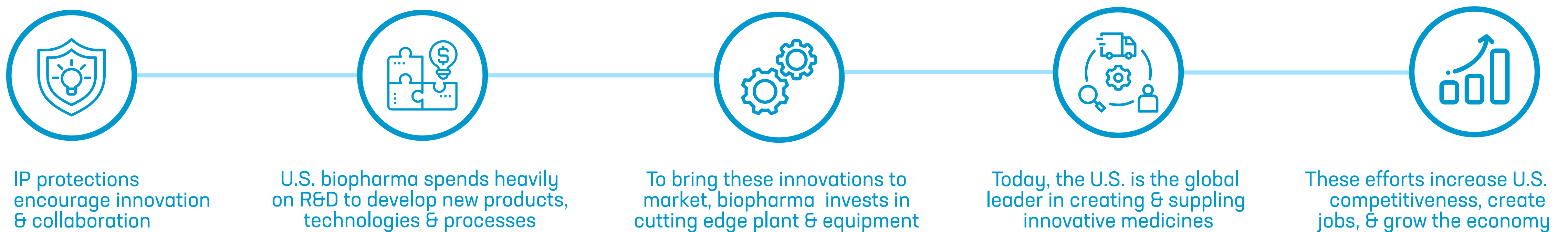


America's Biopharmaceutical Companies Continue to Expand Advanced Manufacturing Across the Country

Strong IP Fuels US Economic Growth and Competitiveness

U.S. biopharmaceutical manufacturers have risen to the challenges posed by the COVID-19 pandemic, researching and developing vaccines and therapeutics in record time, ramping up manufacturing to meet global demand, and avoiding sustained supply chain disruptions. This success is due, in part, to significant long-term investments made by PhRMA members in infectious diseases, quality manufacturing and R&D, and resilient global supply chains.

Biopharma manufacturing and R&D investments sustain and grow the US economy and jobs. These contributions are underpinned by the R&D enterprise, made sustainable through robust intellectual property (IP) protections that drive the development of new medicines as well as the new technologies and processes needed to support manufacturing and distribution. Protecting IP is critical to promoting U.S. competitiveness and jobs.

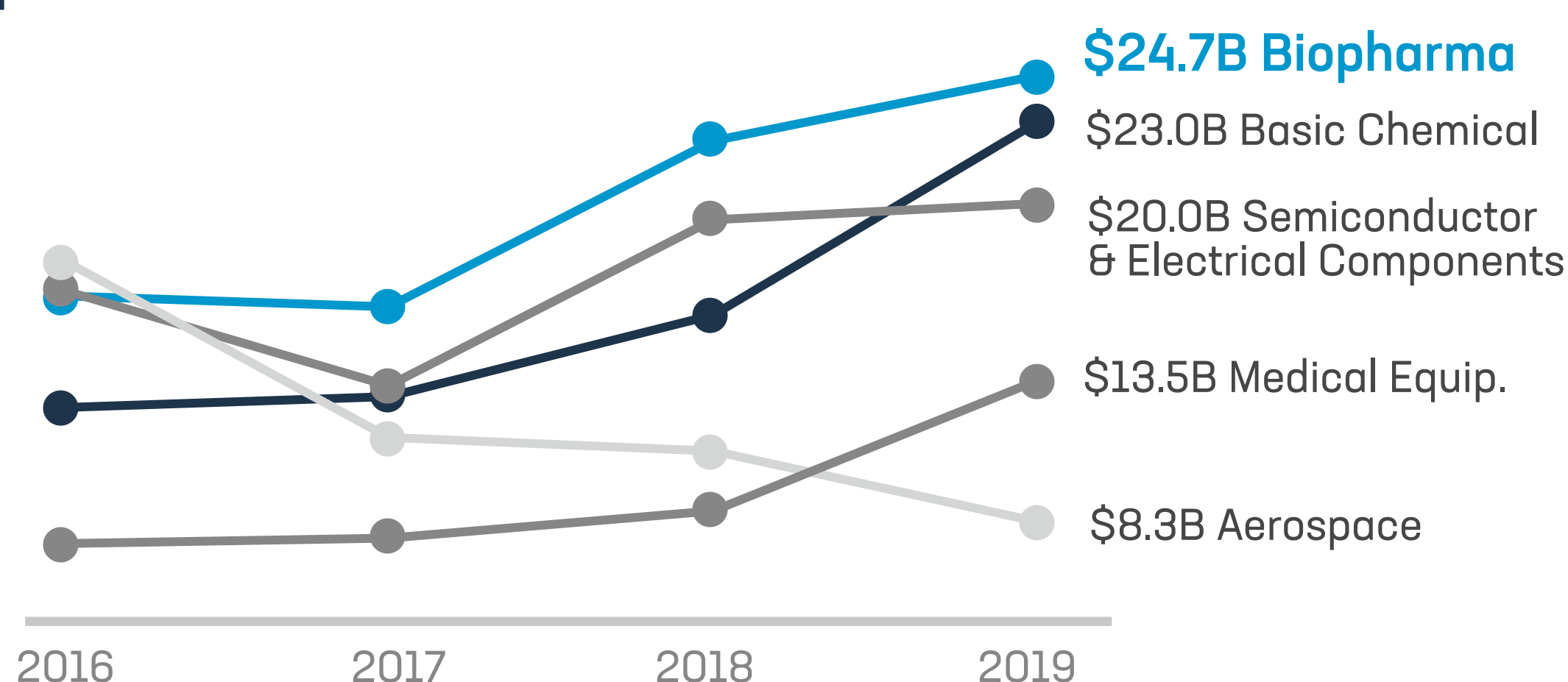


Major Increases in U.S. Advanced Manufacturing Investment

- Since 2017, capital investments by R&D-intensive manufacturing industries have increased significantly.¹
- Biopharma is a top investor in manufacturing plant and equipment and made \$47 billion in capital investments from 2018-19 alone.²
- Additionally, biopharma has maintained steady growth in R&D spending to implement advanced manufacturing methods needed to produce and scale the supply of new, innovative medicines.³

Domestic R&D spending by PhRMA members grew from **\$52.4B** in 2016 to **\$72.4B** in 2020

U.S. CAPITAL INVESTMENTS MADE BY R&D-INTENSIVE INDUSTRIES Top 5

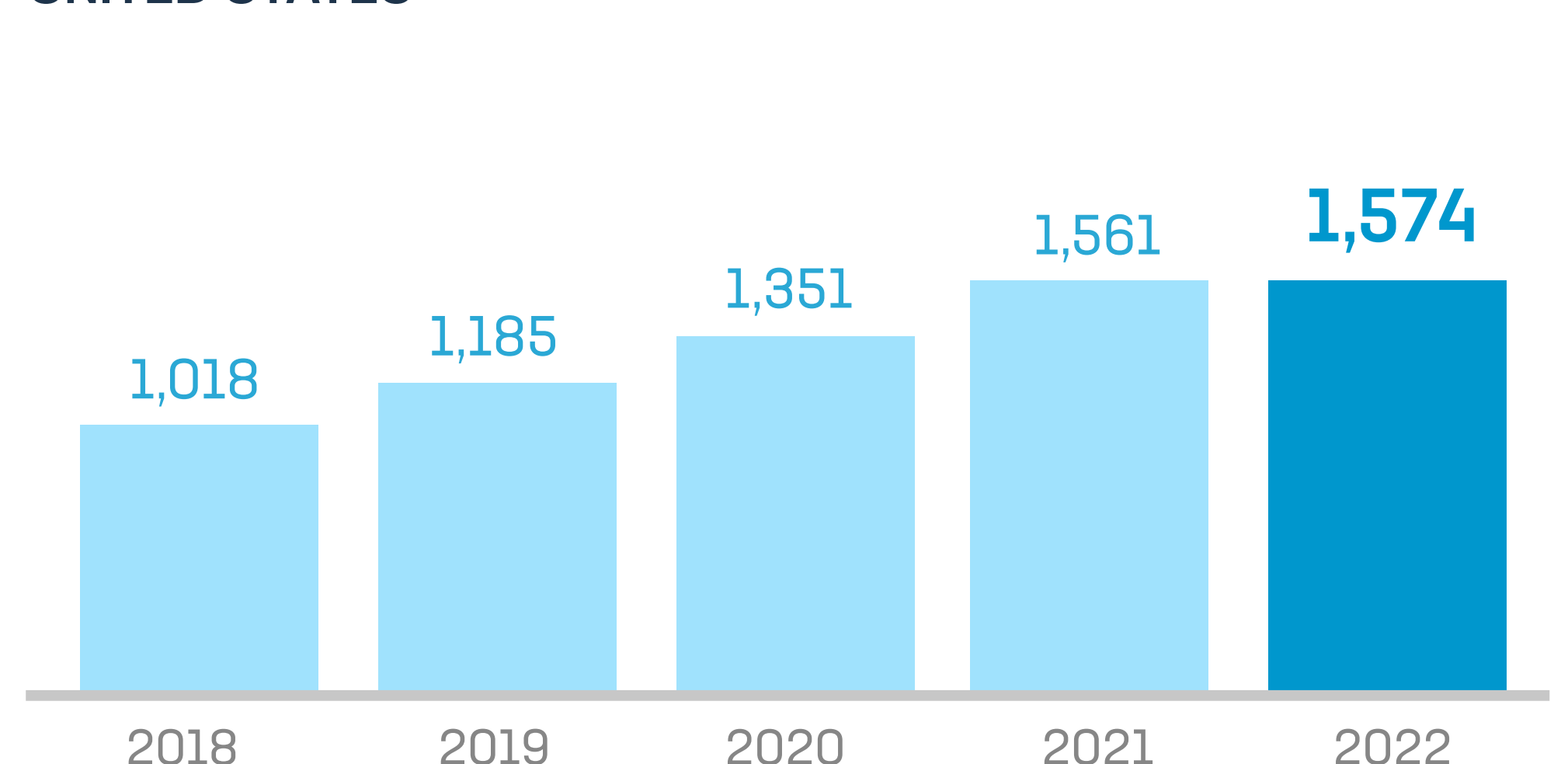


New Investments Result in More Medicines Developed & Made in America

- Biopharma companies are building, expanding, and upgrading facilities to supply the next generation of cutting-edge therapies in America.
- As companies add new manufacturing lines and expand existing lines to increase production capacity, the number of biopharma manufacturing plants has steadily grown in recent years, now numbering 1,574 facilities across 47 states and Puerto Rico.⁴

Biopharma companies operate manufacturing plants in **47 states** and Puerto Rico

BIOPHARMA MANUFACTURING ESTABLISHMENTS IN THE UNITED STATES

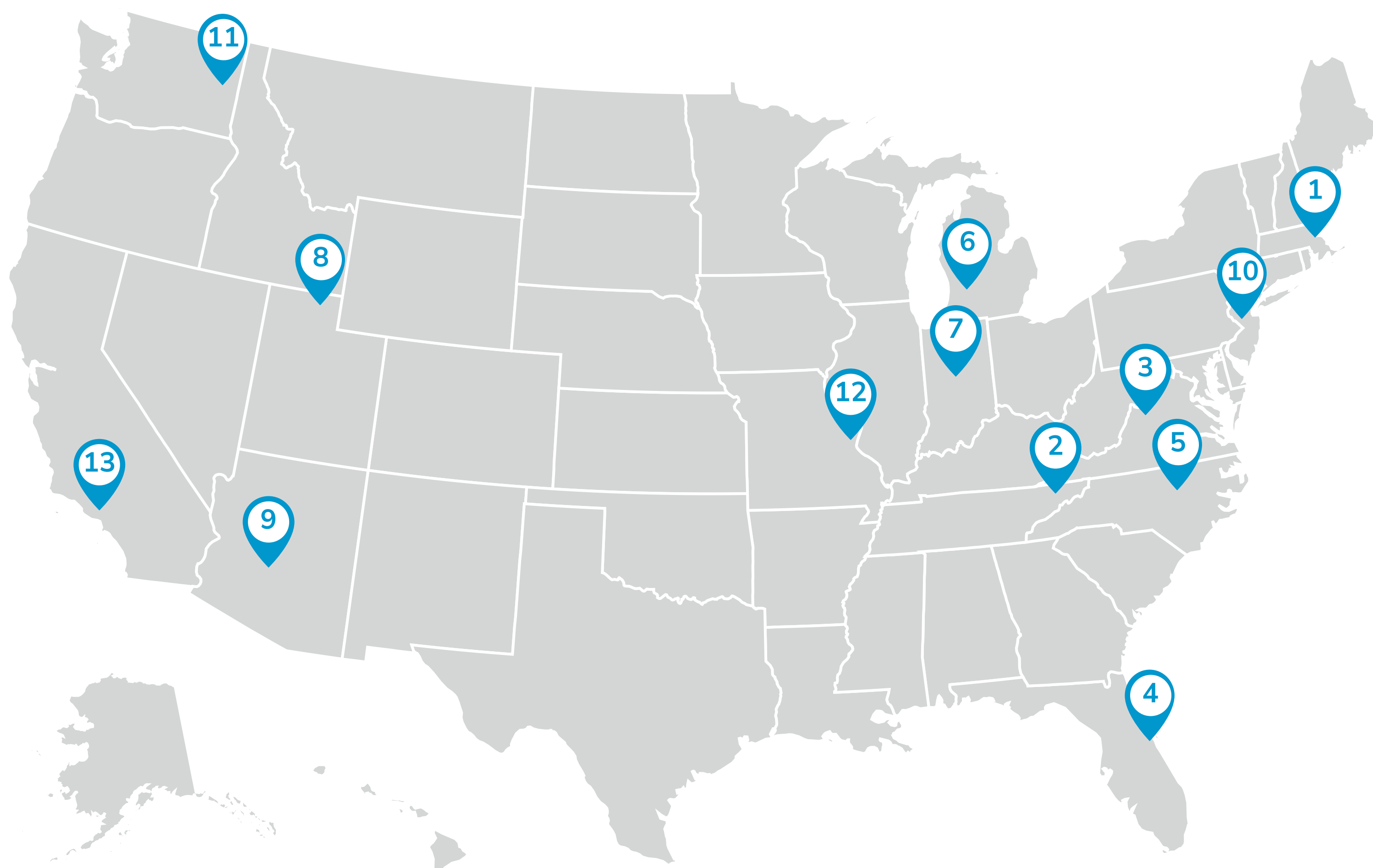


1. NSF National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2019 & 2018.
2. NSF ibid.

3. PhRMA Annual Membership Survey, 2021.
4. NDP Analytics, analysis of U.S. FDA Drug Establishments Current Registration Site, as of Apr. 2022; Feb. 2021; Jan. 2020; Apr. 2019; Apr. 2018.

Manufacturing Expansions in the United States

- Biopharma investments are being made to expand not only drug production in the U.S., but also to increase the manufacture of the supply chain inputs and materials that feed drug production.
- The map below shows just a few of the new or expanded U.S. plants announced or opened since 2019.



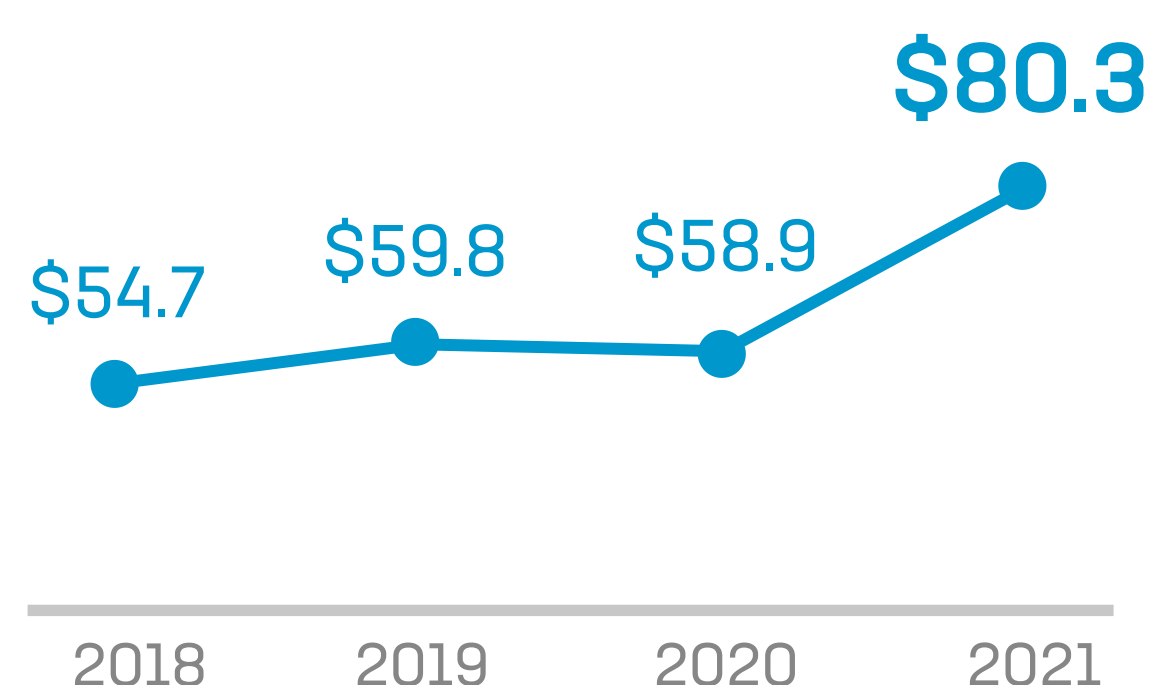
SELECT NEW & EXPANDED FACILITIES SINCE 2019

- BOSTON, MA**
R&D cell therapy mfg., Sep. 2020.⁵
- BRISTOL, TN**
Antibiotics mfg., Sep. 2021.⁶
- ELKTON, VA**
Vaccine mfg., May 2019.⁷
- DAYTONA BEACH, FL**
IV saline solution mfg., May 2019.⁸
- DURHAM, NC**
Cancer therapy production, Oct. 2020.⁹
- KALAMAZOO, MI**
Expansion of anti-viral API production, Jun. 2022.¹⁰
- LEBANON, IN**
API & genetic medicine mfg., May 2022.¹¹
- LOGAN, UT**
Expanded production of bio-mfg. supplies, Jul. 2021.¹²
- PHOENIX, AZ**
Upgrade biologics mfg., Sep. 2022.¹³
- PRINCETON, NJ**
Cell therapy expansion, Apr. 2022.¹⁴
- SPOKANE, WA**
Sterile injectable mfg. systems & equipment, Jun. 2021.¹⁵
- ST. LOUIS, MO**
Biologic drug substance mfg., Sep. 2021.¹⁶
- THOUSAND OAKS, CA**
Drug mfg. expansion & equipment upgrade, Jul. 2021.¹⁷

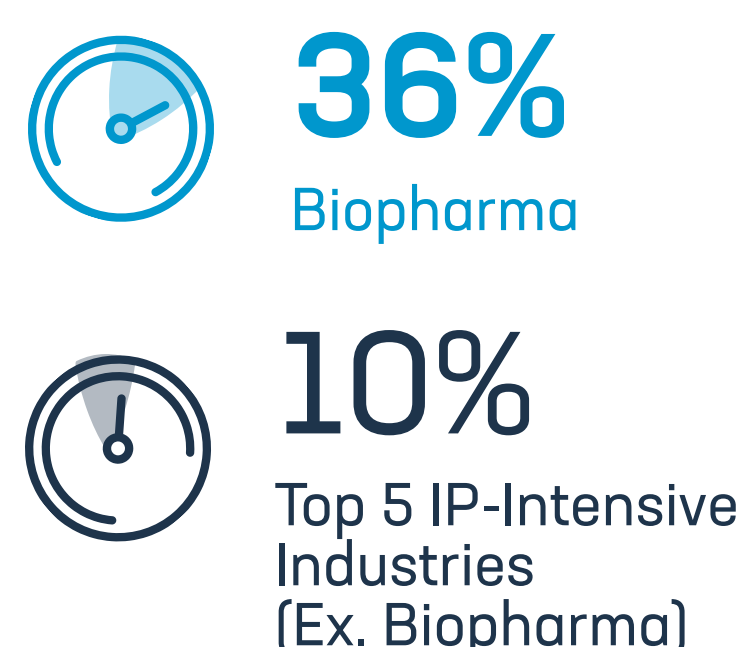
Record Exports Support American Job Growth

- U.S. exports create jobs.¹⁸ In 2021, driven by investments to develop and produce COVID-19 vaccines, U.S. biopharma exports reached an all-time high, supporting American job growth.¹⁹
- Among the top five IP-intensive industries, biopharma export growth outperforms its counterparts. From 2019 to 2020, biopharma exports grew by 36%. In contrast, export growth for the other top IP-intensive industries was nearly 10%.²⁰
- Biopharma's economic gains were enabled, in part, by strong IP protections which facilitated R&D and manufacturing collaboration and allowed the U.S. to be a leader in the development of innovative medicines and the advanced manufacturing techniques needed to produce them.

U.S. BIOPHARMA EXPORTS (\$B)



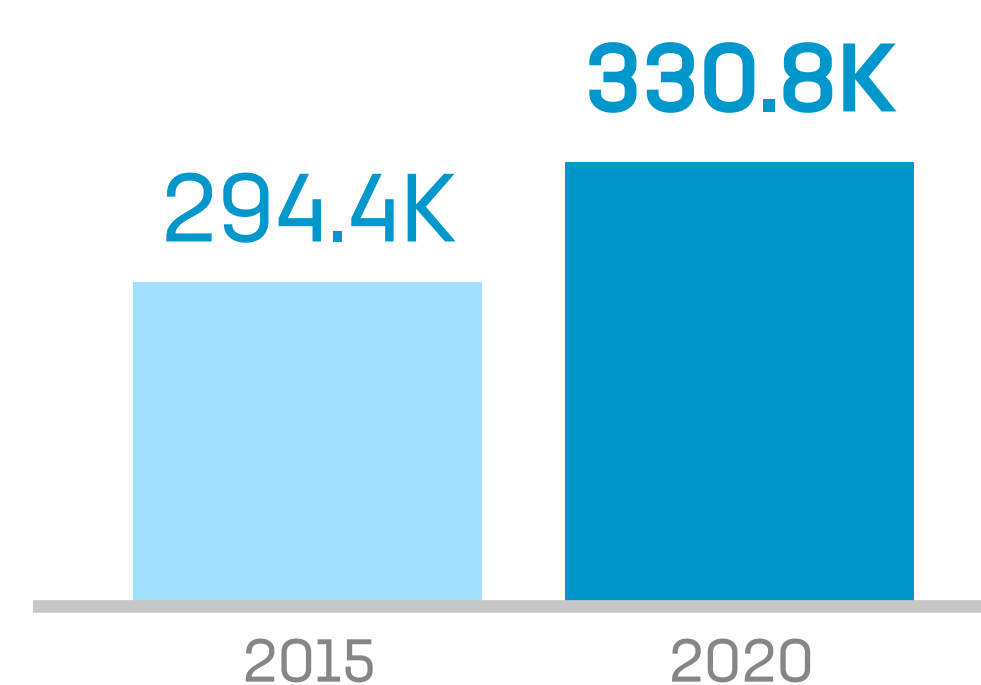
U.S. EXPORT GROWTH 2019-20



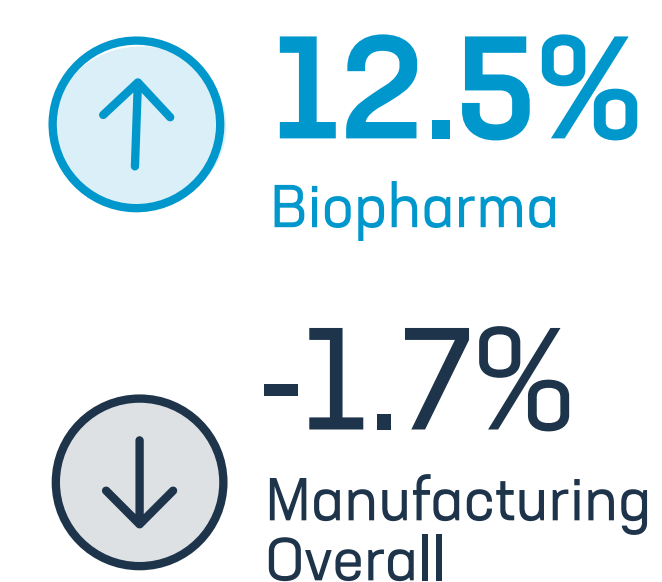
Advanced Biopharma Manufacturing is a Resilient, Sustainable Source of Job Growth

- Biopharma manufacturing employment grew by 12.5% in the past five years, reaching nearly 331,000 direct jobs in 2020. These jobs account for over one-third of the U.S. biopharma workforce (900,000 direct jobs) which supports a total of 4.4 million jobs in the industry, along the supply chain, and in communities across the country.²¹
- In contrast, overall U.S. manufacturing job growth declined by 1.7% over the same period.²² While biopharma is not immune to economic downturns, this manufacturing-oriented job growth occurred during a recent period of economic contraction, offering sustainability for U.S. manufacturing employment.

BIOPHARMA JOBS IN U.S. MANUFACTURING ESTABLISHMENTS



U.S. JOB GROWTH 2015-20



5. Seeking Alpha, Sep. 15, 2020.
6. News release, Sep. 3, 2021.
7. News release, May 7, 2019.
8. Fierce Pharma, May 15, 2019.
9. WNEP, Oct. 15, 2020.
10. WNEP, Jun. 6, 2022.
11. WTHR.com, May 25, 2022.

12. Company press release, Jul. 27, 2021.
13. Company website, accessed Sep. 2022.
14. Fierce Pharma, Apr. 25, 2022.
15. Fierce Pharma, Jun. 8, 2021.
16. Fierce Pharma, Sep. 28, 2021.
17. Fierce Pharma, Jul. 23, 2021.
18. Trade Partnership Worldwide, LLC. Trade and American Jobs. Feb. 2022.

19. NDP Analytics, analysis of data from U.S. Census. USA Trade Online: Foreign Trade Data by NAICS. Apr. 2022; Other top IP-intensive industries include communications equipment mfg., medical equipment mfg., navigational instruments mfg., and semiconductor mfg.
20. NDP Analytics ibid.
21. TEconomy Partners, LLC. The Economic Impact of the U.S. Biopharmaceutical Industry: 2020 National and State Estimates. Feb. 2022.
22. TEconomy Partners ibid.