Manufacturing Still Matters

The East Bay (Alameda and Contra Costa counties) has a long legacy of manufacturing and continues to this day—ranging from manufacturing machinery to medical equipment to food. The manufacturing sector remains a vital source of innovation and economic competitiveness in the East Bay with significant contributions to research and development, exports and productivity growth.

The East Bay has seen its concentration in manufacturing jobs increase relative to the U.S., California and the rest of the Bay Area since the mid-1990s. This is particularly true for specialized and advanced manufacturing activities that support the region’s high-tech sectors.

As R&D functions increasingly converge with goods production, the East Bay remains well-positioned to continue to be one of the nation’s leading manufacturing regions. At the same time, it is important to not take these advantages for granted: business, education, government, nonprofit organizations, and other partners must work together even more closely to ensure that our region’s infrastructure, training programs, and other assets that have helped create our success continue to receive the investments and support they need to sustain our competitive advantages.

Top Manufacturing Subsectors

<table>
<thead>
<tr>
<th>Subsector</th>
<th>Jobs (2018)</th>
<th>% of Industry</th>
<th>5-Year Change</th>
<th>Location Quotient*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and Electronic Product Mfg</td>
<td>19,089</td>
<td>19%</td>
<td>1,104</td>
<td>2.2</td>
</tr>
<tr>
<td>Transportation Equipment Mfg</td>
<td>16,440</td>
<td>16%</td>
<td>13,318</td>
<td>1.2</td>
</tr>
<tr>
<td>Food Mfg</td>
<td>11,366</td>
<td>11%</td>
<td>1,003</td>
<td>0.9</td>
</tr>
<tr>
<td>Machinery Mfg</td>
<td>8,335</td>
<td>8%</td>
<td>2,370</td>
<td>0.9</td>
</tr>
<tr>
<td>Fabricated Metal Product Mfg</td>
<td>8,035</td>
<td>8%</td>
<td>1,810</td>
<td>0.7</td>
</tr>
<tr>
<td>Chemical Mfg</td>
<td>7,126</td>
<td>7%</td>
<td>1,841</td>
<td>1.1</td>
</tr>
</tbody>
</table>

* Location Quotient - how concentrated this industry is in the East Bay compared to the nation. Sources: Bureau of Labor Statistics; EMSI, 2019.

102,500
Manufacturing jobs in 2018 (27% growth since 2013)

$224 BILLION
Gross regional product (GRP) in 2018 Manufacturing represents 15% of the East Bay's overall GRP
Manufacturing Trends

In the 1960s, the East Bay’s manufacturing sector accounted for nearly 28 percent of all jobs. Today, the industry comprises only 8 percent of jobs. Remarkable gains in productivity and automation, as well as increased international competition, are major reasons for the decreases. Despite declines in the sector employment overall, the East Bay’s manufacturing output remains strong – comprising about 15 percent of overall GRP. In addition, manufacturing activities directly and indirectly support other economic activities, which keeps the East Bay thriving and growing.

Sources: Bureau of Labor Statistics; DatabaseUSA; EMSI, 2019.
Manufacturing remains an important source of middle-wage jobs and can provide a ladder into higher-wage positions. Manufacturing jobs often do not require formal education, as many skills are taught on the job. However, STEM skills are increasingly needed to align with the changing manufacturing landscape that exists today and in the near future.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Assemblers and Fabricators</td>
<td>13,645</td>
<td>8,007</td>
<td>13%</td>
<td>$17.02</td>
<td>Moderate-term</td>
</tr>
<tr>
<td>Electrical, Electronic, and Electromechanical Assemblers</td>
<td>3,104</td>
<td>539</td>
<td>3%</td>
<td>$15.67</td>
<td>Moderate-term</td>
</tr>
<tr>
<td>First-Line Supervisors of Production and Operating Workers</td>
<td>2,719</td>
<td>685</td>
<td>3%</td>
<td>$33.06</td>
<td>None</td>
</tr>
<tr>
<td>Machinists</td>
<td>2,288</td>
<td>436</td>
<td>2%</td>
<td>$25.77</td>
<td>Long-term</td>
</tr>
<tr>
<td>Laborers and Freight, Stock, and Material Movers, Hand</td>
<td>2,220</td>
<td>784</td>
<td>2%</td>
<td>$15.19</td>
<td>Short-term</td>
</tr>
<tr>
<td>Inspectors, Testers, Sorters, Samplers, and Weighers</td>
<td>2,193</td>
<td>537</td>
<td>2%</td>
<td>$20.34</td>
<td>Moderate-term</td>
</tr>
<tr>
<td>General and Operations Managers</td>
<td>1,819</td>
<td>243</td>
<td>2%</td>
<td>$59.18</td>
<td>None</td>
</tr>
<tr>
<td>Packaging and Filling Machine Operators and Tenders</td>
<td>1,770</td>
<td>294</td>
<td>2%</td>
<td>$13.89</td>
<td>Moderate-term</td>
</tr>
<tr>
<td>Sales Representatives</td>
<td>1,730</td>
<td>315</td>
<td>2%</td>
<td>$32.07</td>
<td>Moderate-term</td>
</tr>
<tr>
<td>Shipping, Receiving, and Traffic Clerks</td>
<td>1,579</td>
<td>236</td>
<td>2%</td>
<td>$16.78</td>
<td>Short-term</td>
</tr>
</tbody>
</table>


**13,600 JOBS**

Assemblers and fabricators represent the largest share of manufacturing occupations in the East Bay.

**Major Employers**

- Abbott Diabetes Care
- Tyson Foods
- Astelialk
- Bayer
- Dean Foods
- Bio-RAD Laboratories
- Chevron Corporation
- Clear-Com Communications
- Dow Chemical
- Griffols Diagnostic Solutions
- Posco Steel
- Shell Martinez Refinery
- Tesla

*Selected businesses that engage in manufacturing and production activities (NAICS 31-33).
Sources: DatabaseUSA; Dun & Bradstreet; 2019.
The Future of Manufacturing

The future of manufacturing is not driven by a single force, but a combination of technologies, including sensors, algorithms, and robotics. In use for decades, but now at a lower cost, with broad access, high speed, fine precision and now interconnectivity, the “internet of things” (IoT) have opened the door to a new reality. Their synthesis is connecting all parts of manufacturing – people, processes, materials and creating far more than the sum of their constituent parts. Industry experts believe that this process – in the small and medium sized manufacturing space – will be an evolution not a revolution.

The East Bay has a strong legacy of manufacturing, many components of which are still active and visible across the region today. As manufacturers continue to adapt to technology changes, there will be increased demand for employees with high levels of technical skills, such as coders, app developers, data scientists, 3D printing specialists and others. Heavy emphasis on STEM education, apprenticeships, technical training and other resources (e.g., maker spaces, incubators) are needed to assist manufacturers with evolving in a continuously changing digital business landscape.

What will the factory of the future look like?

**Automated** – Collaborative Robots (Cobots) performing tasks of lower added value and changing from one task to the other easily

**Digitally Connected** – Incorporating electronics to capture data in a massive way and manage production processes in real time

**Intelligent** – Interpreting the data of the processes and facilitating decision-making in advance, promoting continuous improvement and innovation

**Flexible** - The design, manufacturing and logistics must be flexible in order to adapt quickly to changes in demand

**Sustainable** – With a rational and responsible use of resources and energy

**Human** – All of the foregoing will only be possible if we properly train employees and activate their talent. People will continue to be the center of activity and will make a difference in this scenario.
Industry Resources

Nationwide Manufacturing Network
Manufacturing Extension Partnership (MEP)

Public Agency Alliances
Alameda County Workforce Development Board (ACWDB)
CalRecycle
California Manufacturing & Technology Association (CMTA)
CalCharge
GO-Biz Office of Business & Economic Development
National Institute of Standards and Technology (NIST)
Silicon Valley Manufacturing Roundtable
SEMI America Silicon Valley
Silicon Valley Robotics
United States Department of Agriculture (USDA)
Western Trade Adjustment Assistance Center (WTAAC)
Work2Future

Training & Development Alliances
Affiliate Member Institute of Coaching, McLean Hospital, a Harvard Medical School
Association of Manufacturers Bay Area (AMBayArea)
Bay Area California Community Colleges Consortium
California Employers Association
Biomedical Manufacturing Network
i-GATE
Lawrence Livermore National Laboratory (LLNL)
NextFlex
Society of Manufacturing Engineers (SME)
Solano Small Business Development Center
University of California, Berkeley, Laboratory for Manufacturing and Sustainability (LMAS)

SPECIAL ACKNOWLEDGEMENTS

EastBay EDA
1221 Oak Street, Suite 555
Oakland, CA 94612
www.EastBayEDA.org