



BIOSCIENCES IN ARIZONA

# ARIZONA BIOSCIENCE OVERVIEW

**Nannon Roosa, PMP, FACMPE, CPA**

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# Thank You

- **Brad Halvorsen**, Executive Vice President, Flinn Foundation
- Investment data is from **Pitchbook**
- University information from **Tech Transfer Offices**
- **Nancy Johnson**, RN, PhD, University of Arizona Global MD
- **Andy Lombard**, President & CEO, Arizona Venture Development Corporation (AVC)
- **Doug Hockstad**, Associate Vice President, Tech Launch Arizona
- **Joann MacMaster**, CEO, Desert Angels,
- **Bob DeLean**, CEO, Arizona Tech Investors (ATI)
- **Joan Koerber-Walker**, President & CEO, Arizona Bioindustry Association, Inc.
- **Nicole Barraza**, Senior Director, Governance & Policy, Southern Arizona Leadership Council, SALC
- **Iris Mora**, Practice Administrator, Airzona Eye Consultants

# Today's Agenda



1. BIOSCIENCES INDUSTRY OVERVIEW



2. WORKFORCE



3. INVESTMENT – R&D Funding



4. INVESTMENT – Risk Capital

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# Defining the Biosciences Industry

- Agricultural Feedstock & Industrial Biosciences
- Bioscience-Related Distribution
- Drugs, Pharmaceuticals & Diagnostics
- Medical Devices & Equipment
- Research, Testing & Medical Labs
- Hospitals



# Defining the Biosciences Industry

- Agricultural Feedstock & Industrial Biosciences



- Bioscience-Related Distribution



- Drugs, Pharmaceuticals & Diagnostics



- Medical Devices & Equipment



- Research, Testing & Medical Labs



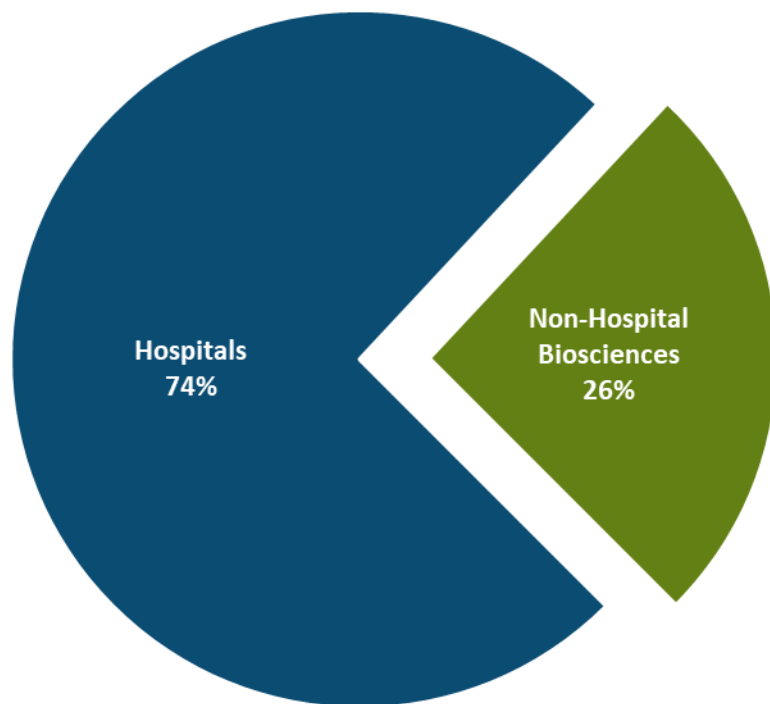
- Hospitals



# Composition of Bioscience Industry Jobs, 2020

*Primarily Hospital*

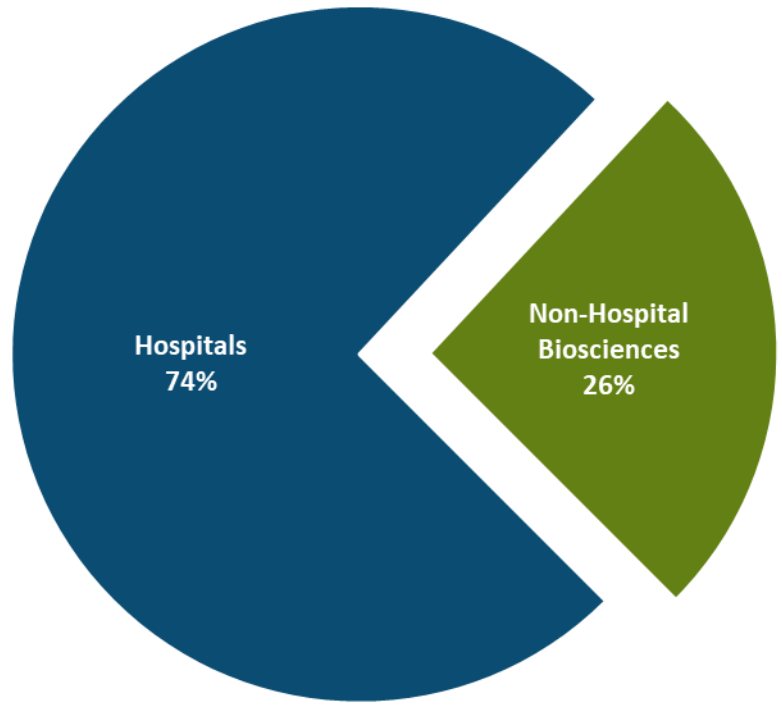
**133,000 Total AZ Biosciences Jobs**



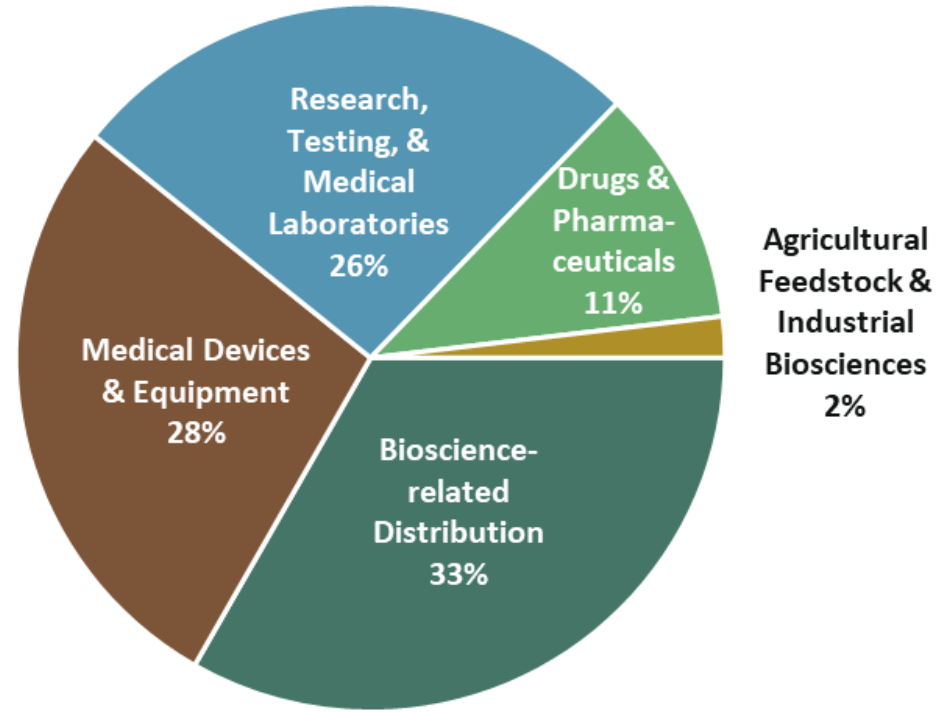
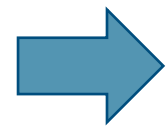
# Composition of Bioscience Industry Jobs, 2020

*R&D, Distribution, Device/Equipment*

**133,000 Total AZ Biosciences Jobs**

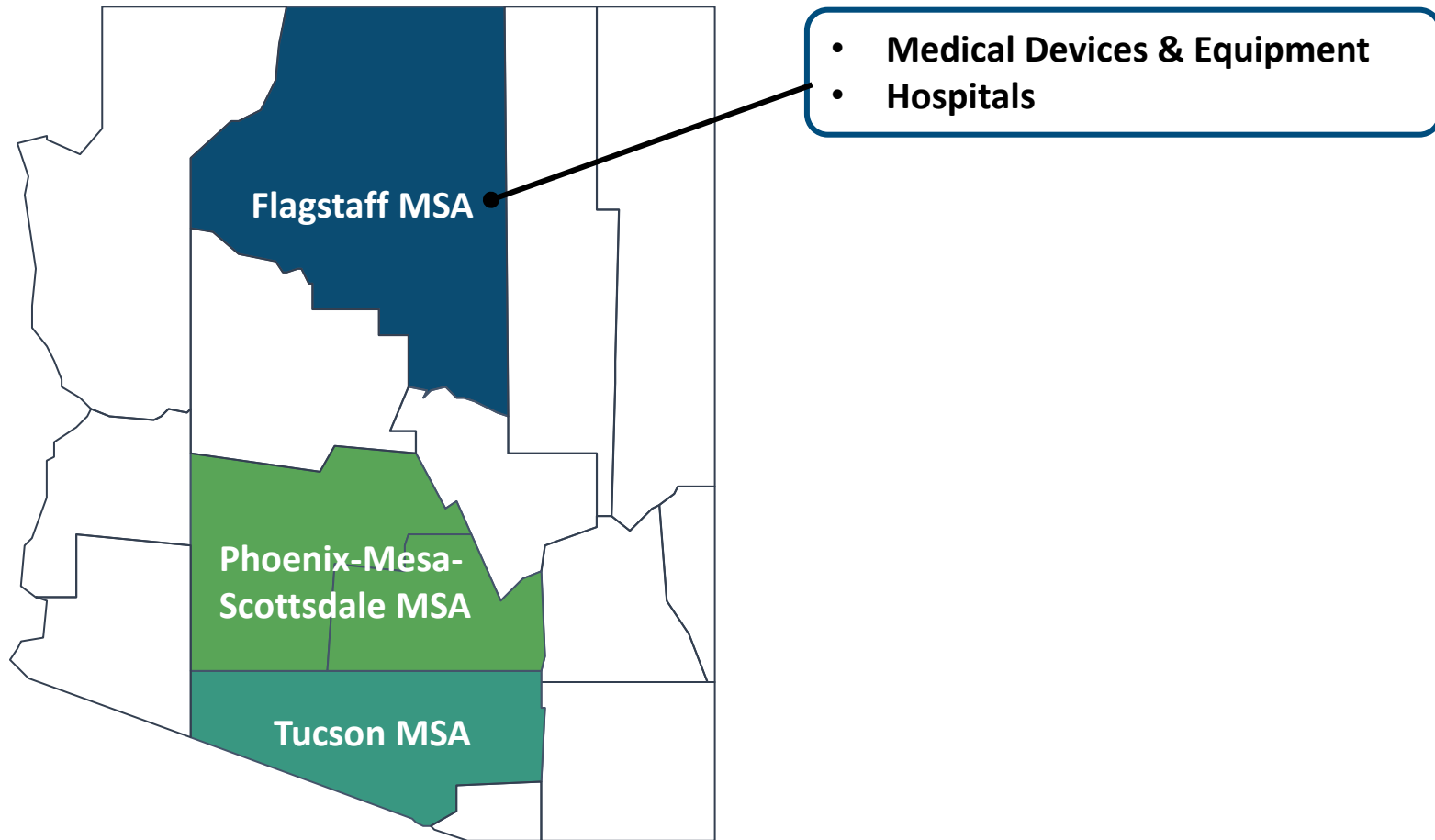


**34,000 AZ Non-Hospital Biosciences Jobs**

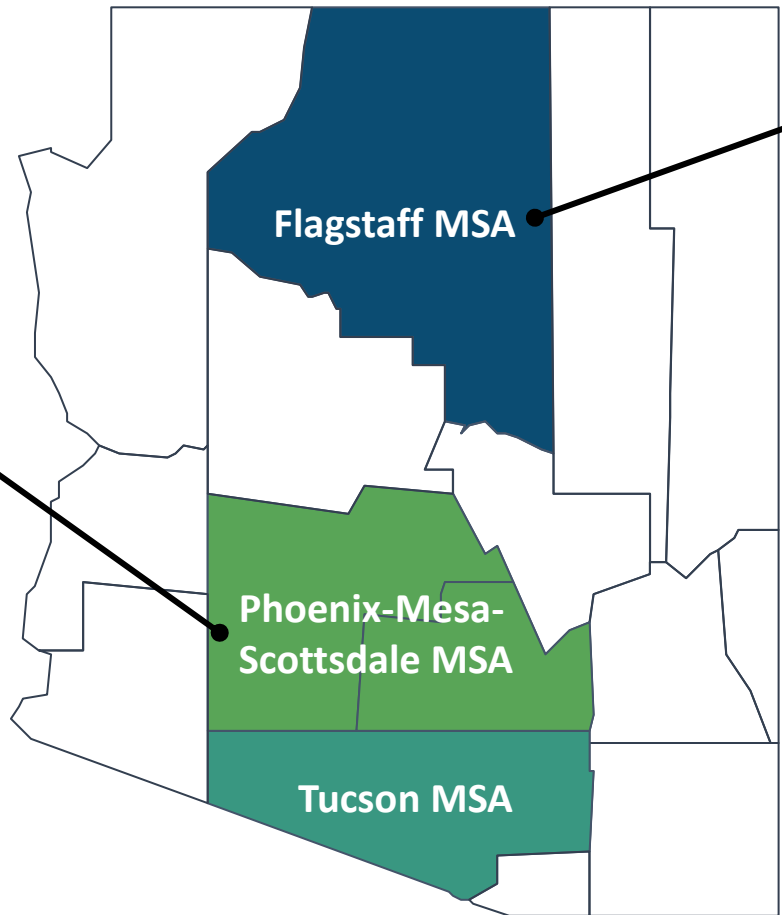




# Regional Bioscience Industry Strengths



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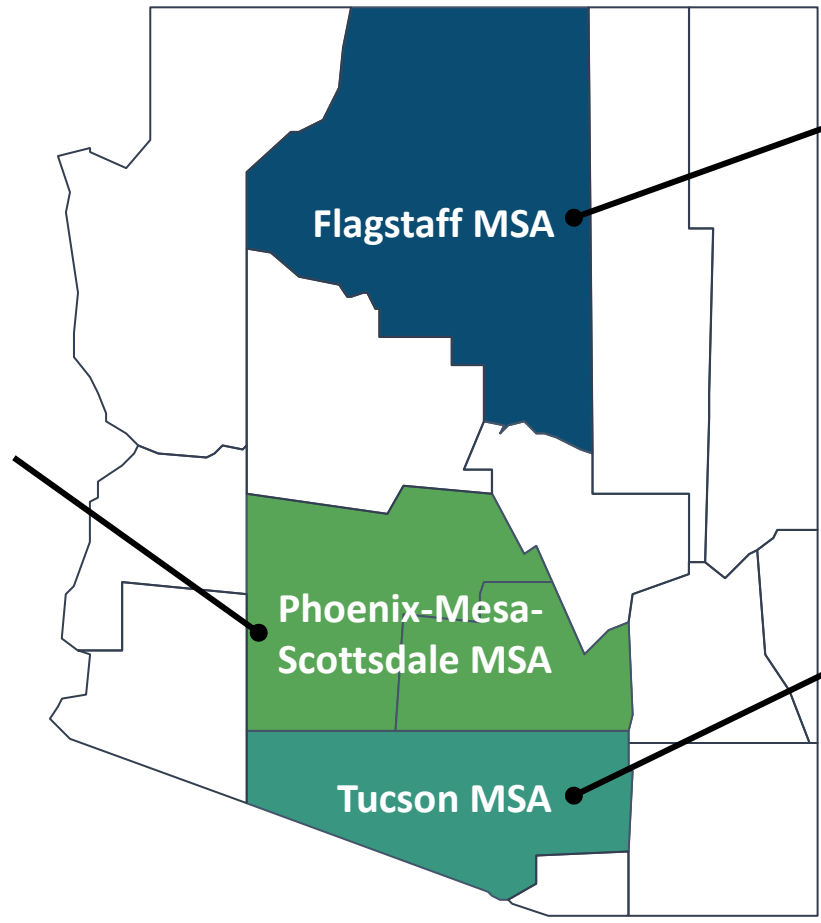


- Medical Devices & Equipment
- Hospitals

- Research, Testing & Medical Labs
- Bioscience-Related Distribution
- Drugs & Pharmaceuticals
- Medical Devices & Equipment
- Hospitals

# Regional Bioscience Industry Strengths

- Research, Testing & Medical Labs
- Bioscience-Related Distribution
- Hospitals
- Drugs & Pharmaceuticals
- Medical Devices & Equipment



- Medical Devices & Equipment
- Hospitals

- **Research, Testing & Medical Labs**
- **Hospitals**
- **Medical Devices & Equipment**

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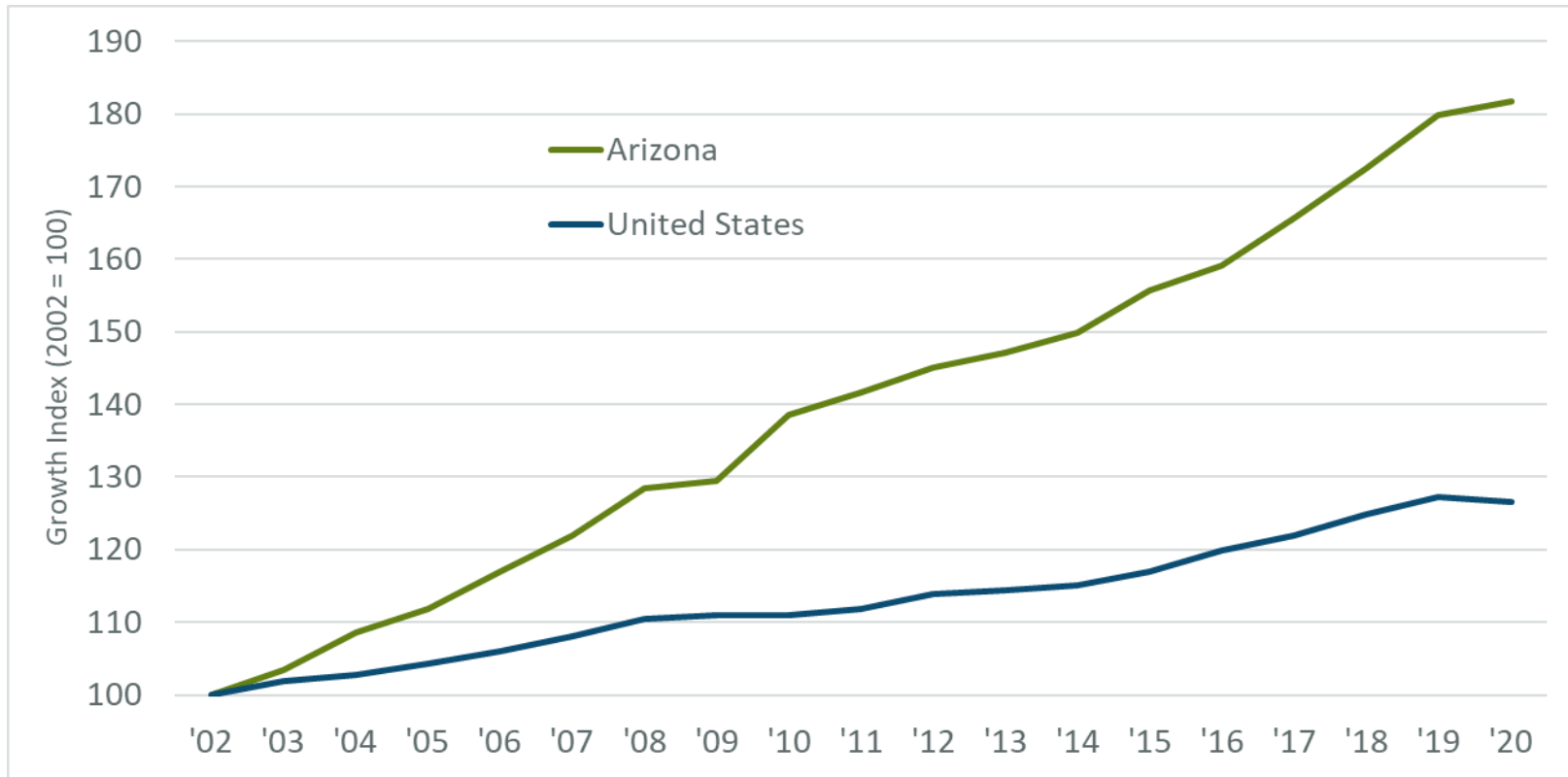


3. INVESTMENT – R&D Funding



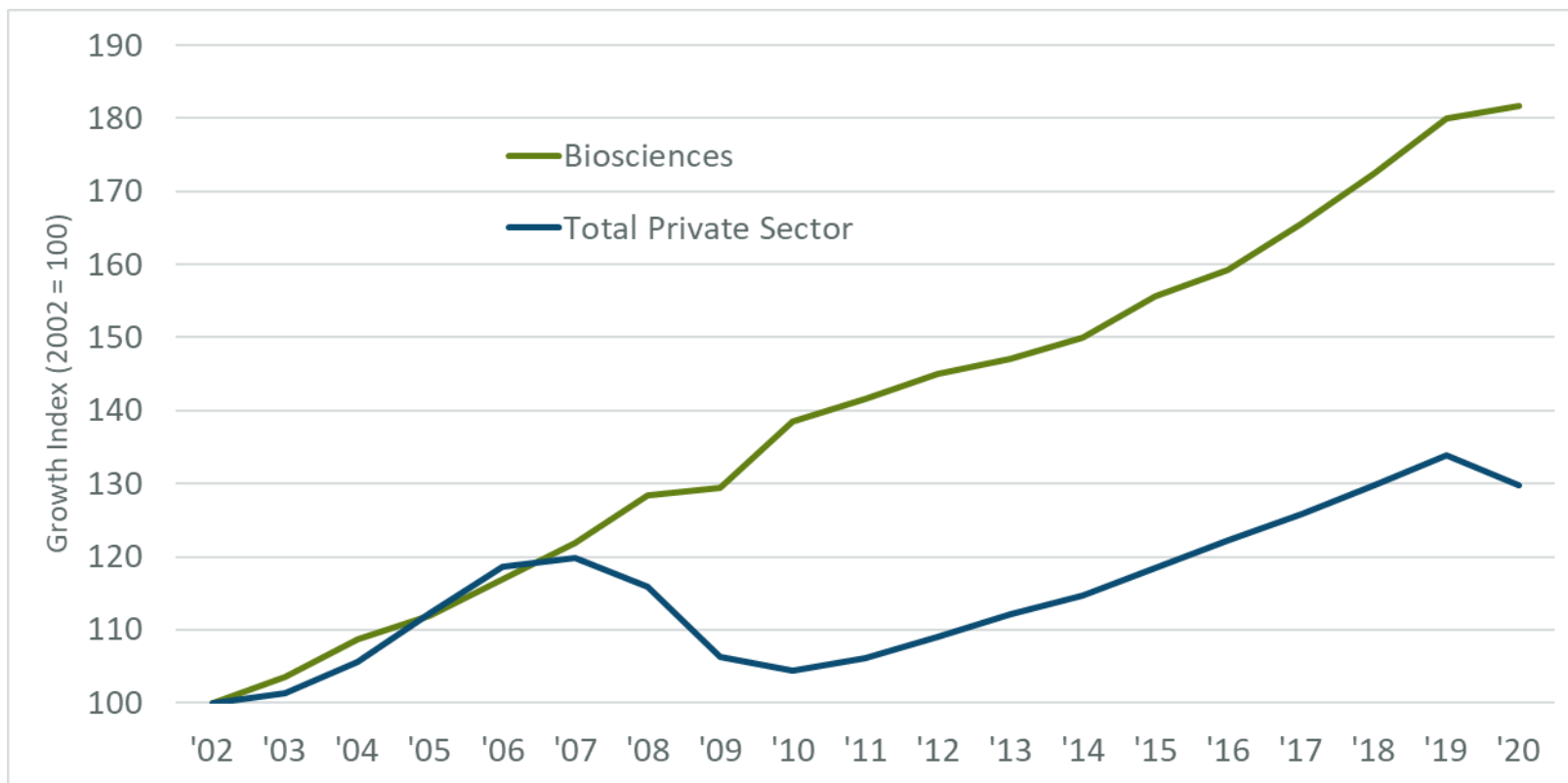
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# AZ & U.S. Bioscience Industry Employment



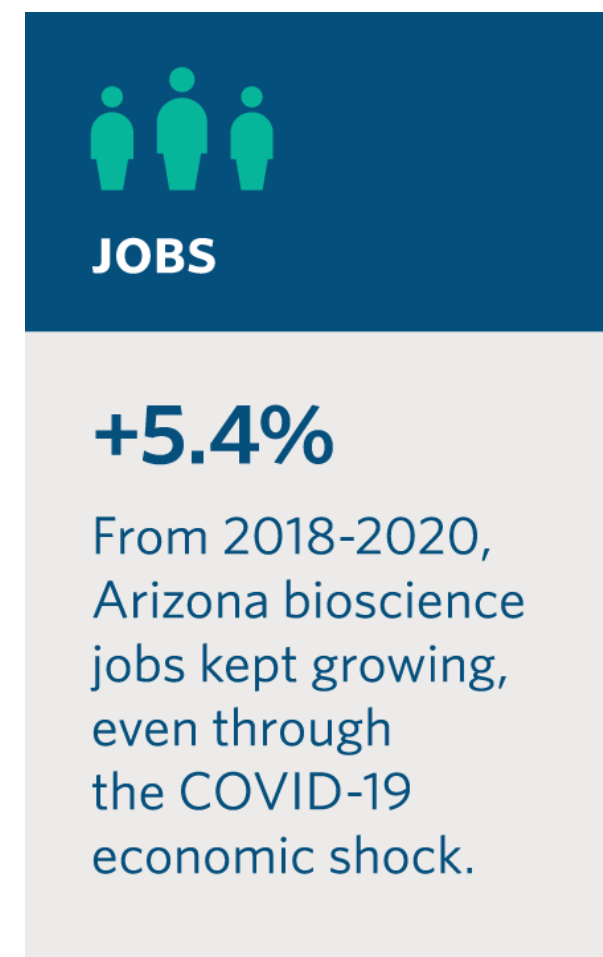
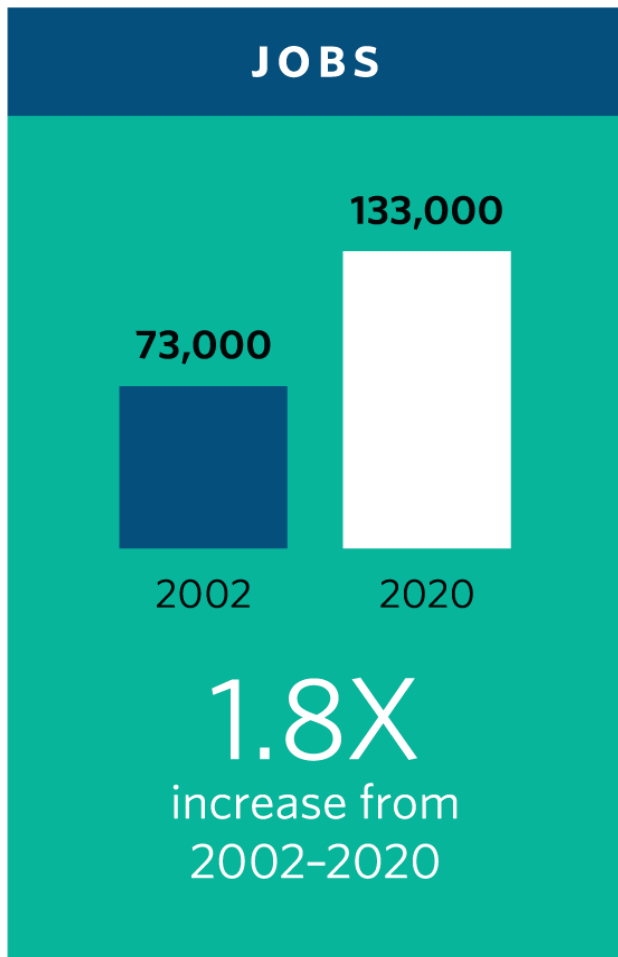
AZ Biosciences  
Employment  
Growth  
**40% Faster**  
than Overall US  
Employment

# AZ Private Sector Employment Trends



AZ Biosciences  
Job Growth  
**40% Higher**  
than Private  
Sector

# Healthcare Employment Data Snapshots



# Arizona Population Overview, 2022



## By The Numbers

- **7.4 million** – 14<sup>th</sup> most populous state
- Arizona population **grew 41%** since 2000, compared to 18% US growth
- People 65 and older: Largest population increase



## Arizona Counties

- **13 of 15** Arizona counties grew in population
- Largest increases in Maricopa, Pima, and Pinal counties

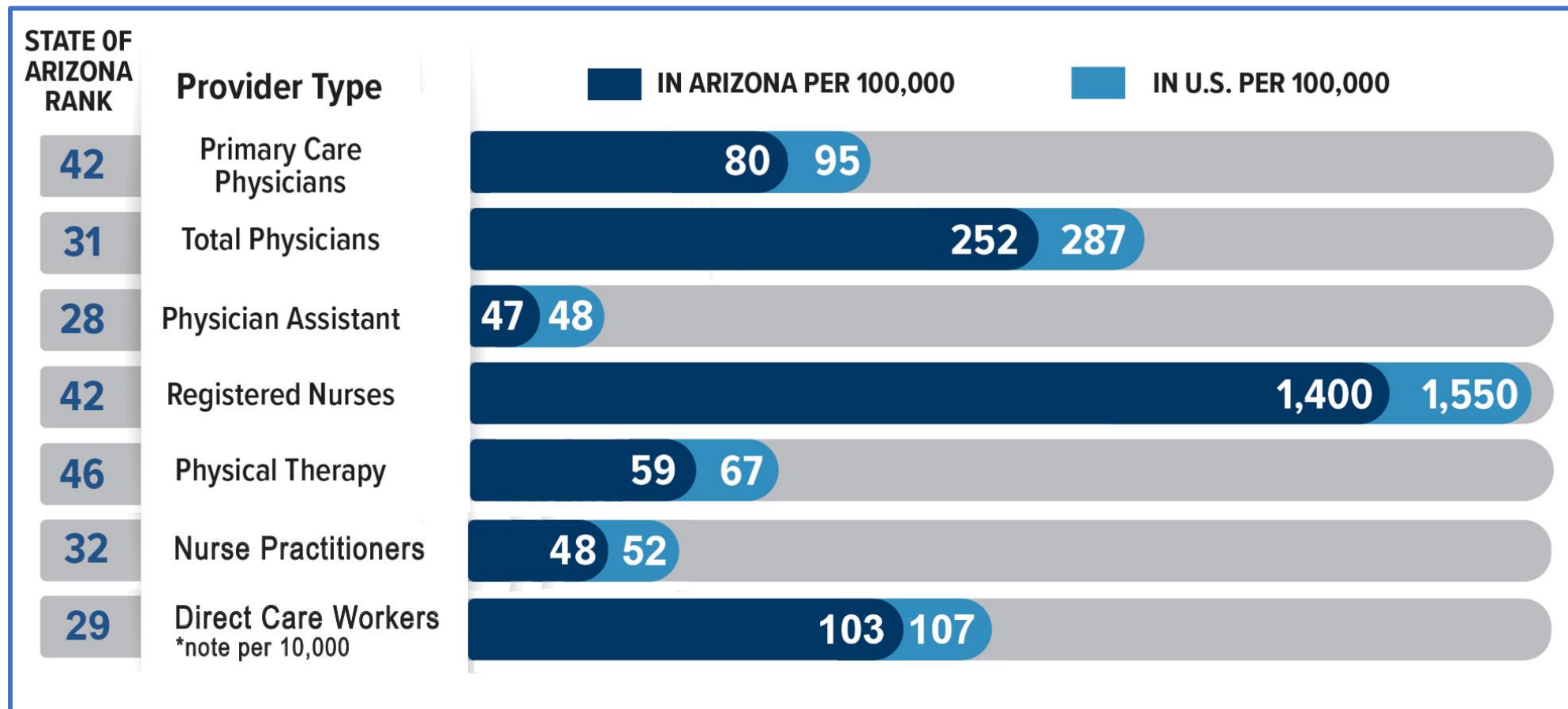


## Population Demands

- **All 15 counties** are documented Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas (MUAs)
- Primary Care: **Only 40%** of demand met



# Arizona Shortage of Healthcare Workers, 2022



# Arizona Shortage of Healthcare Workers

Healthcare  
workforce  
needs  
**+48.3%**  
**growth**



Arizona needs to train workers for healthcare jobs at growth rate more than twice the rate of overall employment (23.8%) in the coming decade

# AZ Education System Programs Striving to Meet Needs



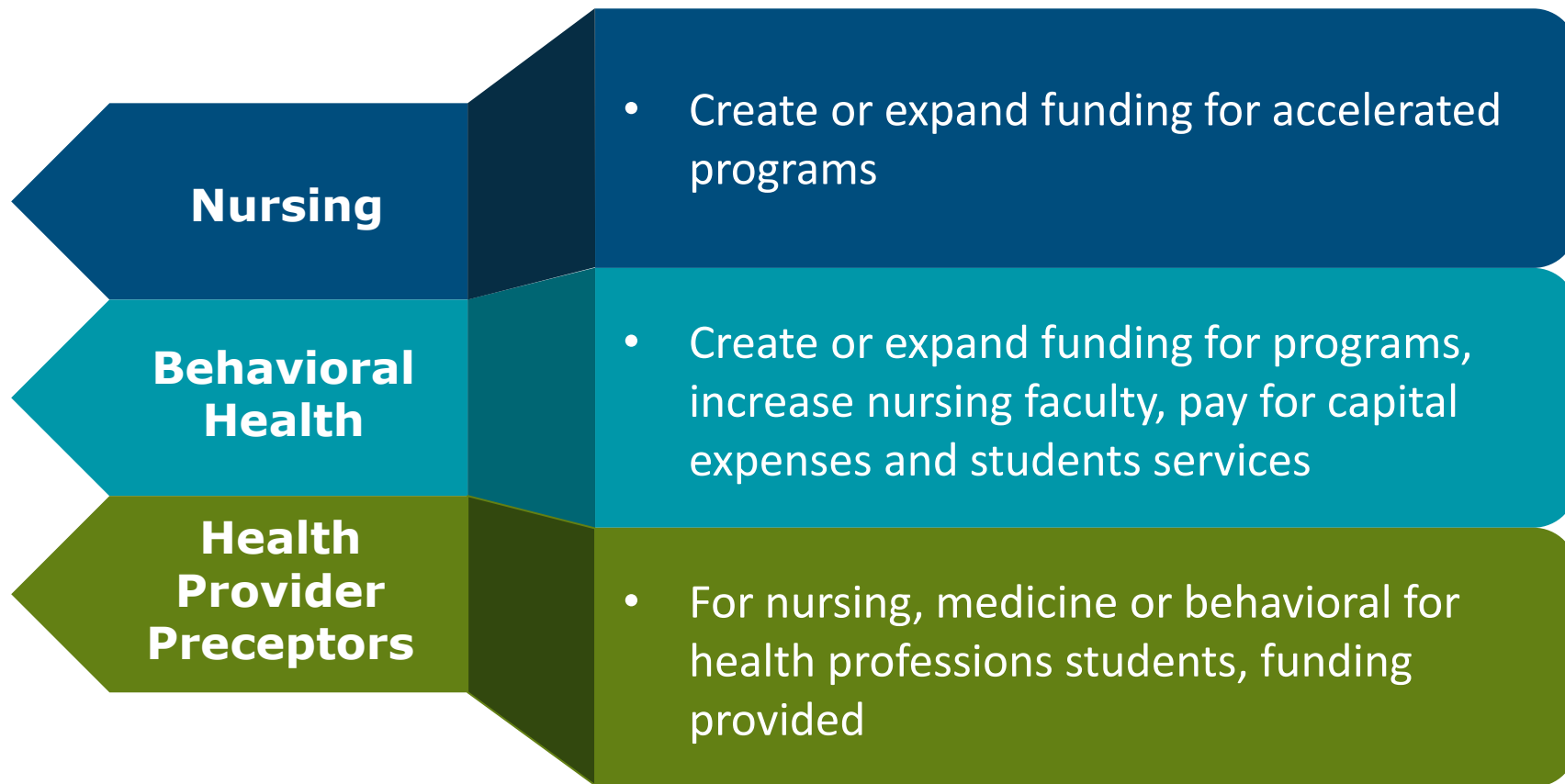
# Arizona Legislative Success: \$150M



**CLINICAL PROVIDERS**

**HB 2691**

Gov. Doug Ducey signed a bill in June investing nearly \$150 million over three years to address Arizona's dire nursing shortage.



# Other Arizona Legislative Success

Physician assistants;  
supervision; collaboration  
(HB2042)

- Modernizes physician assistant (PAs) practice laws
- Allows a PA to **bill and receive direct payment** for the professional services provided by the PA.
- Effective **January 1, 2024**

Graduate medical education;  
residency programs  
(HB2753), \$5M

- Covers costs to expand/support the number of **primary care residency programs** at qualifying community health centers and rural health clinics.

On-call OB / GYN health  
services  
(HB2563), \$7.5M, 3 yr

- Maintain service availability in **low-volume delivery areas and rural communities** for the unreimbursed cost necessary to maintain the availability of these services.

# Arizona Health Innovation Trust Fund (AHIT), \$200M, SB1084

**\$200M**  
**appropriation**  
to capitalize  
AHIT Fund to  
provide:

- **Entrepreneurial education, mentoring and support** to persons in the health innovation and health care delivery sectors
- **Workforce development programs** to support the **talent requirements** of employers in health innovation and health care delivery
- Programs that support the development and commercialization of health innovation by **Arizona businesses with less than 100 employees.**

Anticipate bill will be reintroduced next year – **need your support!**

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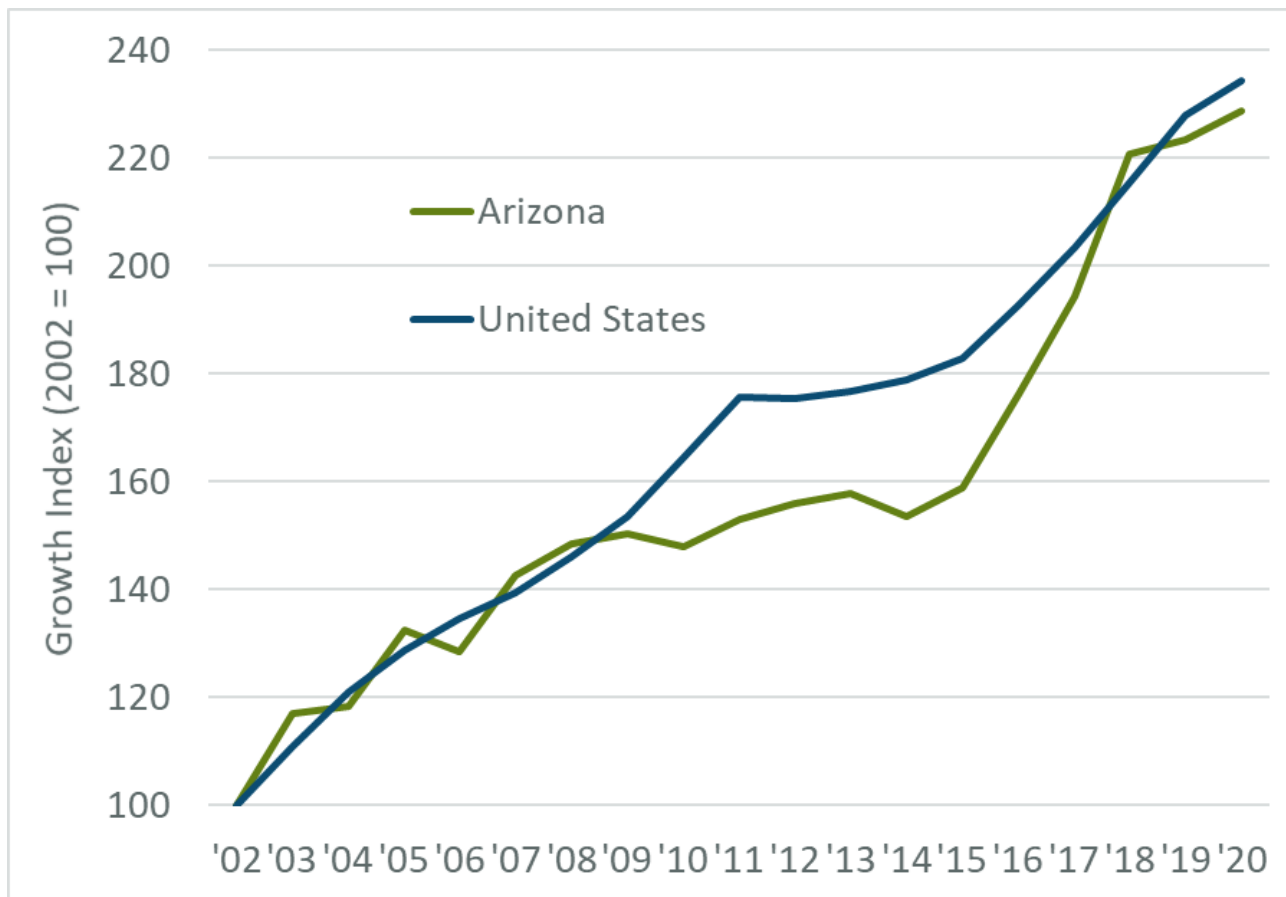


3. INVESTMENT – R&D Funding



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# AZ & U.S. Academic Bioscience R&D



AZ Academic  
Bioscience  
Growth  
**4% Slower**  
than US R&D



# AZ Bioscience University R&D Snapshot



**R&D**

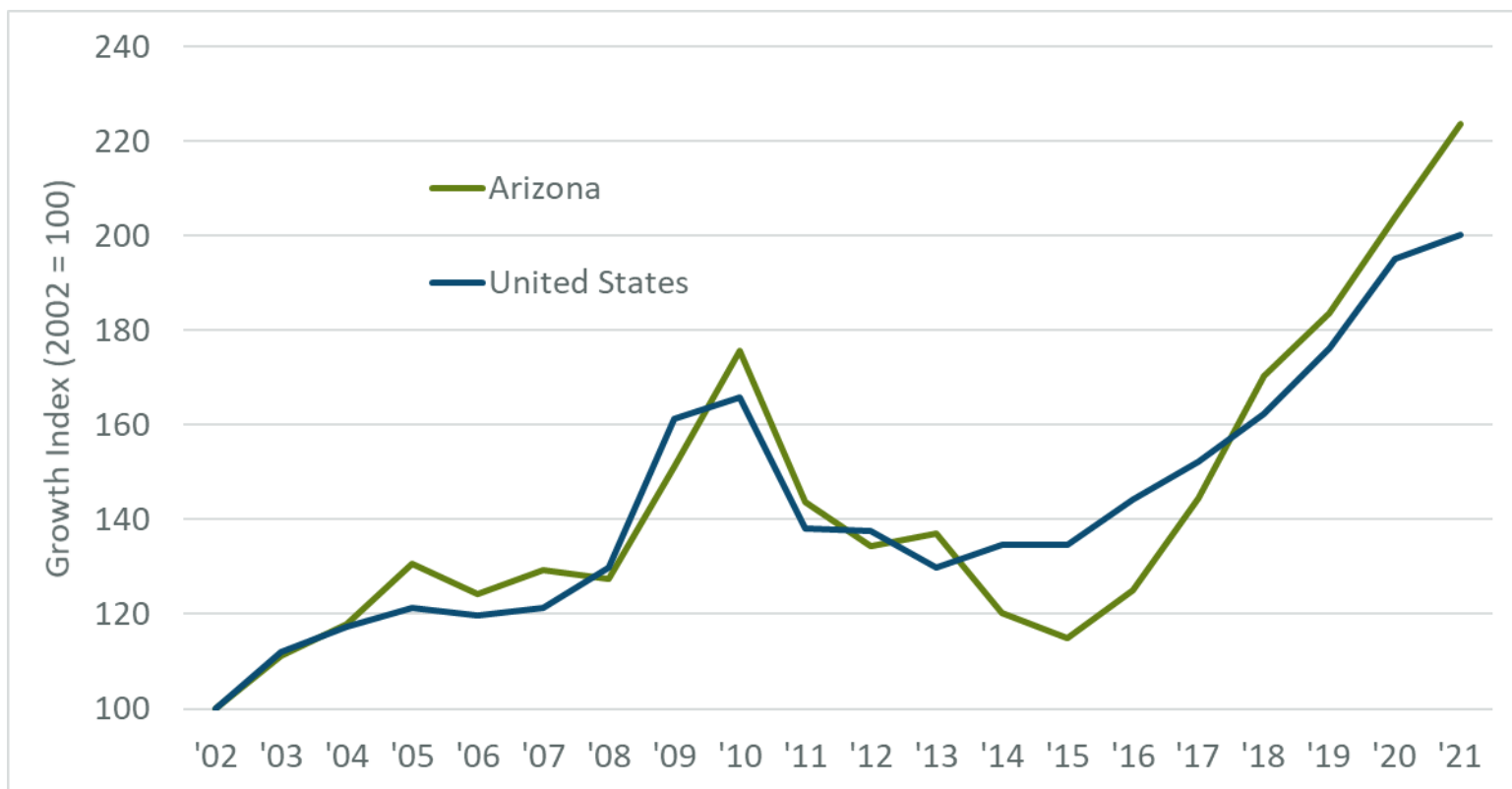
**+3.6%**

Bio R&D has never been greater at Arizona's universities, though it lagged the national growth rate from 2018 to 2020.

**R&D Progress Examples**

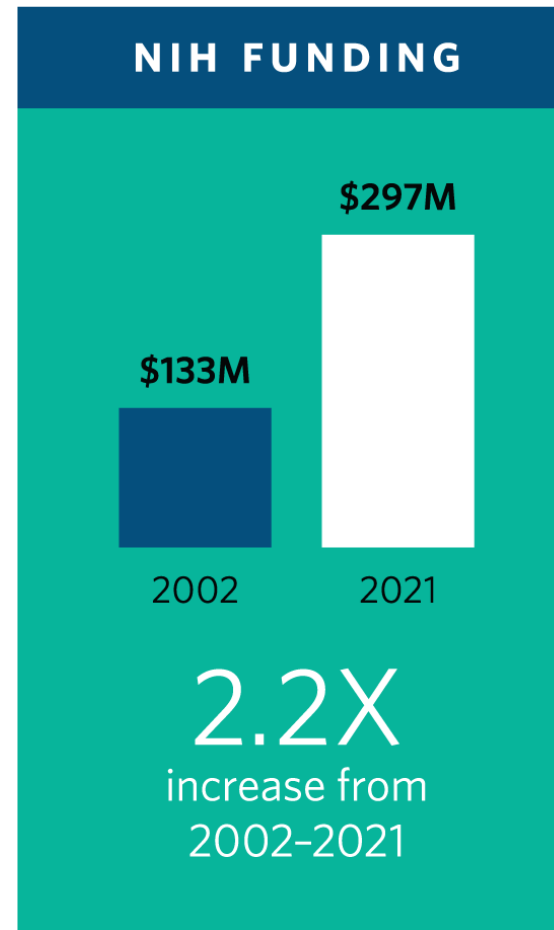
- ASU opens Health Futures building on Mayo campus
- University of Arizona College of Veterinary Medicine opens in Oro Valley
- Legislature passes TRIF extension

# AZ & U.S. NIH Funding Growth

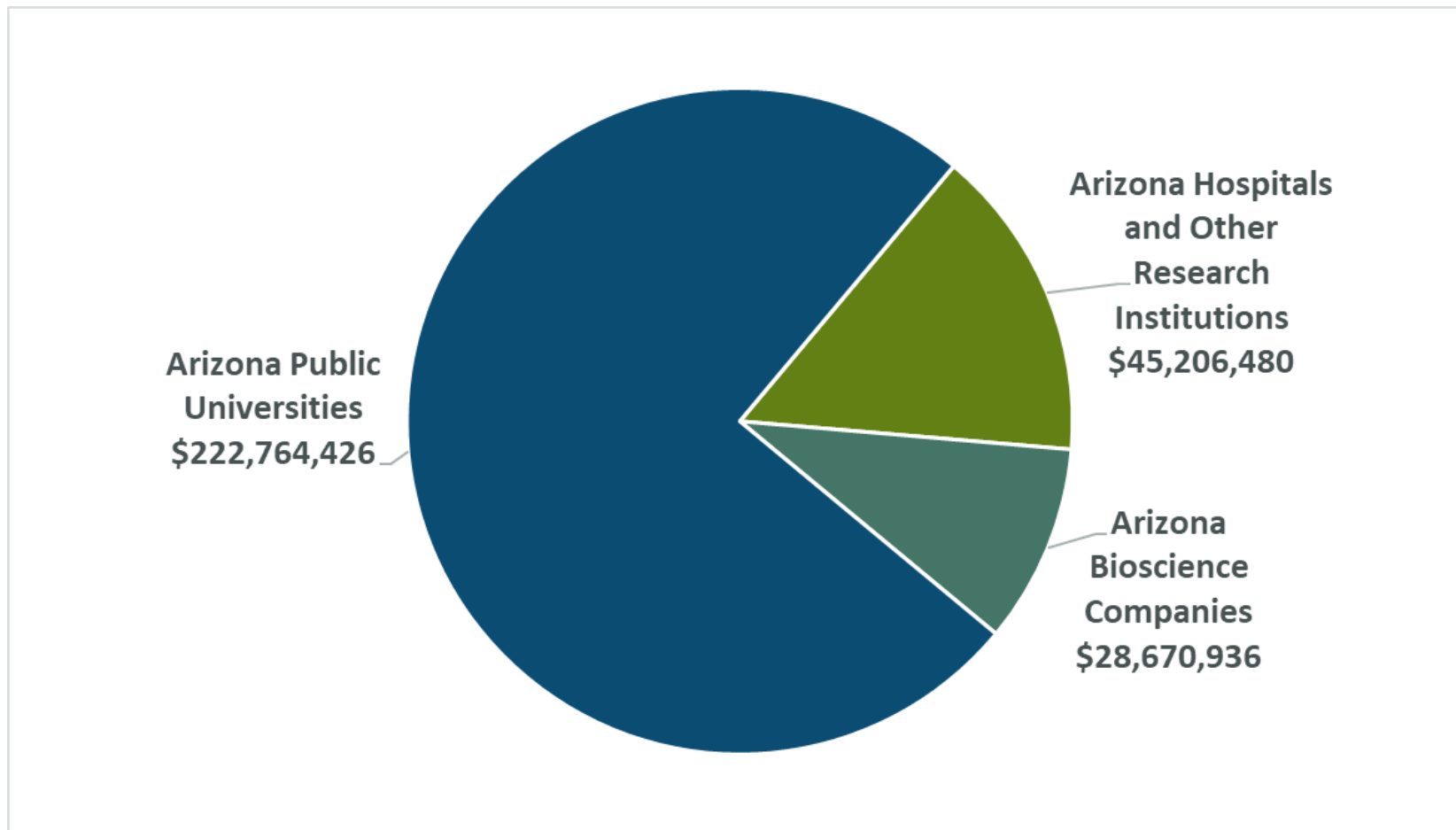


AZ Academic Bioscience Growth **11% Faster** than US NIH growth

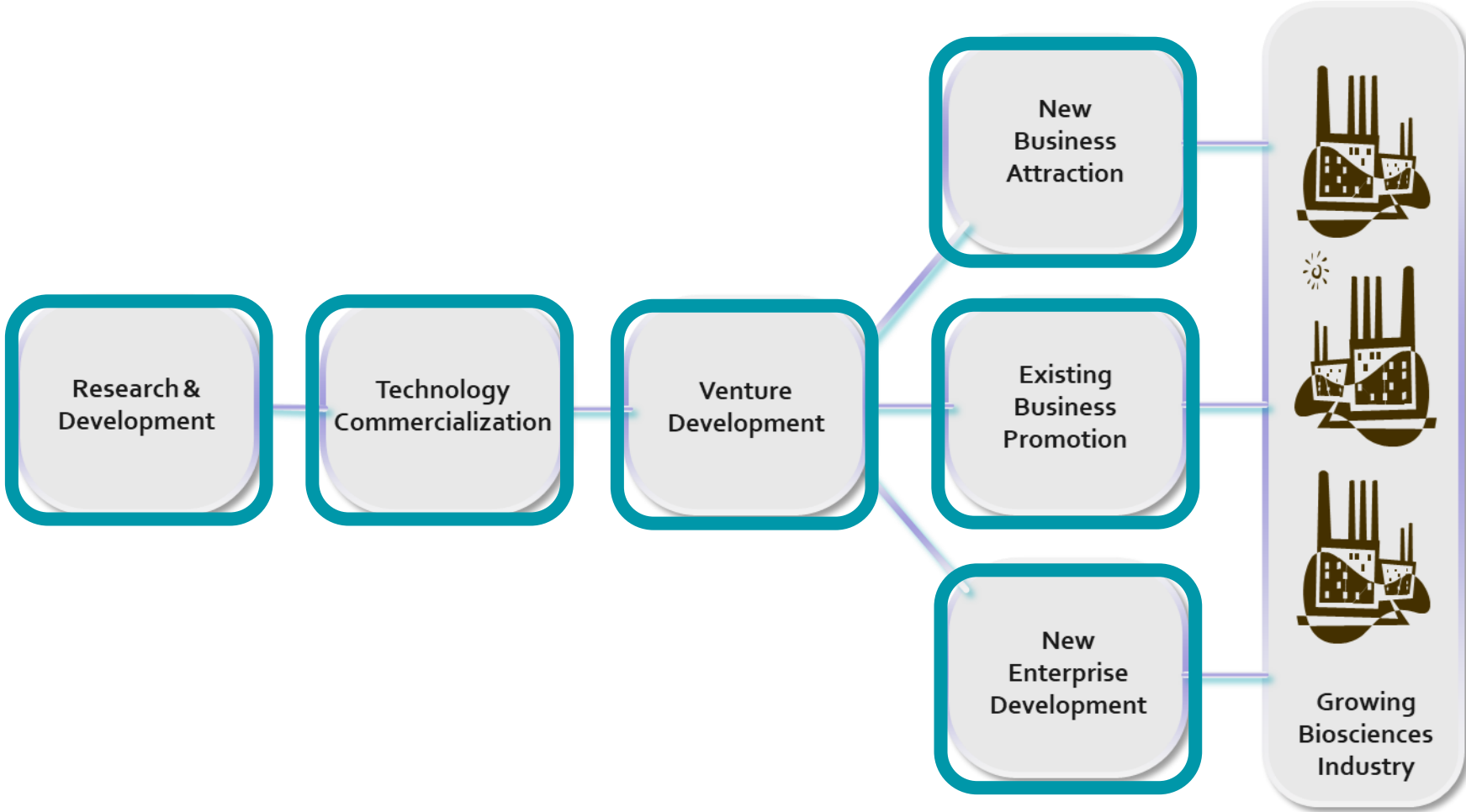
# AZ NIH Funding Snapshot



# AZ NIH \$297M Funding Distribution: FY 2021



# Innovation Ecosystem Drives the Bio Industry



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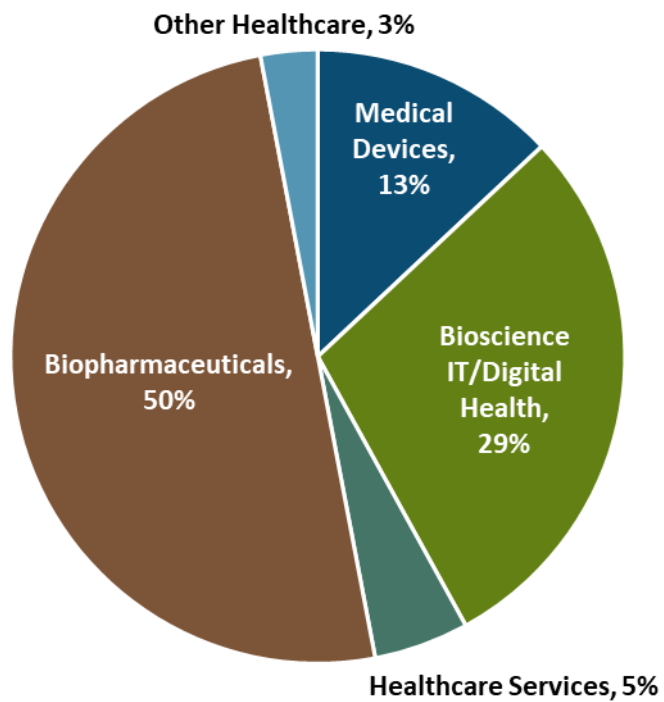
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# U.S. Bioscience Risk Capital Investments by Stage, 2016-2019

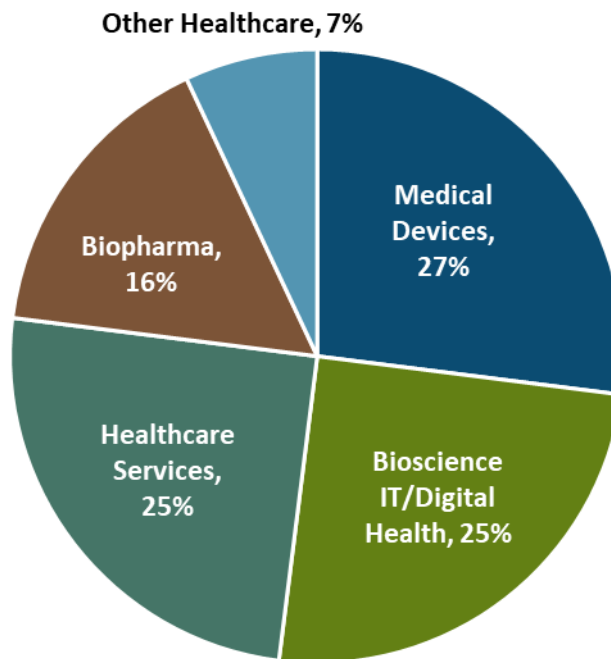
Stage	Number of Deals	Number of Companies	Total VC Investments (\$ Millions)	Average Investment Per Deal (\$ Millions)	Average Investment Per Company (\$ Millions)
Pre-Seed	2,782	2,039	\$155	\$0.06	\$0.08
Angel	1,847	1,465	\$3,025	\$1.64	\$2.06
Seed	1,465	1,231	\$3,287	\$2.24	\$2.67
Early Stage	3,150	2,350	\$44,797	\$14.22	\$19.06
Later Stage	2,312	1,555	\$51,465	\$22.26	\$33.10
<b>Total</b>	<b>11,556</b>	<b>6,660</b>	<b>\$102,728</b>	<b>\$8.89</b>	<b>\$15.42</b>

# Share of VC Investment by Bio-Related Industry, 2018-2021

## United States



## Arizona



## Arizona Strengths

- Medical Devices
- Bioscience IT/Digital
- Clinics/Outpatient Services
- Drug Discovery

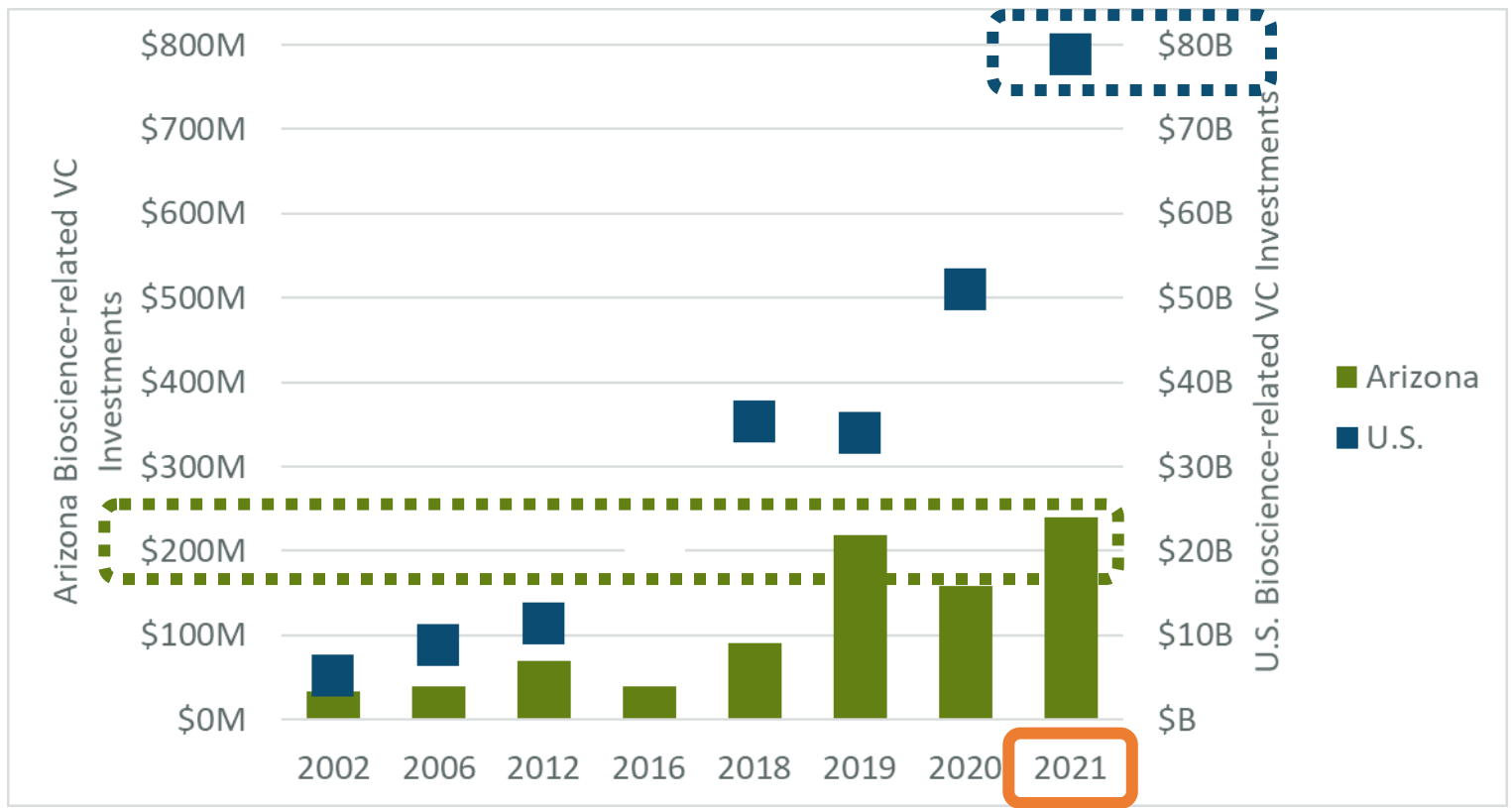


# AZ & U.S. Bio Venture Capital Investment

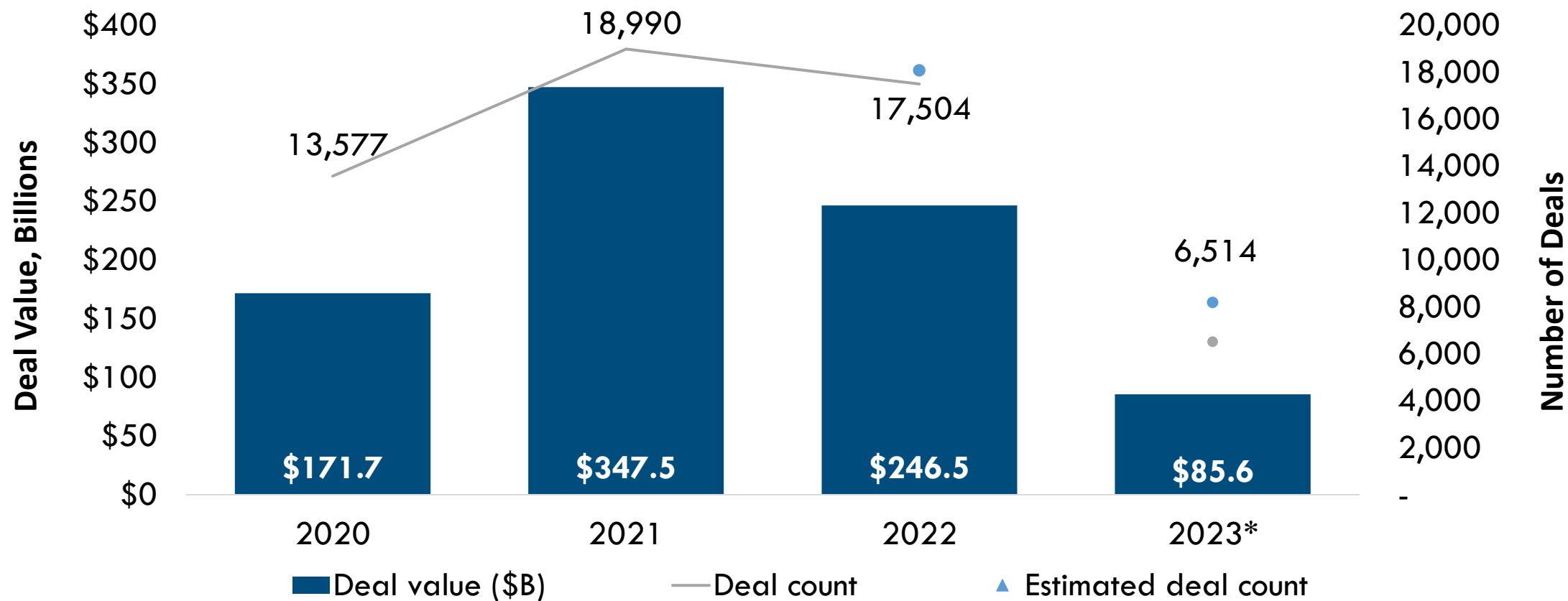
**VENTURE CAPITAL**

**\$240 million**

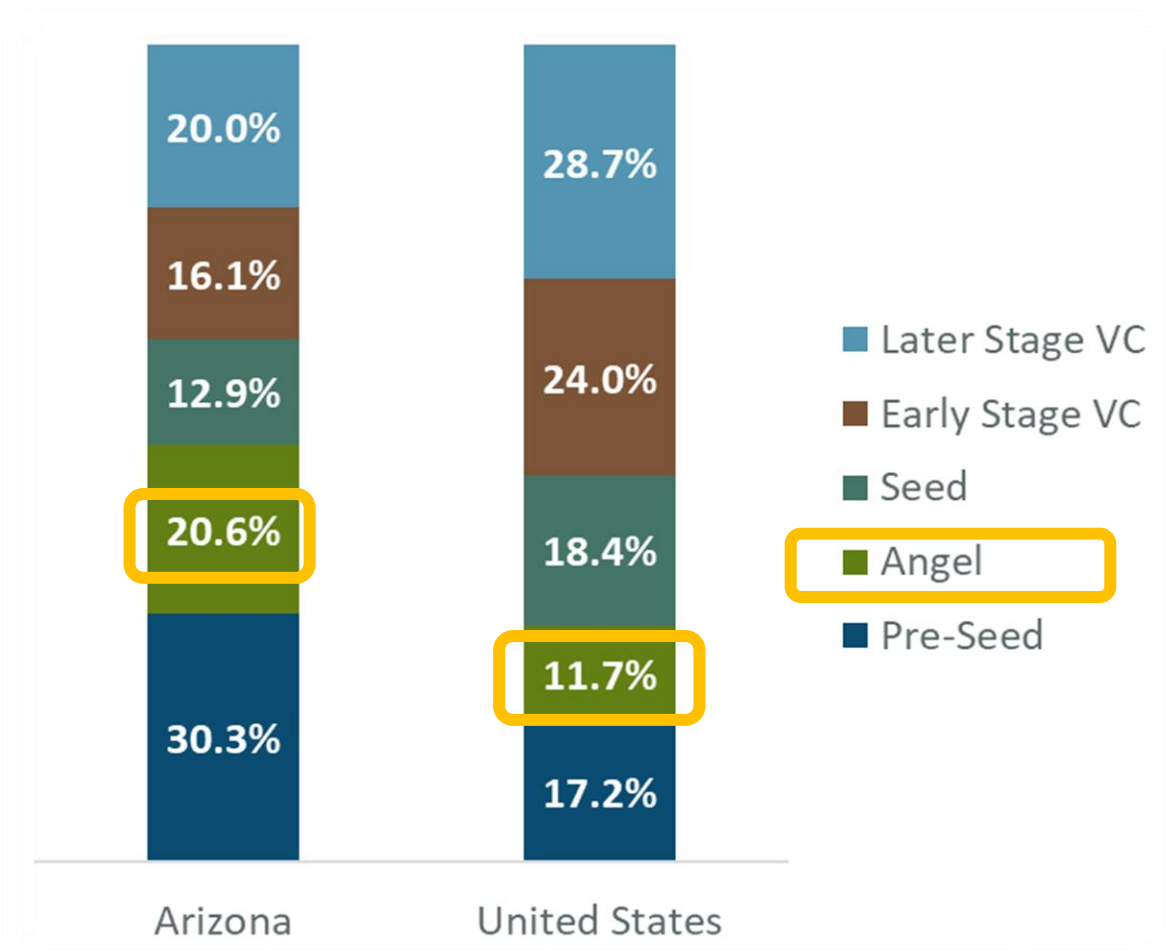
VC funding for bio firms in Arizona saw a record high in 2021, though nationally it surged even faster.



# US VC Deal Activity Trends, 2020 – 2Q 2023



# AZ & U.S. RISK Capital Deals by Stage, 2018-2021

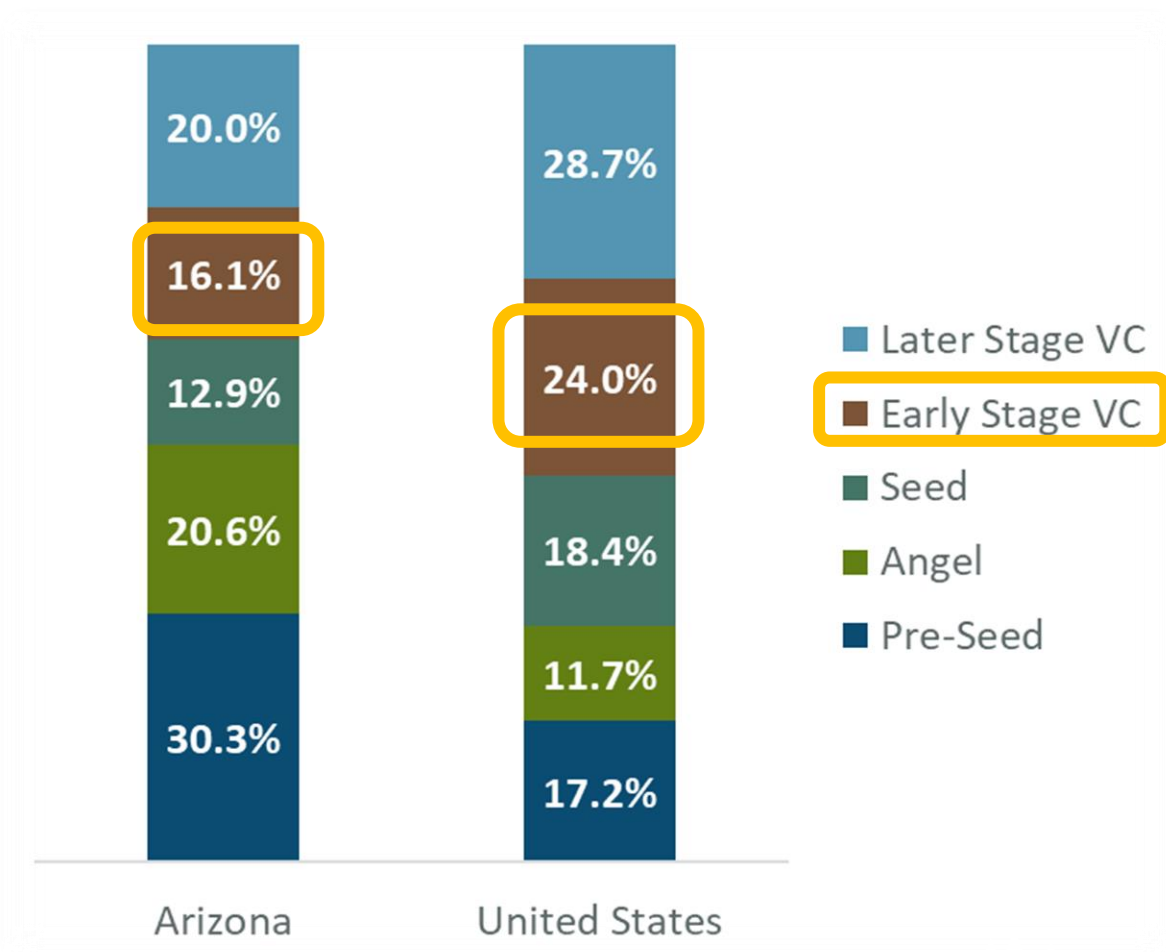


# Arizona Angel Funding Resources, 2020-2022



Criterion	Desert Angels Tucson	AZ Tech Investors (ATI) Phoenix
<b>Ranking</b>	#1 Southwest Region #5 Nation (# investments)	N/A
<b>Investment</b>	\$12.8 Million	\$6.5 Million
<b>Number of Deals</b>	24 New Companies 40 Follow-on Investment	32 New Companies 32 Follow-on Investment
<b>% Bioscience</b>	50%	50%
<b>Number of Members</b>	100	100

# AZ & U.S. RISK Capital Deals by Stage, 2018-2021



# U.S. Bioscience Risk Capital Investments by Stage, 2016-2019

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The logo for the Arizona BioPreneur Conference features the word "Arizona" in red, "BioPreneur" in red, and "Conference" in blue. A blue molecular structure icon is positioned to the left of the text.

# Thriving in a Desert Economy



Tentatively Scheduled:  
Friday, March 22, 2024  
Phoenix Bioscience Core

# Summary of Bioscience Industry Metrics of Success

Metrics	AZ Growth Since 2018	AZ Growth Relative to U.S.
Bio Industry Job Growth	↑	↑
Bio Average Wages	↑	↓
Academic Bio R&D Expenditures	↑	↓
NIH Funding	↑	↑
Bio Risk Capital	↑	↓



# Call to Action



## Workforce

- **Support** Arizona Health Innovation Trust Fund (AHIT), \$200M, SB1084
- **Support** 14 CTED High Schools via the \$400 Public School Tax Credit



## Investment

*(Risk Capital)*

- **Attend** Flinn Foundation's Arizona Bioscience Conference





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