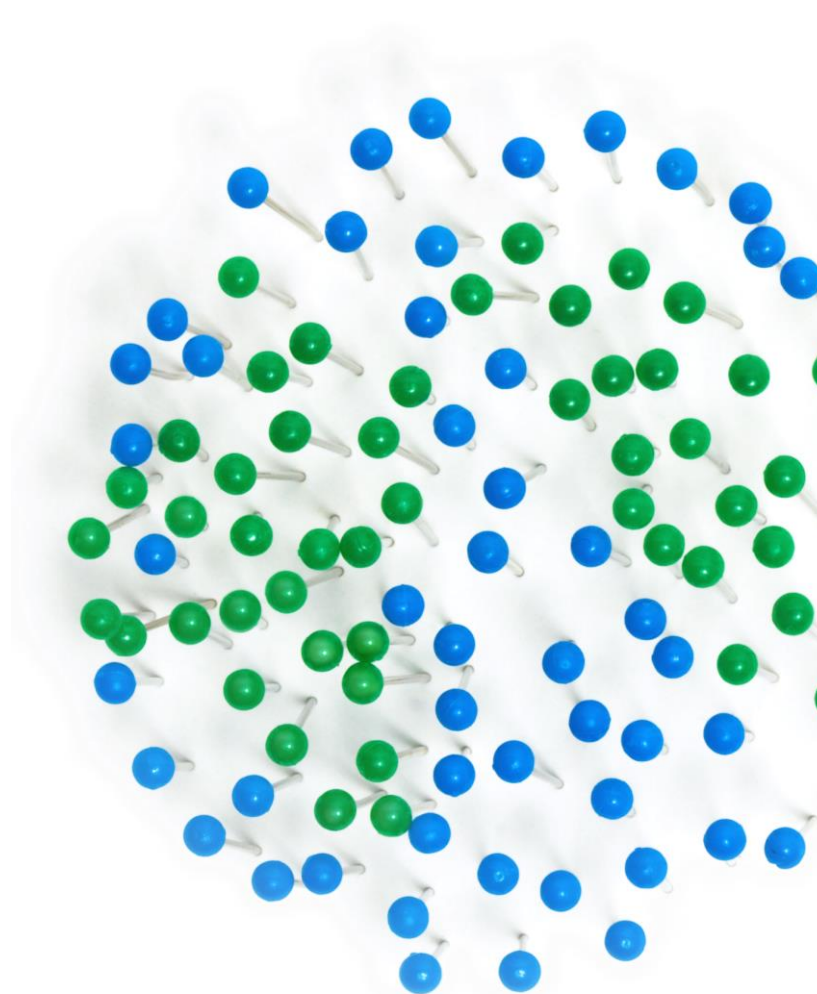




Finding Talent: Site Selection Labor Market Considerations for the Life Sciences Industry



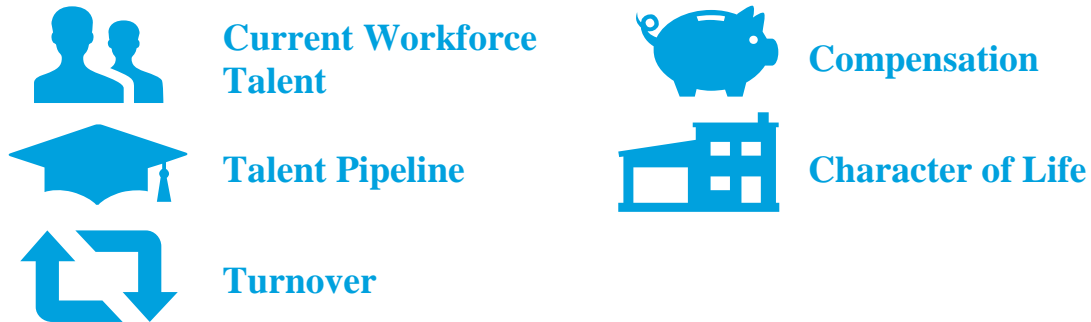
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Introduction

Labor is generally the most significant decision driver for life sciences companies in both manufacturing and research and development (R&D). Without adequate workforce, R&D becomes stagnant and manufacturing suffers from ramp-up delays, inefficiency and quality issues.

The appropriate locations for investment should provide significant talent benefits and mitigate labor risks. This is especially true when the industry has specific and unique needs such as Good Manufacturing Practices (GMP), a wide range of technologies and capabilities and regulatory requirements. By understanding the ideal labor market characteristics for a new facility, a company can significantly increase the likelihood of near and long-term success. For R&D and manufacturing location assessment, important labor market considerations should generally include:



This analysis highlights the ways in which these market considerations guide companies who are looking to select a location based on these strategic business objectives.



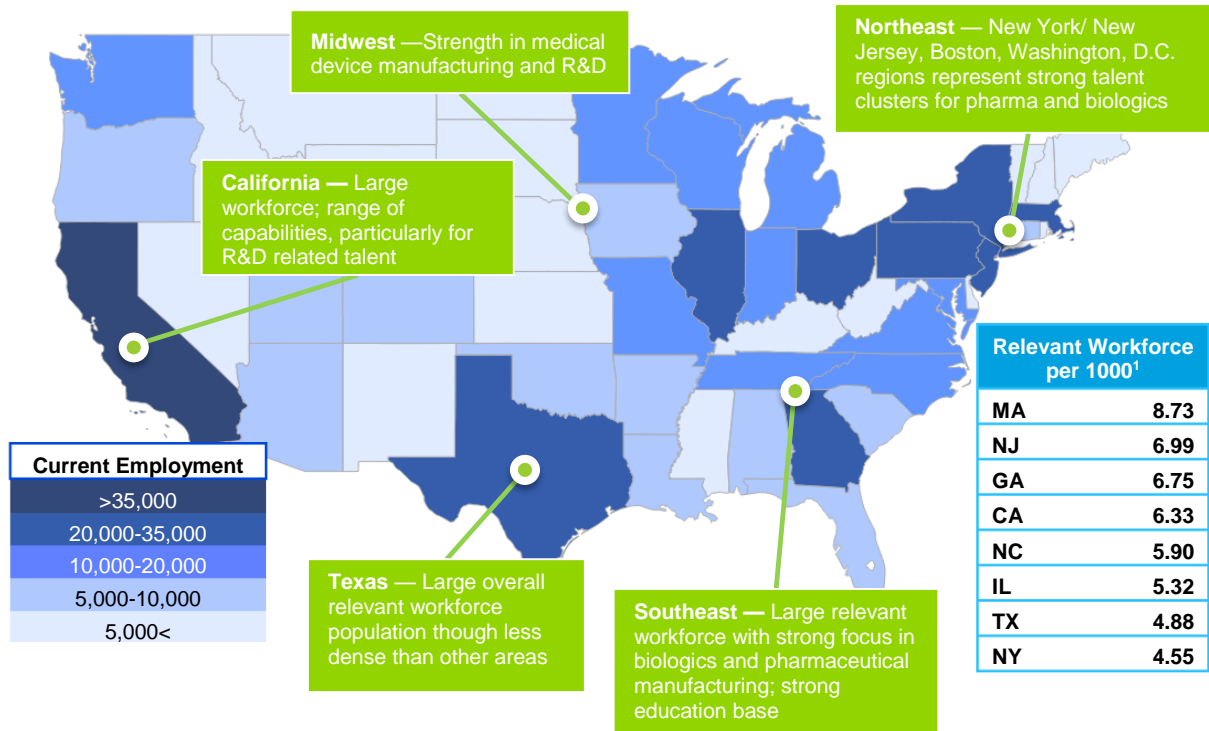
Current Workforce Talent

Deploying assets in a location with a strong, relevant workforce can significantly reduce ramp-up timing, increase productivity of new operations and lower the risk of quality issues.

- Life sciences manufacturing facilities can draw from a variety of industries, as a range of skill sets are potentially transferable. For example, workers in the food processing and manufacturing industry operate in environments with hygienic standards relevant to life sciences manufacturers, and beverage makers work with fermentation processes applicable to biologics manufacturing. However companies generally prefer some professionals, such as quality control, with experience specific to life sciences.
- Successful R&D facilities typically demand a focused presence of biologists, technicians, chemists and related engineers. These occupations are generally clustered near metropolitan areas with a strong life science base.

The graphic below depicts current employment in occupations with skill sets relevant to life sciences manufacturers.

Life Sciences Manufacturing Occupation Employment



Occupations Considered

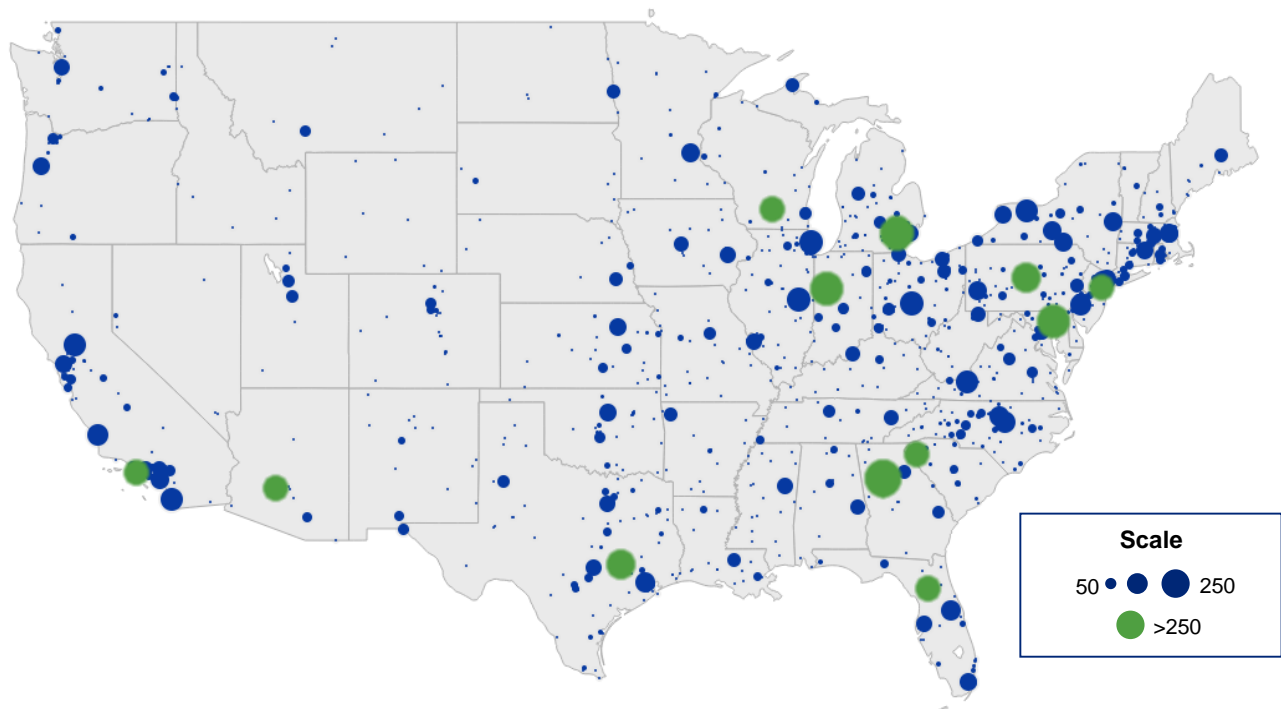
- Agricultural and Food Science Technicians
- Biochemists and Biophysicists
- Biological Technicians
- Biomedical Engineers
- Cooling and Freezing Equipment Operators/Tenders
- Medical and Clinical Lab Technicians
- Medical and Clinical Lab Technologists
- Packaging and Filling Machine Operators/Tenders

¹ Bureau of Labor Statistics (BLS), 2013

Talent Pipeline

While an existing workforce can fill positions in the near-term, universities and other educational institutions help replenish the near- and long-term labor pool and create a robust environment for talent. Favorable locations for R&D facilities provide easy access to a large quantity of medical scientists with advanced degrees. Most manufacturing positions require varying degrees of talent; stronger locations can supply talent from executive management through 2-year degree holders in fields such as equipment technician and GMP-certified operators. The map below illustrates Associate, Bachelor's and Master's degrees conferred with relevant life sciences manufacturing skill sets.

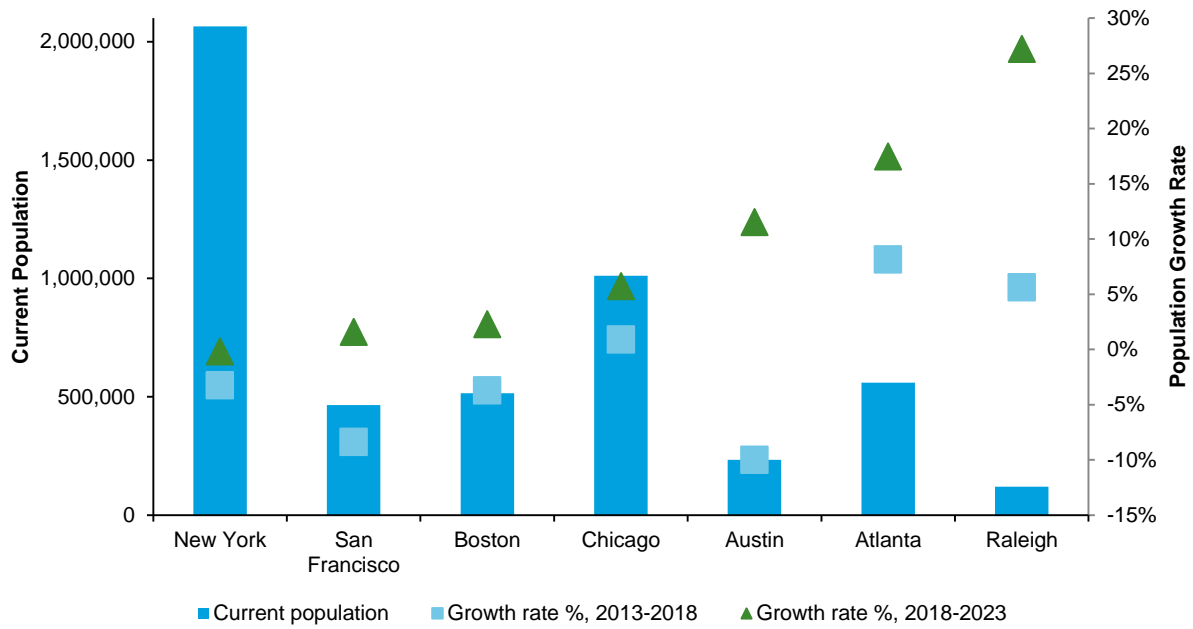
Life Sciences Manufacturing Talent Pipeline²
Degree Conferences



Degrees	
• Biochemical Engineering	• Chemical and Biomolecular Engineering
• Bioengineering and Biomedical Engineering	• Food Science
• Biological and Biosystems Engineering	• Food Science and Technology
• Biology Technician/Biotech Lab Technician	• Industrial Engineering
• Biotechnology	• Mechanical Engineering/Mechanical Technology

² National Center for Education Statistics (NCES), 2012

Total Population, Ages 22–29³



Given population shifts around the country, companies often prefer regions with growing youth populations, as they are more likely to provide long-term talent sustainability. In addition to metropolitan areas with a vibrant young population (see graph above) locations with strong educational and training programs are particularly attractive. Relevant programs include:

- | | |
|---|--|
| ✓ | University pharmaceutical/biotechnology manufacturing programs |
| ✓ | Technical schools with customizable training programs |
| ✓ | Life science specific training centers |

³ BLS, 2013

Turnover

Competition for labor affects long-term sustainability, as it can reduce a company's ability to retain talent. While there is limited information available on specific turnover rates by industry or company, there are data resources that show the relative supply and demand for industry positions by location. In clusters where demand for labor exceeds supply, turnover tends to be high. While these higher rates of change can promote cluster development, excessive turnover also raises training costs, reduces a company's ability to retain talent and places additional risk on business operations. For more specialized positions, higher turnover rates can strain productivity in the short- and long-term.

When making a location decision, companies should consider whether the operation to be deployed would benefit from a higher (yet manageable) or lower turnover rate. Companies locating manufacturing facilities should seek locations with a labor supply that meets or exceeds demand and is large enough to sustain operations. Some R&D operations may tolerate reasonably higher turnover rates as a means of promoting innovation and idea sharing. The table to the right indicates that, of the states with sizeable life sciences talent, Georgia is the only state with an excess supply of manufacturing talent.

Life Sciences Manufacturing Supply to Demand Ratio ¹	
MA	0.38
CA	0.39
NY	0.48
NC	0.49
TX	0.49
NJ	0.66
IL	0.82
GA	1.11

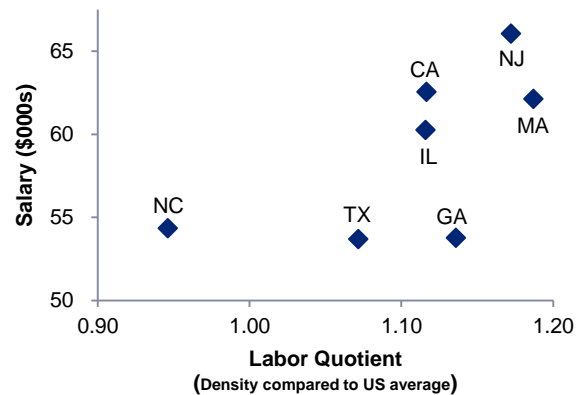


Compensation

Compensation is a primary consideration that varies significantly by location and can drastically impact the overall Cost of Goods. Compensation for like positions varies across geographies due to factors such as cost of living, supply and demand dynamics and labor-management relations. States with denser urban areas tend to have higher costs of living that lead to higher wage levels. When compounded by high demand, labor can potentially be 20 percent more expensive than states with similar workforce sizes and lower demand and costs of living. This is exemplified in the graph to the right; California and Massachusetts have high labor quotients (used to compare talent density against the national average) and higher salaries. This is in contrast to Texas, which has a lower density labor pool with lower salaries. Georgia's labor pool concentration compares to California and Massachusetts, but its lower cost of living allows for significantly lower average salaries.

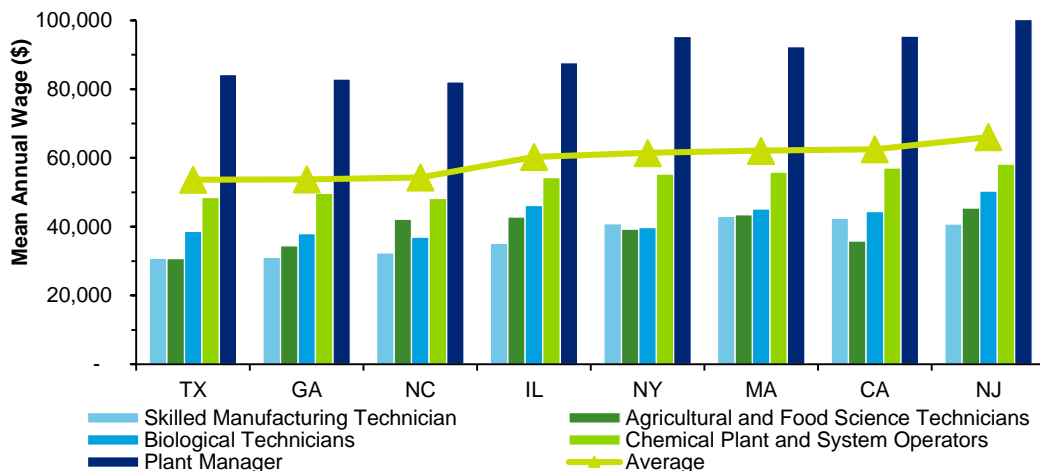
Wage inflation which outpaces revenue growth can sometimes be less obvious than standard wage rates. Inflation can occur in markets of all sizes, particularly for specialized positions. In smaller, less established markets, companies may need to offer compensation incentives to draw talent into the market, even if regional wages are low.

Life Sciences Labor Density vs. Salary Level



Finally, maintaining a healthy labor-management relations environment can also keep labor costs competitive over the long-run. Strong locations for life sciences operations generally strike a balance between local labor market dynamics and internal labor-management relations.

Life Sciences Related Manufacturing Salaries⁵

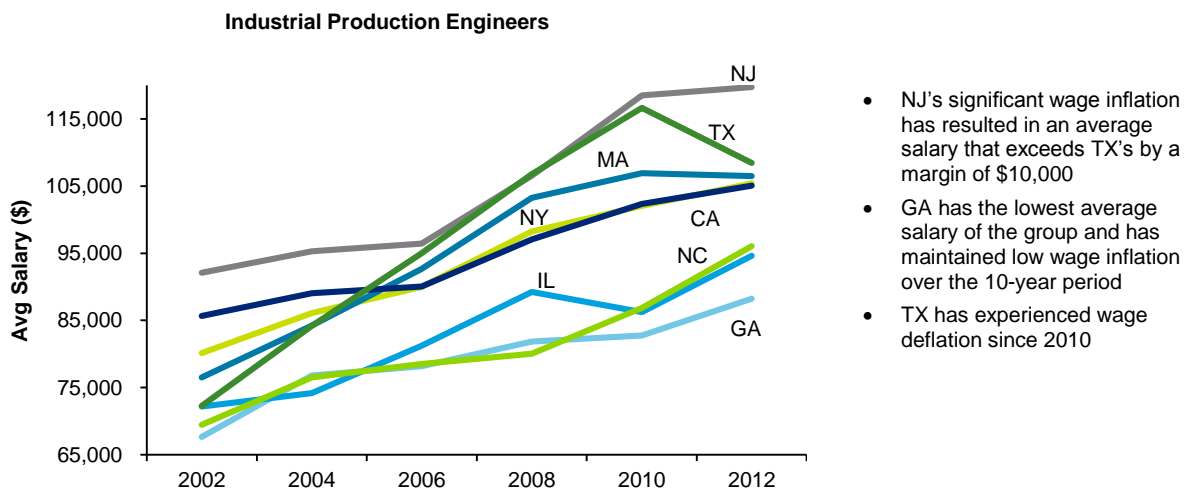
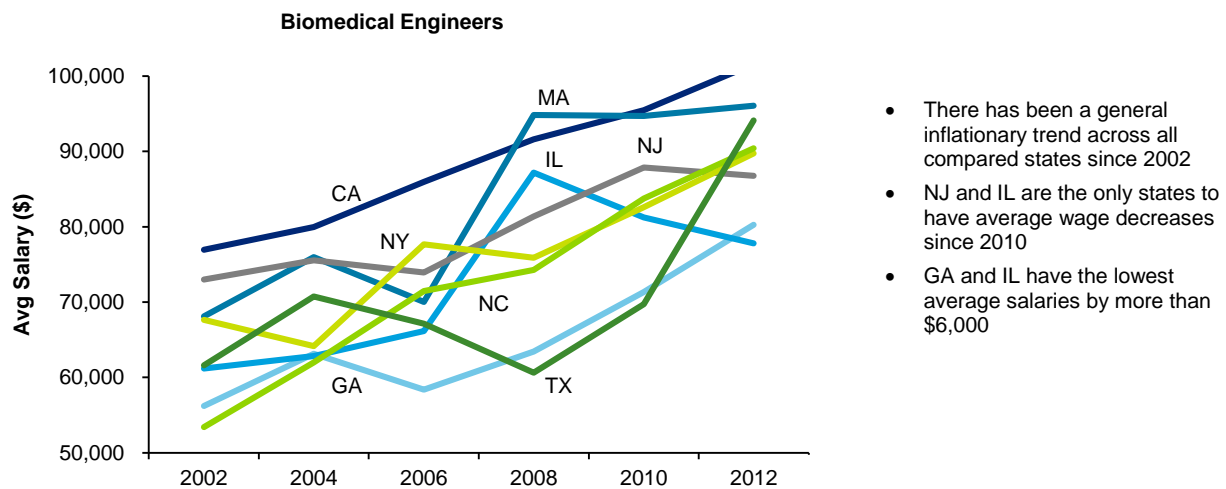
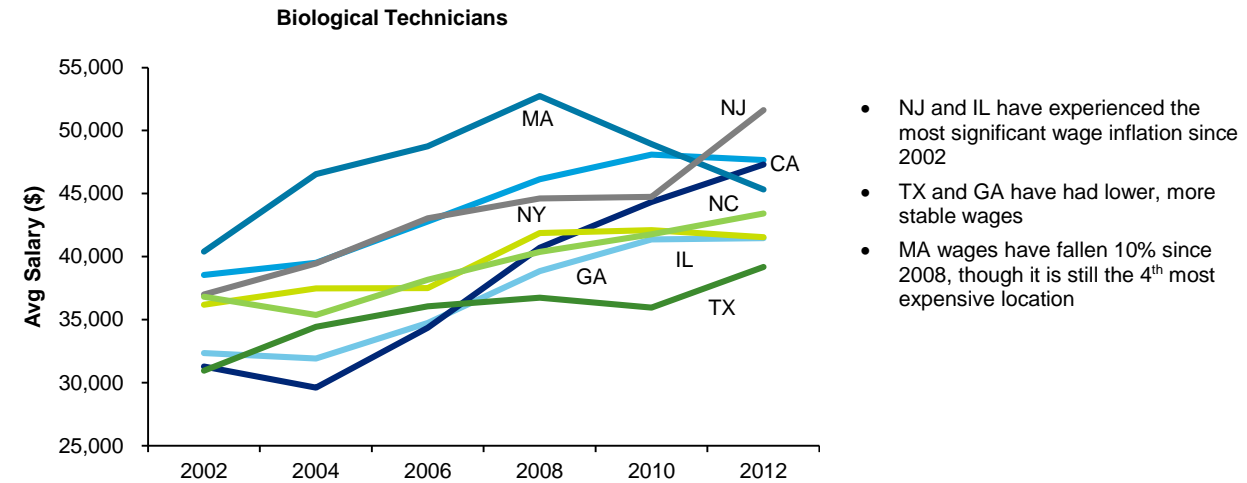


⁴ BLS 2013, Economic Research Institute (ERI) 2013

⁵ BLS 2013, ERI 2013

Wage Inflation⁶

To control wages in the long-term, companies should seek to mitigate inflation risks, which are often related to location. Comparing average salaries over time reveals such location variance, but also indicates that wages for certain positions are inflating consistently across all states.



⁶ BLS 2013, ERI 2013

Character of Life

Ranking locations by character of life can be moderately subjective, as individual preferences can vary significantly. However, people still tend to follow published lists and rankings for Character of Life related surveys; those that compare major components (e.g. attractions, education, crime) do tend to align with general perceptions of a cities' attractiveness. Bloomberg BusinessWeek's Best Cities, for example, ranks the 100 largest metropolitan areas in the U.S. according to the availability of leisure activities, educational benchmarks, and economic indicators, among other factors. Not surprisingly, some of the nation's largest cities perform the best and make the top 10; San Francisco, Washington, D.C., Boston and New York City all make the top 10. This does not tell the whole story, however. By comparing these rankings against average cost of living, we find that the cost of living in these cities ranges from 50 percent to 100 percent higher than the U.S. average, which weakens that location's character of life.



	Best Cities Rank ⁷	Cost of Living Index ⁸
San Francisco	1	199
Boston	4	149
New York City	7	169
Austin	8	102
San Diego	9	143
Atlanta	16	94
Raleigh	18	102
Chicago	28	105
Los Angeles	50	144

Best Places to Live Ranking (1=Best, 50 = Worst)

*Non-relevant data points omitted from chart for visual purposes. Omission does not affect slope of linear cost tier line

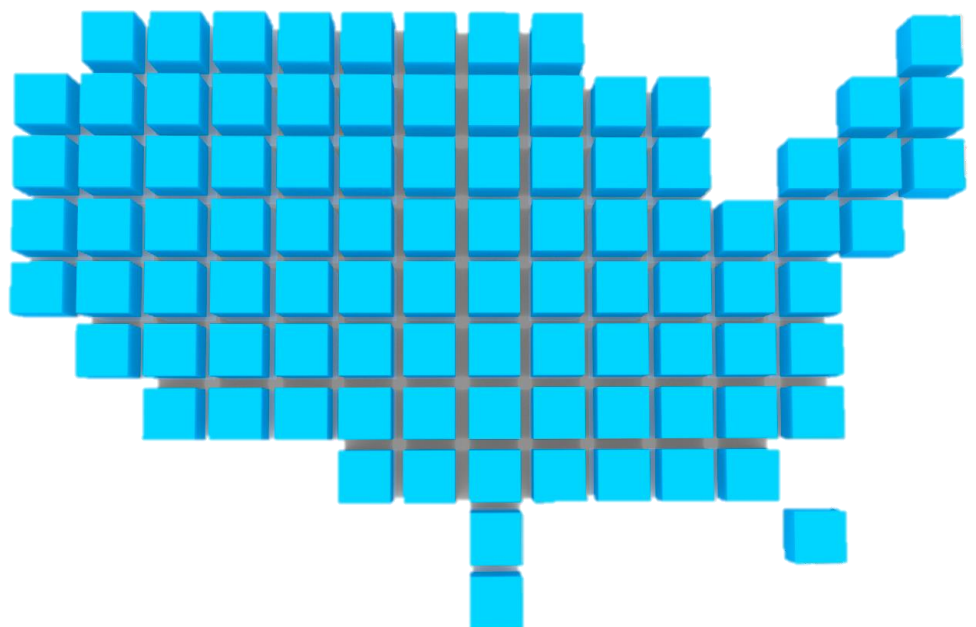
Evaluation of the data reveals a dichotomy among cities with a strong life sciences industry presence. The higher cost tier group consists of large cities that are some of the highest ranked in terms of character of life, but are significantly more costly than the rest of the U.S.; they include San Francisco, Boston and New York City. The lower cost tier group consists of cities that still have relatively high character of life ranks, but have relatively lower costs of living; these cities include Atlanta, Raleigh and Chicago.

⁷ Bloomberg BusinessWeek, 2012

⁸ Sperling's Best Places, 2013

In Summary

Identifying locations with the proper labor market characteristics can significantly impact the success of a new operation within the life sciences industry. To effectively deploy a new facility, companies must first identify locations that have the ability to attract and retain the appropriate workforce by assessing current workforce availability and talent pipelines. Stronger locations will strike a balance between existing pools of life science and related industry talent and sustainable pipelines from universities and training institutions. Once these locations have been identified, turnover rates and compensation levels (including wage inflation rates) should be analyzed and prioritized according to a company's desired market position. Hotspots, dense with top talent, are likely to have inflated compensation and turnover rates above the industry average. Less dense markets can provide lower cost, but still strong, talent with less turnover. Once this analysis has been completed, the most holistic decisions will take into account a location's character of life, as this can affect the availability and productivity of labor over time. Companies that invest adequate time in understanding how each of these factors will influence their new operation can then make an informed location decision that will support the long-term viability of the new investment.



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