently consists of six cars, operating in a very small part of the city, within a limited 2.6 square mile area with designated pick-up/drop/off spots. Similarly, Uber will begin its autonomous vehicle project in Pittsburgh in late 2016, which will hopefully provide valuable evaluation information for future autonomous vehicle planning. A small-scale shuttle service along Brand could relieve some of the current congestion, especially during the weekends.

Another strategy to strengthen Glendale's quality of life is to continue to support initiatives that increase pedestrian activity, such as #GlendaleWalks, Meet Me on Brand, and the Maryland Paseo, where Stashimi sponsored Lunch Time Music during the month of September 2016.

Public Space

Continuing to support legacy projects that create a sense of place is an important component to creating a flourishing community. Space 134 is a plan to cap 0.7 miles of the 134 Freeway between Central and Glendale Avenues, creating 24 acres of walking trails, playgrounds, green space, sport courts, an event space and more. The concept for Space 134 takes into consideration all the aspects of planning for a large public space – mobility hubs, public venues, natural spaces and more.

The overwhelming support for Space 134 points to the importance of community and outdoor space to Glendale residents and stakeholders. There are various potential funding sources that Glendale could consider to maintain or enhance the existing quality of life in the city.

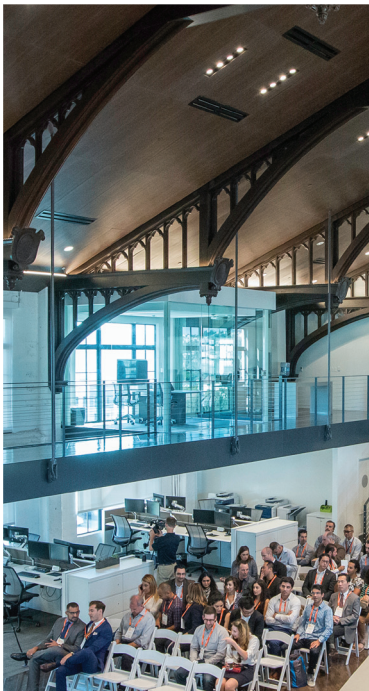
Public Sector Innovation

Another consideration is to establish an Office of Innovation. Many cities, including Los Angeles, Long Beach, and West Hollywood (WeHo), have launched major projects through innovation departments to promote civic engagement and adopt new technologies. WeHo's Innovation and Strategic Initiatives Department spearheaded a unified pedestrian wayfinding and street media system, integrating maps and signs throughout the community that promote active transportation and revenue generation. WeHoX, a cross-sector initiative to increase the city's capacity for innovation, held City Hall consultations with each city department, as well as gathered feedback from online surveys from stakeholders, to gauge civic priorities of the general public and city staff. The top areas of focus for civic innovation included Transportation, Parking & Mobility, Civic Engagement & Public Participation, Partnerships and Efficiency & Transparency in Local Government. From these themes, participants generated ideas including launching a Vision Zero Campaign, providing real-time transit information, establishing a WeHo Volunteer Corps, creating an Innovation Fund and launching free municipal Wi-Fi in public spaces.

Long Beach's i-Team, a recipient of Bloomberg Philanthropies' $3 million innovation grant, has focused on how to support entrepreneurs' start and growth in the city, with an online business portal, new purchasing guidelines for city agencies, and additional resources to help small businesses. Breakthru LB is the project of the City of Long Beach, along with CityMart, the Long Beach Community Foundation, and the Knight Foundation, to carry out a Request for Solutions to create an outdoor office space at Harvey Milk Park.

FINANCING SOURCE	AGENCY	EXAMPLE ELIGIBLE PROJECTS
Active Transportation Program (ATP)	Caltrans Grant	New or improved bikeways, traffic control, educational programming, recreational trails, etc.
Transportation Investment Generating Economic Recovery (TIGER)	USDOT Grant	Capital projects that general economic development and improve access to transportation.
Transit and Intercity Rail Capital Program (TIRCP)	California Air Resources Board	Bus Rapid Transit, transit infrastructure improvements, zero emission/natural gas vehicles.
Urban Greening Grant (UGG)	California Strategic Growth Council	Enhance or implement urban farming, community parks, trails and corridors.

Measuring



Success

There is value in the city periodically assessing the progress of the tech initiative. Collecting data on companies in the region, not just Glendale, from publicly available sources, such as the NAICS tool, or private databases, such as AngelList and Crunchbase, can assist in tracking changes to the local economy over time.

Furthermore, the city should choose specific metrics to assess the progress of tech in Glendale to report out to the City Council and the community at large. We suggest reporting outcomes on a yearly basis.

The City may wish to consider using some of the metrics listed below:

- **Number of tech-based businesses**
- **Tech employment**
- **Tech-based company average sales**
- **Square footage devoted to and/or recently converted to tech-based businesses or uses**
- **Media placements**
- **Educational attainment**
- **Measuring the strength of the network via annual surveys sent out to the tech community, interviews**

Appendix A.
Accelerator Economic Model

	YEAR 1	YEAR 2	YEAR 3	COMMENTS
KEY ASSUMPTIONS				
Cohorts/Year	1	1	2	
Companies/Cohort	5	10	10	
People/Company	2	2	2	
Accelerator term (mons)	3	3	3	

OTHER:
- Based on leased space in a functioning facility, i.e., no build-out or equipment costs
- Participating companies not charged fees
- No direct investment in companies by the City of Glendale

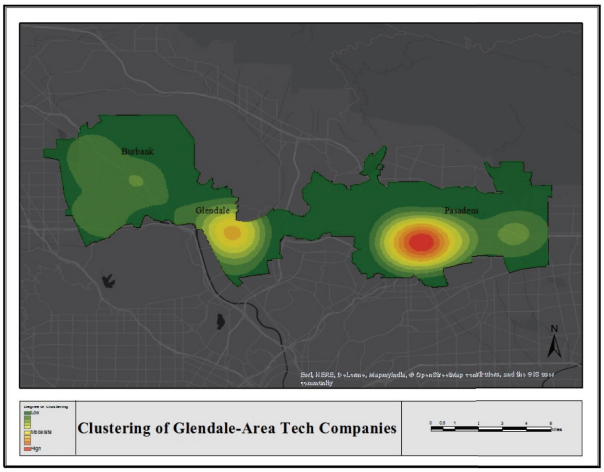
REVENUE				
Sponsorship				
Corporate	10,000	20,000	30,000	
Grant	10,000	10,000	10,000	
Sponsor, tot	20,000	30,000	40,000	
Revenue, tot	**20,000**	**30,000**	**40,000**	
EXPENSES				
Resident company cost				
Occupancy				
# people in residence	10	20	20	
months	3	3	6	
$/desk	500	500	500	
$/parking	50	50	50	
occupancy tot	16,500	33,000	66,000	
Team Events				
months	3	3	6	
# events/month	4	4	4	Weekly events for accelerator participants + community
$/event	100	100	100	
events, tot	1,200	1,200	2,400	
Demo Day				
#demo days	1	1	2	
marketing	1,000	1,000	1,000	Demo day promotion
event	2,000	2,000	2,000	Approx of event budget
travel/per diem	1,200	1,200	1,200	Assuming three investors travelling per demo day
demo day, tot	4,200	4,200	8,400	
Mentors				
months	3	3	6	
# mentors	5	5	5	
$/mentor (monthly)	400	400	400	Approx $100/wk
mentor, tot	6,000	6,000	12,000	
Res company, tot	27,900	44,400	88,800	
Accelerator Operations				
Consulting				
program mgmt	8,000	8,000	16,000	Program term + 1 month
marketing	1,500	1,500	3,000	
Professional Fees				
Legal	1,500	1,500	1,500	
Accounting	0	0	0	
Fees, licenses & permits	0	0	0	
Insurance	2,000	2,000	2,000	
Occupancy				
desk	3,000	3,000	6,000	
parking	300	300	600	
Marketing	1,000	1,000	1,000	
Meals & Entertainment	500	500	500	
Tech & Internet	300	300	600	
Other	250	250	250	
Accel ops, tot	18,350	18,350	31,450	
Expense, tot	**46,250**	**62,750**	**120,250**	
Net Income	**-26,250**	**-32,750**	**-80,250**	

Appendix B
The potential for a Glendale Visual Effects Industry

Mount Wilson Ventures used a database built by MWV and Innovate Pasadena to get an overview of Glendale's technology companies. This database was derived from data collected from Crunchbase, Angelist and independent research. The database was not intended to be a comprehensive survey of the regional tech sector, but can provide insights into general directions and trends in the industry.

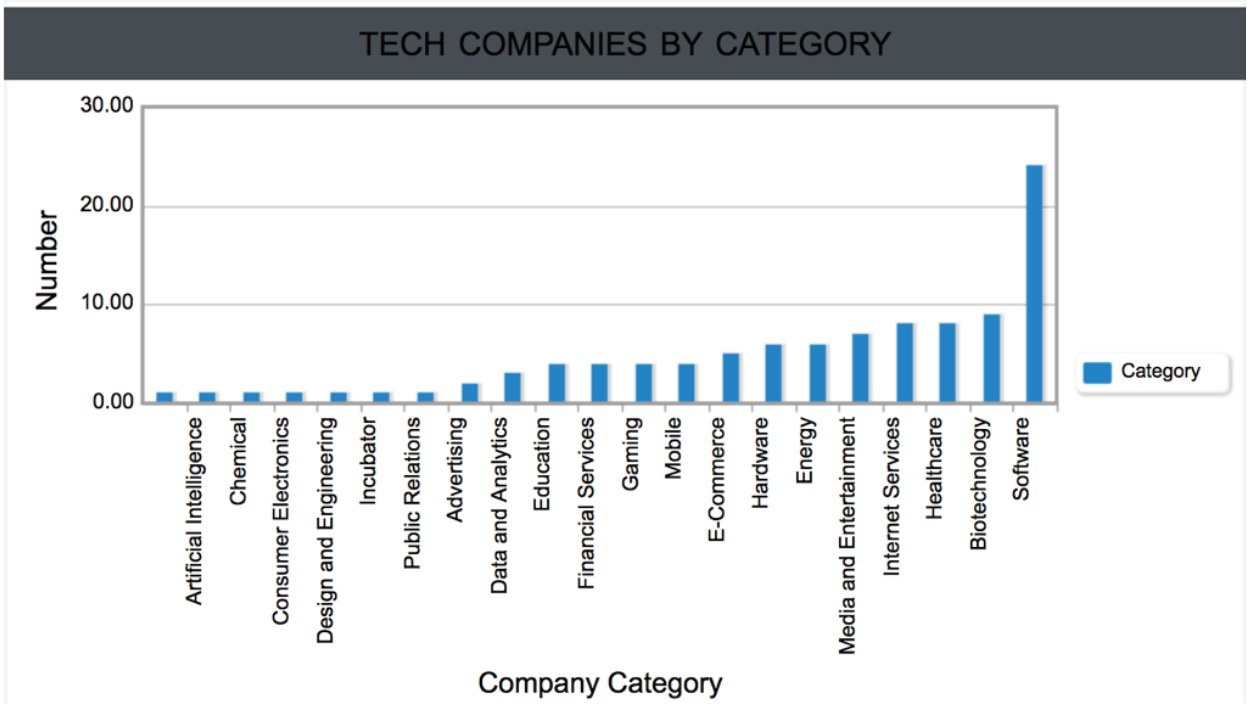
The data indicate that Glendale's technology sector is predominantly software based.

This has direct implications for Glendale's subsector strategy. The defining characteristic of a software company (or, more specifically, companies providing a Software-as-a-Service) is how it performs a task or service, not the task or service itself. So, while a law firm and plumbing contractor will have disparate needs, the technology companies that develop tools for them do not. For software companies the industry segment served is not of primary importance.



However, with that important caveat in mind, we did find some evidence of a subsector related to entertainment and video game development.

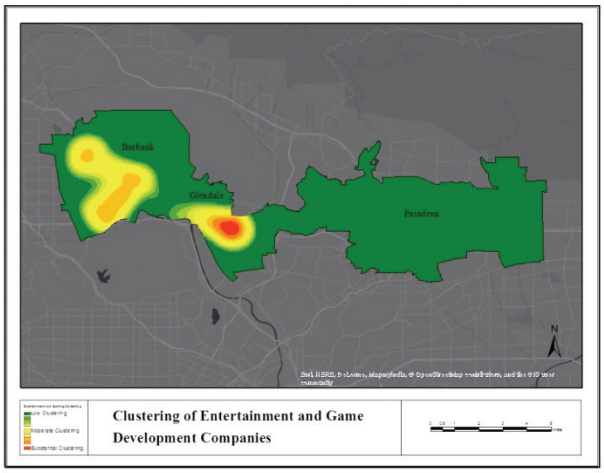
As the first heatmap illustrates, Pasadena dominates the overall regional picture in terms of number of technology companies.



However, the second heatmap shows that in the fields of Entertainment and Game Development, Glendale appears to have the strongest presence.

Given that Pasadena's software companies have traditionally been more oriented to the enterprise and small business market, this result is not unexpected.

An interesting permutation, or perhaps refinement, of the Entertainment and Game Development field that emerged in the course of several interviews is the potential to focus on the VFX industry, which spans a broad range of skills and sectors.



Visual Effects ("VFX") Industry

The VFX industry has undergone dramatic change over the past several years.

The industry was once centered in Los Angeles, with a particularly large presence in Burbank and Hollywood. Driven by thin margins and aggressive subsidies from other locales, much of the industry moved to Canada and overseas. Two of the most prominent firms in the industry, Rhythm and Hues Studios and Digital Domain, have both declared bankruptcy.

VFX is not dead, however, since as a discipline it spans a broad range of industries and skillsets. In terms of industries, VFX is widely employed in advertising, feature films, new media, television, and video game development. From a skillset perspective, VFX encompasses paintings and stills, live-action effects, digital animation, and digital effects (for example, CGI).

The firms focused on advertising and feature films are not promising prospects for Glendale. The advertising industry is on the Westside of Los Angeles and is unlikely to move, en masse, back towards Glendale. When major advertisers come to Los Angeles they prefer to stay on the Westside, which over time has pulled the service providers for the industry in that direction. And, for feature films, the VFX industry has followed subsidies and cheaper labor to places other than Los Angeles.

However, there are aspects of the highly competitive dynamic in the VFX industry that Glendale may be able to use to create a unique and skilled technology industry cluster. Specifically, the challenges and related opportunities are:

CHALLENGE	OPPORTUNITY
Competitive fee-for-service business, so low margin	An incentive or program that reduces costs can have a big impact on companies' bottom-line, having an outsize influence
Expensive hardware and software required for state-of-the-art work	Possible to create a high-value set of shared resources, such as HDR monitors, 4k cameras, a library of lenses, extreme high-bandwidth facilities, time-share render farms, etc.
Rapid advancements in the field	Importance of ongoing education, perhaps in conjunction with Glendale Community College
Highly fragmented	Co-working or adjacent office spaces that foster a sense of community are especially valuable to small firms

Further, Glendale is well positioned to pursue this subsector strategy. Visual effects requires the union of a disparate set of skills that correspond well with Glendale's geographic location in Los Angeles; specifically:

- Art Center College of Design has a robust visual effects program, which produces top talent in the field.
- Caltech produces a large number of highly capable computer scientists.
- JPL and the Glendale-adjacent studios have a demand for high-quality visual effects for new media, television, video games and didactics.
- Disney and DreamWorks in Glendale and they both have large in-house VFX teams that could participate and contribute to a local community.
- Video game companies in the Valley, such as Respawn and Infinity Ward are in nearby Sherman Oaks and Encino.

In the course of many conversations with VFX professionals it is clear that the "big concept" would be to establish a campus that could house a large number of small VFX firms in a environment that offered a mix of private office space, shared facilities designed to suit the needs of VFX professionals, flexible lease terms and on-going community programming and training. In fact, FuseFX, a large Los Angeles based firm just opened a new facility in Sherman Oaks, specifically for its own operations, that shares many of these characteristics.[28]

[28] Johnson, Ted. (2016). L.A. Mayor Calls for Expanded Tax Credits for Visual Effects. Variety. http://variety.com/2016/biz/news/eric-garcetti-visual-effects-1201849080/

Appendix C

INNOVATE PASADENA:
A Case Study in the Formation of a Civic Tech Advocacy Group

In April of 2012 Pasadena City Manager Michael Beck assembled an economic development task force consisting of business leaders to develop an Economic Development Strategic Plan for Pasadena. In November 2012 the task force released its report, which identified a handful of key areas of focus, one of which was the further development of Pasadena as a hub of innovation. An integrated, self-sustaining tech sector was identified as a means to generate high-quality, high-paying jobs.

As a follow-up to the task force report, in December 2012, after several strategy sessions, a group of approximately 30 people with a diverse set of backgrounds got together to discuss the concept of a non-profit dedicated to creating a vibrant innovation ecosystem in Pasadena. The concept drew enough interest and commitment from attendees to move forward. With this task force, coupled with the financial support from the City of Pasadena, several half-day meetings were convened to discuss and formulate the strategy for launching Innovate Pasadena (IP).

IP was formally launched in June 2013 in coordination with the introduction of the IP website and an active recruiting effort for Meet-Up creators. Within a few months of IPs first year, Cross Campus made a commitment to open a facility in Old Town Pasadena, and IP organized and ran "Connect Weekend," a multi-event multi-venue program with numerous collaborators.

In IP's second year (June 2014/15) "Connect Weekend" was expanded to "Connect Week" and included more than 30 events and 15 collaborators. In February 2015, Cross Campus opened its facility in Old Town Pasadena, and IP began hosting events in the space, including fast pitch competitions, tech crawls and job fairs.

In the third year of operations (June 2015/16), IP hired its first paid employee, a Director of Operations and Marketing. Prior to this hire, IP was an all-volunteer organization. IP also opened offices at both Cross Campus and Idealab to better serve the local ecosystem.

For year four (June 2016/17), IP is planning the largest Connect Week event to-date and anticipates more than 30 collaborators and 50 events.

IP has received consistent financial support from the City of Pasadena, but the bulk of the annual budget is provided by donations from private industry. In round numbers, the budget for IP has progressed as follows:

Year 1	$80,000
Year 2	$180,000
Year 3	$300,000
Year 4	$350,000

Appendix D
List of Stakeholders

Glendale City Council
Mayor Paula Devine
Councilmember Laura Friedman
Councilmember Vartan Gharpetian
Councilmember Ara Najarian
Councilmember Zareh Sinanyan

Glendale Tech Advisory Council
Councilmember Zareh Sinanyan
City Councilmember, City of Glendale

Richard Kalantar-Ohanian
Engineer, Jet Propulsion Laboratory
Adjunct Instructor of Engineering,
Glendale Community College

Armen Martirosyan
Co-Founder and CEO, BluIP

Kenny Pawlek
Chief Operating Officer, USC Verdugo
Hills Hospital

Thomas Voden, PhD
Associate Professor of Mathematics
Glendale Community College

Interviewees
Michael Bridges
Business Development
Stashimi, Inc.

Cindy Cleary
Director
Library, Arts & Culture
City of Glendale

Al Eisaian
Co-Founder & CEO
IntelinAir

Areg Gharabegian
Armenian Engineers and Scientists
Association

Razmik D. Gharakhanian
President
Armenian Engineers and Scientists
Association

Wendell Hicken
Chief Technology Officer
YP

Kimberly Holland
Executive Director
The Professional Development Center
of Glendale Community College

David Josker
Managing Director, Los Angeles North
Region
CBRE

Jürgen Kurz
CEO
Stashimi, Inc.

Jon Kraft
Managing Partner and Co-Founder
Liftoff LLC

Judee Kendall
President & CEO
Glendale Chamber of Commerce

Vahe Kuzoyan
Founder & Chief Product Officer
Service Titan

Christopher B. Lucas
Managing Director
Black Diamond Ventures

Douglas P. Marlow
Executive Vice President
CBRE

Grant Michals
Board Member
Parks, Recreation & Community
Services Commission
City of Glendale

Kristen Morquecho,
VP Corporate Communications,
YP

Scott Ochoa
City Manager
City of Glendale

Ana L. Quintana
Principal
Black Diamond Ventures

Louie Sadd
Managing Partner
Datastream IT

Juliana Sampson
Advisory & Transactions Specialist
CBRE

Jan Swinton
Dean, Workforce Development
Glendale Community College

Armen Vartanian
Managing Director &
Chief Operating Officer
S3 Capital Inc.

Judith Velasco
Workforce Administrator
City of Glendale, Verdugo Workforce
Development Board (VWDB)

Tuany Vo
Director
The Walt Disney Company

Jim Watson
President & CEO
California Manufacturing Technology
Consulting (CMTC)

Glendale Tech Strategy

A Roadmap for Growing Glendale's Tech Sector

glendale Economic Development

Estolano LeSar Perez ADVISORS

MOUNT WILSON VENTURES