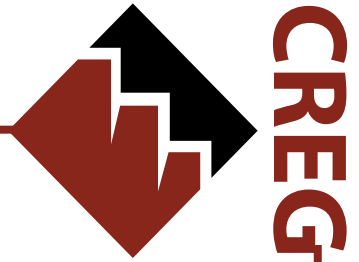


MARKET SNAPSHOT

Optics Industry

June 2018



See for Yourself: Tucson, Arizona's Optics Advantage

This *Market Snapshot* will give anyone who is starting, relocating or expanding their optics business a variety of reasons to put Tucson, Arizona on the short list of potential cities. In fact, you'll be in very good company if you do.

What Factors are Involved in Promoting a Successful Community?

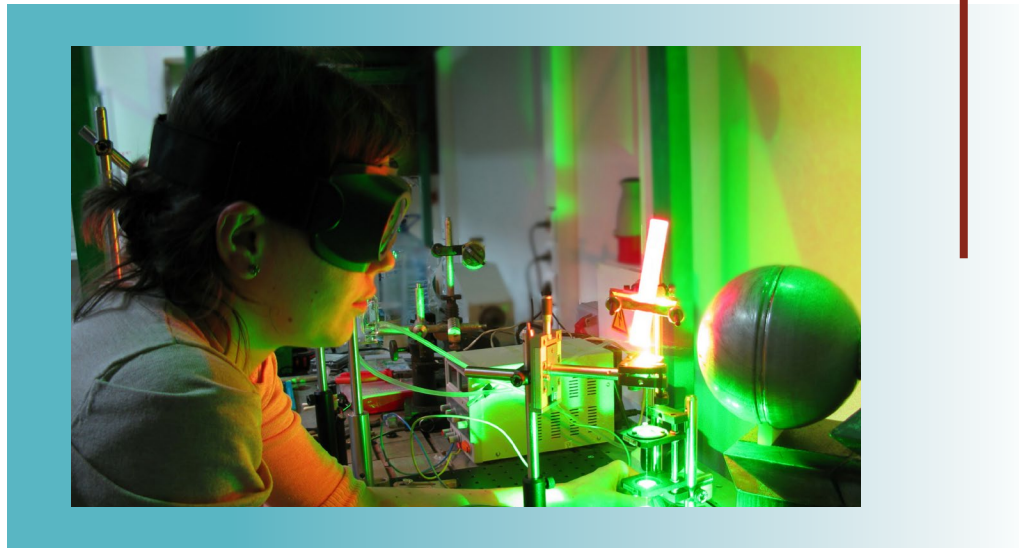
As in many technology segments, companies increase their likelihood of success when a strong research presence exists along with a community excited about innovation. An additional factor of plenty of opportunities to partner and collaborate with others, within and outside of that segment, creates a robust business ecosystem.

Tucson, Arizona checks all the boxes.

Key Facts about the Optics Industry

There is no clear definition of the photonics market. Optics technology is present in many photonic or photonic-enabled products and services. The International Society for Optics and Photonics (SPIE) monitors market data for each.

- Global sales of photonic-enabled services (internet, streaming video, audio cloud storage services, e-commerce) are over \$10 trillion. Photonic-enabled products (lighting, vision systems, autonomous vehicles, data centers, smart phones, medical imaging) have global sales of over \$1.4 trillion. (SPIE.org 2018)
- Photonics is a major enabling technology for the emergence of most new "smart" systems with applications appearing in every-day life to the most advanced science.
- Over 3,000 companies worldwide are involved in photonics and optics with about a third of them located in North America. (SPIE.org 2018)
- Growth in emerging markets, legislation regarding energy-efficient equipment and the need for high-speed data transfer and storage systems are the primary drivers for the photonic markets. (Mordor Intelligence 2017)



Market Snapshot courtesy of:



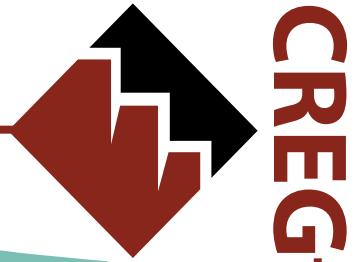
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Optics Industry: Tucson, Arizona – See for Yourself



Why Tucson?

Availability of Federal and State Government Funding

- SBIR (Small Business Innovation Research) grants have been awarded to many Tucson-based companies.
- ACA (Arizona Commerce Authority) provides numerous funding opportunities in the form of grants and loans.

Strong Research Presence at the University of Arizona

- The University of Arizona (UA) College of Optical Sciences is known worldwide as the *premier educational and research institution in optics and photonics* and educates more students in optics than any institution in the United States.
- Tech Launch Arizona provides expert assistance and support to UA faculty commercializing their inventions.
- The Bio5 Institute, a renowned UA-affiliated unit, helps to “harness the collaborative power” of its five core disciplines—agriculture, engineering, medicine, pharmacy and science—to “find solutions to complex, biology-based challenges affecting health and environment.”
- National Science Foundation ranked the UA No. 19 among all public universities for R&D expenditures.

Reciprocal Partnerships & Relationships

- The UA College of Optical Sciences, UA Tech Parks and Tech Launch Arizona
- The Optical Society (OSA), SPIE, National Photonics Initiative, National Center for Optics & Photonics Education, American Precision Optics Manufacturers Association
- Private Tucson companies, including 4D Technology, Photometrics, Spectral Instruments, Tucson Optical Research Corp., NP Photonics, Edmund Optics, Honeywell and Raytheon.

“There are so many different optical specialties and experts here in Tucson that I rarely have to look outside our area to solve a particular optics-related problem when providing a solution for my customers.”

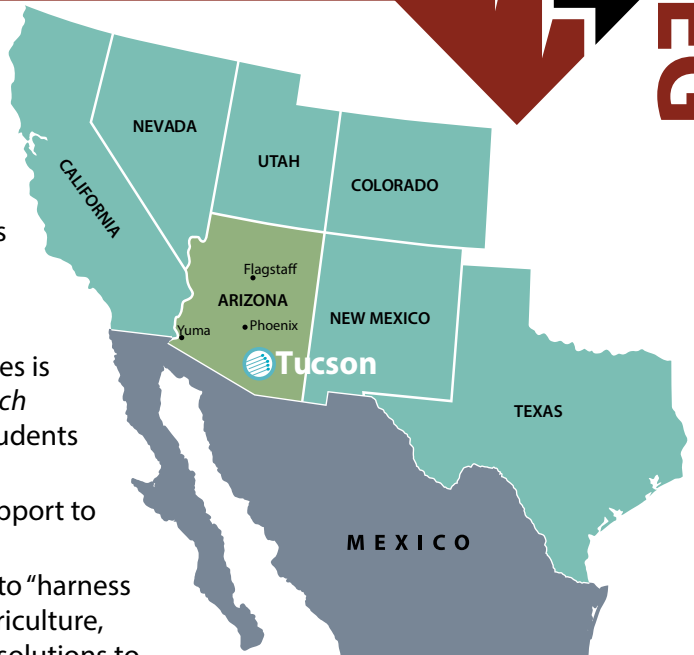
...Jerry Rubino, Founder Photonics Automation Specialists

A Rebirth of Optics in Tucson

Tucson has recently experienced a rebirth of its former Optics Cluster. The Arizona optics community had always been well represented in Tucson since 1992; however, in January 2017, the creation of Optics Valley, a standing committee of the Arizona Technology Council, has put Tucson on the map. In early 2018, there were almost 70 member companies, over 50 of them in Tucson, and growth is expected to be brisk.

Optics Valley hosted its first Arizona Photonics Days, a three-day conference in 2018 that drew people from around the world, many of whom also attended the Photonics West conference in California. (<https://www.aztechcouncil.org/optics-valley-arizona/>) Optics Valley is helping to build worldwide strategic collaborations and partnerships through its mission to “Catalyze, Convene and Connect” optics, photonics and astronomy with Arizona business interests.

Want more information that proves Tucson, Arizona is a great place for Optics Companies? Ask for the optics industry white paper: “See for Yourself: Tucson, Arizona’s Optics Advantage,” michael@cretucson.com



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