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Los Angeles ("LA") distinguishes itself as the entertainment capital of the world. In recent years, the region has also been emerging as an epicenter for technology ("tech") companies, which gave rise to tech jobs both within and outside the tech industry. Its proximity to one of the nation’s largest airports and ports of entry, its diverse culture and abundance of creativity has made it an attractive alternative for both start-ups and Fortune 500 companies to operate. The increase in the number of companies operating in LA translates to a rise in job opportunities and needs for tech positions.

To continue to attract Fortune 500 companies, LA must solve the challenge of projected supply of tech talent not keeping pace with increasing demand. Currently, educational institutions have difficulty developing a standardized career pathway for tech job seekers and employers do not have access to a strong pipeline of local talent.

This problem is starting to be addressed. Corporations and education institutions have begun addressing the talent gap through increased one-on-one partnerships to develop work-based learning opportunities. Intermediaries, defined as organizations that facilitate partnership opportunities, play a vital role in bringing together these stakeholders and help to bridge gaps in communication. These bilateral partnerships are important steps to addressing the talent gap; however, these partnerships tend to solve problems that are not scalable and there needs to be a broader effort to address the systemic root of the talent gap. Today’s and future talent in LA needs an updated and more dynamic educational curriculum, more work-based learning opportunities, increased company awareness of nontraditional applicant pools, and student awareness of tech careers. These challenges can be addressed through a collaborative coalition effort, led by an intermediary who can facilitate the exchange of information between the tech industry and educational institutions.

This paper provides a road map to develop a coalition - a multilateral partnership effort across education institutions, tech employers, intermediaries, and government institutions to address the underlying factors causing the talent gap. A coalition amongst these groups will provide educational institutions and employers the ability to develop a continuous pipeline of highly qualified, local tech talent through:

- Increasing awareness of tech industry’s current hiring needs and in-demand skill sets
- Increasing work-based learning opportunities with focus on developing both soft and hard skills for students across K-12, colleges, and universities to supplement existing curriculum material
- Providing opportunities to bring an industry presence into classrooms to engage students and foster interest in pursuing tech careers
- Increasing faculty and educational institution awareness of the real-world working environment to better prepare students for transitioning into professional life outside of school
- Developing “points of contact” inside local educational institutions that can liaise with industry intermediaries and tech employers

Chapter 1: Executive summary
Chapter 2: LA tech market – where it is and where it’s going

LA is emerging as a tech hotbed for start-ups and large corporations. Historically known as the heart of entertainment and media in the United States, the city has always embraced an influx of innovative and creative minds. As a result, an increasing number of tech companies, accelerators, and incubators have made LA their base of operations. This intersection of entertainment and tech, coupled with LA’s culture of innovation, position the region to be one of the most dynamic tech hubs in the nation.

The LA labor market
LA represents the third largest metropolitan economy in the world with five million employees. It is the third largest tech ecosystem in the United States and in 2017, the 100 biggest tech companies in LA and Orange Counties reported an increase of 24% more employees than the previous year. With the increase of tech companies in the region, there is a growing demand for tech labor. The Bureau of Labor Statistics (BLS) estimates that by 2024, there will be 133,870 Information Technology (IT), engineering, and digital media jobs in LA County, an increase from 115,770 as of the end of 2014. Additionally, according to a recent report by LinkedIn on the LA labor market, the most scarce skill in LA, defined as demand exceeding supply, is IT and infrastructure management. These jobs present an opportunity for the LA community to meet the demand for labor with local talent.

To maximize the return on investment of recruitment dollars, tech employers continue to seek opportunities to employ local talent to fill these positions. The LA education system produces one of the largest supplies of labor in California. The Public Policy Institute of California noted that LA County accounted for 24% of Bachelor’s degrees awarded during 2015 and 2016 in the state, and the number of graduates will continue to rise within the LA college and university systems. Within the community college system, the California Community Colleges Chancellor’s Office anticipates enrollment to increase by 15% on its LA and Ventura county campuses between 2013 and 2023.

The increase in enrollment numbers across two-year and four-year education institutions will provide tech companies an opportunity to secure a local pipeline of highly qualified talent. Employers can identify quality talent prior to graduation and prepare these students with the required skill sets to transition directly into high-demand tech positions upon graduation.

80%
Of tech talent in LA is working outside of the software and IT industry

Source: LinkedIn
LA tech jobs
LA’s booming tech scene, nicknamed “Silicon Beach,” is located in the coastal area north of LA airport. Large tech firms, including YouTube, Google, Yahoo, BuzzFeed, and Snap, have all settled in the area to conduct business operations. This in turn has attracted other companies outside of tech that need tech talent to move into the region. As of August 2018, LinkedIn data shows that Los Angeles has approximately 38,000 companies employing tech talent and that 74% of employees with tech jobs work outside of the software and IT industry.

According to the 2016 Built in LA report, an online community where tech companies in LA post jobs and discuss company culture, investors poured $4.2 billion into 213 LA-based tech companies - up 38% from dollars raised in 2015. With this continuing trend, the city will continue to serve as a launch pad for both new tech companies and established companies to grow its operations. As the LA tech industry grows, a talent gap could affect company productivity.

Comparing the LA tech ecosystem to similar cities helps put the city’s rapid growth into perspective. There are four other notable tech hubs in the United States: San Francisco’s Silicon Valley, Austin, Seattle, and New York City. While Silicon Valley continues to lead in attracting investment dollars, $6.5 billion in venture funding last year, compared to LA’s $4.2 billion, LA is beginning to distinguish itself from the other cities. LA has more tech job opportunities when compared to the other major tech hubs of Austin, Seattle, and New York City. The figure below illustrates that LA’s job market continues to outpace most other tech hubs in the United States.
Chapter 3: Understanding the tech talent gap

Silicon Beach’s economic boom has increased the demand for quality tech talent. Hiring top caliber talent is crucial for companies looking to develop cutting-edge tech. However, companies are facing the challenge of finding sufficient talent to fill tech roles and thus stay competitive. At the same time, the LA education system is facing the challenge of expanding and developing its tech talent supply to meet labor demand across entry-, middle-, and management-level job positions. Analyzing the contributing factors to the tech talent gap can help build the framework for solving the issue.

**Contributing factors**

1. **Changes in tech industry outpaces curriculum updates**
   Changes in skill sets demanded in the tech industry constantly evolve, often outpacing the curriculum update process. According to an article by Wall Street Journal, 52% of US companies report difficulty filling tech jobs, and 47% of companies cite a lack of technical skills as the reason. The lack of technical skills could be traced back to outdated curriculum that make it difficult for job seekers to keep their skill sets current and relevant to the needs of the industry. The constant advances in tech result in gaps between skills demanded versus skills acquired. Communication challenges between employers and education institutions contribute to the talent gap and is a factor in keeping the curriculum up to date.

2. **Limited student exposure and awareness to tech career paths**
   Technical education needs to start early to get students to choose a tech career path. Further, exposure to tech skills is not consistent across K-12, colleges, and universities. As a result, students have limited awareness of tech careers and the pathway to obtaining jobs in the tech industry. Students that are exposed to tech careers in college for the first time will be at a competitive disadvantage because their ability to access networks to obtain work-based learning opportunities will be limited.

3. **Difficulties recruiting and finding hidden talent**
   Tech employers are challenged to identify hidden talent from nontraditional sources. This challenge could be due to a variety of factors, including lack of familiarity with the talent pool, lack of systems to filter qualified students from the large pool of students in public colleges, and an over-reliance on credentials that may not align with the actual skills required for entry-level positions. While employers cite hard skills as being a necessary skill set for a job, numerous employers cite that soft skills are even more important. Therefore, companies should widen the aperture of the candidates they consider capable of filling and growing into open roles.

53% of tech talent in LA do not list a 4-year degree

**Source: LinkedIn**

4. **Need for more work-based learning and job preparedness opportunities**
   According to research by Stanford University, work-based learning can help make educational programs more relevant and may help increase graduation rates. There is currently a lack of work-based learning opportunities available to students to supplement existing curriculum in the LA market. Without work-based learning, students have a harder time making career decisions, networking with potential employers, and developing job skills relevant to future employment. Further, companies are missing an additional opportunity to mentor and develop local resources.

In order to lessen the talent gap in LA and meet employer demand, it is imperative to anticipate and develop the workforce of the future. Google found that 98% of its US employees were exposed to computer science prior to college. Additionally, those who studied computer science in college were more likely to have learned about that career path in high school. This type of early exposure to computer science increases student confidence and awareness of the lucrative career paths in IT. According to code.org, only 580 schools in California (25% of CA schools with AP programs) offered an AP Computer Science course in 2016-2017, which is 210 more than the previous year. It seems as if high schools are taking steps in the right direction to incorporate computer science into the curriculum, but it is far from ubiquitous. Early exposure to computer science and tech career pathways is crucial in developing the future workforce.
Examples of current initiatives
The LA community has started taking steps to address the tech talent challenge. Over the last few years, tech employers, educational institutions, nonprofits, and government stakeholders have developed partnerships to address the tech skills gaps. Some employers have made investments at community colleges and universities to provide work-based learning opportunities. Additionally, intermediaries have played key roles in facilitating opportunities to partner businesses with education institutions to better prepare students for a tech career.

LA HI-TECH
The Los Angeles High-Impact Information Technology, Entertainment & Entrepreneurship, and Communication Hubs (LA-HI TECH) is a regional consortium that has the goal of sustaining economic vitality of a skilled and competitive workforce that contributes to the economic growth of the tech industry in LA. The consortium pairs Community Colleges with high schools to link students to three career pathways within Information and Communication Technology studies: 1) Design, Visual, and Media Arts; 2) Information Support and Services; and 3) Software Systems and Development. LA HI-TECH mission is to build robust partnerships, provides supplemental instruction, and increases student success in tech learning.

Spotlight #1: Snap, Inc. Careers Ladder Project
Background: LA HI-TECH and Snap, Inc. partnered to pilot a program at a Pierce community college, where Snap led a design competition to engage students in digital media technology.
Key Activities: Snap, Inc. led an 8-week design competition, where employees taught 4-hour sessions. These sessions gave students a chance to learn-by-doing in an immersive setting and ultimately led to half of the students applying to the coding boot camp hosted at the college.
Outcome: Because of the workshop, students were able to add the project to their portfolios and there was an increase of interest in the school's design and media arts program. This type of mutually beneficial approach to work-based learning could be instrumental in helping narrow the skills gap in Los Angeles. Snap has acted as a pioneer for stakeholder collaboration and strengthened its relationship with local educational institutions and is gaining exposure to a fruitful, non-traditional talent pipeline.

Bixel Exchange: Center for Innovation & Technology at the L.A. Area Chamber
Bixel Exchange is hosted by the L.A. Area Chamber of Commerce and was launched three years ago with the goal of cultivating tech talent in an effort to create a more prosperous LA. Bixel Exchange has two primary initiatives to achieving its goal; the ‘LA Tech Talent Pipeline’ to connect tech employers to diverse and underrepresented students and the ‘Startup LAunch SBDC’ that helps entrepreneurs launch and scale their businesses through mentorship and no-cost incubation.

Spotlight #2: Amazon Web Services Partnership with Santa Monica Community College
Background: Amazon and Santa Monica Community College partnered on an opportunity through Amazon’s Amazon Web Services (AWS) Educate grant program to provide a unique certification program. The purpose of this partnership was to increase awareness of its public cloud services in the educational community.
Key Activity: Amazon and Santa Monica Community College faculty incorporated an accelerated cloud-related learning program linked to AWS into an existing curriculum. Some example courses created through the partnership include: Computer Engineering, Database Essentials, and Security.
Outcome: As a result of this partnership, 50% of students participating in this program enrolled in Santa Monica Community College's coding boot camp. This case is an example of a program that can be scaled and replicated at other academic institutions as Amazon has developed a curriculum that can be readily accessed by other potential partner institutions and students. This partnership provided students exposure to opportunities to learn niche skillsets across large, specialized tech companies.
While partnerships between schools and employers have yielded internships and job placements, these one-off partnerships alone will not solve the talent gap. To scale the benefits of these partnerships, education institutions and employers should come together as a group to address this skills gap as one unit. From discussion with stakeholders, previous initiatives have struggled to make meaningful progress due to the missing stakeholders involved in the discussion, lack of a clear decision maker, lack of adequate funding, accountability, and a “check the box” mentality for participants. Creating a coalition can allow a forum for employers and education institutions to address the tech skills gap in a unified and tactical way, ultimately benefiting all parties involved.

The coalition
To have a successful convening, an infrastructure that builds from existing partnerships needs to be established. The coalition should focus on a multilateral effort, with involvement from members of the LA educational system, tech industry, private sector and governmental intermediaries working together to address the systemic root causes of the talent gap. The coalition would be setup to have multiple meetings throughout the year, from strategic meetings with lots of stakeholders to smaller focus group meetings to make sure there is relevant discussions for all individuals attending. The coalition can play a vital role in bridging communication between employers, intermediaries, and education institutions to align on the overarching mission and strategic priorities in order to achieve desired outcomes.

**Mission:**
Enable education institutions and employers to prepare students for a professional career to meet the rising demand for skilled labor to fill technology jobs in LA.

**Key activities**
- Provide a forum
- Identify opportunities for collaboration
- Provide resources
- Establish champions and point of contacts

**Coalition**

**Inputs**
- Labor Market Data
- Understanding Hiring Needs and Skillsets
- Industry Subject Matter Knowledge to Facilitate Curriculum Updates

**Strategic Priorities**

**Talent Pipeline**
Support the development of career pathways through talent pipeline programs and activities such as work based learning, internships, and job placement
- Provide hiring needs and skillset information
- Provides volunteers and champions to support coalition initiatives

**Information Exchange**
Facilitate information exchange between employers and education institutions to supplement and re-envision existing curriculum
- Translates hiring needs and requirements to educational institutions
- Facilitate the establishment of employer-to-education partnerships
- Provide resource support as needed to execute initiatives
- Ensure public policy is aligned with needs of employers and educational institutions

**Champion Network**
Build and enable a network of champions by increasing the number and empowering education and employer partnerships in the local LA technology community
- Provide access to students
- Identify and collaborate on opportunities to incorporate work-based learning opportunities into existing curriculum
- Promote coalition initiatives to student body

**Desired Outcomes**
- Work-based Learning Opportunities
- Internship Placement
- Job Placement
- Updated Educational Curriculum
**Coalition Structure**

The coalition should be set up to recognize multiple centers of leadership, each of which can be organized by common principles and interests. Traditionally, coalitions are set up as a hierarchy. However, in the proposed structure, existing organizations (e.g., LAUSD/k-12, IT agencies, and tech companies) are the leaders and the coalition supports their evolving needs. This convening represents an opportunity both to unite current efforts being taken to address the talent gap under a centralized platform and to integrate current successful programs into coalition initiatives.

For example, LA HI-TECH is a consortium that pairs Community Colleges with high schools to link students to pathways within Information and Communication Technology studies. The coalition could efficiently structure meetings by connecting relevant stakeholders – in this case Community Colleges, tech companies, and nonprofits.

**Roles and responsibilities**

To operate effectively, it is important to establish key roles and responsibilities within the coalition. Key positions for the coalition should include the following. These positions are not necessarily mutually exclusive, and individual members could serve in multiple roles.
Coalition roadmap

To establish a successful coalition, a road map to implementing the coalition is shown in Figure 1 below and consists of two high-level phases:

- **Phase 1: Establish a coalition**: Identify coalition members and set the strategy that will accomplish stakeholder’s priorities and key goals for the calendar year.
- **Phase 2: Manage coalition and track performance**: Execute initiatives and monitor progress toward meeting coalition year-end goals.

![Figure 1 - Illustrative coalition roadmap](image-url)
Phase 1 focuses on setting the strategy and planning activities to organize the coalition. In order for the coalition to be successful, stakeholders should be prepared to contribute the following:

**Employers:**
- Provide hiring needs and skill set information
- Provide volunteers and champions to support initiatives
- Collaborate to establish work-based learning opportunities

**Intermediaries:**
- Translate hiring needs to educational institutions
- Facilitate establishment of employer-to-education partnerships
- Provide resource support as needed to execute initiatives

**Education Institutions:**
- Create flexible curriculum to accommodate evolving tech skills
- Identify and collaborate on opportunities to incorporate work-based learning opportunities into existing curriculum
- Promote coalition activities to student body

There are three key steps that should be completed prior to moving to phase 2.

**Step 1 — Develop an incentive program to encourage members to join.**
Intermediaries collaborate with the LA Area Chamber of Commerce ("LA Chamber") to develop a LA Community Partner Recognition Program that rewards active employers and education institutions for their involvement in coalition initiatives. Intermediaries will work with the LA Chamber to build a framework for the recognition program. The framework could include specific performance criteria that can be satisfied to qualify for a certificate of recognition.

**Recommendation #1: Establish a LA Community Partner Recognition Program**

**Potential areas include, but are not limited to:**
- Internship/job placement numbers
- Number of students impacted
- Number of full-time participants and volunteers
- Attendance in coalition meetings and events

**Employer specific:**
- Number of engagements with students (e.g., workshops and job panels)
- Dollars invested in the coalition

**Education institution specific:**
- Number of specialty skill classes held
- Tech-focused certificate programs

**Government specific:**
- Create framework to have coalition members formally recognized as a community partner by a government office for addressing the skills gap

**Step 2 — Recruit coalition members.**
Intermediaries play a key role in identifying and recruiting coalition members. These entities have in-depth understanding of the LA tech industry landscape and can identify key decision makers and large tech companies to join the effort.

**Recommendation #2: Recruit key decision makers and influencers into the coalition**
To expedite the decision-making process, coalition members should be a combination of decision makers and key influencers from employers and education institutions, such as the following:

**Employers**
- Hiring manager (with Engineering or IT department)
- Diversity and inclusion leadership
- Chief Human Capital Officer
- Community and Government Relations

**K-12 Education Institutions**
- School District Administrators
- Principal
- Curriculum advisor

**Colleges and Universities**
- College president
- Dean/chair of engineering, computer science and other relevant college(s) and departments
- Faculty
- Career placement advisor

**Non-Profit Organizations (to include funders)**
- Bixel Exchange
- Center for Competitive Workforce
- LA HI-TECH
- Opportunity @ Work
- JP Morgan Chase
- Kresge Foundation
- California Department of Education
- Mayor’s office

**Note:** This list is for illustration purposes only and is not an exhaustive list of all stakeholders.
**Step 3 — Align stakeholder priorities with coalition initiatives.**

In a strategy session, coalition members can coordinate to accomplish common goals and how to best leverage the coalition to move forward. The strategy session should focus on completing the following activities:

- **Understand Stakeholder Priorities.** As an example, employers may share data on their respective profile of a qualified candidate – soft and hard skill qualities that successful employees typically demonstrate for entry-level positions. Conversely, education institutions can use this session to understand the type of preparation work needed to meet internship and job qualification criteria. In addition, faculty members can determine when to incorporate work-based learning activities into existing curriculum.

- **Develop a List of Prioritized Initiatives.** Upon understanding stakeholder priorities, the coalition develops a list of prioritized initiatives that support the strategic priorities and overarching mission of stakeholders. Additionally, specific coalition members should lead an initiative and establish a point of contact for each relevant member to push initiatives forward within his/her respective organization.

**Recommendation #3: Develop and execute coalition initiatives**

The coalition could help scale current efforts by coalition members. One example is the Center for Competitive Workforce, where the coalition would act as intermediary to aggregate employer and market data from various sources to assist with quantifying the demand for tech labor. Conversely, the Center for Competitive Workforce can provide talent supply information to the coalition and that information could be utilized by other institutions as needed. Other examples of cooperation through the coalition is connecting employers, educators, and intermediaries by common initiatives, such as:

- **Soft Skill Development:** Execute workshops focused on equipping students to develop professional skill sets, including resume writing, interviewing skills, and public speaking

- **Hard Skill Development:** Employers and faculty members collaborate on executing work-based learning opportunities focused on embedding real-world project scenarios into existing course offerings on campus

- **Faculty Education:** Provide externship and professional development opportunities for faculty members to experience on-the-job environment at a tech company that will enable faculty to better prepare curriculum for students

- **Curriculum Updates:** Provide a feedback forum for industry professionals to provide real-time feedback on planned curriculum changes

- **Supplemental Learning:** Develop additional opportunities for students to participate in classroom projects to build work portfolios

- **Work-based learning activities:** Establish a portfolio of company-led activities that can introduce thousands of local students to careers in tech, while introducing thousands of tech employees to a diverse local talent pool

- **Internships:** Establish a pipeline of internship opportunities for students to obtain relevant work experience and build a network for eventual job placement

**Note:** This list is for illustration purposes only and is not an exhaustive list of all potential initiatives

- **Establish Criteria for Measuring Success.** Coalition members should establish metrics to determine initiative success.

**Recommendation #4: Develop metrics to measure the coalition’s initiative performance**

The coalition should establish specific goals for each calendar year. The following performance metrics may be considered:

<table>
<thead>
<tr>
<th>Performance Metrics</th>
<th>Target Goal (Calendar Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of soft skill work-based learning opportunities</td>
<td>25</td>
</tr>
<tr>
<td># of hard skill work-based learning opportunities</td>
<td>25</td>
</tr>
<tr>
<td># of faculty externship opportunities</td>
<td>100</td>
</tr>
<tr>
<td># of internship placements</td>
<td>500</td>
</tr>
</tbody>
</table>

**Note:** This list is for illustration purposes only. Actual target goals can be established and agreed upon by all coalition members.

- **Set Timeline for Initiative Completion.** Coalition activities should be aligned with company recruiting timelines. The coalition aligns time-sensitive initiatives to time with internship application dates to maximize the benefit of student-focused activities to prepare students.
Phase 2 focuses on the execution phase of initiatives identified during the coalition strategy session. There are three key steps in this phase:

**Step 1: Execute initiative-specific action plans.** Following the conclusion of the strategy session, initiative owners execute action plans with resource requirements and timelines. The coalition may specify project plans, including milestone targets to enable members to complete initiatives.

**Recommendation #5: Develop detailed action plans to execute initiatives**

Developing a plan with detailed timelines, roles and responsibilities, and resource requirements will provide initiative owners and the coalition a clear understanding of the actions needed to complete initiatives. Action plans should include, but are not limited to:

- **List of stakeholders:** Provide a list of initiative team members
- **Roles and responsibilities:** Assign roles and responsibilities to team members to support the planning and execution of the initiative. Role assignments will also increase accountability to all team members
- **Project timeline and milestones:** Develop a project plan to include a list of activities needed to execute the initiative. The initiative owner should note any activities that are contingent on another activity’s completion (aka dependencies), as well as key milestone dates
- **Resource requirements:** Provide any funding or additional staffing needs so that the coalition can source additional resource support as needed

**Step 2: Support coalition members’ efforts.**

Regular meetings between companies and education institutions could help with the continuation of stakeholder efforts and execution of initiatives. The coalition’s role is to connect the appropriate employers and educators to support the current initiatives in LA.

**Recommendation #6: Host regular meetings for continued execution on initiatives**

Regular meetings can help continue coalition efforts and align stakeholder needs. Ongoing activities may include, but are not limited to:

- Summary of prior meeting action items and initiatives updates from relevant owners
- Discussion on current labor market data
- Discussion on hiring demands (to be provided by the employers in attendance)
- Discussion on education institution curriculum updates
- Identification of new initiatives as needed
- Progress on action items and assignments
- Develop and communicate work-based learning opportunities

**Step 3: Track performance.**

The coalition monitors progress toward initiative completion. Depending on the number of initiatives and performance metrics established, the coalition can consider implementing project management best practices to track performance.

**Recommendation #7: Implement project management best practices to monitor initiatives**

Specifically, the coalition should:

- **Monitor timelines:** Aggregate all action plans and develop a comprehensive master plan. The master plan will allow the Coordinator and Leadership Council to view key milestone dates and action owners
- **Monitor costs:** Identify any costs associated with planned initiatives (i.e., workshops and boot camps) and work with funders to acquire financial resources
- **Monitor and mitigate risks:** Work with initiative owners to identify risks associated with initiatives. Risks may be identified in the form of impact to cost, timeline, or scope of the initiative. The initiative owner and coalition Coordinator can develop a mitigation plan to address anticipated risks
- **Communications:** The Coordinator can work with points of contacts across employers and education institutions to disseminate information on upcoming initiatives to include upcoming workshops, seminars, apprenticeships, etc.
Chapter 5: Value proposition – benefits and outcomes

Through active participation, coalition members will realize benefits that directly affect their ability to positively impact their organization and community. Getting people in the same room on a regular basis has tangible value for all coalition members. Additionally, the value of having centralized data and research could help coalition members tackle issues in a more coordinated manner.

Figure 2 below provides an overview of the value proposition for employers, education institutions, and intermediaries.

**Employers**
Participation in the coalition provides employers the opportunity to develop a workforce that will meet its increasing demands and enhance its standing in the community through commitment to the local workforce. Specifically, membership in the coalition may provide the following benefits:

- **Strong hiring pipeline of local talent:** Employers will have the opportunity to maximize return on investment of recruitment efforts on yielding new talent. By grooming local talent at an early stage, employers will have a direct line into a talent pool that possesses the requisite soft and hard skills needed to meet the culture fit of the respective company. As a result, employers can benefit from the ability to directly source new talent into their company more quickly and effectively than through traditional recruiting channels.

- **Enhanced brand recognition through commitment to community members and diversity values:** Participation in the coalition will enable companies to solidify its presence and expand its roots within the LA community. As employers continue to invest resources to execute work-based learning opportunities, the companies will benefit from increased brand equity and recognition across the LA education system and its surrounding communities. Frequent participation in work-based learning opportunities not only enhances brand recognition, but also serves as another way to identify talent.

- **Employee volunteer opportunities:** Employees can have an opportunity to perform meaningful volunteer work that will increase retention and help companies recruit talent from traditional sources.

**Education institutions**
Education institution involvement in the coalition will enhance their ability to:

- **Expand industry network:** By participating in the coalition, education institutions will have the opportunity to expand connections in the tech industry. Industry connections provide the ability for colleges and universities to attract top students onto their campuses. As enrollment continues to play a crucial role in educational funding, colleges and universities should invest time into the coalition to bridge connections.

- **Meet annual performance metrics:** Colleges and universities are required to meet metrics related to certificates awarded and job placements. Participation in the coalition can enable the education system as a whole to better prepare students for job requirements and increase graduation rates. Additionally, by meeting these performance metrics, education institutions could benefit from additional funding to support the development of tech career pathways.

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**Figure 2: The coalition brings value to all members**

- **Employers**
  - **Strong hiring pipeline of local talent**
  - **Enhanced brand recognition**
  - **Employee volunteer opportunities**

- **Education institutions**
  - **Expand industry network**
  - **Meet performance metrics**
  - **Prepare students for jobs**

- **Intermediaries**
  - **Increase awareness and build relationships**
  - **Create scalable impact**
• **Prepare students for jobs**: Coalition participation enables education institutions to understand industry requirements for hard and soft skills. Additionally, the benefits extend beyond the students as the increased communication with companies allows for opportunities for faculty to continue their own education of tech skills to meet the evolving demands of tech.

**Intermediaries**

Intermediaries’ involvement in the coalition will enhance the ability to:

**Increase awareness and build relationships**: By participating in the coalition, intermediaries will be able to collaborate with the community to build funding support and awareness for their organizations. Additionally, intermediaries could increase viability with education institutes and maintain corporate relationships, therefore increasing job placement opportunities.

**Create scalable impact**: Intermediaries could have the opportunity to partner with the community and employers to drive consensus and communicate best practices both within the coalition and their organizations. Effective partnership could lead to a scalable impact to the city as well as local educational institutes and employers. For example, partnerships like the Amazon Web Services certification program through Santa Monica College could serve as a model that intermediaries can leverage for other companies and education institutions to adopt.

**Collaborate with local government**: Government officials will be a significant player to bridge the tech skills labor gap. By participating in the coalition, local governments can help recognize those helping address the tech skills gap and can work hand in hand with constituents in the community to create, and work with existing, legislation to drive Los Angeles forward.

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**Bixel Exchange Tech Talent Challenge**

Los Angeles Tech Talent Challenge: In 2017, LA Mayor Eric Garcetti and Bixel Exchange launched an internship program with the goal of connecting low-income students to paid tech internships at large, Fortune 500 companies. More than 600 students applied to the internship program from 2016–2017. Of these students, 100 students were placed into internships and 30% went on to be hired part time or full time by the employer.
In order to support the LA tech industry, employers and education institutions should come together to identify ways to improve the quality and quantity of students entering the workforce. Only a collective and collaborative effort will develop the next generation of innovators and future employees to support the increasing demand for tech talent in LA. The coalition can provide a framework to build out critical programs to support the development of career pathways through facilitation of work-based learning, simplification of information exchange between employers and education institutions, and empowering stronger community connections.

While the coalition can be successful for LA tech talent, the principles of the coalition have broader application for different skill gaps and geographical locations. The successful implementation of the LA tech skills coalition could serve as a blueprint and business case to solve numerous skill gaps across the country and another example of LA serving as a leader of innovation to solve both today and tomorrow’s issues.
Table 1
BLS Data: Source: California Employment Development Department, Labor Market Information | Published November 2016 (Data from 2014)

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<td>143</td>
<td>102</td>
<td>245</td>
<td>IT</td>
<td>≥5 years</td>
</tr>
<tr>
<td>15-1111</td>
<td>Computer and Information Research Scientists</td>
<td>360</td>
<td>430</td>
<td>19.4%</td>
<td>7</td>
<td>5</td>
<td>12</td>
<td>IT</td>
<td>None</td>
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<tr>
<td>15-1121</td>
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<td>15,690</td>
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<td>300</td>
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<td>463</td>
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<td>1,990</td>
<td>2,150</td>
<td>8.0%</td>
<td>16</td>
<td>26</td>
<td>42</td>
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<td>&lt;5 years</td>
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<td>Computer Programmers</td>
<td>7,300</td>
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<td>-5.9%</td>
<td>0</td>
<td>180</td>
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<td>IT</td>
<td>None</td>
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<tr>
<td>15-1132</td>
<td>Software Developers, Applications</td>
<td>14,780</td>
<td>18,170</td>
<td>22.9%</td>
<td>339</td>
<td>211</td>
<td>550</td>
<td>IT</td>
<td>None</td>
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<tr>
<td>15-1133</td>
<td>Software Developers, Systems Software</td>
<td>10,660</td>
<td>12,240</td>
<td>14.8%</td>
<td>158</td>
<td>152</td>
<td>310</td>
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<tr>
<td>15-1134</td>
<td>Web Developers</td>
<td>6,020</td>
<td>8,190</td>
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<td>217</td>
<td>78</td>
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<tr>
<td>15-1141</td>
<td>Database Administrators</td>
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<td>36</td>
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<td>91</td>
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<td>&lt;5 years</td>
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<tr>
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<td>11,370</td>
<td>11.8%</td>
<td>120</td>
<td>131</td>
<td>251</td>
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<tr>
<td>15-1143</td>
<td>Computer Network Architects</td>
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<td>3,030</td>
<td>17.4%</td>
<td>45</td>
<td>33</td>
<td>78</td>
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<td>≥5 years</td>
</tr>
<tr>
<td>15-1151</td>
<td>Computer User Support Specialists</td>
<td>15,180</td>
<td>17,780</td>
<td>17.1%</td>
<td>260</td>
<td>195</td>
<td>455</td>
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<tr>
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<td>4,980</td>
<td>10.4%</td>
<td>46</td>
<td>58</td>
<td>104</td>
<td>IT</td>
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<tr>
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<td>67</td>
<td>55</td>
<td>122</td>
<td>IT</td>
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</tr>
<tr>
<td>15-2041</td>
<td>Statisticians</td>
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<td>1,010</td>
<td>44.3%</td>
<td>31</td>
<td>12</td>
<td>43</td>
<td>IT</td>
<td>None</td>
</tr>
<tr>
<td>17-2061</td>
<td>Computer Hardware Engineers</td>
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<td>2,490</td>
<td>2.5%</td>
<td>6</td>
<td>50</td>
<td>56</td>
<td>Engineering</td>
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</tr>
<tr>
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<td>Electrical Engineers</td>
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<td>4,730</td>
<td>3.3%</td>
<td>16</td>
<td>101</td>
<td>117</td>
<td>Engineering</td>
<td>None</td>
</tr>
<tr>
<td>17-2141</td>
<td>Mechanical Engineers</td>
<td>6,330</td>
<td>6,790</td>
<td>7.3%</td>
<td>46</td>
<td>200</td>
<td>246</td>
<td>Engineering</td>
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</tr>
<tr>
<td>Total/Avg</td>
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<td>115,770</td>
<td>133,870</td>
<td>15.5%</td>
<td>1,853</td>
<td>1,807</td>
<td>3,660</td>
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Table 2
Source: BLS Data, 2014 Labor Market Information

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<tr>
<th>SOC</th>
<th>Occupation Title</th>
<th>LA</th>
<th>Seattle</th>
<th>Austin</th>
<th>NYC</th>
<th>Silicon Valley*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-3021</td>
<td>Computer and Information Systems Managers</td>
<td>8,690</td>
<td>10,160</td>
<td>3,030</td>
<td>24,120</td>
<td>21,690</td>
</tr>
<tr>
<td>15-1111</td>
<td>Computer and Information Research Scientists</td>
<td>360</td>
<td>N/A</td>
<td>680</td>
<td>950</td>
<td>1,500</td>
</tr>
<tr>
<td>15-1121</td>
<td>Computer Systems Analysts</td>
<td>12,690</td>
<td>14,050</td>
<td>9,740</td>
<td>29,980</td>
<td>26,660</td>
</tr>
<tr>
<td>15-1122</td>
<td>Information Security Analysts</td>
<td>1,990</td>
<td>1,480</td>
<td>590</td>
<td>4,530</td>
<td>2,930</td>
</tr>
<tr>
<td>15-1131</td>
<td>Computer Programmers</td>
<td>7,300</td>
<td>9,280</td>
<td>2,970</td>
<td>16,710</td>
<td>12,360</td>
</tr>
<tr>
<td>15-1132</td>
<td>Software Developers, Applications</td>
<td>14,780</td>
<td>45,990</td>
<td>13,380</td>
<td>56,960</td>
<td>67,740</td>
</tr>
<tr>
<td>15-1133</td>
<td>Software Developers, Systems Software</td>
<td>10,660</td>
<td>12,470</td>
<td>6,870</td>
<td>16,980</td>
<td>40,870</td>
</tr>
<tr>
<td>15-1134</td>
<td>Web Developers</td>
<td>6,020</td>
<td>4,060</td>
<td>1,930</td>
<td>9,660</td>
<td>6,740</td>
</tr>
<tr>
<td>15-1141</td>
<td>Database Administrators</td>
<td>2,540</td>
<td>1,720</td>
<td>1,560</td>
<td>5,610</td>
<td>3,610</td>
</tr>
<tr>
<td>15-1142</td>
<td>Network and Computer Systems Administrators</td>
<td>10,170</td>
<td>6,900</td>
<td>4,040</td>
<td>19,970</td>
<td>11,840</td>
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<td>15-1143</td>
<td>Computer Network Architects</td>
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<td>11,210</td>
<td>7,760</td>
<td>27,550</td>
<td>18,470</td>
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<tr>
<td>15-1152</td>
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<td>4,510</td>
<td>2,930</td>
<td>2,530</td>
<td>8,300</td>
<td>5,120</td>
</tr>
<tr>
<td>15-1199</td>
<td>Computer Occupations, All Other</td>
<td>4,260</td>
<td>6,490</td>
<td>2,820</td>
<td>5,740</td>
<td>9,600</td>
</tr>
<tr>
<td>15-2041</td>
<td>Statisticians</td>
<td>700</td>
<td>790</td>
<td>280</td>
<td>930</td>
<td>870</td>
</tr>
<tr>
<td>17-2061</td>
<td>Computer Hardware Engineers</td>
<td>2,430</td>
<td>1,400</td>
<td>530</td>
<td>690</td>
<td>15,080</td>
</tr>
<tr>
<td>17-2071</td>
<td>Electrical Engineers</td>
<td>4,580</td>
<td>4,190</td>
<td>2,890</td>
<td>5,390</td>
<td>7,110</td>
</tr>
<tr>
<td>17-2141</td>
<td>Mechanical Engineers</td>
<td>6,330</td>
<td>5,040</td>
<td>1,570</td>
<td>4,870</td>
<td>4,960</td>
</tr>
<tr>
<td><strong>Total/Avg</strong></td>
<td></td>
<td><strong>115,770</strong></td>
<td><strong>144,200</strong></td>
<td><strong>65,960</strong></td>
<td><strong>253,180</strong></td>
<td><strong>266,720</strong></td>
</tr>
</tbody>
</table>

*Silicon Valley is defined as San Francisco, Oakland, Hayward, Redwood City, Santa Clara, and San Jose.
Endnote


ii. “Skilled Workforce.” Los Angeles County Economic Development Corporation, laedc.org/wtc/chooselacounty/skilled-workforce/.


v. BLS Data: Source: California Employment Development Department, Labor Market Information | November, 2016


xi. Xi. "LA Tech Talent Pipeline 2.0" LinkedIn, August 2018.


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