The Biopharmaceutical Industry's Role in Fueling the Economy and Global Competitiveness

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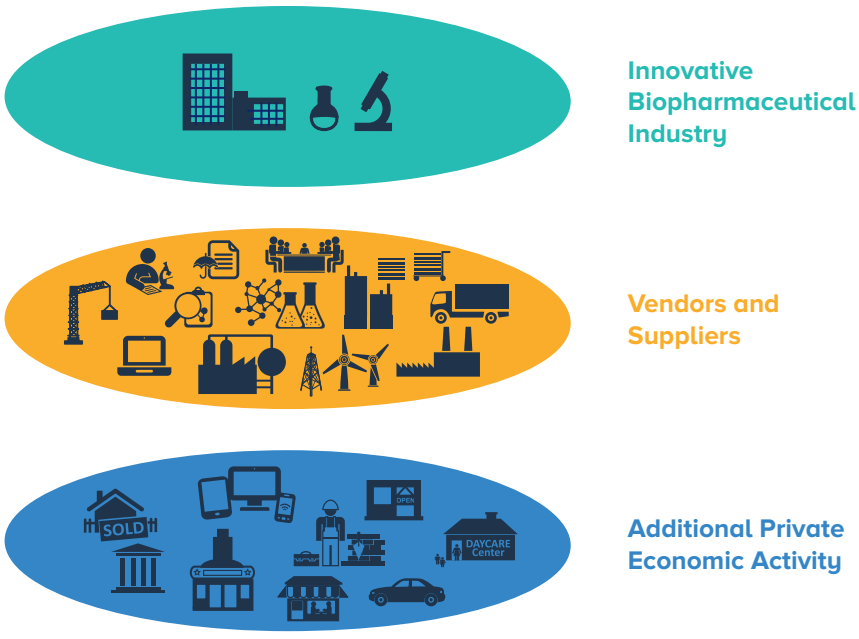
The United States is recognized as the global leader of biopharmaceutical innovation. That global leadership is built upon an industry that performs and supports advanced research and development (R&D) resulting in innovative new treatments and cures. But beyond the value medicines deliver to patients is the profound impact the biopharmaceutical sector has on our local, state and national economies. The economic impact of the biopharmaceutical industry and its closely-integrated supply chain translate into high-wage jobs, substantial tax revenue and growing economic output in our local communities. In fact, the combined effects of biopharmaceutical direct jobs, supply chain and wages and benefits resulted in $1.3 trillion in economic output and 4.7 million jobs in 2015. And every job in the biopharmaceutical industry supported nearly five additional jobs, resulting from the broader impacts of its supply chain and the personal spending of its workforce (See Figure 1).[1] Looking forward, sustaining the robust biopharmaceutical research and development (R&D) enterprise in the US will be critical to ensuring continued US global competitiveness and creating high quality jobs and economic growth across the US economy.

Figure 1 The Economic Reach of the US Biopharmaceutical Industry
Every biopharmaceutical sector job supports nearly 5 additional jobs outside the industry.



4,766,000
TOTAL JOBS

The biopharmaceutical industry supported more than **4.7 million** jobs across the US economy in 2015.

AMERICA'S BIOPHARMACEUTICAL INDUSTRY IS THE MOST RESEARCH INTENSIVE

The tremendous investments of America's biopharmaceutical companies into researching and developing new medicines are what drive the far-reaching impacts of the industry. The biopharmaceutical industry is the global leader in R&D and its research intensity is unparalleled in the United States economy.[2] Relative to other manufacturing industries, the biopharmaceutical industry invests 12 times more in R&D per employee and has the highest growth rate in R&D investment (25 percent) across all manufacturing industries. The industry also invests more in R&D relative to sales than any other manufacturing industry—more than 18 percent, or 6 times the average for the manufacturing sector.[3]

As a result, US-based biopharmaceutical companies invested about $75 billion in R&D in 2015,[5] with most of these investments made directly in the United States. In fact, according to the National Science Foundation, the sector accounts for the single largest share of all US business R&D, representing 1 out of every 6 dollars (17 percent) spent on domestic R&D by US businesses.[6,7] The biopharmaceutical industry is the single largest funder of medical and health R&D in the United States, accounting for about half of all such research in the United States – far more than the National Institutes of Health, other private industry, or other sources.[8]

THE US BIOPHARMACEUTICAL INDUSTRY IS THE GLOBAL LEADER IN BIOMEDICAL INNOVATION

The robust US R&D enterprise is the envy of the world. Not only does the United States lead in both overall clinical trial activity and in early stage clinical research, but it also claims the intellectual property of more than half of all new medicines invented. In terms of academic contributions, the United States also leads in peer-reviewed publications—a key indicator of scholarly leadership. Likewise, it is not surprising that more than two-thirds of worldwide venture capital investments in biopharmaceutical startups are made in the United States where the biopharmaceutical research and development enterprise thrives.[9]

The sector's global leadership is also clearly evidenced by the tremendous medical advances that it generates:

- Since 2000, the US Food and Drug Administration has approved nearly 600 new medicines, including the first immunotherapies for cancer, cures for Hepatitis C and many first-time and transformative treatments for rare and chronic conditions.[10,11,12]
- More than three-quarters of drug approvals in the United States in 2014 represented first approvals among leading national regulatory authorities.[13]
- Today, there are about 7,000 medicines in development globally which hold tremendous promise in further transforming current treatment paradigms.[14]

However, like other R&D-intensive industries, the biopharmaceutical industry is facing mounting competition not just from developed countries, but also from emerging nations.[15] A growing number of countries are focusing on biopharmaceuticals and related industries in their economic development and innovation plans.[16] We need to continue to focus on where the United States has a competitive advantage and shore up areas where other countries are catching up and where the United States is falling behind—including science, technology, engineering and math (STEM) education. Looking ahead, we need to strengthen US economic foundations and compete for biopharmaceutical development.

> "The pharmaceutical industry is one of the most research-intensive industries in the United States. Pharmaceutical firms invest as much as five times more in research and development, relative to their sales, than the average manufacturing firm."
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> **Congressional Budget Office[4]**

> "Today, a more intensive and globalized competition for the biopharmaceutical industry is taking root, with the developing world joining European competitors in seeking to challenge the US global leadership in innovation. The United States is now facing increasing competition to attract and grow a biopharmaceutical presence not just from developed countries, but also from emerging nations such as Brazil, China, and Singapore that are laying the groundwork for future growth."
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> **TEConomy Partners[17]**

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6 PhRMA Annual Member Survey, Washington, DC: PhRMA 2017.
7 PhRMA analysis of National Science Foundation, National Center for Science and Engineering Statistics, data. TABLE 2. Funds spent for business R&D
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