



Massachusetts
Taxpayers Foundation

Keeping the State's Economic Edge: Key Sectors Under Pressure



The Massachusetts Economy Faces Headwinds

Growth in employment and wages stall:

- Growth in private employment and average weekly wages in Massachusetts are substantially lower than the U.S. and competitive states in the South and West

Aging population and declining workforce hinder recovery:

- The state's number of residents under the age of 60 dropped by 145,000 while those 60 years and older increased by 113,000 between April 2020 and July 2023

Key sectors struggle; cannot assume they will drive future growth:

- Nationally, job listings for computer and mathematical positions fell from 10.5% of all listings before the pandemic to 6.1% in 2023 – 2024. Similarly, positions for business and financial operations fell from 8.4% to 6.3% of all listings.*
- In Massachusetts, Financial Activities, Information, and Tech jobs have plateaued or declined and are shifting to other regions

* Source: [The Anatomy of Labor Demand Pre- and Post-COVID](#), Liberty Street Economics, New York Federal Reserve, Augst 7, 2024



State Support for Key Sectors Is Critical

Three sectors drove growth but new industries must emerge

- Professional Services, Information, and Financial Activities accounted for \$100 billion or 70% of the increase in the state's GDP over the past decade

Life Sciences

- Boston-Cambridge is the global leader in talent but job growth and funding stalled in 2023-2024

Climate Tech

- Massachusetts ranks in the top five states but funding, workforce gaps, and competition could derail growth

AI

- Massachusetts ranked in the top five in AI jobs but only 11th in job listings in 2023; tech jobs are leaving

Keys to economic growth

- State funds and tax credits leverage private investment to propel growth in employment and productivity
- State training programs work with businesses and academia to scale and deliver indispensable talent

Bottom Line

Action on Mass Leads is Critical

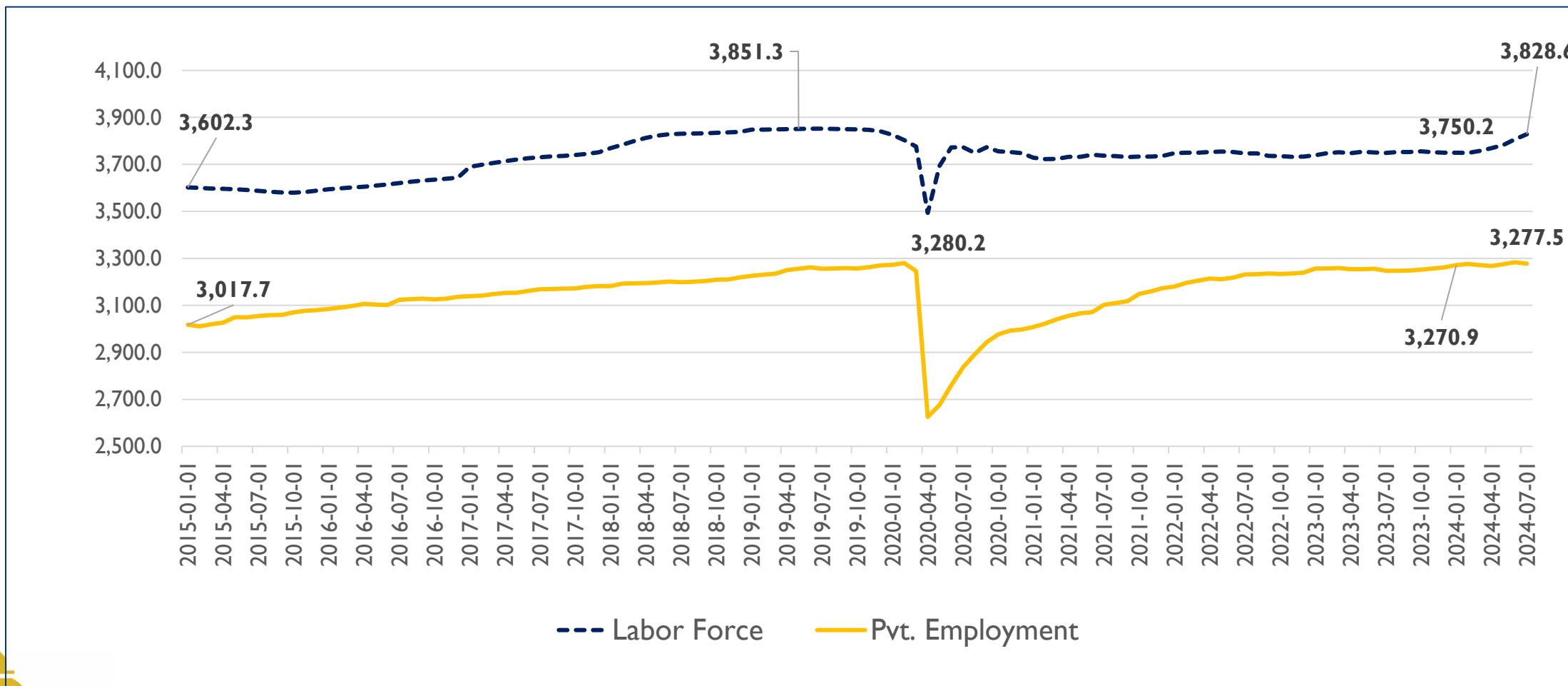
- **MA needs to recommit to our core comparative strengths**
 - 10-year reauthorization of Life Science initiative, expansion of incentives and credits
- **MA needs to act quickly to build supportive ecosystem for ClimateTech**
 - Creation of ClimateTech initiative needs to happen and needs to happen quickly
- **MA can't be left behind in AI**
 - MA is in the game for AI, but future leadership not guaranteed

A photograph of a city skyline at dusk, with numerous skyscrapers and buildings illuminated by warm lights. The sky is a deep blue with some light clouds. In the foreground, there is a body of water reflecting the city lights. A dark blue rectangular overlay is positioned in the lower half of the image, containing white text.

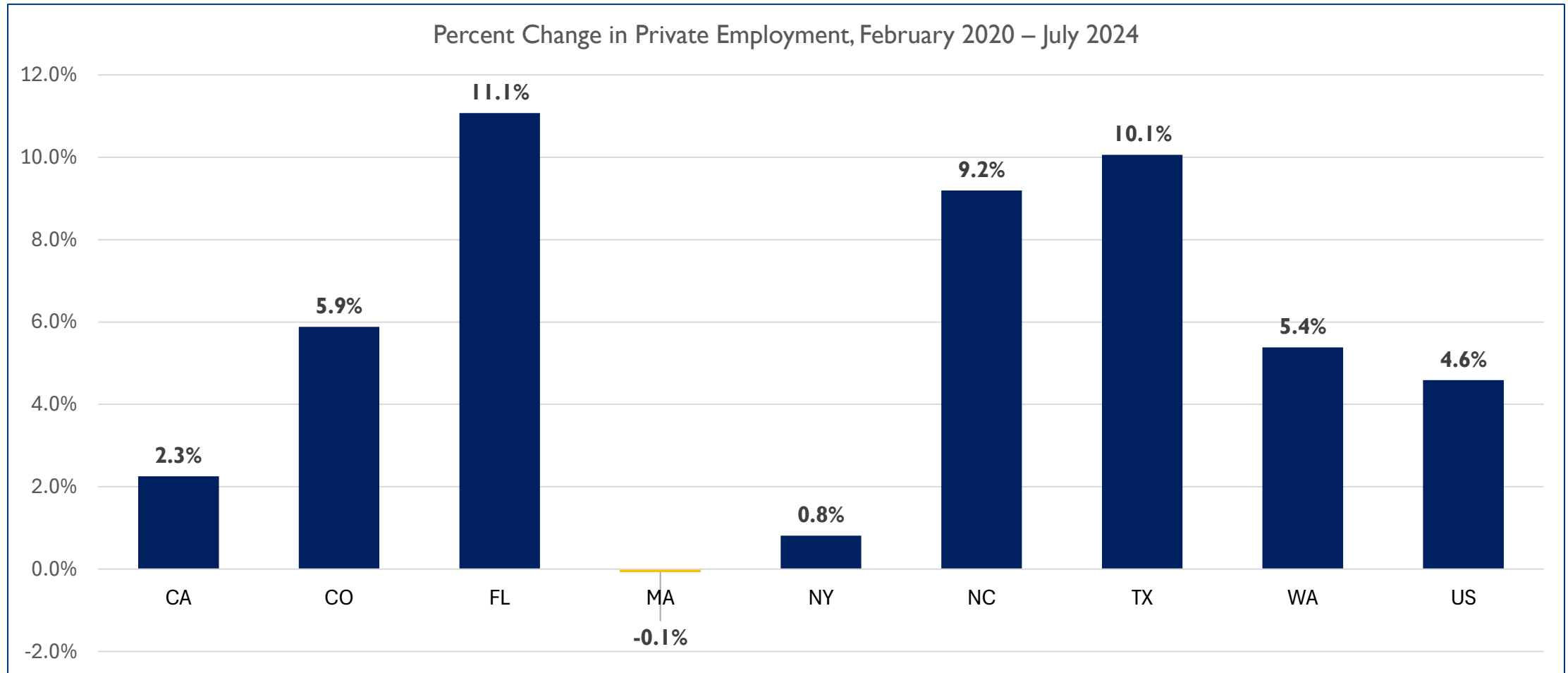
**Job & Wage Growth Weaken;
Prime Aged Workforce Shrinks**

MA Labor Force & Private Employment, 2015 to 2024

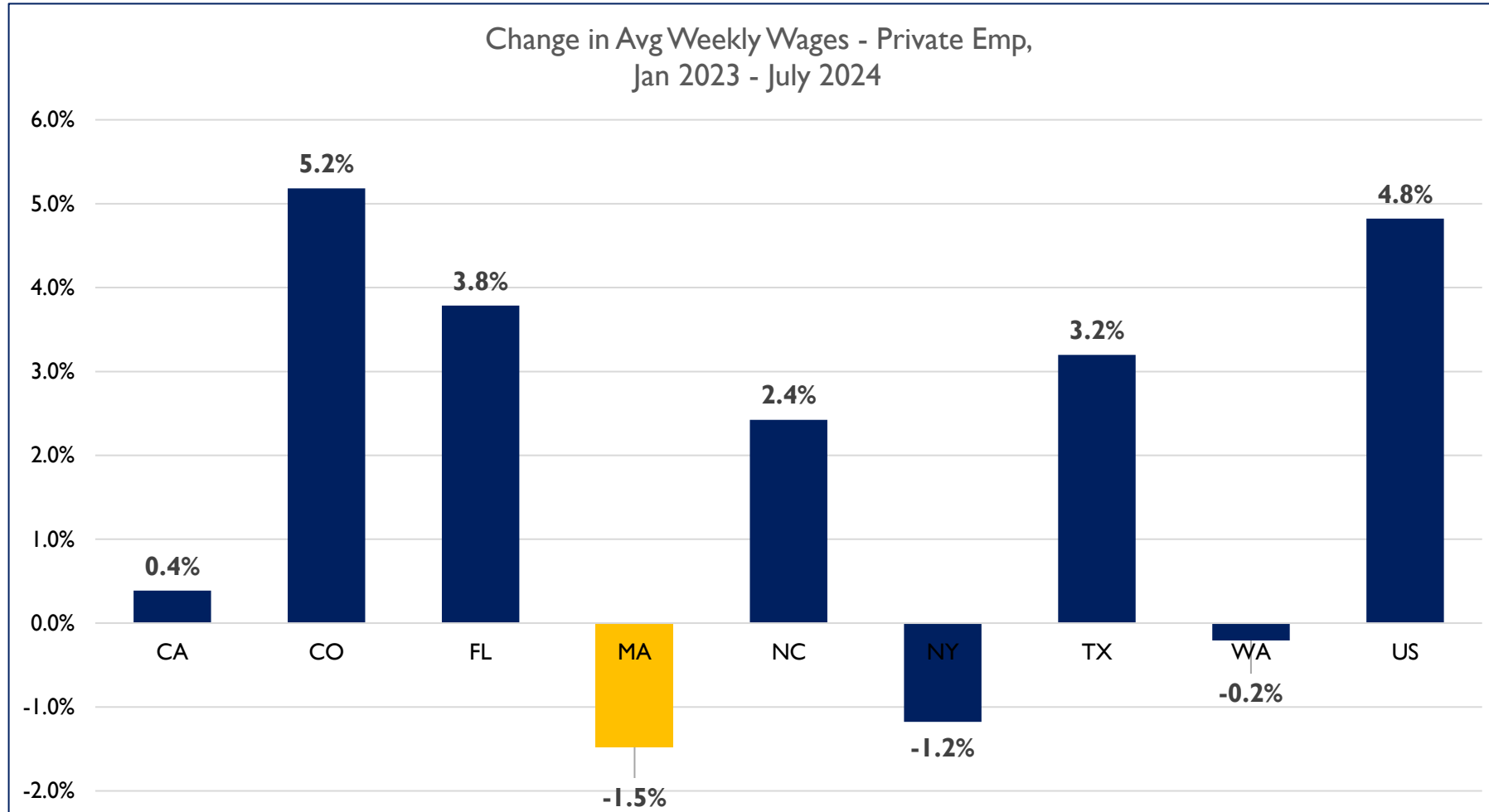
Labor Force and Private Employment Figures Remain Below Pre-pandemic Highs



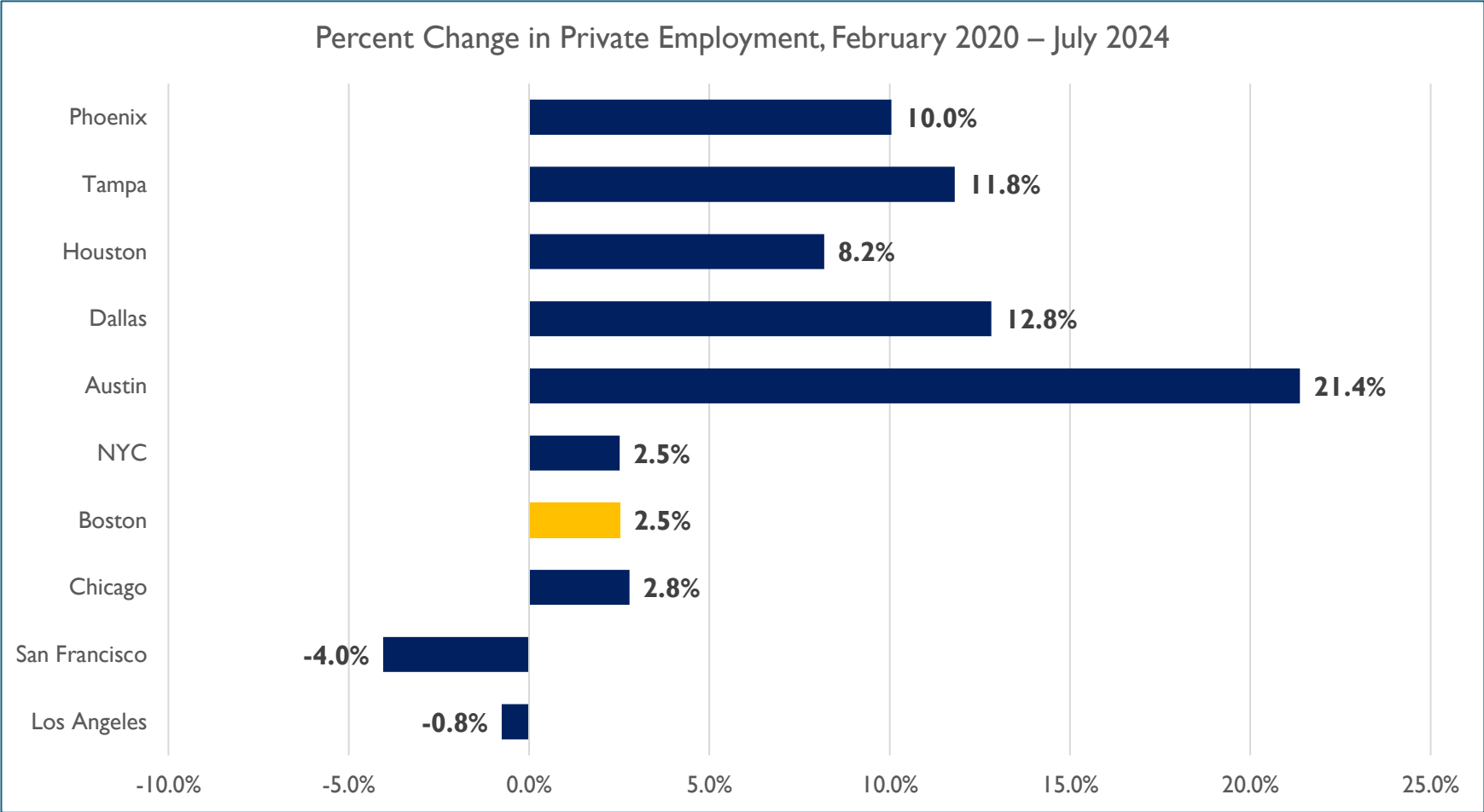
Private Employment Growth Since Start of Pandemic Trails Other States as Jobs Shift South



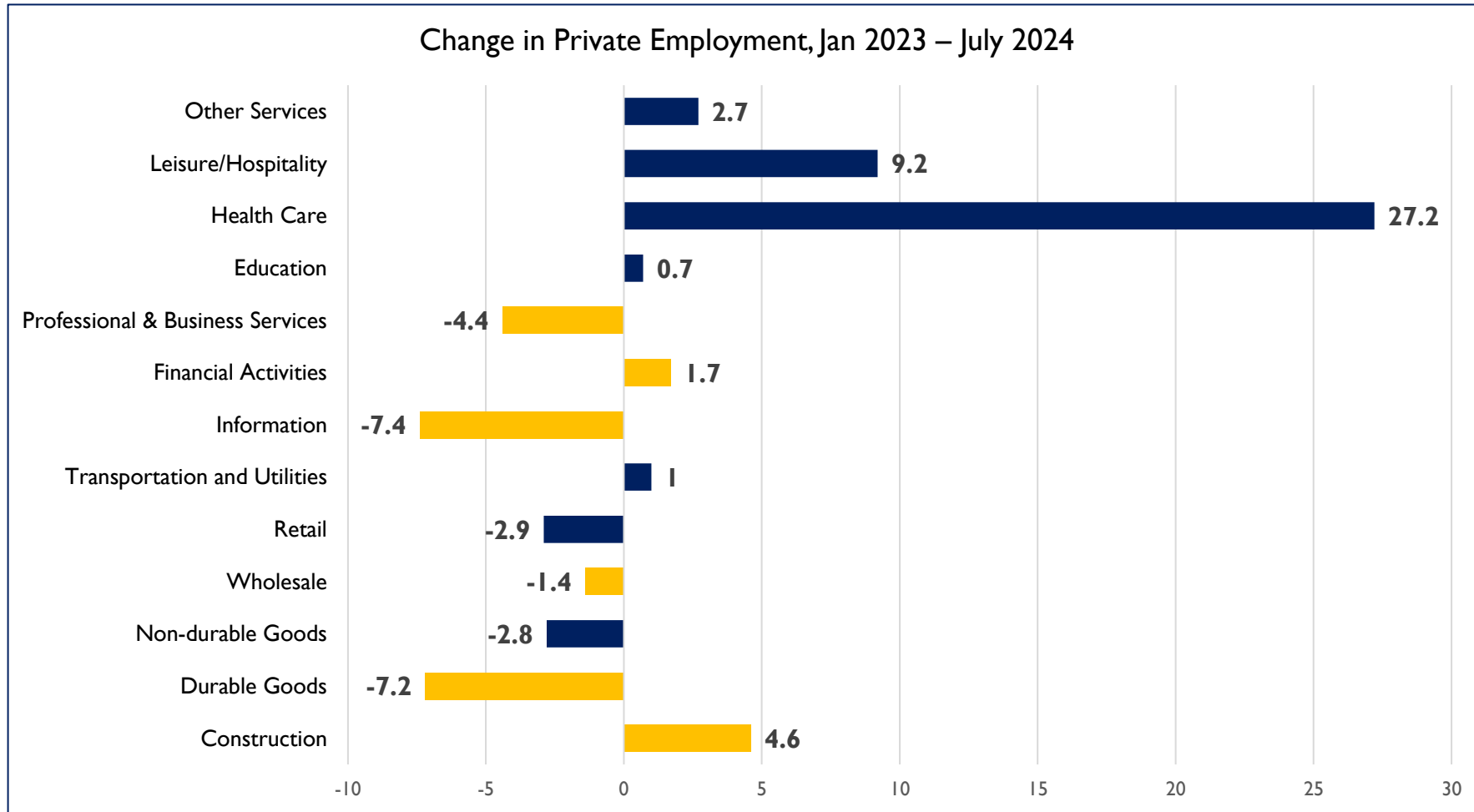
Over Last 18 Months Wages of Private Jobs in Massachusetts Declines;



Southern Cities See Accelerated Growth in Private Jobs



Private Employment Increased 21,000 Since January 2023 Propelled by Health Care Hires



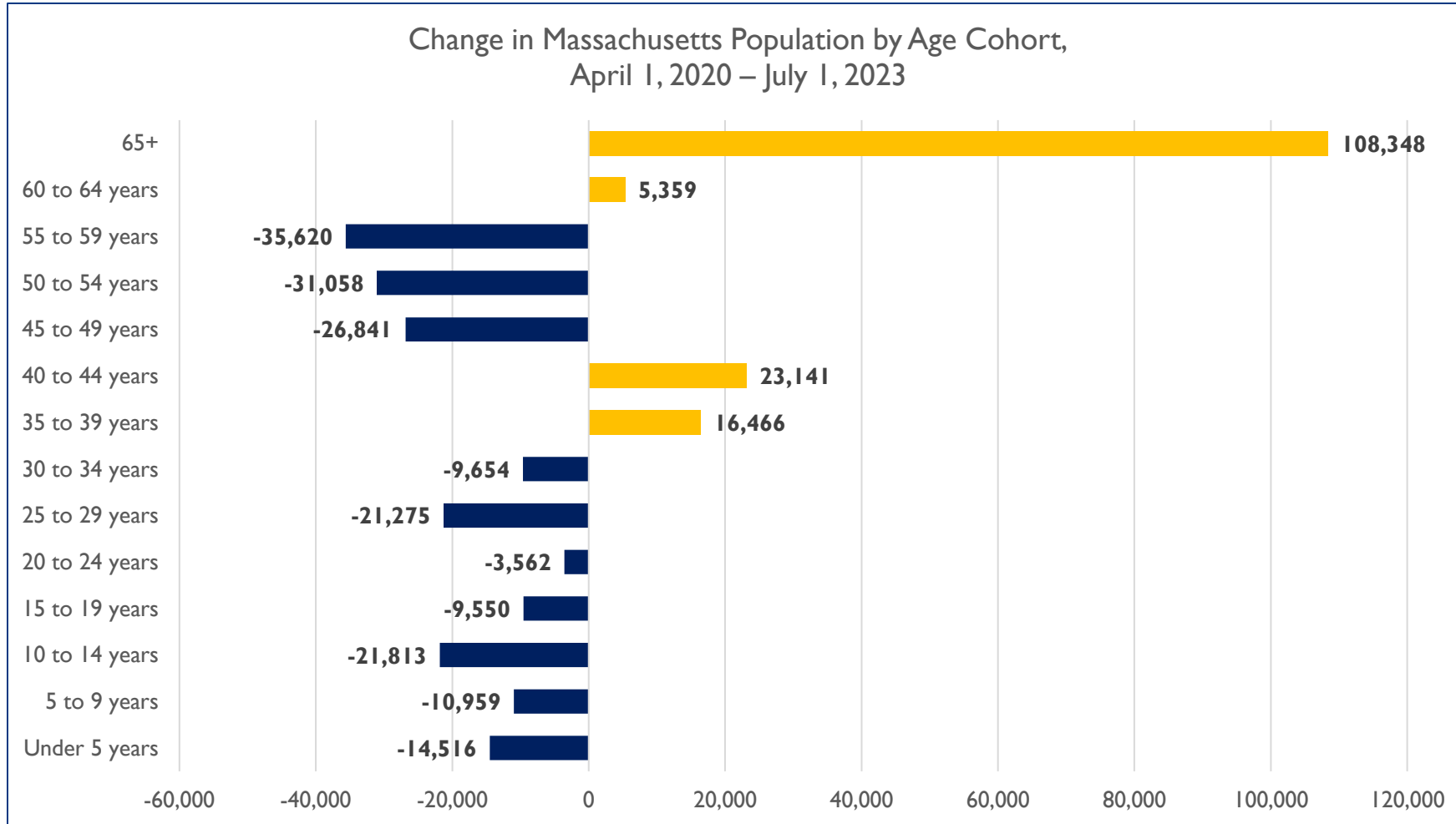
Yellow bar sectors exceed \$1,850 statewide average weekly wage

Insight. Influence. Impact.

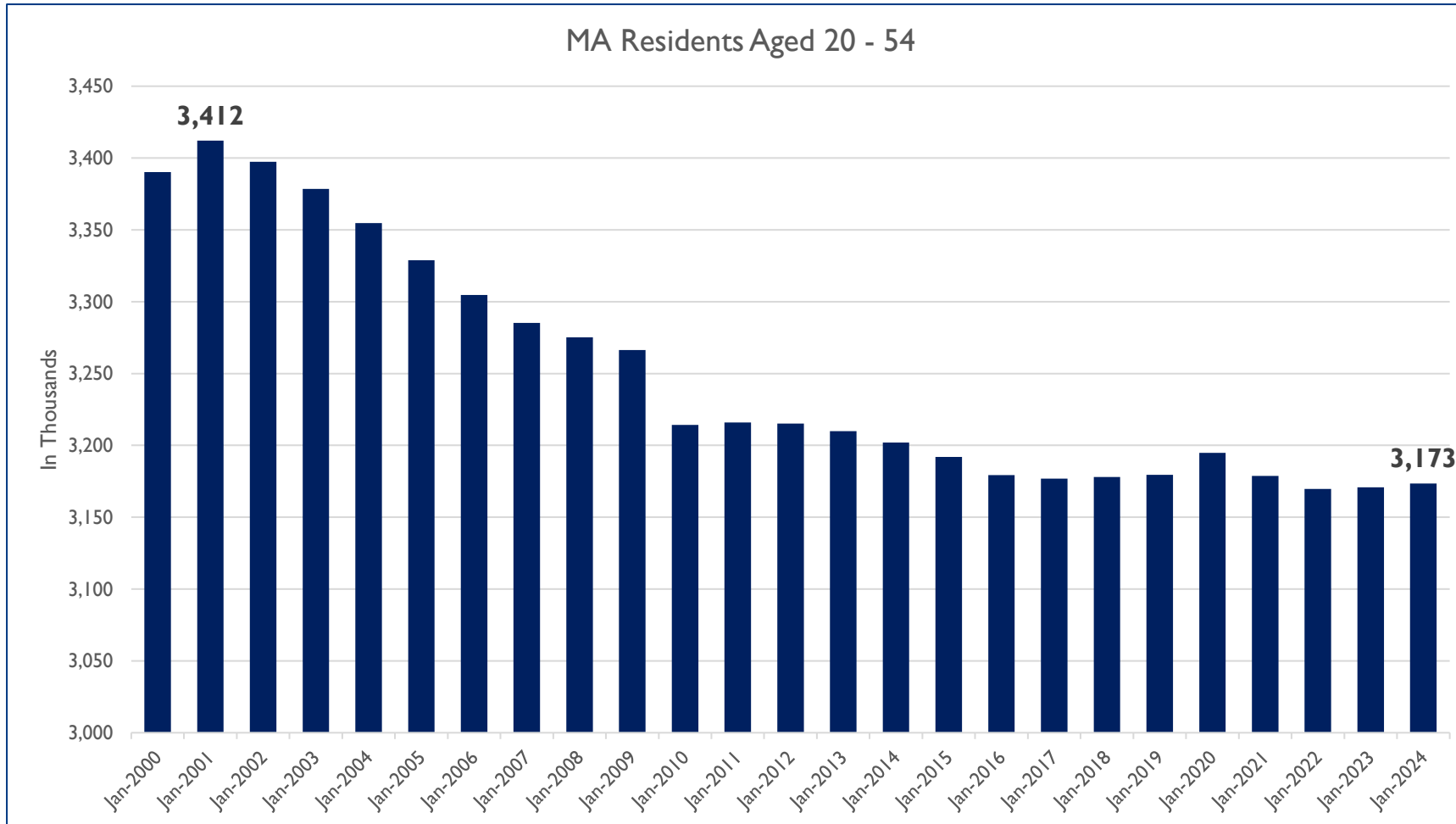
A panoramic view of a city skyline at dusk. The sky is a deep blue with wispy clouds. Numerous skyscrapers and buildings are illuminated with warm yellow and orange lights, their reflections shimmering on the water in the foreground. A bridge with a steel truss structure is visible on the left side. Several boats are docked along the waterfront. The overall scene conveys a sense of a bustling, modern urban environment.

Workforce Shortages Pose a Constraint to Growth

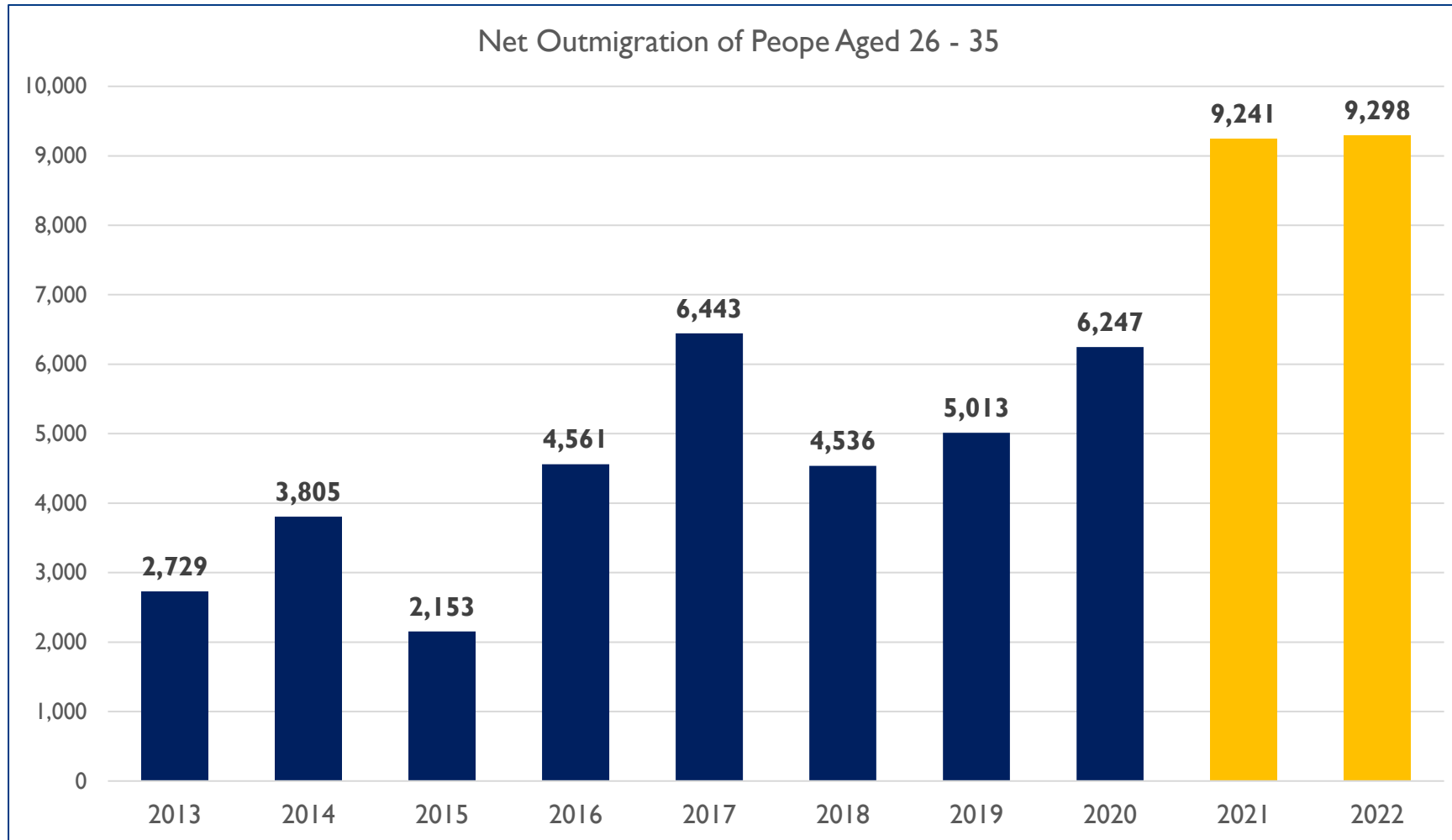
An Aging Population: Residents Under 60 Years Old Fell by 145,000; Residents 60 or Older Increased by 113,000



MA Prime Aged Workforce Has Declined by 240,000 Since 2001



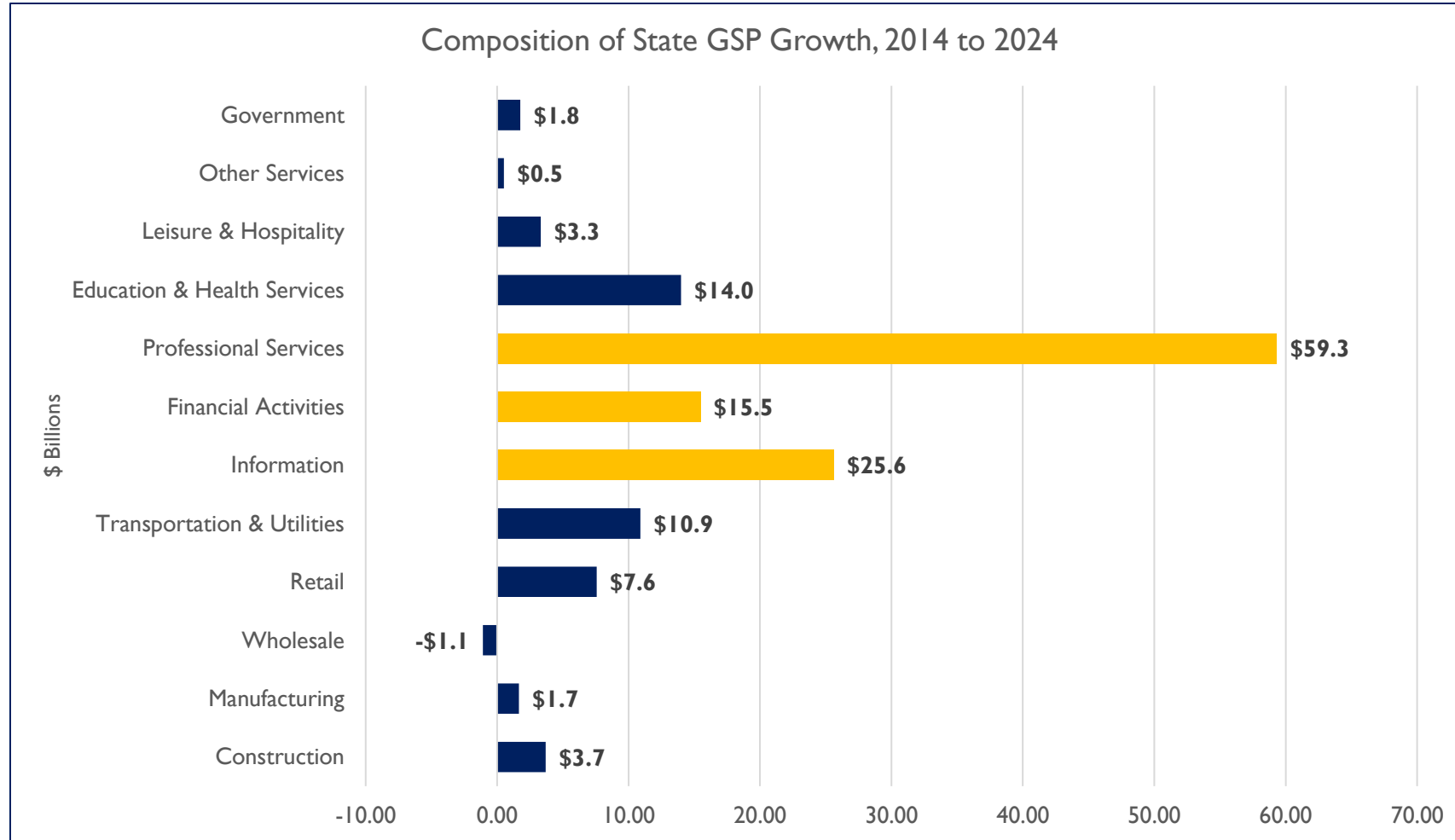
MA Lost an Average of 4,500 Residents Aged 26 – 35 per Year from 2013 – 2020, That's Now Doubled to Over 9,000





**Professional Services, Financial
Activities, and Information Sectors
Drive the State's Economy**

MA GSP Grew \$140 Billion from 2014 – 2024; Professional Services, Financial Activities, and Information Account for 70% of that Growth



Professional services includes life sciences and computer tech

Key Sectors Face Challenges



Information job growth falls nationally since January 2023, Massachusetts jobs shift to southern states



Financial Activities job growth slows to 1% nationally since January 2023, Massachusetts jobs shift to southern states



Life sciences – Massachusetts is the global leader in talent and infrastructure, but high costs and increased competition could limit future growth



AI – stiff competition for talent as tech jobs move south and AI investments flow to Silicon Valley and New York

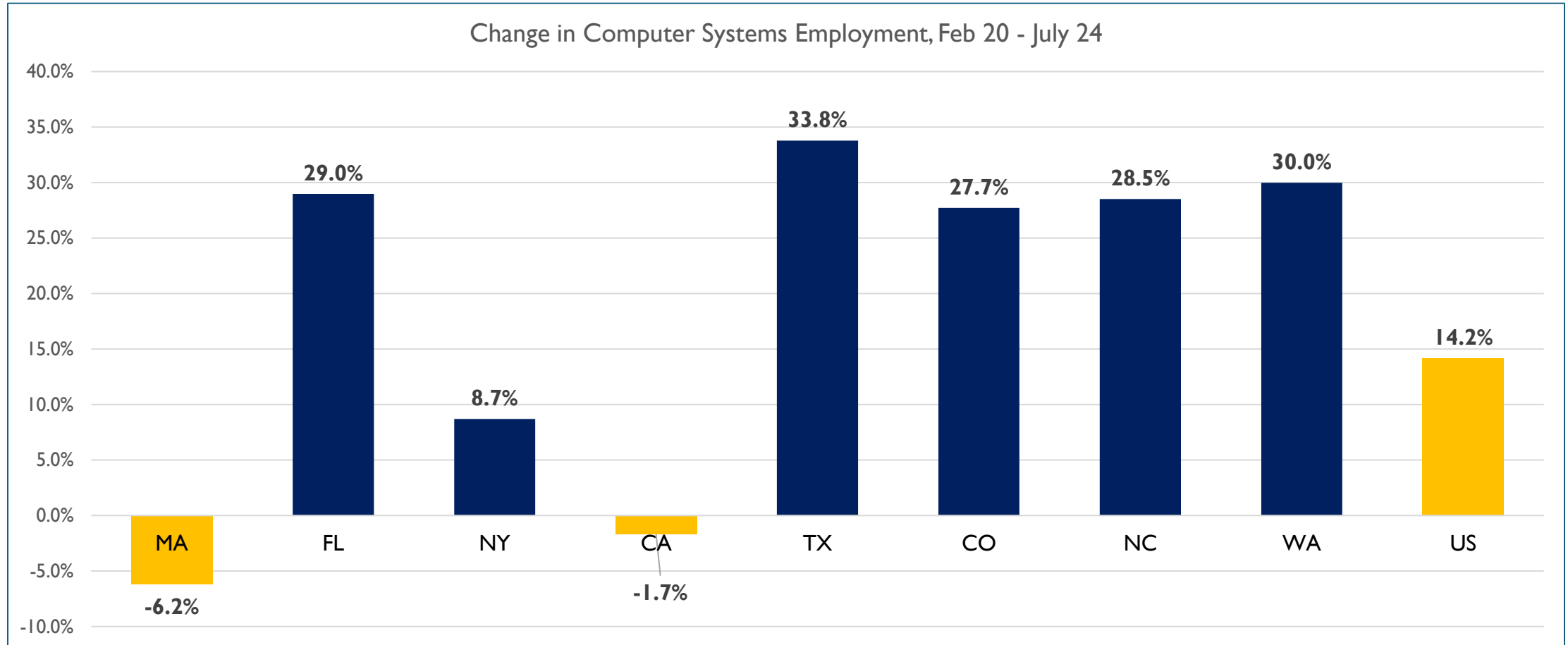


Climate tech – leadership in several verticals, funding and talent shortages may pose hurdles

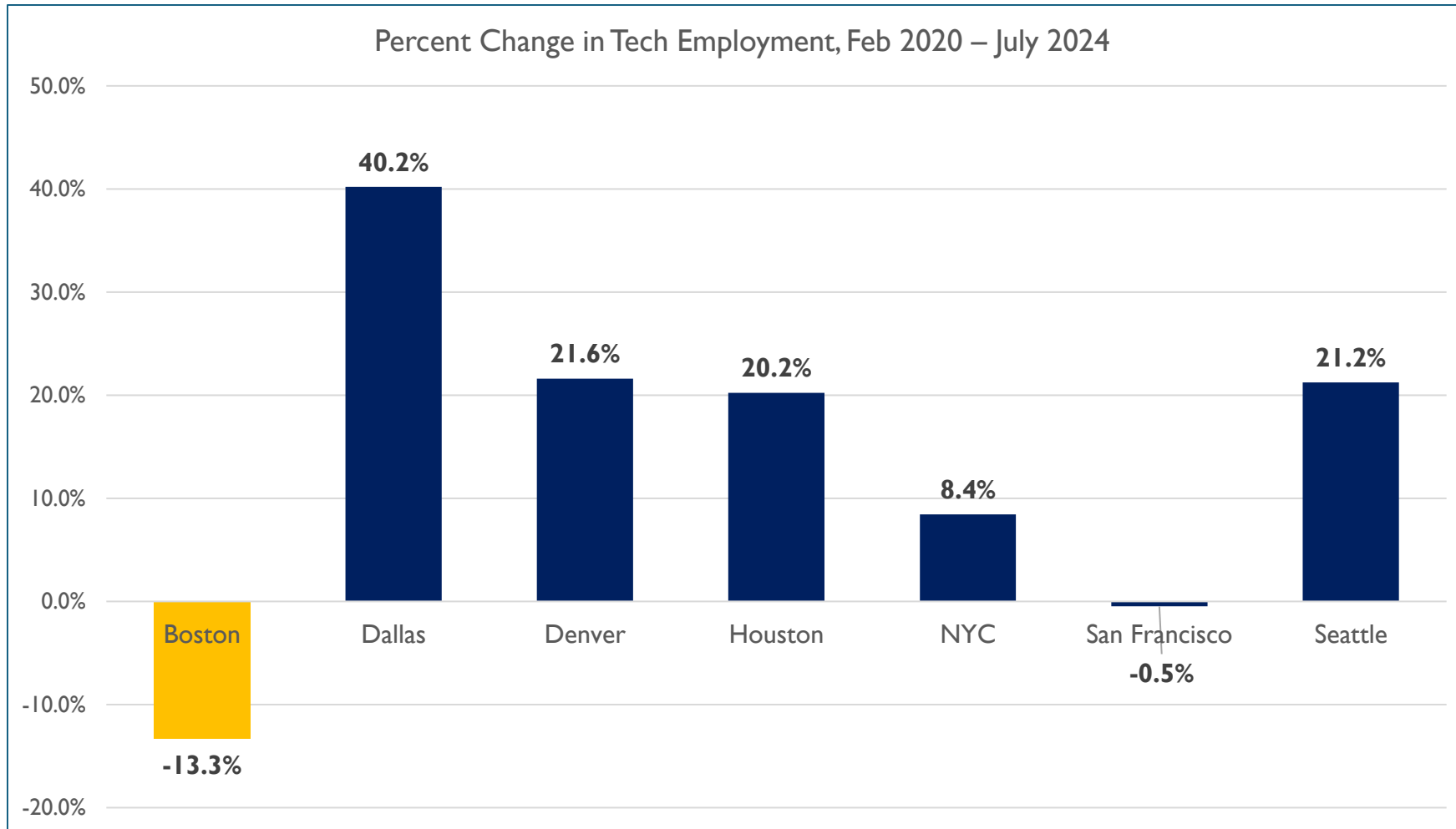


**Tech, Information and Financial
Activities Jobs Head South**

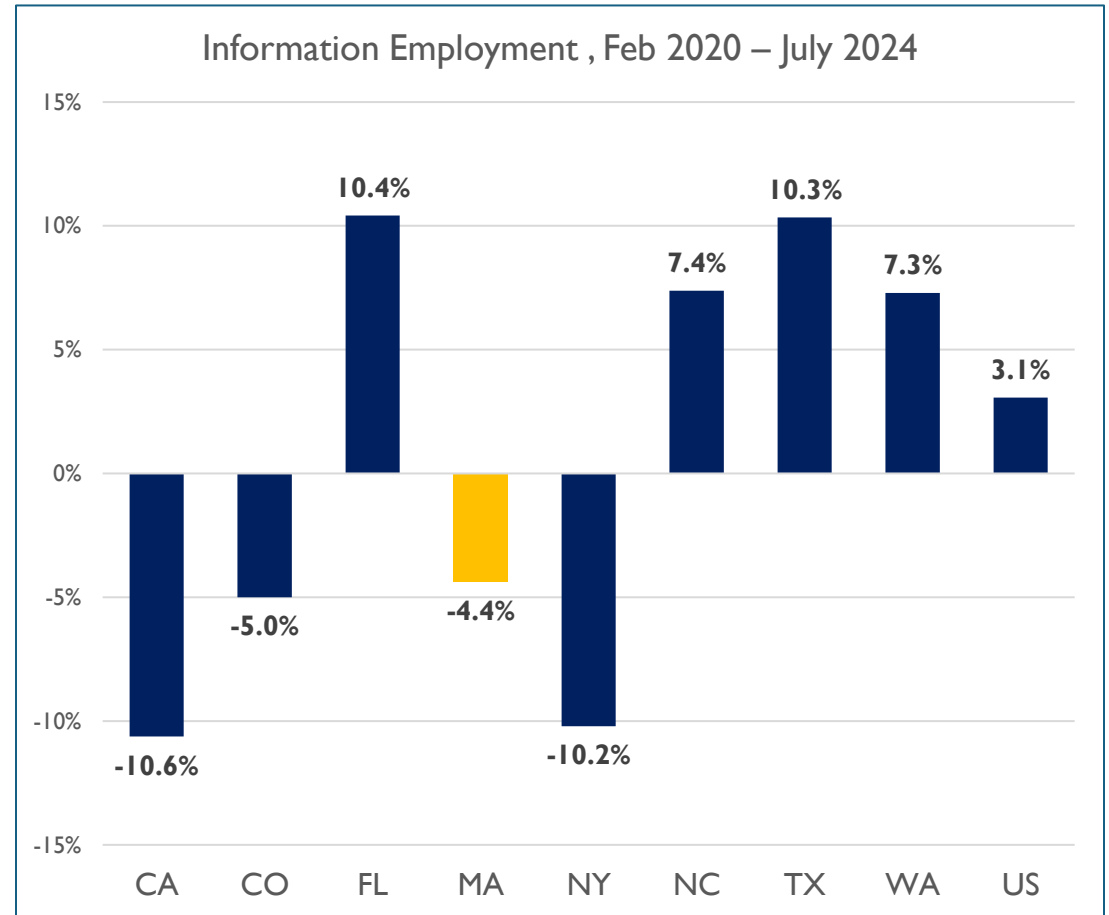
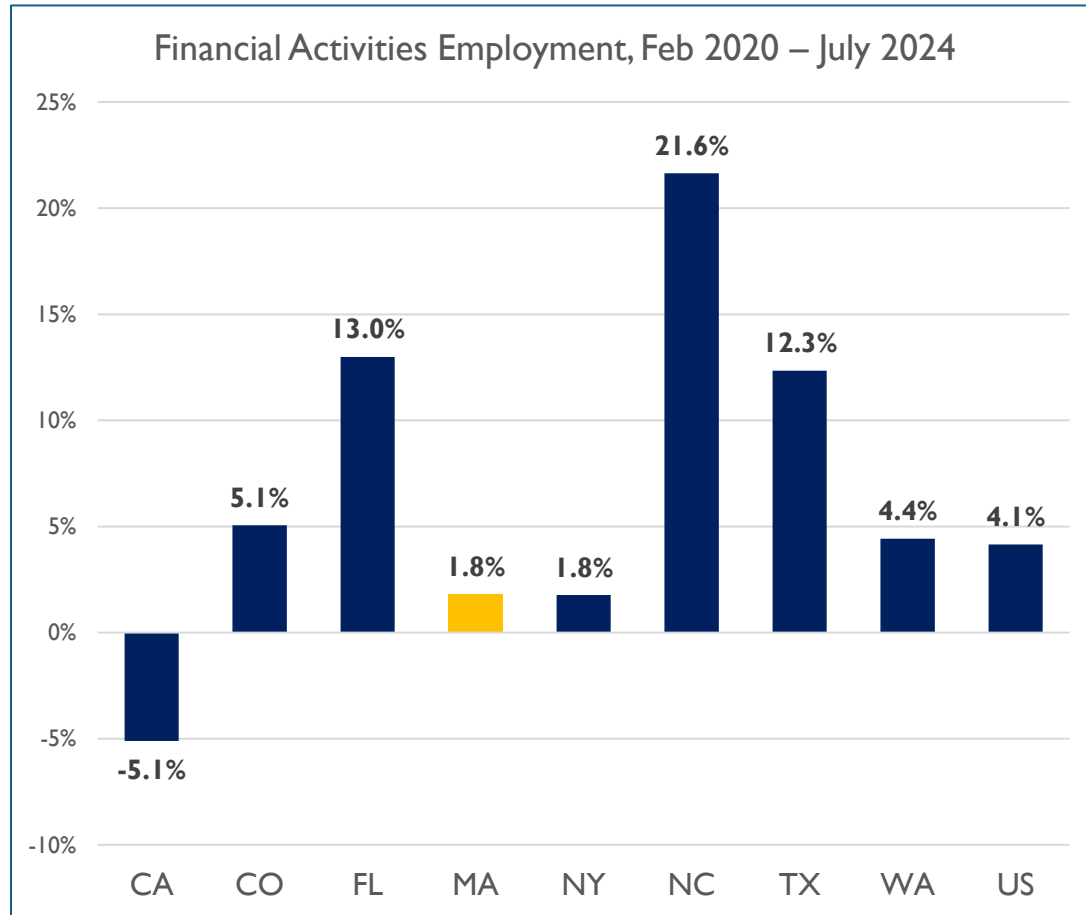
MA Tech Employment Declines, Substantially Below U.S. as Jobs Head South and West



As Boston Area Tech Jobs Falter, Dallas, Denver, Houston, and Seattle See Sharp Gains



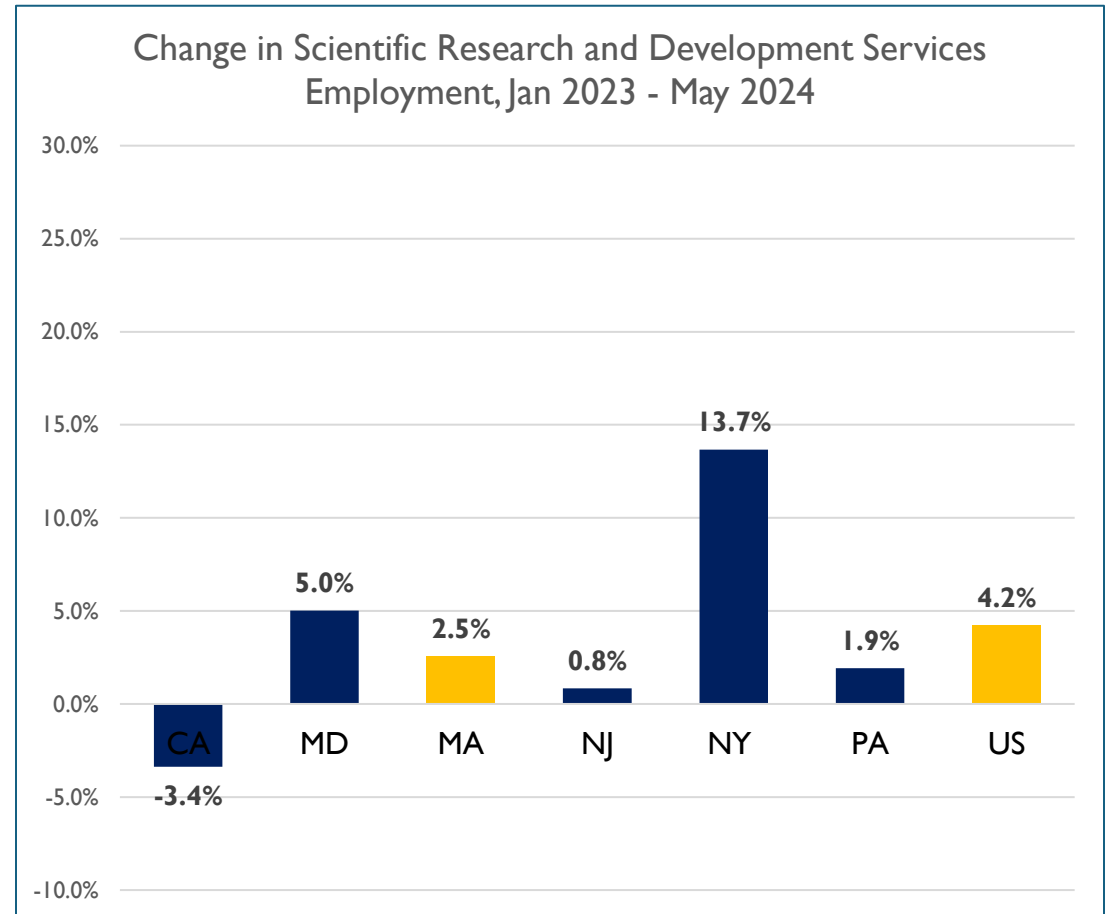
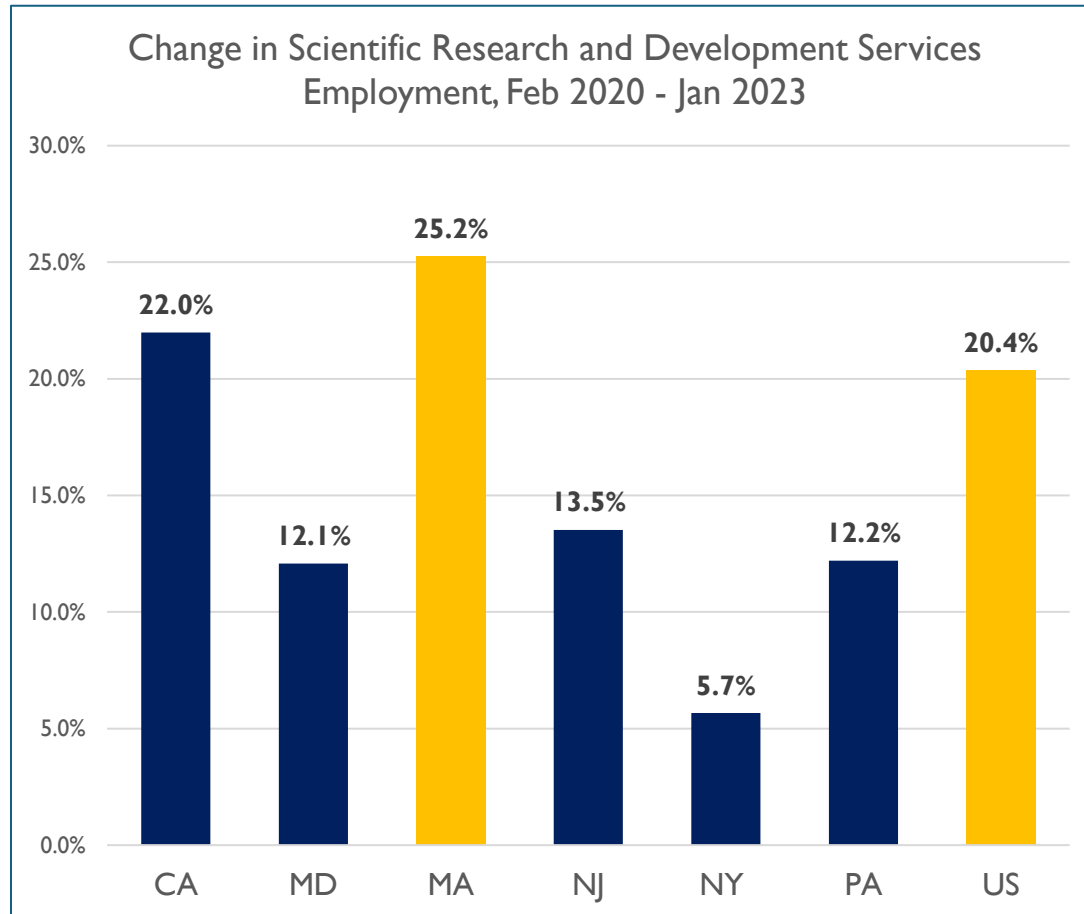
Financial Activities and Information Jobs Shift to Florida, North Carolina, and Texas



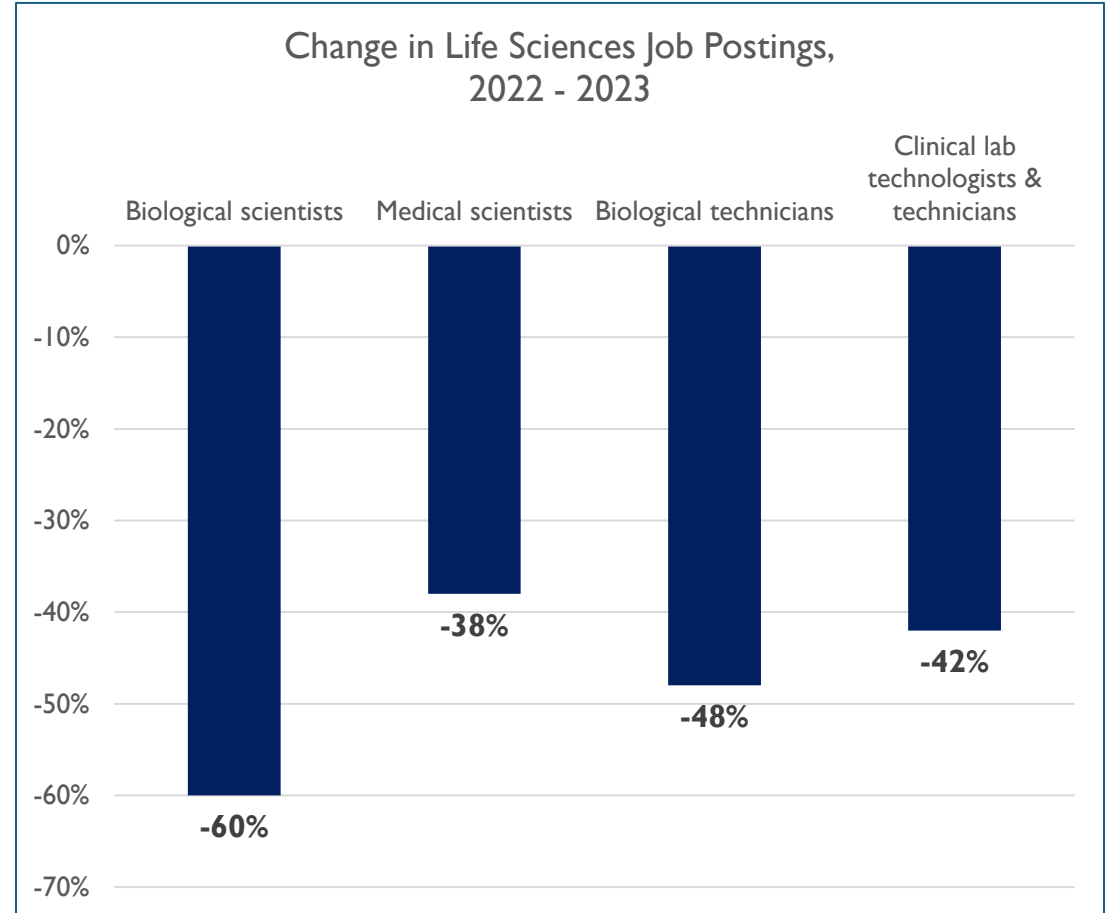
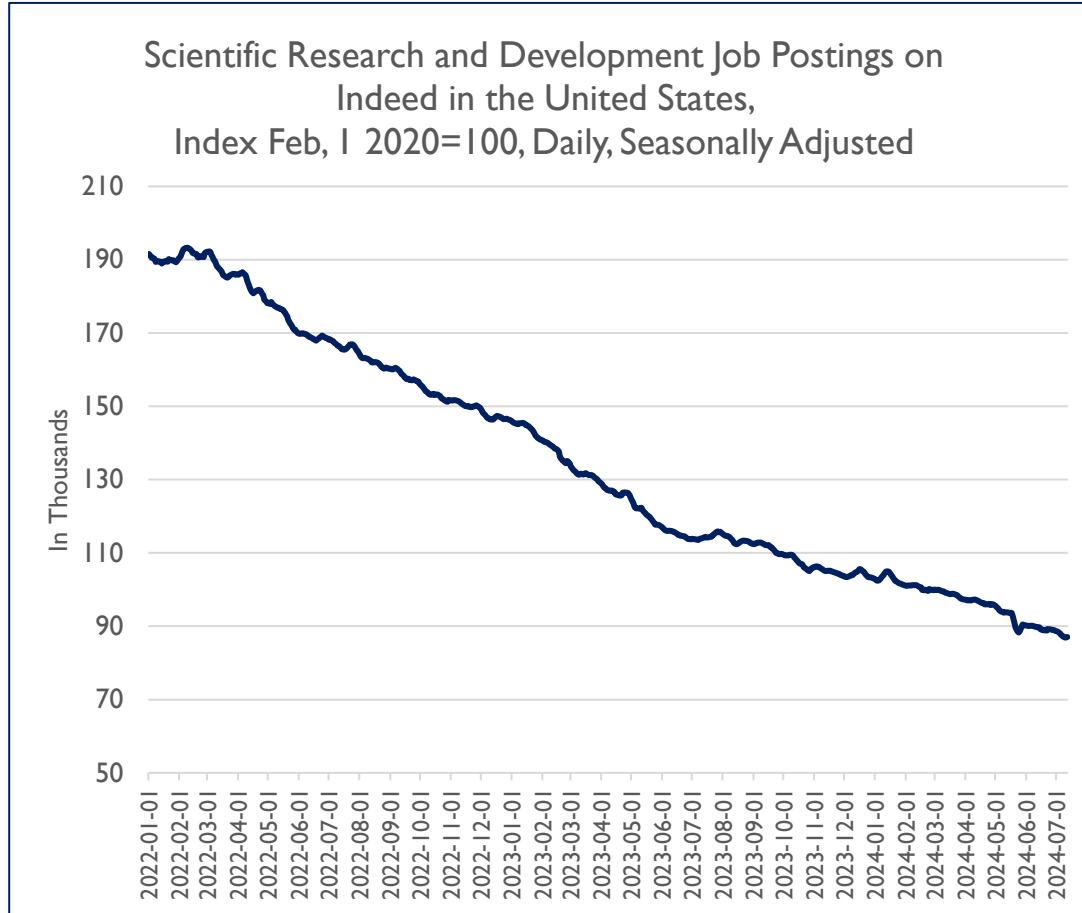


Life Sciences: A Global Leader as Post-Covid Markets Correct

In the Top Markets, Scientific Research Services Job Growth Slows in 2023 & 2024



2022 – 2024 (Through June): Life Sciences Job Postings Fall



Source – [Under the Microscope](#), Avison Young



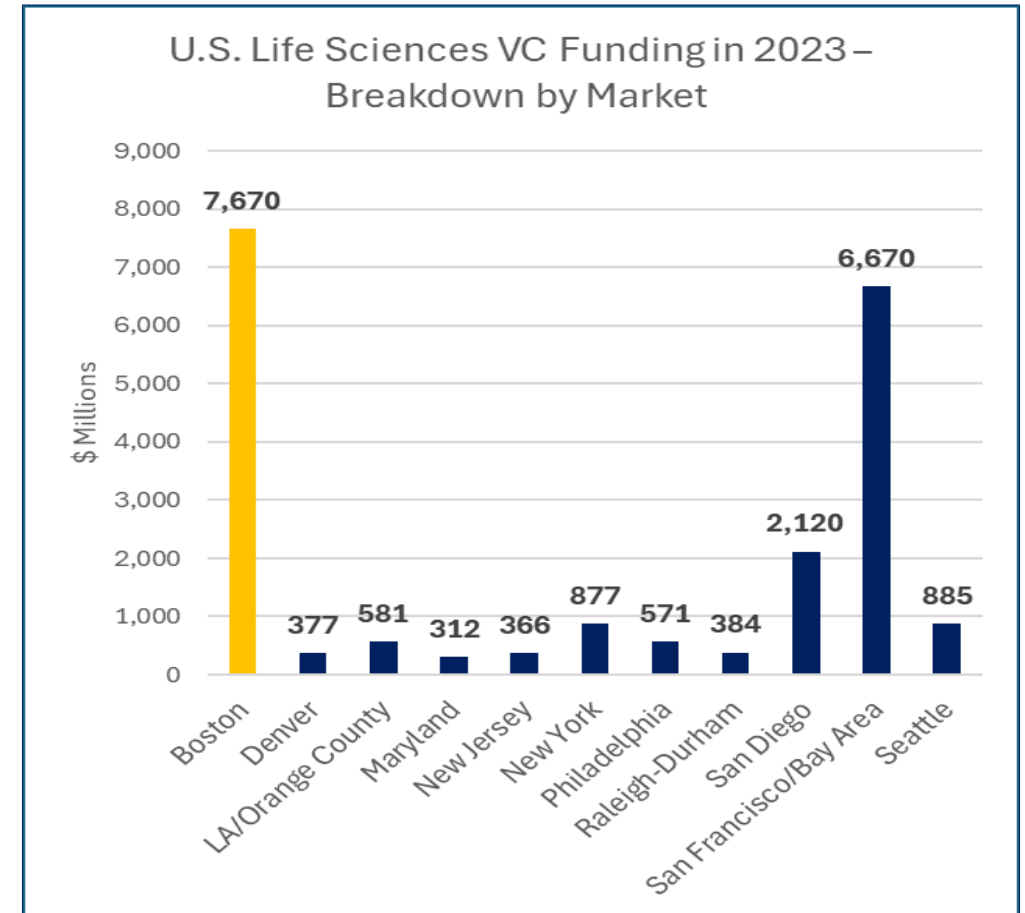
Boston-Cambridge Remains the Leader in Talent and Funding

“Boston-Cambridge was our top market for R&D talent again ... boasting the highest number of bioengineers and biomedical engineers, biochemists, biophysicists, microbiologists, medical scientists and biological technicians in the U.S.”

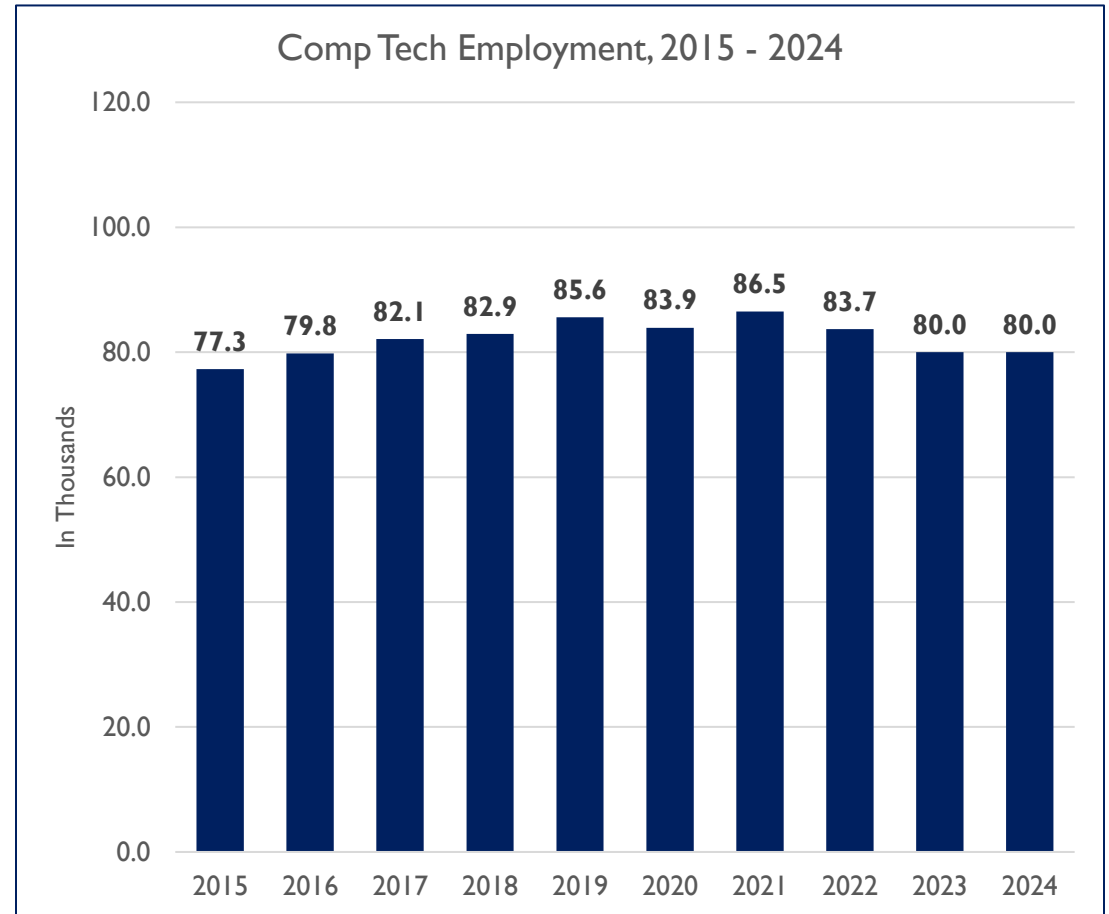
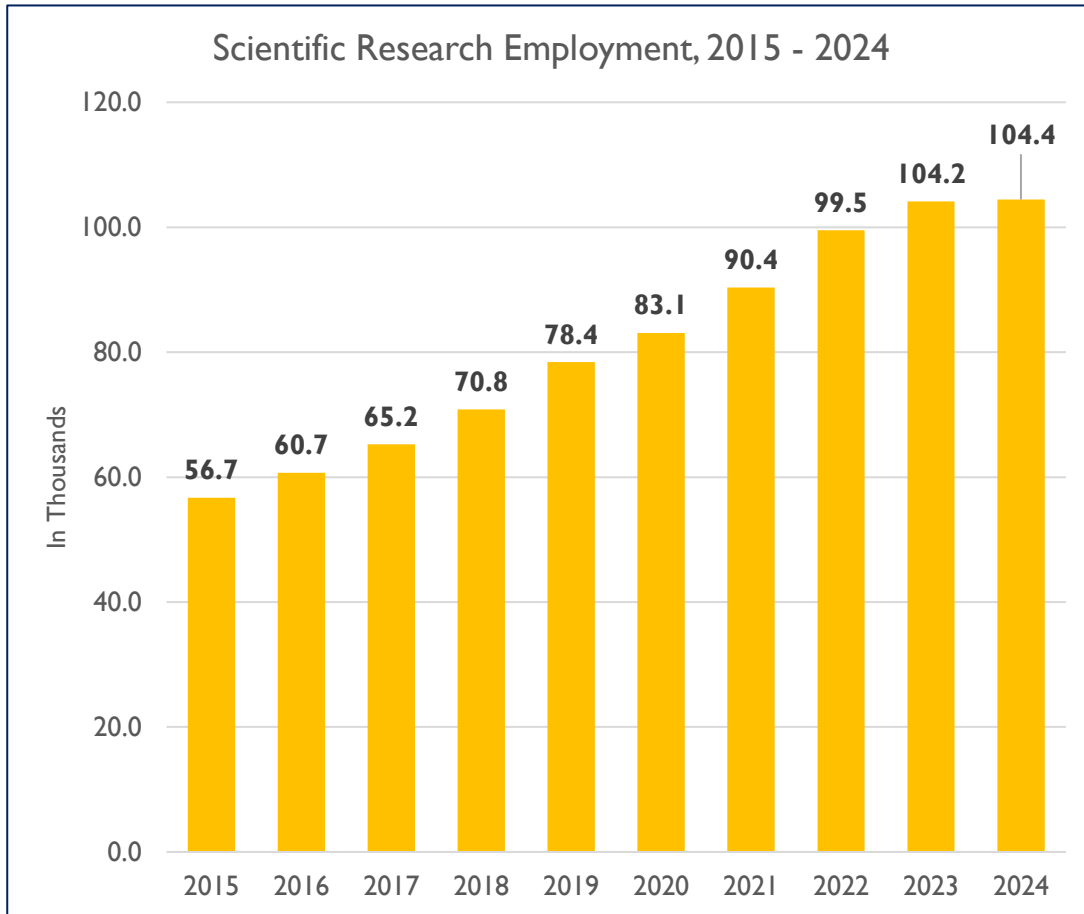
Boston-Cambridge talent ranks:

1. BioPharma R&D
2. BioPharma Manufacturing
3. Medtech

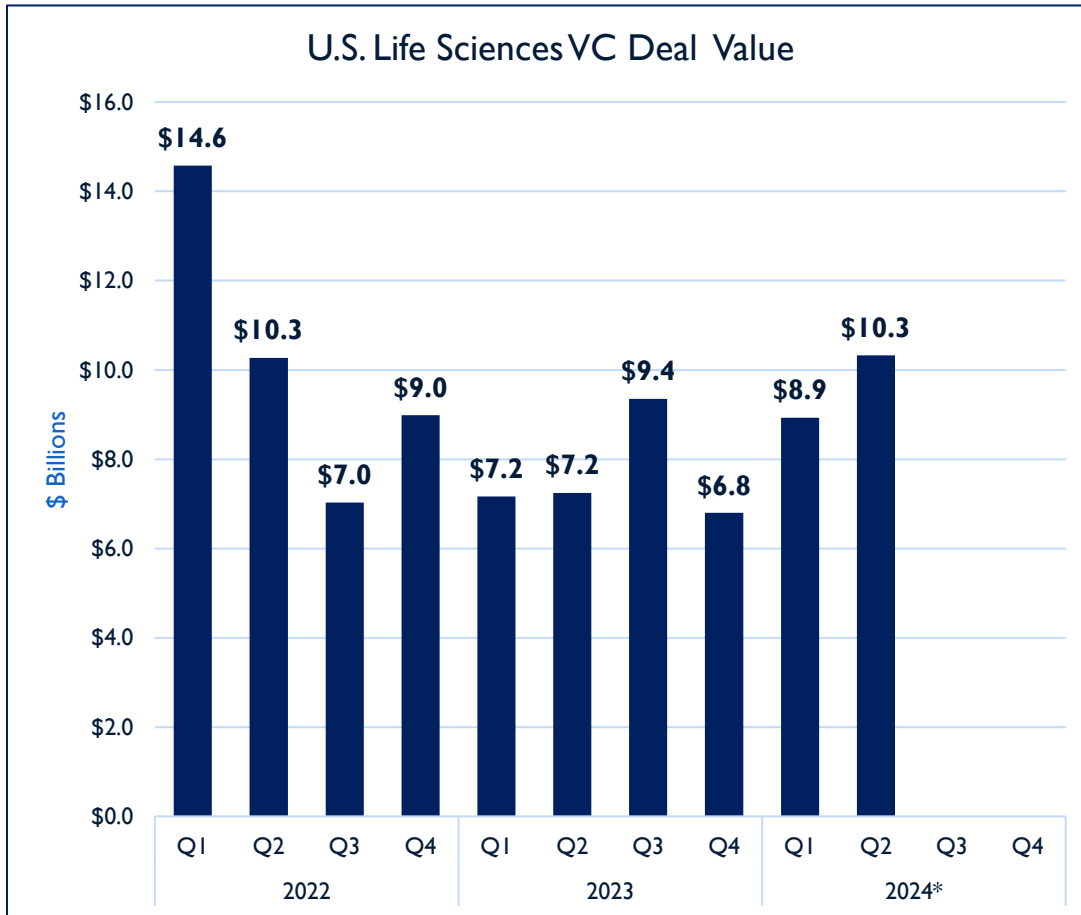
U.S. Life Sciences Talent Trends 2024, Identifying America’s Most Compelling Clusters of Life Sciences Talent, [CBRE](#), June 2024



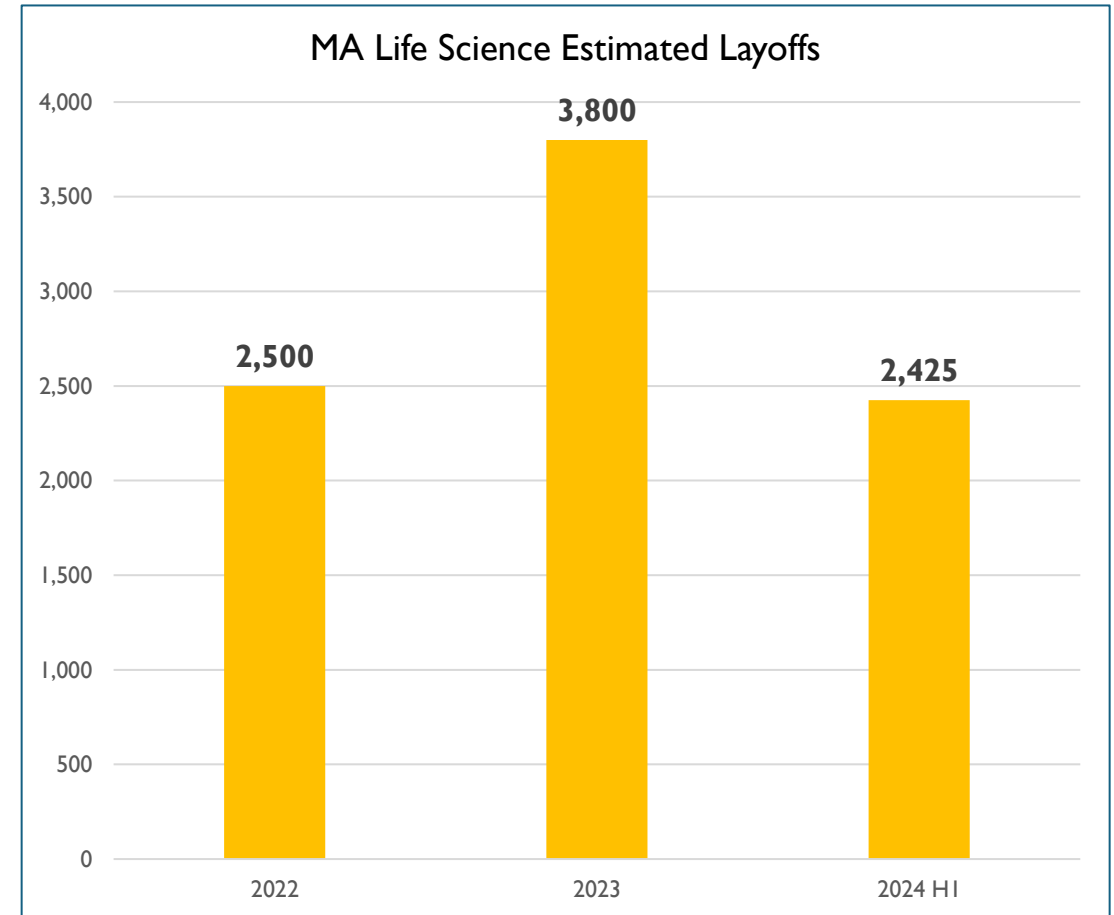
Scientific Research Jobs Increased 47,000 since 2015, Tech Jobs Up 2,700; “the Cambridge-Boston area has become more biotech rather than Big Tech focused.” [\(here\)](#)



Life Science Venture Deals Recover in Q1 & Q2 2024; But Layoffs Climb



Source – Q2 2024 – NCVA Venture Monitor, [Pitchbook](#)

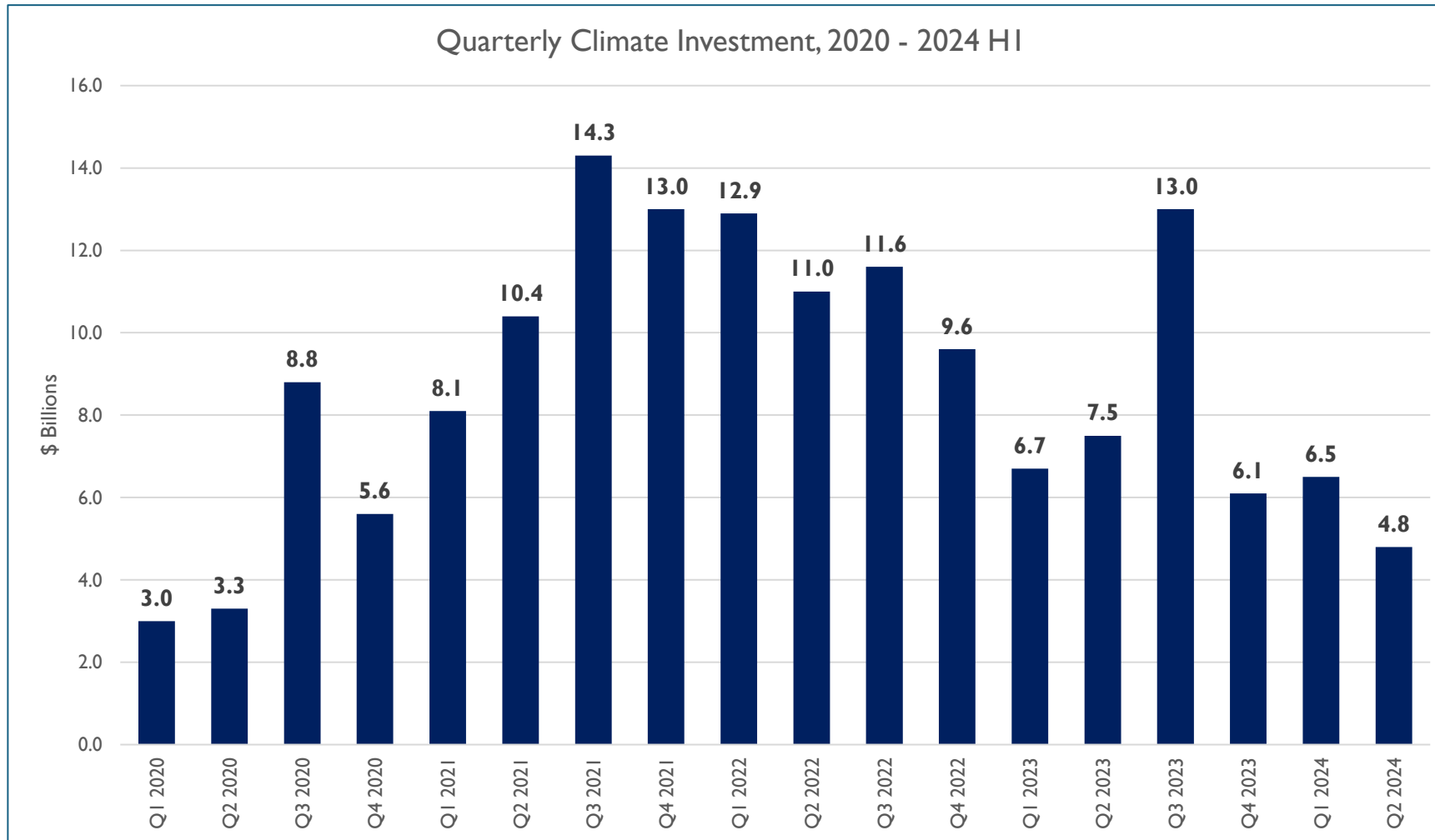


Sources: Biotech and Pharma: [Funding vs. Layoffs](#), BBJ, [Biotech layoff tracker](#), July 3, 2024



ClimateTech

U.S. Climate Investments Have Not Recovered to 2021-2022 Levels of ~ \$45 Billion per Year



Climate Tech Falls Broadly into Seven Vertical Categories



Transportation - EV autos and charging; electric micromobility and ridesharing; zero-emission planes and trains



Energy - Storage; hydrogen and low-carbon fuels; utility transmission and distribution



Food & Land Use - Vertical farming; sustainable fertilizer and animal feed; remote sensing for crop yield



Industry - Low-carbon cement, chemical and plastics, steel, manufacturing



Climate Management - Emissions and sustainability reporting

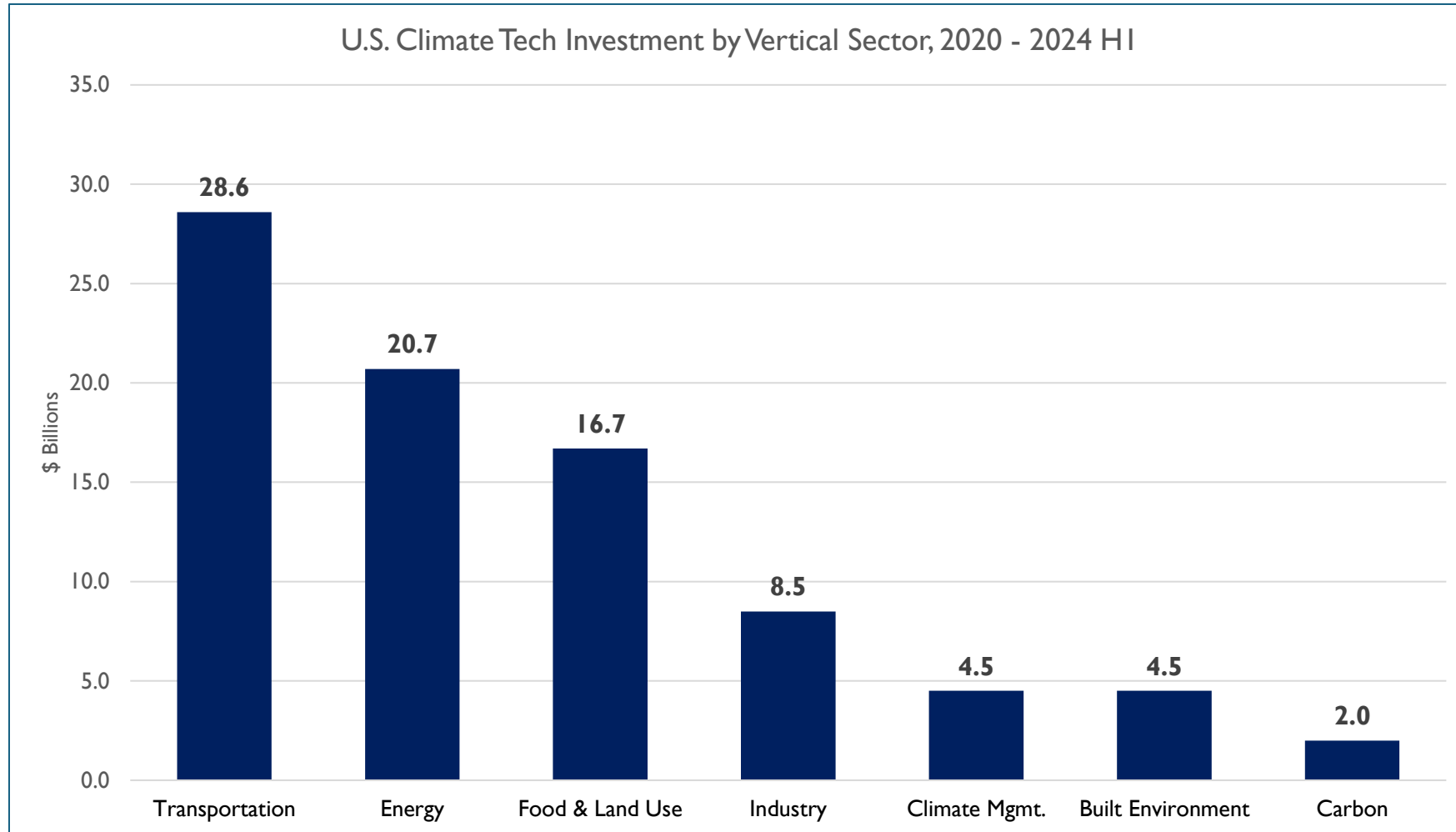


Built Environment - Sustainable building materials; low-carbon heating and cooling; prefab construction

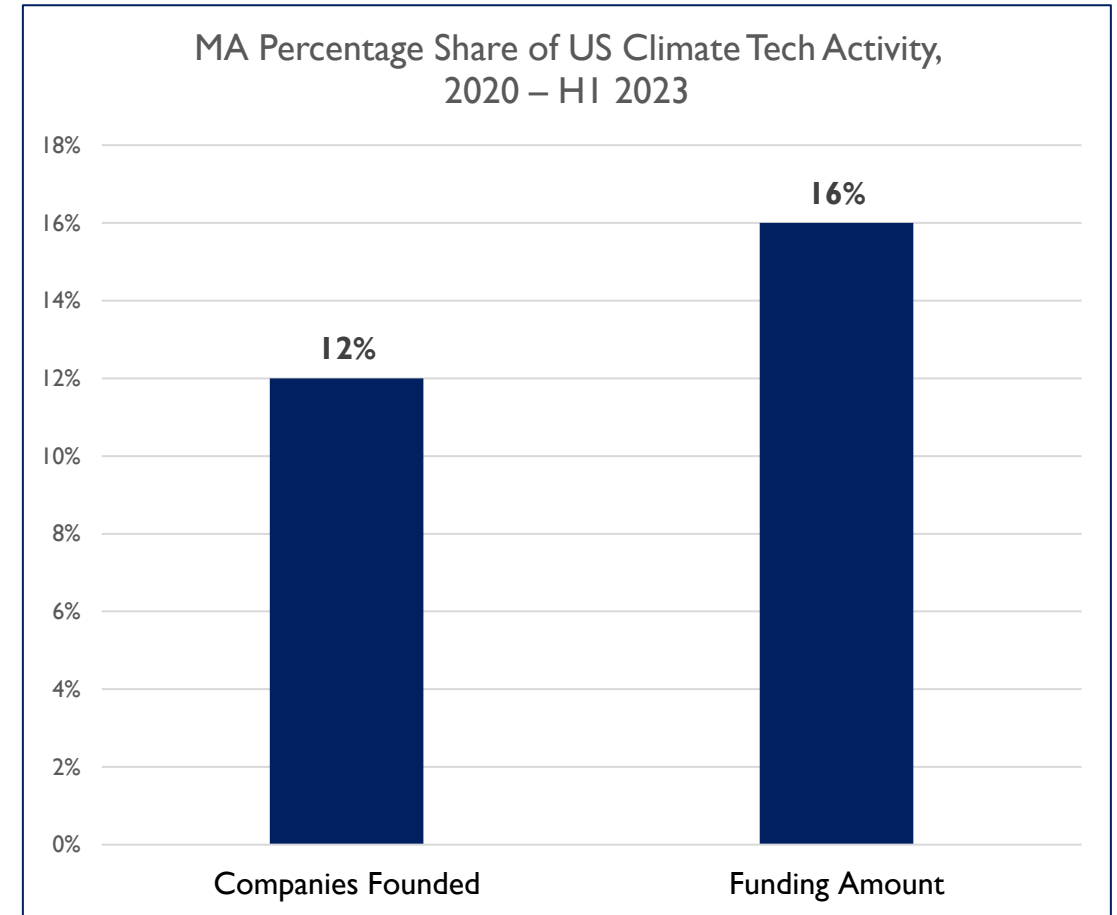
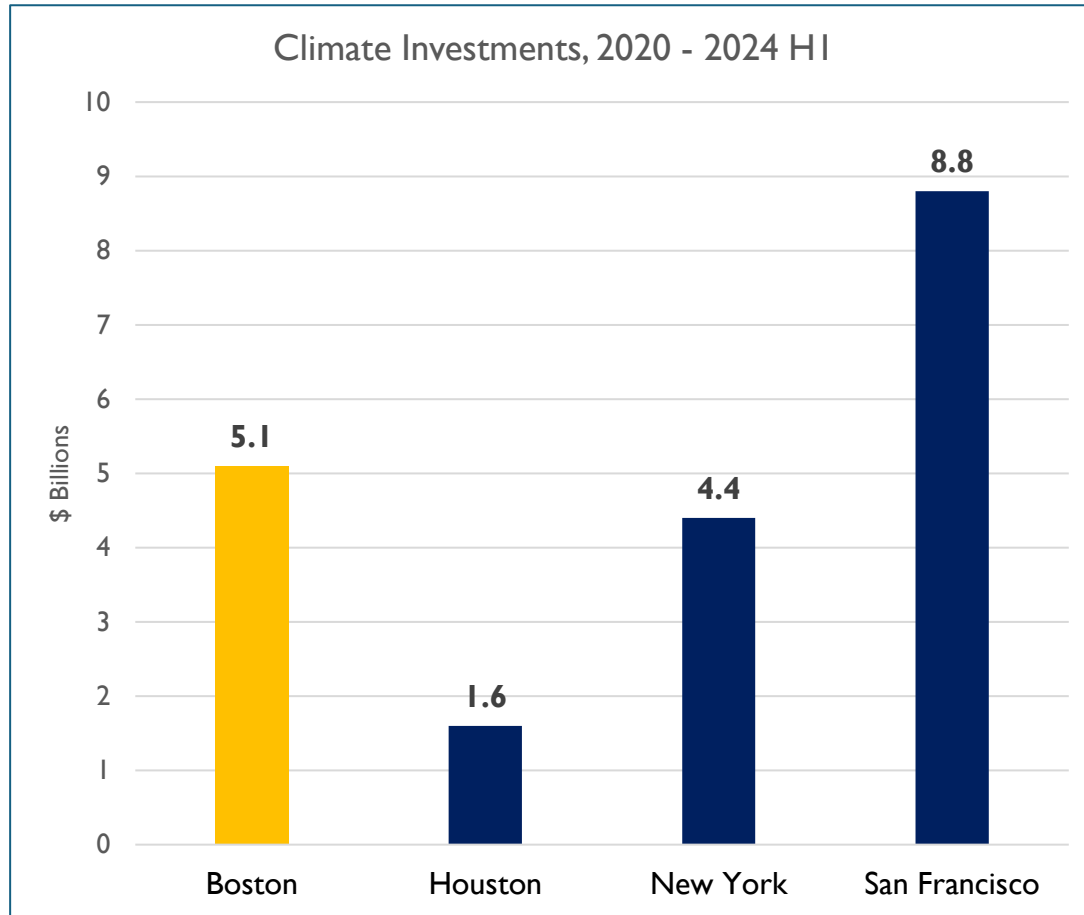


Carbon - Offset marketplace and procurement platforms; carbon removal and storage technologies

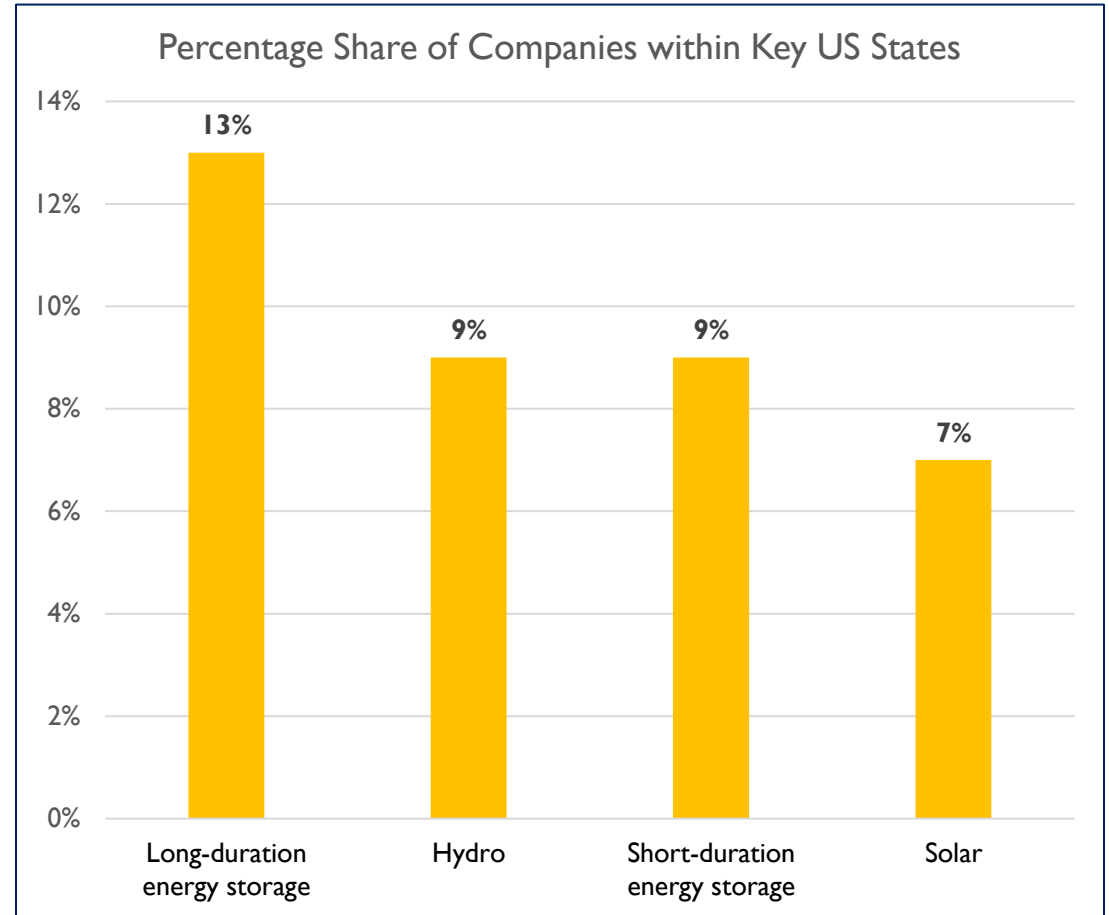
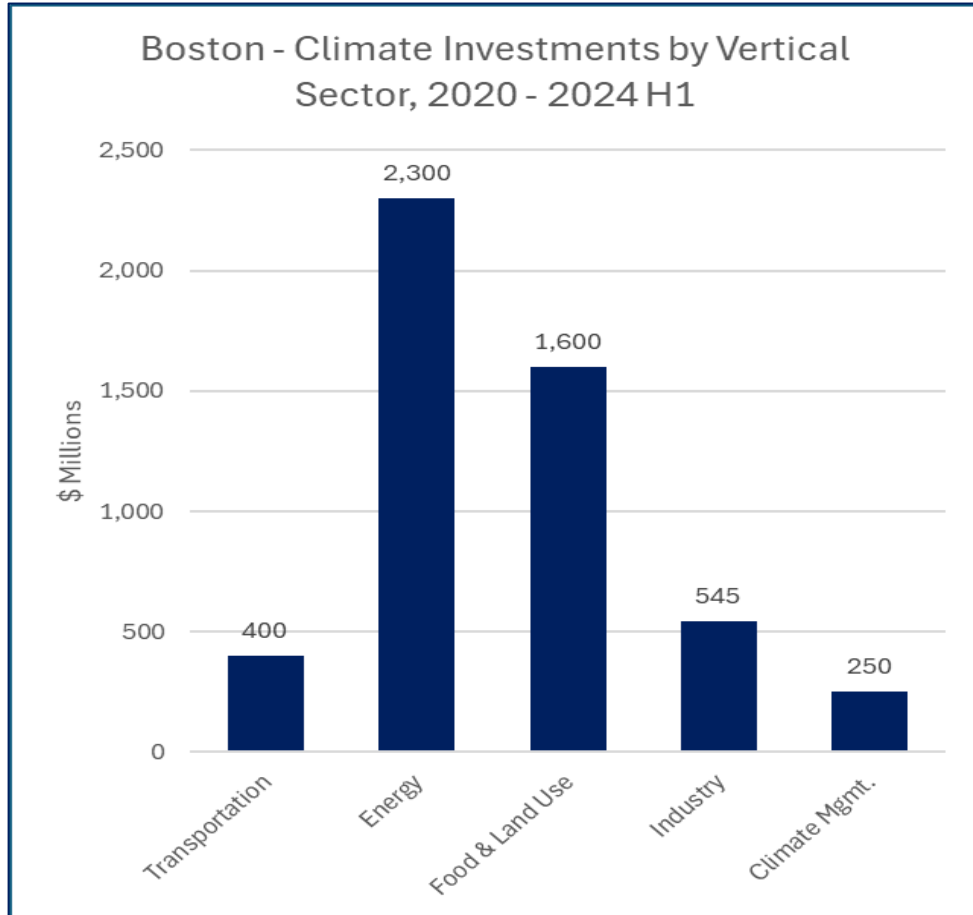
Transportation, Energy, and Food & Land Use Verticals Account for 75% of US Funding



Boston Ranks High in Climate Funding, Companies Founded



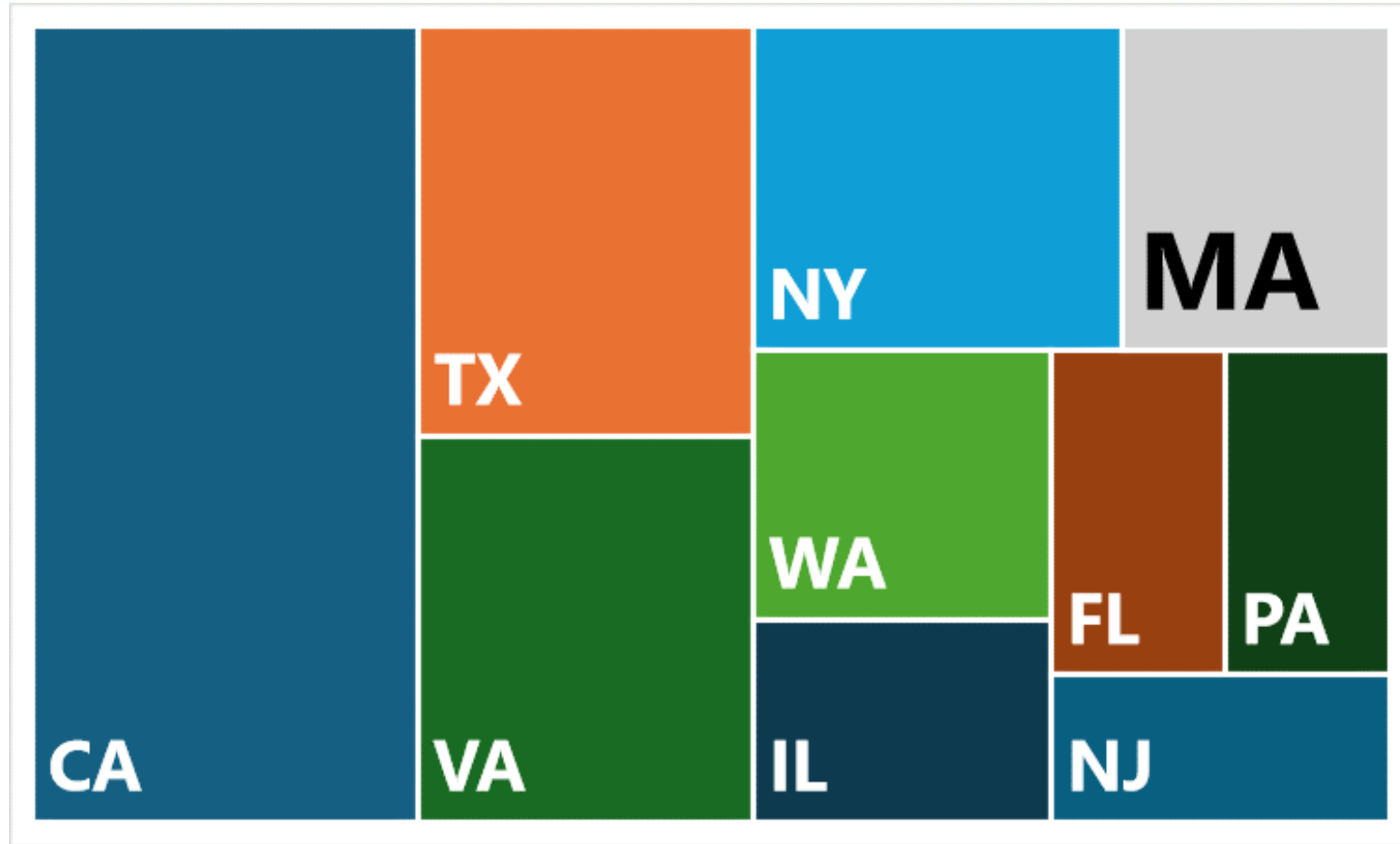
Massachusetts' Strong Suits: Energy and Food & Land Use



A photograph of a city skyline at dusk, with numerous skyscrapers and buildings illuminated by warm lights. The sky is a deep blue with some light clouds. In the foreground, there is a body of water reflecting the city lights. A dark blue rectangular overlay is positioned in the lower half of the image, containing the text "AI: Opportunities and Challenges" in a bold, yellow, sans-serif font.

AI: Opportunities and Challenges

Massachusetts Ranked 5th in 2023 at 5.4% of Total National AI Jobs

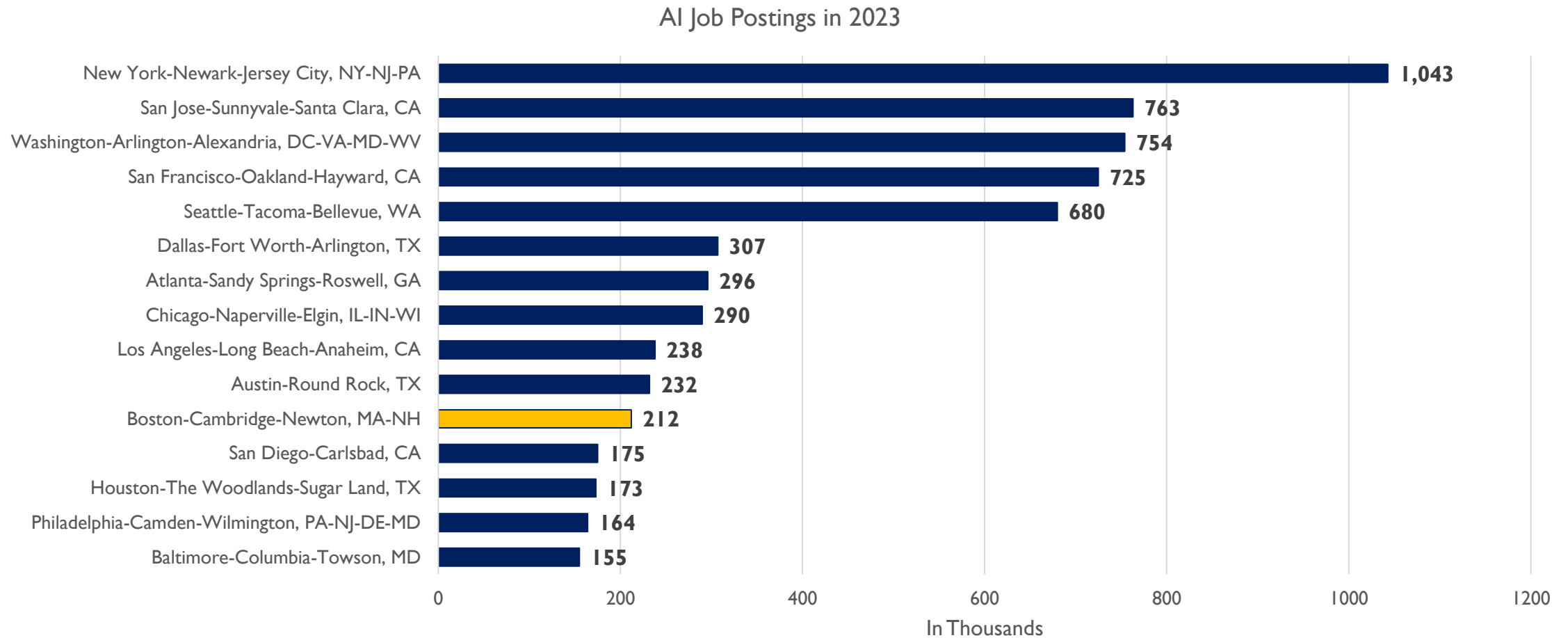


State Share of National AI Jobs

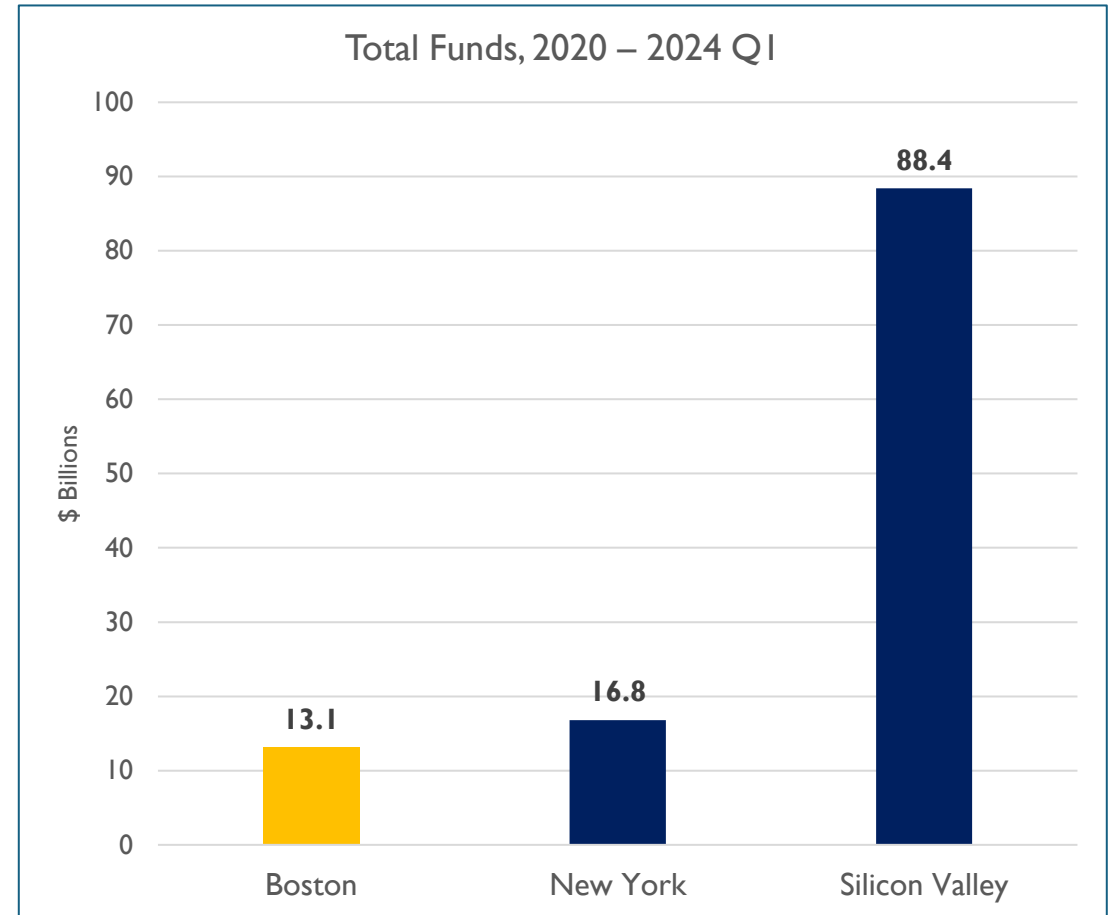
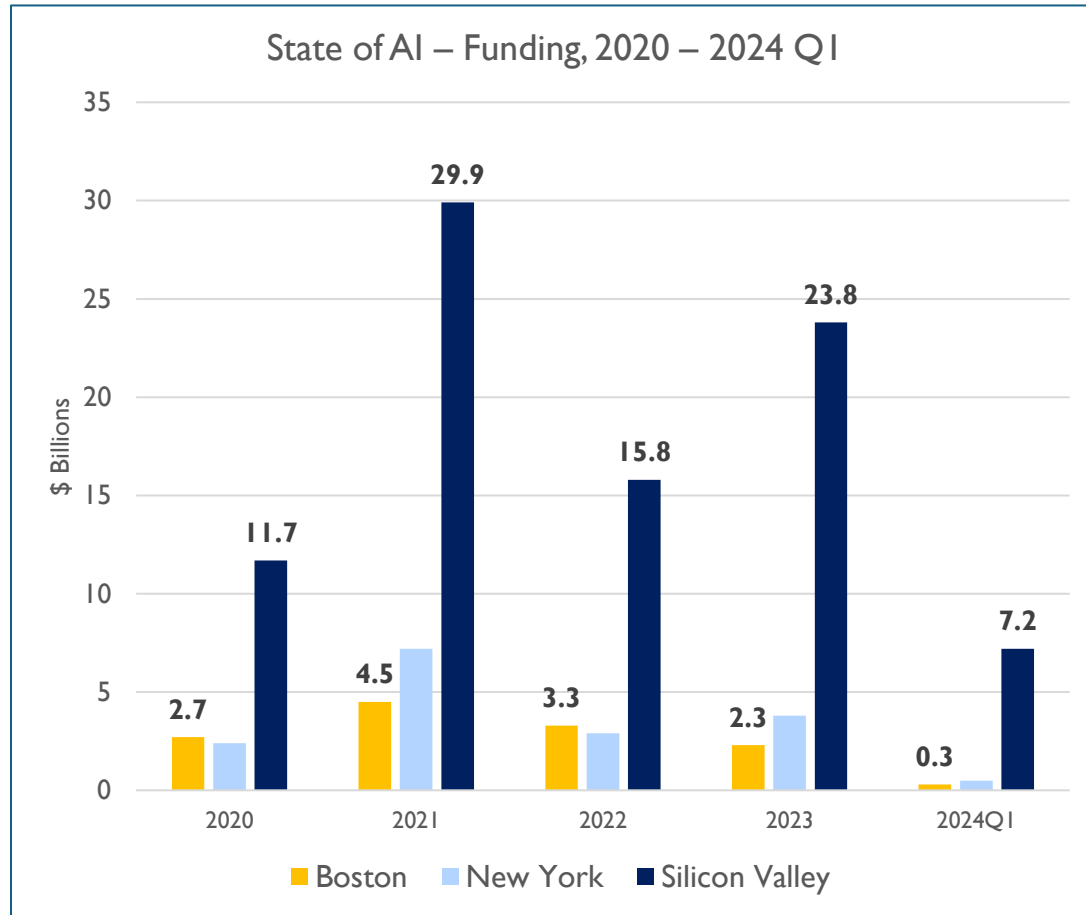
Source: [UMD-LinkUp](#)

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However, Boston-Cambridge-Newton Ranked 11th in AI Job Postings in 2023



Silicon Valley Dominates AI Funding



Source: CB Insights, State of AI Q1'24 Report, May 8, 2024 ([here](#))



The Challenge: Keep Tech Talent in MA as AI Investments and Remote Work Drive Relocation to Hotter Job Markets

- [AI talent is leaving Massachusetts. The state is hustling to catch up.](#) Kirsner, 4/24
- The Boston area produced just 17.8 new AI jobs per 100,000 residents accounting for only 1.42% of new positions in Q1 2024. The Leading cities are:
 - San Jose (142.4),
 - Seattle (74.4)
 - San Francisco (49.3)
 - Austin (39.9),
 - Washington, D.C. (35.3)
 - Northwest Arkansas (24.7)
 - Raleigh (19.7)
 - Atlanta (19.0)
 - Boston (17.8)
- *AI has the potential to transform the state's largest industries, higher education, state operations — or could upend those sectors, if Massachusetts falls behind.”*

Source: [Axios](#), April 18, 2024

A photograph of a city skyline at dusk, with numerous skyscrapers and buildings illuminated by warm lights. The sky is a deep blue with some light clouds. In the foreground, there is a body of water reflecting the city lights. A dark blue rectangular overlay is positioned in the lower half of the image, containing the text "Private Investments and Talent Are Essential to Growth" in a bold, yellow, sans-serif font.

**Private Investments and
Talent Are Essential to
Growth**

Economic Development Principles



SELECT AREAS OF STRENGTH WHERE THE STATE HAS THE BUILDING BLOCKS TO REMAIN OR BECOME A TOP 5 LEADER



ESTABLISH WORKING PARTNERSHIPS WITH BUSINESS AND ACADEMIC LEADERS TO PROMOTE AND ADJUST PROGRAMS

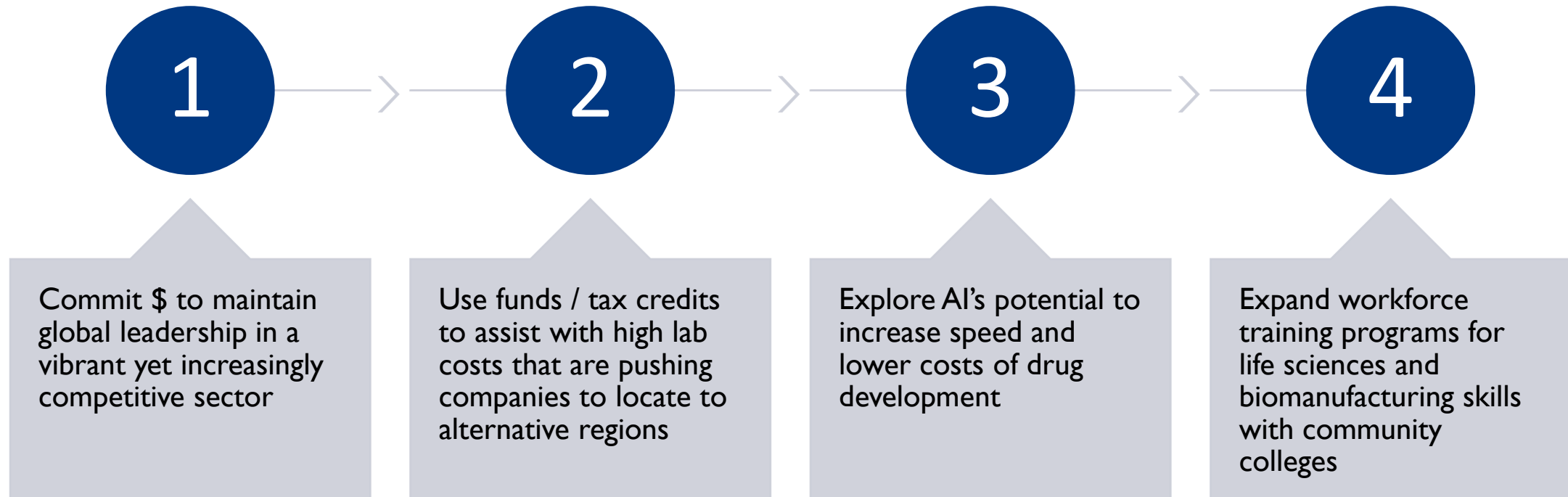


USE PUBLIC FUNDS AND TAX CREDITS TO LEVERAGE PRIVATE INVESTMENT, REDUCE COSTS, AND DEVELOP TALENT PIPELINES



PROMOTE INNOVATION IN CRITICAL SOFT INFRASTRUCTURE AREAS INCLUDING HEALTH CARE AND EDUCATION

Life Sciences – Expand Leadership in Talent and Funding



Climate Tech – Establish Leadership in Selected Verticals; Scale Rapidly



Commit \$ in authorizations and tax credits to establish Massachusetts as a leader in specific climate tech verticals



To date, energy and food & land use have received the largest investments; evaluate strengths and weaknesses to rank verticals' growth potential versus competitors



Target spending and tax credits that leverage venture and institutional funding accompanied by workforce development programs to build a talent pipeline

Develop an Applied AI Hub, Targeting Key Sectors of Likely Growth

Why an Applied AI Hub can fast-track gains in productivity:

- Centralized resources
- Streamlined workflows
- Collaborations
- Pre-built solutions
- Automated processes
- Efficient resource allocation
- Rapid prototyping

Life Sciences / Biomanufacturing

Financial Activities

Information

Health Care

Education

These Priority Areas are Central to Mass Leads

Priority	Governor	House	Senate
AI Hub	\$100	\$100	\$100
Robotics	\$25	\$25	\$25
Life Sciences	\$500	\$580	\$226
ClimateTech	\$400	\$400	\$400
Share of All Authorizations	36.4%	32.5%	26.2%

- Life Sciences, ClimateTech, AI & robotics are priorities of the pending economic development bill (Mass Leads). Action on the bill is critical to:
 - Extend the state's commitment to its Life Sciences Initiative
 - Use the Life Sciences playbook for a new ClimateTech initiative
 - Create a new AI hub and provide support for the robotics industry