The Latest in Arizona Biosciences

April 14, 2021
Eve Ross, J.D.
Chair
Arizona’s Bioscience Roadmap Steering Committee
Elected Officials

**Austin Aslan**
Flagstaff City Council

**Walter Blackman**
Arizona House of Representatives

**Rosanna Gabaldon**
Arizona Senate

**Laurin Hendrix**
Gilbert Town Council

**Daniel Hernandez**
Arizona House of Representatives

**Amber Liemann**
Maricopa City Council

**Bob Marsh**
Maricopa City Council

**Russell McCloud**
Yuma County Board of Supervisors

**Douglas Nicholls**
Mayor, City of Yuma

**David Ortega**
Mayor, City of Scottsdale

**Lynne Pancrazi**
Yuma County Board of Supervisors

**Jeronimo Vasquez**
Coconino County Board of Supervisors

**Corey Woods**
Mayor, City of Tempe
How We’ve Grown: Industry

Jobs

- 2002: 0 - 150,000
- 2018 (Latest Data): 0 - 150,000

Firms

- 2002: 0 - 3,000
- 2018 (Latest Data): 0 - 3,000

Average Annual Wages

- 2002: $0 - $90,000
- 2018 (Latest Data): $0 - $90,000
How We’ve Grown: Research

National Institutes of Health Funding

Academic R&D Expenditures

2002

2002

2019 (Latest Data)

2018 (Latest Data)

$0

$0

$250

$250

$500

$500

$750

$750

Millions

Millions
How We’ve Grown: Venture Capital

Deals

2002

Dollars

2002

2019 (Latest Data)
How We’ve Grown: University Tech Transfer

Bioscience Patents Issued

Licenses/Options Executed

Bioscience Startups
Arizona deemed ‘hot spot of the world’ amid virus surge
After The Crisis

Telemedicine Will Be Great After Covid, Too

Pandemic-fueled innovations like remote consultation and licensing reform are good for doctors, patients and public health.

By Virginia Postrel
March 31, 2021, 5:30 AM MST
Covid drives tech research in Arizona, from food robots to an app for loneliness

Judith Su, an assistant professor of biomedical engineering, runs the Little Sensor Lab at the University of Arizona. She’s working to develop ways to detect trace amounts of biomarkers for diseases — including Covid-19.

CHRIS RICHARDS/UNIVERSITY OF ARIZONA

By Claire Spinner – Cronkite News
Apr 10, 2021, 8:00am EDT
Thomas Osha
Board Chair
Global Institute on Innovation Districts
Senior Vice President, Innovation and Economic Development
Wexford Science and Technology
“...the Discovery and Production of New and Useful Things”
• Talent is the Real Currency of Innovation; Nothing Can Substitute for It and Everything Follows It

• Innovation Has Become Almost Entirely a Social Enterprise; Impacting the Nature and Environment of Research and Development

• Today's Employees Desire to Live, Work, Play, Learn in the Same Spatial Geography

• Capital Efficiency Demands Resource Concentration

• Creative and Productive Value of Real Estate Outperforms Economic Value

• Density is Destiny; Especially in Proximity to Intellectual Capital

• Innovation Can Must Create Social Equity and Economic Mobility
What Are The Impacts of COVID on Innovation Ecosystems?

- Accelerant for Already Emerging Trends
- Exposed Disparities in Health, Wealth, and Opportunity
- Forced Collaboration Simultaneously to Hyper-Local and Trans-National Scale
- Engaged Full Breadth of University Capabilities
- Highlighted Weakness in Research Supply Chain Design
- Reinforced the Criticality of Research and Scientific Inquiry to Global Safety and Well-being
- Prefaced the Effort Required to Tackle Grand Challenges
TREND 1: Talent Migrating Beyond Superstar Cities

- Outstanding University and Intellectual Anchors
- Robust Talent Markets
- Highly Collaborative Institutions and Companies
- Affordable Housing and Quality Schools for Millennial Families
- Cool Spaces and Activated Places
- Strong Transportation Connectivity to Major City
- Engaged Ecosystem Intermediaries
- Attractive Quality of Life and Appealing Amenities
- Favorable Tax/Regulatory Policies
• COVID heightened awareness of life sciences research as national security imperative
• Lab-based research cannot be conducted in remote environments
• NIH, NIAID, BARDA funding expected to increase for foreseeable future
• Speed-to-market will be enhanced through renewed focus on partnership + regulatory easing
• Supply chains will be shortened to prevent COVID-style disruption
• Ideation-research-cGMP-clinical trials in singular geography
TREND 3: Digital and Remote Medicine Moving to the Mainstream

- COVID era proved market acceptability (11% - 76%)*
- Payer/insurance recognition will drive explosion of investment in services for:
  - Enhanced care coordination
  - Improved outcomes and disease management
  - Better patient experience and convenience
  - Cost efficiency for provider and payer
  - Expanded access to care, resources, and expertise
- Potentially $250 billion in care could be virtualized in coming years*
TREND 4: Universities Improving Programs/Resources to Help Their Companies Become Investment Ready

- Venture Catalyst
- Deshpande Center (MIT)
- Core Labs – Washington University in St Louis
- Entrepreneurial Resource Centers
  - VentureLab (Penn)
  - Foundry (Purdue)
  - LaunchPad (U of Miami)
  - ONRAMP (U of Toronto)
- Living-Learning Communities – Lassonde Institute (U of Utah)
- Duke Ventures
- Polsky Center/Booth NVC (U of Chicago)
  - ASU Knowledge Enterprise
  - McGuire Center for Entrepreneurship
  - Moonshot @ NACET
TREND 5: Innovation Districts Highlighted as Platforms for Sustainable, Inclusive Economic Recovery

• University Engagement
  – Access to Talent (faculty & student)
  – Research and Technology Transfer
  – CORE Facilities, Labs and Equipment
  – Intellectual Capital

• Innovation Infrastructure
  Wexford FlexLabs
  – Adaptable Lab
  – Flexible Office
  – Maker Spaces
  – Public Convening Spaces

• Built Environment
  – Strong Public Realm and Commons Spaces Suited to Innovation Clusters
  – Space Matriculation for Growth and Scale
  – Lobbies and Public Spaces that Promote Collisions
  – Vibrant, Mixed-use Community Elements
  – Robust Events and Programming

• Community Building and Engagement
  – Community College and Work Force Development Pathways
  – Welcoming Community Spaces
  – Integrated with Adjacent Community Fabric
Innovation is NEVER about buildings.

IT IS ALWAYS ABOUT DIVERSE PEOPLE AND IDEAS.
The Building Blocks of Innovation District Life

UNIVERSITY ENGAGEMENT
The Building Blocks of Innovation District Life

- UNIVERSITY ENGAGEMENT
- SUPERIOR BUILT ENVIRONMENT
The Building Blocks of Innovation District Life

- Innovations Infrastructure
- University Engagement
- Superior Built Environment
The Building Blocks of Innovation District Life

- Community & Economic Inclusion
- University Engagement
- Superior Built Environment
- Innovation Infrastructure
The Building Blocks of Innovation District Life

- Corporate Partnership
- University Engagement
- Superior Built Environment
- Innovation Infrastructure
- Community & Economic Inclusion
The Building Blocks of Innovation District Life

- Innovation Infrastructure
- Community & Economic Inclusion
- Corporate Partnership
- University Engagement
- Financing & Capital Availability
- Superior Built Environment
The Building Blocks of Innovation District Life

- Programming
- University Engagement
- Superior Built Environment
- Innovation Infrastructure
- Community & Economic Inclusion
- Financing & Capital Availability
- Corporate Partnership
If you’ve seen one

INNOVATION DISTRICT...
Wexford Science + Technology

15
Years of Experience Working with Universities

15
Knowledge Communities (Developed or Under Development)

27
Institutional Relationships

8.2 M+ SF
Developed or Under Development
Phoenix Biomedical Campus

- Arizona State University
- University of Arizona
- Northern Arizona University
- T-Gen

$1.3 billion in 2018 research expenditures
Part of 30-acre Phoenix Biomedical Campus

First of Multiple Development Phases

227,113 SF of wet lab and research, support, and collaboration space
Innovation Anchors

• Arizona State University – Edson Entrepreneurship + Innovation Institute

• CEI LabForce

• Growth Companies

• Market Leaders

• University Start-ups
Platform for Growth and Integration
Knowledge Community Success Factors

- Viewed as critical element of university strategy: (faculty and student recruitment, expanded research enterprise and commercialization, corporate collaboration, entrepreneurial activity, etc.)
- Functions as central element of region’s innovation ecosystem
- Creates/leverages urban elements (housing, retail, hotel, green space) into walkable community and activated public realm
- Upwardly scaleable (150,000SF - >1 million SF) to create density and amenities
- Vision shared by civic, governmental, business, and private support structure
- Governance structure provides for swift decision-making, sustainable financial performance, advocacy activities, community engagement and place making
- Represented by a visible, dedicated leader committed to the project’s success and growth
- Delivers pathways and programs to ensure participation for all
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Tammy McLeod, Ph.D.
President & CEO
Flinn Foundation
Southern Arizona
Southern Arizona Update

Integration & Coordination Driving Progress in Southern Arizona

Matt Lingard, PhD
Bayer Crop Science’s Marana, AZ
Corn Product Development Center
Southern Arizona Integration & Coordination Goal

Integration & Coordination

Business Leadership
Entrepreneurs
Incubators, Accelerators
University research
Patents & Commercialization
Foundations & Non-profits
Investors
Healthcare Providers
Government
IBM Tucson
Local Inventors achieved 400 U.S. patents in 2020.
Venture Capital

Local Investors
Bluestone Ventures
Desert Angels
DVI Equity Partners
UA Venture Capital

Examples of Local Investments
Pyx Health – Lawlytics – Lunewave – Croptrak – OTHERS
A COMMUNITY HUB SERVING ALL TYPES OF ENTREPRENEURS

Discovery Events & Networking
Education & Mentorship
Resources & Referrals
Responsive Special Initiatives

START SOMETHING AMAZING!
Think Big. Take Risks. Build Smart
The University of Arizona is critical to the region’s Bioscience Ecosystem
UACI is expanding its footprint across Southern Arizona

The Refinery
Opens fall 2021
UArizona’s Innovation & Commercialization Hub
Bridging resources & accelerating inventions

UACI at Oro Valley
Opened Dec 2020
Dedicated to advancing bioscience startups
UA Center for Innovation (UACI) – record number of current startup in program – 47 startups
Tech Launch Arizona: Driving Impact from UArizona Research & Innovation

- Launched 10 life science startups in the last year... and 51 since 2013
- Over 60% of current startup pipeline is life science related

Botanisol Analytics: rapid optical digital virus screening

SaiOx Inc: non-invasive ventilation
TRIF-leveraged UArizona COVID-19 research and innovation

Quick response
- Diagnostic test kits
- 3D-printed masks
- Statewide antibody testing
- Wastewater testing
- New respiratory-assist device
- Tracked virus evolution/transmission via sequencing
- COVID Watch exposure notification app
- Data analysis to inform COVID-19 public policy
- Drug treatment discoveries

Robust impact
- ~$53M in new awards targeting COVID-19
- ~$300M in new bids
- Leveraged BSL3, lab, & core infrastructure
- Rapid turnaround seed grants
- 250-member faculty working group (Immunology, virology, epidemiology)
Thank you, Flinn Foundation

Your Partnership is Critical to the success of Southern Arizona’s Bioscience Ecosystem
Northern Arizona
Yuma Region
Metro Phoenix