

Business and Investment in the East Bay

One of the defining characteristics of the East Bay is the breadth of its economic base. East Bay companies reprogram bacteria to excrete biofuel, create personalized radio stations, manufacture outdoor clothing and grow grapes to produce world-class wines. It is hard to imagine a place that supports a wider range of business opportunities.

The East Bay's credentials as one of the nation's leading technology development centers stem from a number of attributes. It is the north-east portion of Silicon Valley. It is home to the University of California, Berkeley, the nation's top-ranked graduate research institution as well as



three of the nation's leading national laboratories. Its strength across a number of different technology areas facilitates the exciting and somewhat rare fusion of ideas across industry sectors. In spite of the overall weakness of the national economy, for the past several years East Bay companies have demonstrated their innovative and commercial promise by attracting over \$1 billion in venture investments each year. The East Bay's two counties usually receive more venture investment than all but two or three states in the nation (including California).

The East Bay is an integral part of the nation's oldest, largest and most successful biotechnology cluster. Four of the top ten largest biotech companies in the greater Bay Area, including the top two, Bayer Healthcare and Novartis, are located in the East Bay. Demonstrating the promising innovation

in this sector in 2010, a number of smaller East Bay companies received more venture funding for biotechnology and medical devices than 48 of the 50 states.

The East Bay is also prominent in the Bay Area's semiconductor manufacturing cluster. Companies in this sector attracted more venture investments than Massachusetts, North Carolina and Texas — the 2nd, 3rd and 4th ranked states — combined.

The East Bay's rising star, however, is a diverse clean tech cluster which has grown so vigorously across so many technologies that a large part of the nation's clean tech boom should more precisely be called the East Bay's clean tech boom. Photovoltaic manufacturers such as Solaria and high-efficiency LED lighting company Bridgelux have taken advantage of the large semiconductor manufacturing support cluster that already exists in the region.

Biofuel R&D, another major part of the East Bay's clean tech cluster, emerged in large part due to the unique expertise in synthetic biology at UC Berkeley and Lawrence Berkeley National Laboratory. Amyris, an East Bay company, has already used synthetic biology to not only reprogram *E. coli* DNA to produce the primary ingredient of a powerful synthetic anti-malaria drug that will soon be on the market, but also to generate various forms of biofuel that are currently being produced at a pilot plant in Brazil.

The June 2011 opening of the Joint Center for Artificial Photosynthesis North (JCAP North) symbolizes perhaps the most unique characteristic of the East Bay's and the Bay Area's technology prowess. While many regions have strengths in one particular area of technology, no other region

offers strengths in so many different applications of technology. Strengths in areas such as high speed computing, imaging and microscopy, optics, life sciences, advanced materials, nanotechnology and climate assessment offer exceptional opportunities for the convergence of ideas leading to multidisciplinary advances. National Laboratories in the East Bay pioneered this approach and at JCAP local expertise in biology, advanced materials, nanotechnology and semiconductor thin film manufacturing will all be focused on artificially mimicking plant processes to turn water, carbon dioxide and sunlight into transportation fuel.

Other East Bay clean tech companies such as BrightSource, Primus Power, Ultracell, MBA Polymers, Green Volts and Energy Recovery are developing new approaches to utility scale solar power generation, industrial scale batteries, miniature fuel cells, high tech recycling, the smart grid and energy efficient water desalinization. These companies also owe much to the vast accumulation of scientific and industrial expertise that exists in the region.

The East Bay's digital arts cluster, on the other hand, takes advantage of the region's artists and technical expertise in animation software and computer hardware. Companies such as Pixar and Tippet Studio have both won Academy Awards for their extraordinary fusion of advanced technology and artistic creativity. Independent film makers at the Fantasy Studios/Zaentz Media Center have also won numerous national and international awards including Academy Awards. Other East Bay companies such as Pandora Media, Ask.com, LeapFrog, Backbone Entertainment, Livescribe

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and mobiTV are reshaping the media industry.

But the East Bay is more than just new industries. The East Bay has always been the home of food processing, consumer products and services that support the daily activities of the entire Bay Area. Companies such as Clorox, Safeway, JanSport, North Face, Lucy, Ross Stores, Cost Plus World Market and Kaiser Permanente are all headquartered here. We are Northern California's oldest wine growing region and home to more than 80 wineries. We have a large cluster of specialty foods. In 1976 Alice Medrich opened Cocolat and introduced the nation to chocolate truffles. Dreyer's Grand Ice Cream, Jamba Juice, Clif Bar, Power Bar, and Peet's Coffee all started



here. We also introduced the country to gummy bears, Jordan almonds, rocky road ice cream, and "California cuisine."

The East Bay's Chevron is pursuing renewable and other energy sources to meet the world's demand for the coming century. USS POSCO and American Spiral Pipe are headquartered here as are motorcycle manufacturers Arlen Ness and Electric Motorsport. International rail car manufacturer AnsaldoBreda is located in the East Bay. Gillig, the nation's second largest manufacturer of transit buses, has been manufacturing transportation vehicles for well over a century while newcomer Tesla is just starting to manufacture plug-in electric cars here. In addition to the die casting, metal fabrication, plastic injection molding and machine shops that support manufacturers throughout the Bay Area, East Bay companies also provide professional and scientific services such as engineering, environmental consulting and testing and measurement.

In short, the East Bay not only helps drive the highly competitive knowledge based economy, it

also provides the day-to-day foundation that supports the visible success of other parts of the Bay Area. The East Bay is the reason the Bay Area works.

The fact that the East Bay supports such a wide range of industries speaks to the bottom line advantages an East Bay location provides.



Outstanding location advantages that help East Bay businesses grow

- * East Bay lease rates are the most competitive in the Silicon Valley and are more competitive than San Francisco's.
- * Within the five counties that contain the Bay Area's three major metropolitan centers, the East Bay offers roughly half of all the land available for commercial and industrial development and a variety of property listings that include: warehouses along major transportation routes; biotech spaces with wet labs, certifiable manufacturing facilities and other specialized spaces; affordable light industrial and startup spaces on former military bases; retail opportunities in class A office buildings and space for campus-style facilities in major business and industrial parks.
- * The East Bay provides some of the nation's most commuter- and logistics-friendly locations. It offers the best access to the Bay Area's Interstate freeway network and heavy rail commuter system while Oakland, San Francisco and San Jose airports offer many air transportation options for national and international business commuters, particularly to Asia.
- * Great transit options and accessibility give East Bay companies an advantage in recruiting and retaining workers.

* A FedEx regional cargo hub, the nation's fifth largest container port and service from two national rail companies give East Bay shippers a logistics advantage over their competitors. Our Foreign Trade Zone is a bonus for companies importing foreign products.

* Public policy and a consumer base of early adapters have made the East Bay one of the nation's most receptive markets for alternative energy and clean technology.



A quality of life that supports exceptional family life

- * The East Bay offers some of the best schools in the state and, as a whole, East Bay schools consistently score higher than the state average.
- * From urban lofts and transit village housing near the latest fusion restaurants to executive estates among the vineyards, the East Bay provides the widest range of housing options at the best values offered in the urban Bay Area.
- * With over 108,000 acres the East Bay Regional Park System is the nation's most extensive urban park system featuring 65 parks and over 1,200 miles of trails for hiking, biking, horseback riding and nature study. As an added bonus, East Bay residents enjoy a climate rated best in the nation.
- * Perhaps related to the abundance of opportunities for outdoor activities, Oakland is the third most "active" city in the nation based on high rates of exercise and low rates of cable television viewing, video game purchases and occurrence of deep-vein thrombosis, according to a June 2011 survey commissioned by Men's Health Magazine.

- * World class symphony, opera, ballet and shopping as well as six major professional sports teams and the cultural and sports activities of two world class universities are all within an easy commute. In addition, leisurely weekend trips to Monterey and Big Sur, Yosemite, Tahoe, Gold Country, Mendocino and Wine Country make this area one of the most attractive in the nation.
- * Not surprisingly, over the next decade the Association of Bay Area Governments projects the East Bay to be a population growth center within the Bay Area.



A Top-rated workforce and world-class thought leaders

- * The East Bay workforce is well educated. Compared to the U.S. as a whole, companies are 41.5% more likely to find an East Bay employee with at least a bachelor's degree and 47.5% more likely to find one with a graduate or professional degree.
- * UC Berkeley has had 21 Nobel Prize winners with 8 currently on the faculty and has also hosted 45 John D. and Catherine T. MacArthur Foundation "genius" award winners.
- * The collective estimated annual operating budget at UC Berkeley and our three National Laboratories is close to \$3 billion annually. The extent of this activity creates a large pool of graduates and researchers who confer their knowledge of the latest technologies and research findings as they find jobs in the private sector.
- * When East Bay telecom company, UT Starcom, was created in 1995 by the merger of two companies headed by Hongliang Lu and Ying Wu, it was no



Tri-Valley Region

accident the company was able to rapidly penetrate the Chinese market to become a Fortune 1000 company in a few short years. A culture that encourages risk-taking, understands that failure builds experience and welcomes diversity has attracted the best and the brightest from around the world.

- * In 2006 Jay Keasling was named Discover Magazine's Scientist of the Year and in 2007 he received Bay Bio's Visionary award for his pioneering work demonstrating synthetic biology as a powerful new tool with the potential to change manufacturing in a wide range of industries including those as diverse as pharmaceuticals, cosmetics and biofuels.

- * In 2011 Peidong Yang, co-founder of Alphabet Energy and named #1 materials scientist by Thomson Reuters based on the number of times he has been cited by other scientists, is named Director of the Joint Center for Artificial Photosynthesis, North, where applied research will be conducted to create transportation fuel from water, carbon dioxide and sunlight using an artificial process that mimics the biological process found in plants.

- * People and groups such as Alice Waters, Tom Hanks, Rickey Henderson, Jack London, the Pointer Sisters, Amy Tan, Green Day, Bill Russell, Too

Short, Julia Morgan, Gertrude Stein, Joe Morgan, Tower of Power, Mrs. Fields, Andre Ward, Bernard Maybeck, M.C. Hammer, Maxine Hong Kingston and many others too numerous to mention have all called the East Bay home.



Quality resources that facilitate the development of innovative industry clusters

- * In 2007 the East Bay became the world's largest concentration of biofuel R&D when national and international competitions awarded the East Bay the Energy Biosciences Institute (EBI) and the Joint Bio-Energy Institute (JBEI) along with an estimated \$920 million (including venture investments) for facilities, research and development.

- * With access to User Facilities such as the Advanced Light Source, National Center for Electron Microscopy, National Energy Research Scientific Computing Center, Molecular Foundry, Joint Genome Institute, Joint Bio-Energy Institute, Joint Center for Artificial Photosynthesis, Energy Sciences Network and Combustion Research Facility, as well as to two QB3 business incubators, a CITRIS

incubator, a Siemens Technology-to-Business Center, Inner City Advisors, two Small Business Development Centers, Berkeley Ventures, Skydeck, the East Bay Green Corridor iHub the i-GATE iHub and i-GATE NEST, East Bay companies—technology and non-technology alike—have powerful resources to help them succeed.

- * Every year since at least 2007, East Bay companies have attracted over \$1 billion in venture capital, annually, equivalent to a place among the top four states in the country. Based on the first quarter, 2011 could become a banner year.

- * Venture investors appear to especially favor innovative East Bay companies in biotechnology, medical devices, alternative energy and semiconductors as well as other industries.

- * Startups benefit from the fact that the East Bay is home to the Keiretsu Forum, the nation's largest angel investor network.

- * As of 2011 the East Bay's three National Laboratories have received a total of 199 R&D 100 awards, popularly known as the "Oscars" of applied research.

- * The biotechnology industry started in the East Bay—and the world—in 1971 when Cetus was incorporated, five years prior to Genentech. Since then the East Bay biotech cluster has grown to over 200 companies.

The East Bay offers a location in the center of the region most envied around the world for technology development and commercialization. The East Bay offers more smarts, better access, exceptional financing for innovators, and one of the most desirable places to live, at the region's most affordable prices. You can't afford to be anywhere else.