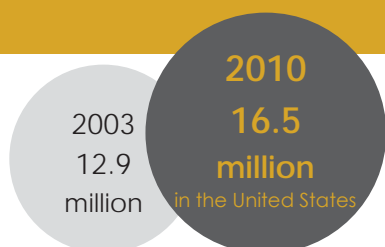


# PREPARING STUDENTS TO PERFORM IN CALIFORNIA'S STEM-FOCUSED COMPANIES



**T**he number of occupations requiring STEM capabilities is growing. Between 2003 and 2010 the number of workers across the United States reporting that their job requires at least a bachelor's-degree level of facility in STEM increased 28 percent, from 12.9 million to 16.5 million.

From the technology industry to entertainment, California's innovation economy is largely built on science and engineering. STEM graduates who work as professional research and development scientists and engineers (so-called *STEM narrow jobs*) in the state are predicted to outpace overall state job growth by about 8 percentage points between 2012 and 2022.<sup>1</sup> Technologically sophisticated occupations which require individuals to apply STEM knowledge and skills or facility with STEM concepts but not necessarily a bachelor's degree (so-called *STEM broad jobs*) are expected to have over twice as many new positions in

California as STEM narrow ones in the same time period. These trends offer great opportunities to strengthen and develop California's future STEM workforce ecosystems, according to a 2016 report by the National Academies of Sciences, Engineering, and Medicine, *Promising Practices for Strengthening the Regional STEM Workforce Development Ecosystem*.

**360k**  
projected new STEM broad  
jobs in California by 2022

**22.8%**  
projected STEM narrow  
job growth in California  
between 2012 and 2022

When businesses work in collaboration with colleges, universities, and other community stakeholders, opportunities are bolstered for students to gain valuable skills the market demands. Chambers of commerce have a tremendous opportunity to serve as an intermediary in their community to facilitate university-industry partnerships and advance regional STEM workforce development ecosystems. Developing and sustaining business-education collaborations that are more than one-off connections will be difficult without the planning, convening, brokering, and evaluating functions that a trusted intermediary provides.

## CALIFORNIA CHAMBERS OF COMMERCE AT WORK

The following projects by chambers of commerce across California exemplify the critical roles third-party intermediaries are playing in fostering and maintaining cross-sector collaboration and connectivity.

**Align Capital Region**—The goal of the Align Capital Region project is to create a strategy and structure that sustainably coordinates college and career readiness efforts in the Greater Sacramento Region. Beginning in 2014, stakeholders in the capitol region recognized a need to improve coordination between the diverse array of college and career readiness efforts. However, with 7 counties, 70 school districts, 10 community colleges and public universities, and over 10,000 employers across multiple industry sectors, alignment required collective and directed action. Align Capitol Region is a partnership of education and business leaders to develop a backbone organization and masterplan for the region. It is supported in part by Alignment USA, a national network with the goal to develop a national community of practice that seeks to innovate and improve collective impact strategies.

## Tips for Effective Workforce Development Partnerships

- Convene, connect, and broker, while transcending possible conflicts and competition among partners
- Measure and evaluate, which requires defining indicators, establishing standards, and facilitating systematic evaluations
- Build awareness among partners and work towards a common vision
- Understand the data by mapping existing programs, gathering labor market information, and conducting sector analysis

## What can your chamber do?

- Bridge cultural and communication barriers between local employers and universities.
- Help employers and universities understand your region's competitive advantages by addressing data needs.
- Bring promising partnership activities to scale.
- Connect with other chambers of commerce that have facilitated the creation of effective workforce development partnerships to discuss best practices.
- Host a meeting with employers and university administrators and faculty to introduce the contents of the Academies' report and illustrate strategies such as facilitating advisory boards, creating simulated work-based learning experiences, and establishing faculty exchanges.

**Strive San Jose**—Strive San Jose is a partnership of the San Jose Silicon Valley Chamber of Commerce, three local school districts, and 1,400 Chamber members, representing a local workforce of approximately 275,000 employees. The program addresses a need for a skilled workforce by utilizing industry expertise on curriculum development and providing career exposure opportunities such as paid internships, mentorships, and career days. Nearly 40,000 students, ages 14-18—enrolled within 32 high schools—apply for 1 of 5 pathways which include health, technology, and advance manufacturing. Local industry partners—like Kaiser Permanente, LinkedIn, Microsoft, Technology Credit Union, and the San Jose Sharks—are fundamental to the success of this partnership. Industry partners lead a soft-skill workshop to train students; support professional development programs for teachers; host paid internships for students; create and implement mentorship programs, including shadow days, field trips, and career fairs; and assist in reviewing and updating career technical education curriculum.

**L.A. Regional STEM Hub**—The Los Angeles Regional STEM Hub, housed within the Los Angeles Area of Chamber of Commerce, seeks to connect the region's leading professionals and educators, and provide sustainable models for skills development for a 21st century workforce. The Hub leverages Los Angeles' resources, significant civic institutions, and corporate voices to develop further capacity for system-wide transformation of STEM education and change in education policies at the local, state and federal levels. Through the initial asset mapping of STEM resources in L.A. County, the Hub was able to identify current programming and strengths, as well as the education and workforce development needs of their partners. The Hub works to convene a full array of STEM stakeholders, including the Los Angeles Unified School

District, which serves nearly 650,000 students, and the L.A. County Office of Education, the nation's largest regional education agency serving 80 districts and 2 million children. These types of partnerships enable the Hub—and the L.A. Area Chamber—to leverage existing resources rather than duplicate efforts. For example, the L.A. Area Chamber works with key partners, including the Linked Learning Alliance, to integrate rigorous academics with career-based learning and real world workplace experience in a wide range of fields, with a focus on STEM in efforts to develop a more trained 21st century workforce. As part of this partnership, the Chamber supported over 10,000 students and educators in linked learning pathways during the 2015-2016 academic year—notably in STEM-related pathways.

<sup>1</sup> Data on California's job projections come from U.S. Bureau of Labor Statistics projections.

This brief is based on the findings and recommendations in

*Promising Practices for Strengthening the Regional STEM Workforce Development Ecosystem* (2016).

Copies of the report are available from the National Academies Press; please call (800) 624-6242 or visit the NAP website at <http://www.nap.edu>.

For more information please contact the Board on Higher Education and Workforce at (202) 334-2700 or [bhew@nas.edu](mailto:bhew@nas.edu).

For more information about Align Capital Region, please visit <http://www.alignmentusa.org/capital-region>.

For more information about Strive San Jose, please visit <https://www.sjchamber.com>.

For more information about the Los Angeles Regional STEM Hub, please visit <http://www.lachamber.com>.