1. Economic Growth and Employment
2. High Tech Sector
3. Health Care and Medical Research
4. The Creative Economy
5. Boston’s Building Boom
01. Economic Growth and Employment
The total number of jobs has grown consistently since the end of the most recent recession.

Source: U.S. Bureau of Economic Analysis, Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.
Gross City Product

Boston Gross City Product (billions of 2015 dollars)

Source: U.S. Bureau of Economic Analysis, BPDA Research Division Analysis.
- Boston’s output per worker has grown faster than that of the U.S. since 1980. Boston’s GCP per worker grew by 10.1% in the last decade.

- Boston workers produced on average $157,152 per year, $38,575 more than the national average.

Source: Bureau of Economic Analysis (BEA), Massachusetts Executive Office of Labor and Workforce Development (DWD), BPDA Research Division Analysis
# Jobs by Industry

<table>
<thead>
<tr>
<th>INDUSTRY</th>
<th>2015</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care and Social Assistance</td>
<td>139,911</td>
<td>18.5%</td>
</tr>
<tr>
<td>Professional and Technical Services</td>
<td>91,858</td>
<td>12.1%</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>86,971</td>
<td>11.5%</td>
</tr>
<tr>
<td>Government</td>
<td>76,708</td>
<td>10.1%</td>
</tr>
<tr>
<td>Accommodation and Food Services</td>
<td>59,910</td>
<td>7.9%</td>
</tr>
<tr>
<td>Educational Services</td>
<td>57,534</td>
<td>7.6%</td>
</tr>
<tr>
<td>Administrative and Waste Services</td>
<td>37,274</td>
<td>4.9%</td>
</tr>
<tr>
<td>Real Estate and Rental and Leasing</td>
<td>34,591</td>
<td>4.6%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>34,142</td>
<td>4.5%</td>
</tr>
<tr>
<td>Other Services (except public administration)</td>
<td>32,762</td>
<td>4.3%</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>26,037</td>
<td>3.4%</td>
</tr>
<tr>
<td>Construction</td>
<td>17,478</td>
<td>2.3%</td>
</tr>
<tr>
<td>Information</td>
<td>16,861</td>
<td>2.2%</td>
</tr>
<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>16,805</td>
<td>2.2%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>9,862</td>
<td>1.3%</td>
</tr>
<tr>
<td>Management of Companies and Enterprises</td>
<td>8,390</td>
<td>1.1%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>7,969</td>
<td>1.1%</td>
</tr>
<tr>
<td>Utilities</td>
<td>1,894</td>
<td>0.3%</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>387</td>
<td>0.1%</td>
</tr>
<tr>
<td>Total</td>
<td>757,344</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Economic Analysis, Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.
Industry Concentrations

Source: U.S. Bureau of Economic Analysis, Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.
Job Growth by Industry

Employment Growth, 2010 - 2015

- Professional and Technical Services
- Health Care and Social Assistance
- Accommodation and Food Services
- Transportation and Warehousing
- Real Estate and Rental and Leasing
- Educational Services
- Retail Trade
- Administrative and Waste Services
- Construction
- Other Services, Ex. Public Admin
- Arts, Entertainment, and Recreation
- Finance and Insurance
- Management of Companies and Enterprises
- Information
- Wholesale Trade
- Natural Resources and Mining
- Utilities
- Manufacturing
- Government

Source: U.S. Bureau of Economic Analysis, Massachusetts Executive Office of Labor and Workforce Development (EOLWD), BPDA Research Division Analysis.
• Boston’s unemployment rate for residents has been below the state and national averages since the recession, and continues to fall to levels not seen since the late 1990s.

• Monthly unemployment in Boston in the last 3 months of 2016 averages 2.5%.

• Even as Boston’s economy thrives, residents are lagging behind non-residents in their representation in the highest paying sectors.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Median Income Among Full-Time Full-Year Workers</th>
<th>Share of Employment Boston Residents</th>
<th>Share of Employment Non-Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance and Insurance Services</td>
<td>$80,000</td>
<td>8.1%</td>
<td>12.9%</td>
</tr>
<tr>
<td>Professional and Technical Services</td>
<td>$80,000</td>
<td>11.1%</td>
<td>12.8%</td>
</tr>
<tr>
<td>Utilities</td>
<td>$72,000</td>
<td>0.4%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Information</td>
<td>$70,000</td>
<td>2.1%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Government</td>
<td>$65,000</td>
<td>5.8%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Educational Services</td>
<td>$60,000</td>
<td>12.2%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Construction</td>
<td>$55,000</td>
<td>3.6%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Real Estate and Rental and Leasing</td>
<td>$55,000</td>
<td>2.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>$55,000</td>
<td>2.3%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>$54,000</td>
<td>19.3%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>$50,000</td>
<td>3.2%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>$50,000</td>
<td>1.2%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>$45,000</td>
<td>2.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>$40,000</td>
<td>7.6%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Other Services</td>
<td>$40,000</td>
<td>4.8%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Administrative and Waste Services</td>
<td>$37,000</td>
<td>4.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Accommodation and Food Services</td>
<td>$30,000</td>
<td>9.5%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Total</td>
<td>$40,000</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

A goal of Imagine Boston 2030 is to lay out strategies through which Boston’s economic prosperity can be shared more broadly.
02. High Tech Sector
The Total Growth of High Tech Industry Sector Since 2004

Total High Tech Industry Employment


• These industries have at least 25% of their workers in a STEM (Science, Technology, Engineering and Mathematics) occupation.

High Tech Job Growth

From 2004 to 2014, Boston’s employment continued to be more than twice as concentrated in Scientific Research and Development as the US average.

Over that same time period, Boston’s location quotient in Computer Systems Design went from under 1 to roughly 1.5, and Software Publishing rose from 1 to 1.8.

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**Source:** U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2004 & 2014, BRA Research Division Analysis

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**boston planning & development agency**
Venture Capital Funding

• Over the last 20 years, Massachusetts companies had the second most venture capital funding of any state, trailing only California. Over that time period, Massachusetts companies raised 80 billion dollars.

• Biotech continues to lead the way, with Boston-based Intarcia and Cambridge-based Moderna both closing large deals in the latter half of 2016.

• Boston and Cambridge account for over half of deals, a change from an earlier era when Route 128 dominated.

Patents Issued to Boston Residents

Number of Patents with at Least One Boston Resident Inventor

03. Health Care and Medical Research
Boston’s Health Care Sector

- Health Care and Social Assistance is Boston’s largest sector, employing 139,911 people.
- Five of Boston’s 10 largest employers are hospitals (Massachusetts General, Brigham and Women’s, Children’s Hospital, Beth Israel Deaconess Medical Center, and Boston Medical Center)
- This large base of hospitals, along with the region’s world class universities, have helped Boston become a world leader in biomedical research, both with their own research, and for-profit companies drawn to the area by their presence.
Cities Receiving Largest Amount of NIH Funding

Top Five U.S. Cities in NIH Funding FY2016 (in billions of dollars)

- Boston: $1.85
- New York: $1.63
- Seattle: $0.89
- Philadelphia: $0.86
- Baltimore: $0.86

Boston’s NIH Funding over the Years


* Including ARRA funding
04.
The Creative Economy
Creative Industries

The BPDA list includes industries that are part of the production chain for goods and services in the following areas:

- Written Media
- Film
- Broadcasting
- Crafts
- Performing Arts
- Visual Arts
- Architecture
- Photography
- Design
- Advertising
- Sound Recording & Music Publishing
- Museums & Art Galleries
- Libraries & Archives
- Culture Education
- Software and Internet Publishing

The following four slides list all 6-digit NAICS codes included in this updated report.
Measuring Boston’s Creative Economy

• Creative employment in 2014 totaled 29,762 jobs in business establishments. This was 5.4% of Boston’s total private sector payroll employment.

• An additional 6,483 people were self-employed in the creative industries. Including self-employment, Boston’s Creative Economy totals 36,254 workers.

• The 29,762 workers on payrolls took home over 2.4 billion dollars combined, averaging $81,179 in annual wages.
Boston’s Creative Economy: Applied Arts

### Industry Snapshot (2014)

<table>
<thead>
<tr>
<th>Category</th>
<th>Employment</th>
<th>Recent Growth (2011-2014)</th>
<th>Number of Establishments</th>
<th>Average Wage</th>
<th>Location Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>4,034</td>
<td>13.4%</td>
<td>363</td>
<td>$87,370</td>
<td>3.00</td>
</tr>
</tbody>
</table>

The Location Quotient (LQ) measures how the share of Boston’s employment in an industry compares to the US average. An LQ over 1 means that an industry has a higher than average concentration in Boston.

### Detailed Industry Employment (2014)

<table>
<thead>
<tr>
<th>Industry Type</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Services</td>
<td></td>
</tr>
<tr>
<td>Interior Design Services</td>
<td></td>
</tr>
<tr>
<td>Graphic Design Services</td>
<td></td>
</tr>
<tr>
<td>Landscape Architectural Services</td>
<td></td>
</tr>
<tr>
<td>Industrial Design Services</td>
<td></td>
</tr>
<tr>
<td>Other Specialized Design Services</td>
<td></td>
</tr>
<tr>
<td>Drafting Services</td>
<td></td>
</tr>
</tbody>
</table>

### Change in Employment (2002-2014)

![Graph showing change in employment 2002-2014](image)

### Industry Trends

- **Applied Arts** (LQ of 3.00) is one of the Creative Industries most heavily concentrated in Boston. This is driven particularly by Architectural Services (LQ of 4.37)
- **Interior Design** and **Graphic Design** also have strong presences in Boston.
Boston’s Creative Economy: Heritage

Industry Snapshot (2014)

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>2,414</td>
</tr>
<tr>
<td>Recent Growth (2011-2014)</td>
<td>10.0%</td>
</tr>
<tr>
<td>Number of Establishments</td>
<td>44</td>
</tr>
<tr>
<td>Average Wage</td>
<td>$40,201</td>
</tr>
<tr>
<td>Location Quotient</td>
<td>3.70</td>
</tr>
</tbody>
</table>

The Location Quotient (LQ) measures how the share of Boston’s employment in an industry compares to the US average. An LQ over 1 means that an industry has a higher than average concentration in Boston.

Detailed Industry Employment (2014)

- Museums
- Zoos and Botanical Gardens
- Historical Sites
- Nature Parks and Other Similar Institutions

Change in Employment (2002-2014)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>0</td>
</tr>
<tr>
<td>2005</td>
<td>1,500</td>
</tr>
<tr>
<td>2008</td>
<td>2,000</td>
</tr>
<tr>
<td>2011</td>
<td>2,500</td>
</tr>
<tr>
<td>2014</td>
<td>3,000</td>
</tr>
</tbody>
</table>

Industry Trends

- Boston’s share of employment in Heritage institutions is 3.7 times the national level.
- Museums and Historical Sites are at the heart of Boston’s tourism economy, and employment has grown in both industries.
Boston’s Creative Economy: Performing Arts

### Industry Snapshot (2014)
- **Employment**: 3,329
- **Recent Growth (2011-2014)**: 7.3%
- **Number of Establishments**: 118
- **Average Wage**: $36,825
- **Location Quotient**: 2.15

The Location Quotient (LQ) measures how the share of Boston’s employment in an industry compares to the US average. An LQ over 1 means that an industry has a higher than average concentration in Boston.

### Detailed Industry Employment (2014)
- Promoters of Performing Arts, Sports, and Similar Events with Facilities
- Theater Companies and Dinner Theaters
- Musical Groups and Artists
- Dance Companies
- Promoters of Performing Arts, Sports, and Similar Events without Facilities
- Musical Instrument and Supplies Stores
- Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures
- Musical Instrument Manufacturing

### Change in Employment (2002-2014)

![Graph showing change in employment from 2002 to 2014]

- **Boston’s Performing Arts attractions are headlined by Theater Companies, Musical Groups, and Dance Companies.**
- **Promoters also make up a large share of employment in the sector, and most are associated with specific facilities, a change from a decade ago.**
05.
Boston’s Building Boom
BPDA Board Approved Projects

Source: Boston Planning and Development Agency Project Pipeline, BPDA Research Division Analysis.
BPDA Board Approved Projects by Neighborhood

Source: Boston Planning and Development Agency Project Pipeline, BPDA Research Division Analysis.
Building Permit Revenue

Source: City of Boston Bond Issue 2017, BPDA Research Division Analysis.
New Property Tax Levy Growth

Source: City of Boston Assessing Department, “Property Tax Facts and Figures: Fiscal Years 2009 to 2017”
City of Boston Revenues

City of Boston Revenue, 2003 - 2016

Fiscal Years

Source: City of Boston, Comprehensive Annual Financial Reports, 2000 - 2016, BPDA Research Division Analysis.