

Date of Hearing: April 19, 2016

ASSEMBLY COMMITTEE ON JOBS, ECONOMIC DEVELOPMENT, AND THE ECONOMY

Eduardo Garcia, Chair

AB 2664 (Irwin) – As Amended March 17, 2016

Committee	Votes	Ayes	Noes
Higher Education	12-1	Medina, Baker, Bloom, Chávez, Irwin, Jones-Sawyer, Levine, Low, Olsen, Santiago, Weber, Williams	Linder

SUBJECT: University of California: innovation and entrepreneurship expansion

SUMMARY: Provides funding to the University of California (UC) to establish and expand programs and services to support innovation and entrepreneurship activities near its campuses and throughout the state. Specifically, **this bill:**

- 1) Finds and declares the following of the Legislature, with respect to innovation and entrepreneurship expansion at the UC:
 - a) California is well-positioned to harness the power and expertise of the UC to spur economic development;
 - b) The UC contributed to the foundational research breakthroughs that launched some of California’s strongest industries, including aerospace, agriculture, biotechnology, computers and semiconductors, telecommunications, and digital media;
 - c) Research at the UC continues to create new inventions that will be the genesis of tomorrow’s industries, companies, and commercial successes;
 - d) Innovation and entrepreneurship at the UC create equitable economic development throughout California; and,
 - e) It is therefore the intent of the Legislature to provide funds to establish or expand the infrastructure at each campus and the Lawrence Berkeley National Laboratory (LBNL) to build a network of innovators, entrepreneurs, startups, investors, and industry and community partners to spur innovation and economic development in communities surrounding UC campuses, the LBNL, and across California.

- 2) Establishes a new Chapter within the Education Code on "Innovation and Entrepreneurship." Moneys appropriated pursuant to the new chapter are required to be used by the UC to:
 - a) Expand the infrastructure necessary to increase innovation and entrepreneurship for the purpose of creating economic development; and
 - b) Fund innovation and entrepreneurship programs at each campus of the UC and the LBNL.

- 3) Provides that the specific manner in which the funds are used shall be determined by the UC. These uses may include, but are not necessarily limited to, the establishment of programs or projects to facilitate economic development in communities surrounding the 10 campuses of the UC, the LBNL, and other locations across California for any of the following purposes:

- a) Providing business training and resources to reduce common barriers to success for entrepreneurs and startup companies;
 - b) Offering subsidized work and laboratory space to startups for prototype development, proof-of-concept research, or both;
 - c) Providing proof-of-concept funding to increase the likelihood that entrepreneurs and startup companies will attract venture or corporate capital backing;
 - d) Providing mentorship to the underrepresented interested in entrepreneurial pursuits; and,
 - e) Coordinating and aligning innovation functions at a campus of the university or at the LBNL, and building relationships between the university environment and successful, independent enterprises to facilitate the rollout of products to the market and the public.
- 4) Requires the UC to report to the Department of Finance and the Legislature annually on the use of the funding, as specified.
- 5) Appropriates \$66 million from the General Fund to the UC Regents for allocation, as specified, in accordance with the following schedule:
- a) \$22 million for expenditure for the 2017–18 fiscal year (FY);
 - b) \$22 million for expenditure for the 2018-19 FY; and,
 - c) \$22 million for expenditure for the 2019-20 FY.

FISCAL EFFECT: The bill appropriates \$66 million over three fiscal years to the UC. A more specific fiscal analysis will be provided by the Assembly Appropriations Committee, should the measure pass and be referred.

POLICY ISSUE FRAME

The UC system has historically played a significant and foundational role within California's innovation-based industries. In 2000, California began a process for establishing three new centers of innovation, which would bring together the research capacity of the UC system, with business and industry. In announcing the California Institutes for Science and Innovation initiative, Governor Gray Davis said, "Fifty years ago, there was no Silicon Valley. Thirty years ago there was no biotech industry. Ten years ago, there was no Internet. Who knows what enterprises will be created or what medical breakthroughs will result of our institutions? But this we know: Breakthroughs occur. And I want to make sure they occur right here in California."

Since their inception, these institutes have played key roles in the development and commercialization of new technologies and processes that benefit the California economy. This measure expands and funds the UC's ability to take lessons learned from these institutes and other UC innovation-related activities to support local economic development activities. The focus of this new work is to establish stronger ties with the innovation-based business community and to allow start-ups and other entrepreneurs to leverage UC resources to launch their businesses.

The analysis includes background on the California economy, California Institutes for Science and Innovation initiative, and other start-up and small business development resources available in California. Amendments are discussed in Comment #4, including the need to clarify the relationship and the

difference between the proposed expansion of UC infrastructure and existing business accelerators and services.

COMMENTS:

- 1) **Technical Assistance to Start-ups and Small Businesses:** California's dominance in many economic areas is based, in part, on the significant role small businesses, including start-ups, play in the state's \$2.3 trillion economy. Research shows that net new job growth is strongest among businesses with less than 20 employees, and that small businesses have historically led the state's local and regional economies out of recessions. Among other advantages, these smaller size firms are crucial to the state's international competitiveness and are an important means for dispersing the positive economic impacts of trade within the California economy.

Nonemployer firms make up the single largest component of businesses in California, 2.9 million out of an estimated 3.6 million firms in 2012, representing over \$149 billion in revenues with the highest number of businesses in the professional, scientific, and technical services industry sector.

As these nonemployer businesses grow, they continue to serve as an important component of California's dynamic economy. Excluding nonemployer firms, businesses with less than 20 employees comprise nearly 90% of all businesses and employ 19% of all workers. These non-employer and small employer firms create jobs, generate taxes, and revitalize communities.

Their small size, however, results in certain challenges in raising capital, meeting regulatory requirements, obtaining information on intellectual property rights, establishing key mentor relationships, gaining access to expensive high tech equipment, and marketing their goods and services. California has an established network of programs and services to assist business, including start-ups, address these challenges including access to quality training, one-on-one counseling, mentoring, marketing data, and other business development resources.

Innovation-based businesses have their own specialized services, in recognition to the unique challenges of new technology firms. The Governor's Office of Business and Economic Development (GO-Biz), as an example, has a specific unit dedicated to supporting tech-based entrepreneurs. Under the auspices of the Innovation and Entrepreneurship unit, GO-Biz also sponsors a statewide network of 15 Innovation Hubs, generally structured around industry clusters. These Innovation Hubs are required to include key academic partners, including public and private universities, economic development organizations, government entities, businesses, and investment networks that can help to accelerate investment and economic development.

The federal government also provides a range of business assistance through its small business technical assistance centers, some of which specialize in assisting businesses in accessing venture capital, preparing and implementing federal Small Business Innovation Research Grants, and designing business development strategies. As one example, the Tech Futures Group offers a business development advisory service to technology companies within the Northern California/Bay Area region. Their free-of-charge assistance is provided by a group of experienced advisors who help start-ups and small, established technology companies "grow, thrive and reach the next level." The success of this federal program is measured by client outcomes relative to capital infusion, jobs created, and revenue. Since its inception through the end of 2014, The Tech Futures Group has helped companies raise \$49 million in capital and create over 270 jobs.

AB 2664 could be a valuable addition to the state's existing network of innovation-focused business development programs. It is important, however, that the \$66 million be used to develop local business accelerators that complement, enhance, and provide unique features to the state's current programs. Given the quality of UC research and education, as well as its experience with the Institutes for Science and Innovation, the UC is fully capable of becoming a powerful new community-based business development partner that, working in collaboration with existing partners, can help California start-ups and small businesses reach new levels of success.

- 2) **California Institutes for Science and Innovation:** The UC system is designated by the 1960 Master Plan for Higher Education as the primary state-supported academic agency for research. In 2000, Governor Gray Davis and the Legislature committed to the development to three new world class research institutions to support California's growing economic position in the 21st Century. The institutions would be collectively referred to as the California Institutes for Science and Innovation, with each one combining technological and scientific research with the training and education of future scientists and technology leaders.

The institutions were to be chosen on a competitive basis. Each institute was envisioned to develop programs in cooperation with the private sector and in collaboration with the California's other public and private colleges and universities. The Legislature passed and the Governor signed legislation to provide a framework for the development of the institutions and included \$75 million in the 2000-2001 Budget Bill, AB 2883 (*Villaraigosa*) Chapter 79, Statutes of 2000, and AB 1740 (*Assembly Budget Committee*) Chapter 52, Statutes of 2000.

One of the statutory requirements for the development of the institutes was that state funding for the construction of the facilities would be matched on a two-to-one basis with federal and private funds. A commitment was also made to provide up to \$300 million over four years to complete the project. Operating costs for the institutes was to be annually appropriated through the regular budget review and adoption process.

Six applications were submitted, from which four centers were selected including:

- **California Institute for Bioengineering, Biotechnology, and Quantitative Biosciences:** This institute, also referred to as a QB3, applies quantitative sciences, including mathematics, physics, chemistry and engineering, to biomedical research that promises to improve human health and create dynamic new technologies. Among its many advantages, the institute maintains state of the art research equipment, such as genome sequencers and super computers, that would be too expensive for a single lab to acquire and maintain. The QB3 is jointly hosted by UC San Francisco, Berkeley, and Santa Cruz.
- **California Institute for Telecommunications and Information Technology:** This institute, also referred to as Calit2, links UC faculty, researchers, and students with California companies to develop scientific and technological components to create a "new Internet" that can support innovations in transportation, health care, e-commerce, and education. Calit2 is jointly hosted by UC San Diego and Irvine.
- **California NanoSystems Institute:** This institute, also referred to as CNSI, serves as a catalyst for the development of techniques to manipulate structures atom-by-atom for the purpose of engineering new materials, devices, and systems that can revolutionize the delivery of health care and information technology. CNSI is jointly hosted by UCLA and UC Santa Barbara.

- ***Center for Information Technology Research in the Interest of Society***: This institute, also referred to as CITRIS, examines new ways to use information technology to solve complex issues, including transportation, education, emergency preparedness, and the environment. This fourth institute was not initially funded and Governor Davis had to identify supplemental funding for it to be established. CITRIS is jointly hosted by UC Berkeley, Santa Cruz, Davis, and Merced.

Today, each of these institutes facilitate and encourage the development of new products and processes, as well as providing a focus for deeper primary and applied research. Their initial development, however, was not without its challenges. The Legislative Analyst, in particular, expressed concerns over the cost of the institutes and in 2007 opposed a \$20 million appropriation to expand the California Institutes for Science and Innovation and build a petascale supercomputer.

- 3) **Profile of California's Innovation Dominated Economy**: California is home to over 39 million people, providing the state with one of the most diverse populations in the world, often comprising the single largest concentration of nationals outside their native country. In 2014, this diverse group of business owners and workers produced \$2.3 trillion in goods and services; \$174.1 billion of which were exported to over 220 countries around the world.

If California were a country, its 2014 GDP would place it 8th among nations, ranking as follows: United States (\$17.41 trillion), China (\$10.38 trillion), Japan (\$4.61 trillion), Germany (\$3.86 trillion), France (\$2.84 trillion), Brazil (\$2.35 trillion), California (\$2.31 trillion); Italy (\$2.14 trillion), India (\$2.05 trillion), and Russia (\$1.85 trillion). *The Department of Finance will not release the 2015 GDP for California until June 2016, so for comparisons 2014 data is primarily being used in this analysis.*

Historically, a number of factors have contributed to California's significant position within the global marketplace, including its strategic west coast location, the size of its consumer base, the strength of its dominant and emerging industry sectors, its economically diverse regional economies, its skilled workforce, and its culture of innovation and entrepreneurship, particularly in the area of technology. California's 29 million working age individuals comprise the single largest workforce in the nation, are comparatively younger, and have an educational achievement level above the national average.

Many policy makers and economists describe California as having not a single economy, but having a highly integrated network of a dozen or so regional economies. While biotech has a comparative advantage in some regions, information technology drives growth in others. This economic diversity contributed to California's ability to aggressively move out of the recession, ranking number two in the nation by *Business Insider* for fastest growing economy in the nation in August 2014 and being named as having the fourth best overall economy in March 2015.

Research and development, and the drive to constantly push for new and more innovative methods and technologies play a key role to maintaining California's competitiveness between other areas of the state and around the world. **Chart 1** displays information from the U.S. Census Bureau on California's private industry sectors based on its contribution to the state's GDP. In 2014, the finance and insurance sector provided the largest economic contribution to the state's overall GDP, \$484 billion of the \$2.3 trillion. Firms in this industry sector include entities that raise funds, pool risk, and facilitate financial transactions including real estate. The strength of this sector forms a foundation for the continued growth of other industry sectors.

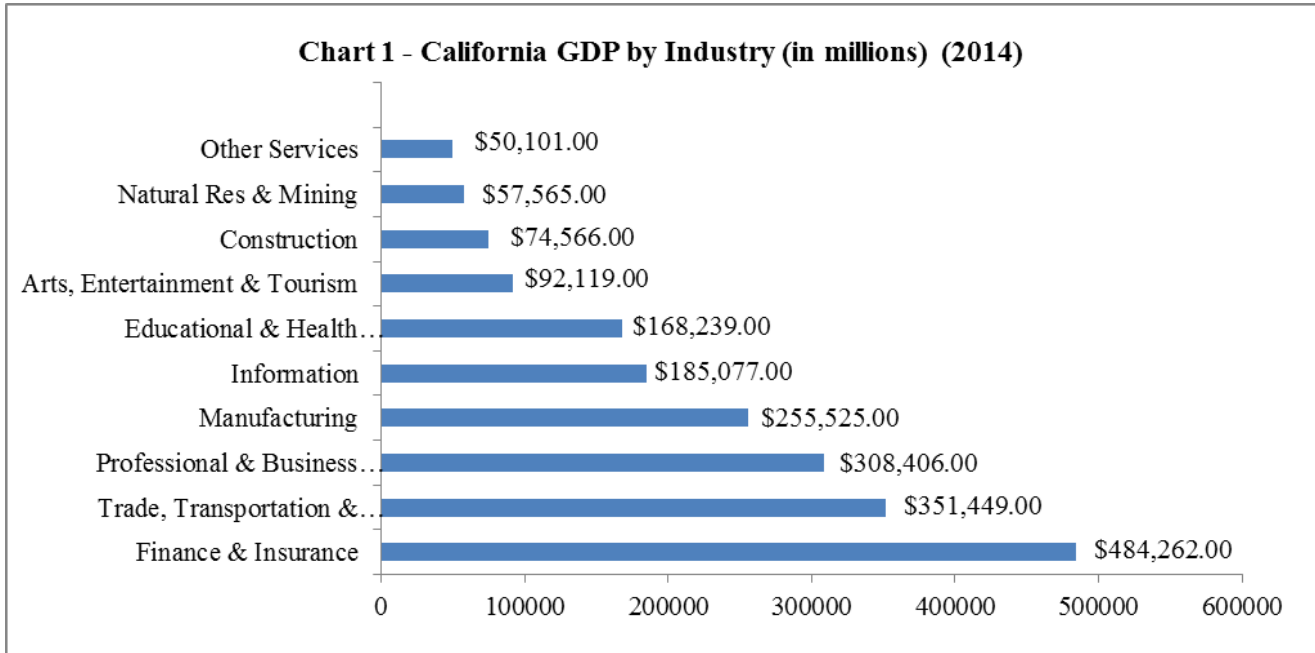
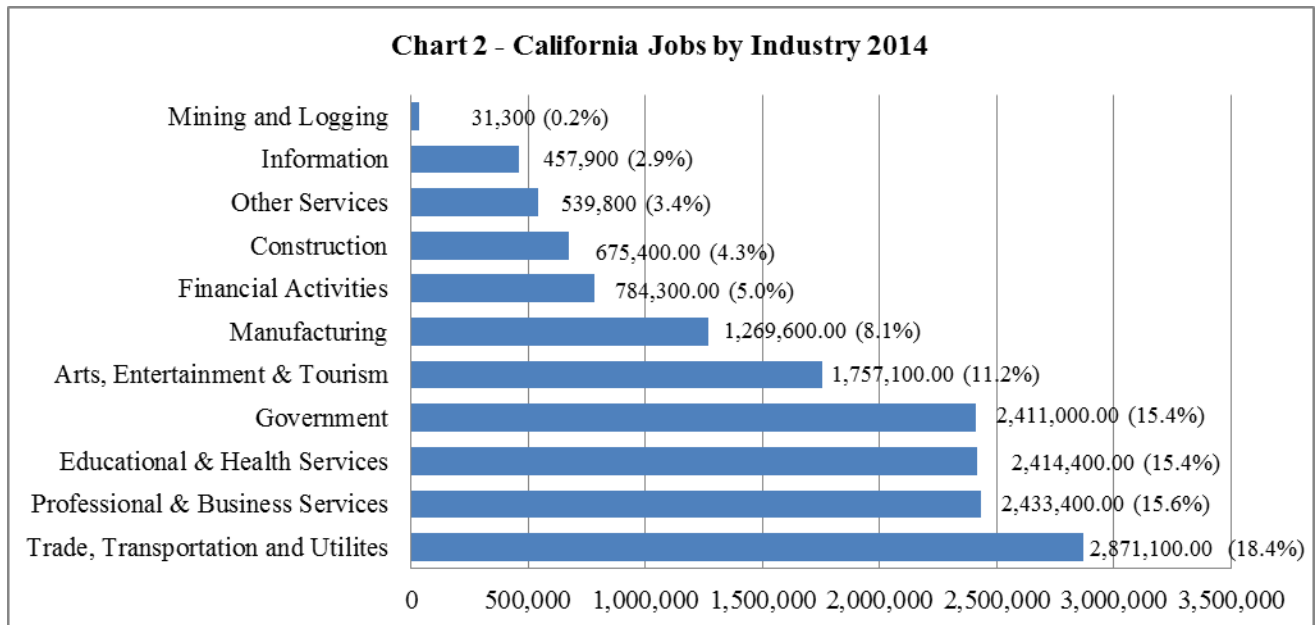


Chart 2, developed using data provided by the California Employment Development Department, shows California's largest industry sectors based on employment. In 2014, the *trade, transportation, and utilities sector was largest*, employing 2.8 million (18.4% of California jobs). Jobs in this sector also support employment in other industry sectors including Manufacturing (8.1%), Professional Services (15.6%), and Financial Activities (5.0%).



Many of the jobs associated with these major industry sectors are also associated with high wages. Manufacturing is considered the "gold standard" for jobs because of its high wages, inclusion of small businesses within its global supply chains, and having a high multiplier effect on related jobs. The Milken Institute estimates that for every job created in manufacturing, 2.5 jobs are created in other sectors. In some industry sectors, such as electronic computer manufacturing, the multiplier effect is 16:1.

Advances in transportation and communication technologies are encouraging the development of previously undeveloped markets and expanding multinational business opportunities for California firms. Today, four of California's top five exports include component parts, which leave the state to be assembled and/or partially assembled before returning. Supporting a pipeline of business start-ups and evolving collaborative relationships is key to California's economic growth.

These trade related industry sectors comprise a majority of what EDD has designated as the state's "economic base" sectors, which include professional services, manufacturing, and transportation, among others. Employment in these economic base industries represents 37.3% of the state's total employment, and employment growth within these sectors grew at twice the pace of the overall state economy.

- 4) **Suggested Amendments:** The bill could offer an enhancement to the state's local and regional technical assistance and business accelerator network. In moving forward with the bill, the Committee may wish to:
- a) Clarify the UC's collaboration with existing public and private entities that have similar missions, including GO-Biz, local and regional economic development organizations, and other public and private technology innovation centers;
 - b) Clarify the differences between the programs and services provided through the new UC funding and those currently available through technology-focused small business development centers; and
 - c) Clarify that the reporting be consistent with other business assistance programs, including business, size, industry sectors, and impact.

In addition, the author has requested that the Committee amend the bill to specify that implementation of the measure is contingent upon appropriation in the budget act.

- 5) **Related Legislation:** Below is a list of the related bills.
- a) ***AB 250 (Holden and V. Manuel Pérez) Codification of California Innovation Hubs:*** This bill codifies and expands the California Innovation Hub Program at GO-Biz for the purpose of stimulating economic development and job creation through the regional coordination of federal, state, and local innovation-supporting resources. Status: Signed by the Governor, Chapter 530, Statutes of 2013.
 - b) ***AB 285 (Brown) Scope of Practice for the California Workforce Investment Board:*** This bill would have required the California Workforce Investment Board to make recommendations and provide technical assistance on entrepreneurial training opportunities that could be made available through local workforce investment boards. The bill would have also deleted certain required duties of the California Workforce Investment Board and made changes to the definition of microenterprise. Status: Vetoed by the Governor, 2013. "This bill, like SB 118, deals with the California Workforce Investment Board and various aspects of job training. Unlike SB 118, it is overly prescriptive in the way it directs the Board to provide technical assistance for entrepreneurial training and to make recommendations. I believe this unduly infringes on the Board's authority and discretion."
 - c) ***AB 1740 (Assembly Budget) 2000-2001 Budget Bill:*** Authorized \$75 million for the UC to implement AB 2883 (see below). The UC stated at the time that the UC System would require

\$75 million for each of four years in order to establish the institutes. Status: Signed by the Governor, *Chapter 52*, Statutes of 2000.

- d) **AB 2883 (Villaraigosa) UC Research Facilities:** This bill authorized the University of California and established three, competitively bid, California Institutes for Science and Innovation, which would be devoted to basic and applied cross-disciplinary research, focusing on problems of significant scale and on scientific advances that may provide the underpinnings of future economic activity in California. Status: Signed by the Governor, Chapter 79, Statutes of 2000.
- 6) **Double Referral:** This measure has been double referred to the Assembly Committee on Higher Education and Assembly Committee on Jobs, Economic Development, and the Economy. The vote in the Higher Education Committee was 12 to 1.

REGISTERED SUPPORT / OPPOSITION:

Support

University of California (sponsor)
 Aptitude Medical
 Arduo Biotech
 Bay Area Science and Innovation Consortium
 Bayer
 Calaveras Creek Capital
 Center of Seed Excellence and Innovation
 City of Goleta
 City of Santa Cruz
 The InterPacific Group
 Gavin Newsom, Lieutenant Governor
 Gerson Bakar Foundation
 Goleta Entrepreneurial Magnet
 Los Angeles Business Council
 Manitou Ventures
 Monterey County Business Council
 Next Energy Technologies
 Nixon Peabody LLP
 Pfizer Inc
 Professor Alan Heeger, UCSB
 Professor Shuji Nakamura, UCSB
 Ryan Coonerty, Santa Cruz County Board of Supervisors, District 3
 Solano Economic Development Corporation
 Stanford Bio-X program
 Synergenics
 *The Committee also received 14 letters from individuals

Opposition

None Received

Analysis Prepared by: Toni Symonds / J., E.D., & E. / (916) 319-2090