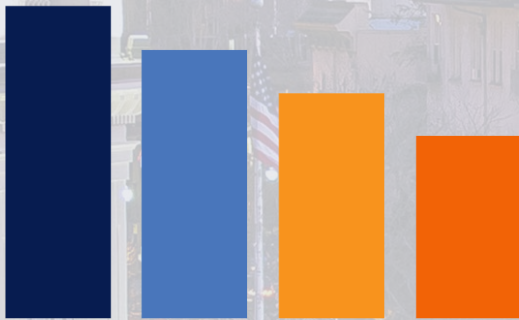


INNOVATION PROFILE



Welcome to the 2024 Innovation Profile for Santa Cruz County. This report provides a brief glimpse into the entrepreneurial ecosystem and business formation trends that bolster our community's economic strength and growth. New businesses play a crucial role in creating jobs and enhancing productivity, significantly influencing the economic landscape of Santa Cruz County.

Our region continues to be a robust center for innovation, consistently offering new opportunities despite evolving economic conditions. This resilience highlights the distinct economic characteristics and opportunities that Santa Cruz County provides for both existing and emerging businesses.

This section offers a snapshot of key trends, such as the steady innovation indicated by patent applications and the adaptive strategies in venture capital investments.

Understanding the local business environment is crucial for all stakeholders. This report provides the insights necessary for strategic planning, aiming to create a supportive environment for new ventures and sustain the growth of established businesses. Our goal is to advance the economic and innovative potential of Santa Cruz County.

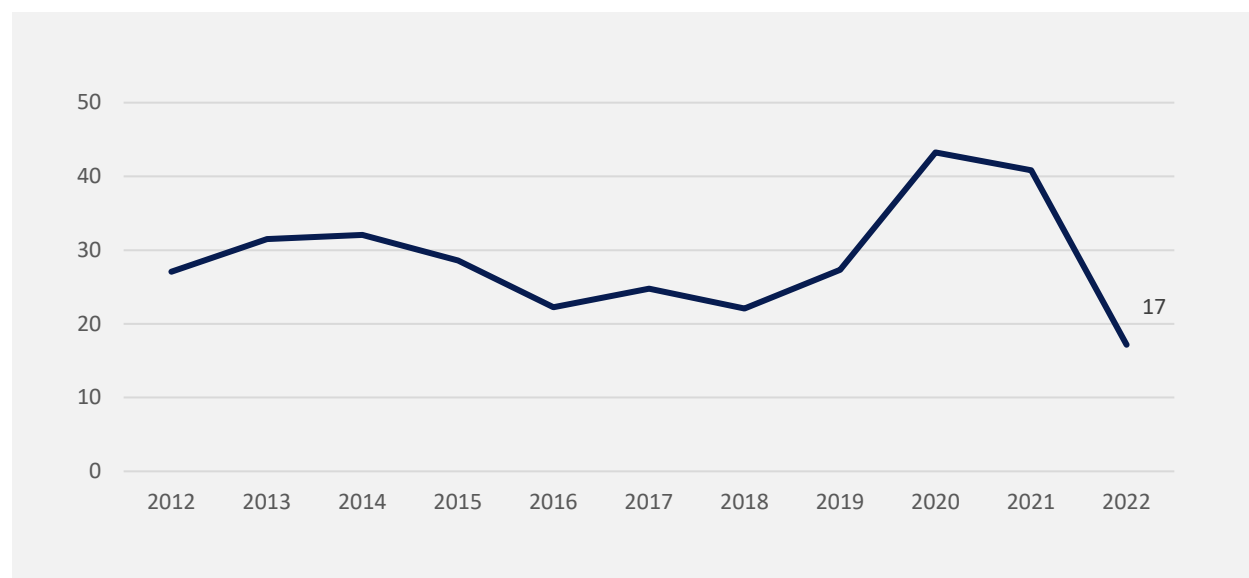
New Patent Applications



As shown, the volume of new patent applications in Santa Cruz County has dropped dramatically over the last two years, falling below pre-pandemic levels in 2022 (Figure 1).

Figure 1 shows new patent applications in the county have fallen dramatically since 2020.

Figure 1. New Patent Applications in Santa Cruz County (2012 – 2022)¹



¹ U.S. Patent and Trademark Office (USPTO). New Patent Assignments (2012 – 2022)

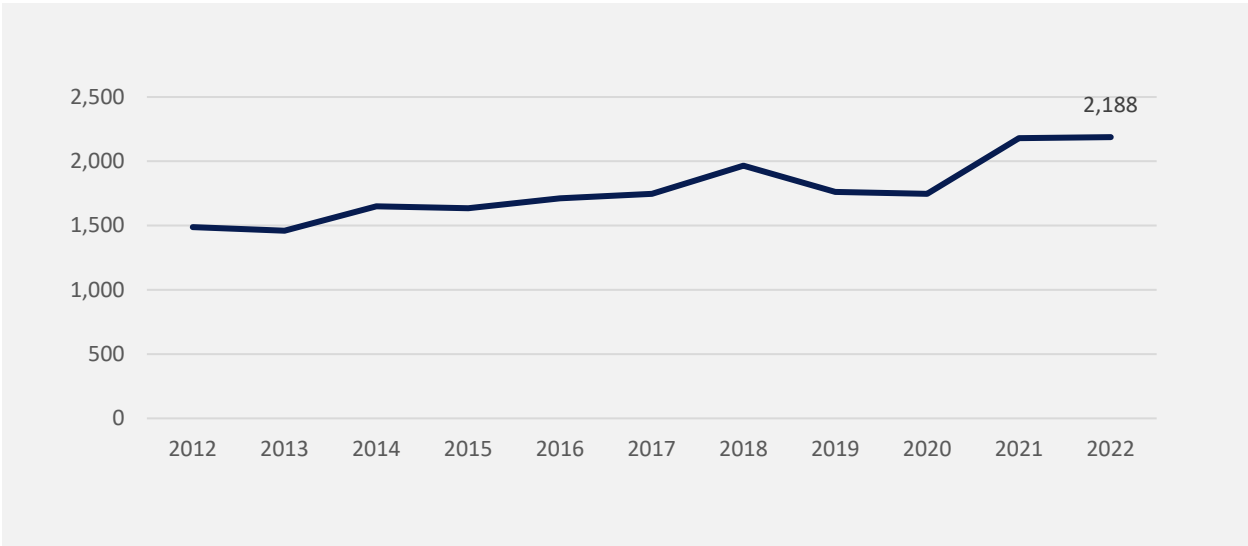


Business Formation

According to data from the U.S. Census Bureau (Figure 25), new business applications in Santa Cruz County remained essentially flat in 2022 compared to the prior year. The volume of annual new business formations fell in most California counties during the same period, with new business applications in Santa Clara County falling by 6.5 percent and new business applications in Monterey County falling by 10.6 percent in 2022.

Figure 2 shows new business formation in the county remains strong, in contrast to most California counties.

Figure 2. New Business Applications in Santa Cruz County (2012 – 2022)²



² United States Census Bureau. Business Formation Statistics (2012 – 2022).

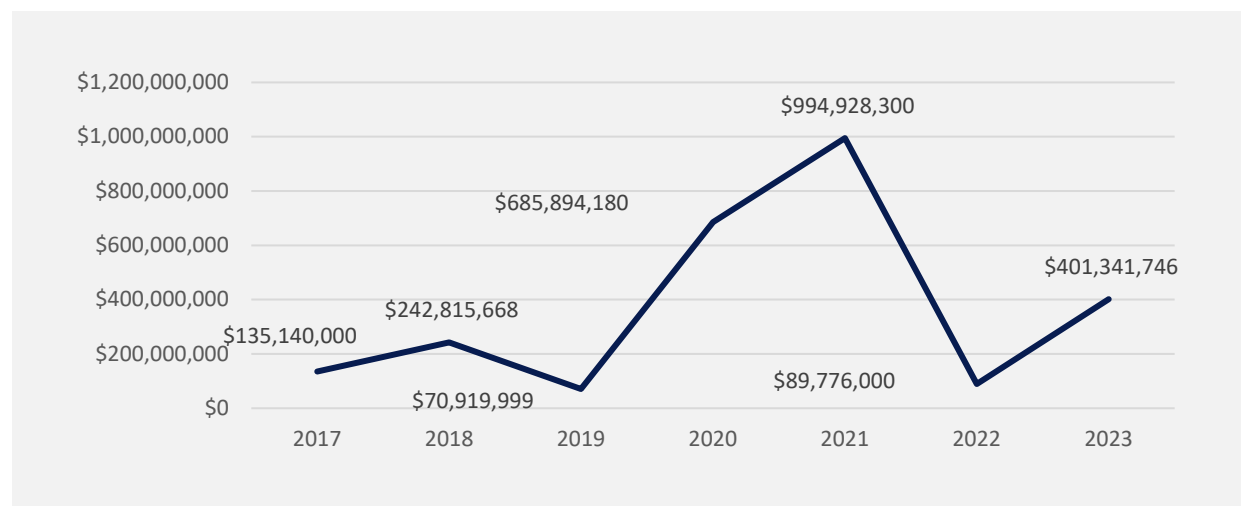
Seed Funding



Venture and seed funding plummeted in 2022, dropping from nearly \$1 billion in 2021 to less than \$100 million in 2022, before rebounding to just over \$400 million in 2023, according to Crunchbase. These trends are consistent with national patterns, where the U.S. venture capital market hit all-time highs in 2021 before slowing significantly in 2022 as interest rates rose and large crossover funds began investing elsewhere. However, U.S. venture capital activity rebounded somewhat in 2023 as investors sought to combat fears of missing out with respect to the AI revolution. In 2022, California remained one of the three largest states in the nation in terms of venture capital funding.^{3 4}

Figure 3 shows venture capital and seed funding in the county has begun to recover after plummeting in 2022.

Figure 3. Venture and Seed Funding in Santa Cruz County (2017 – 2022)⁵



Small businesses in Santa Barbara County are eligible to apply for funding assistance from the U.S. Small Business Administration's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)

³ <https://news.crunchbase.com/venture/california-dominates-us-venture-market-ai/>

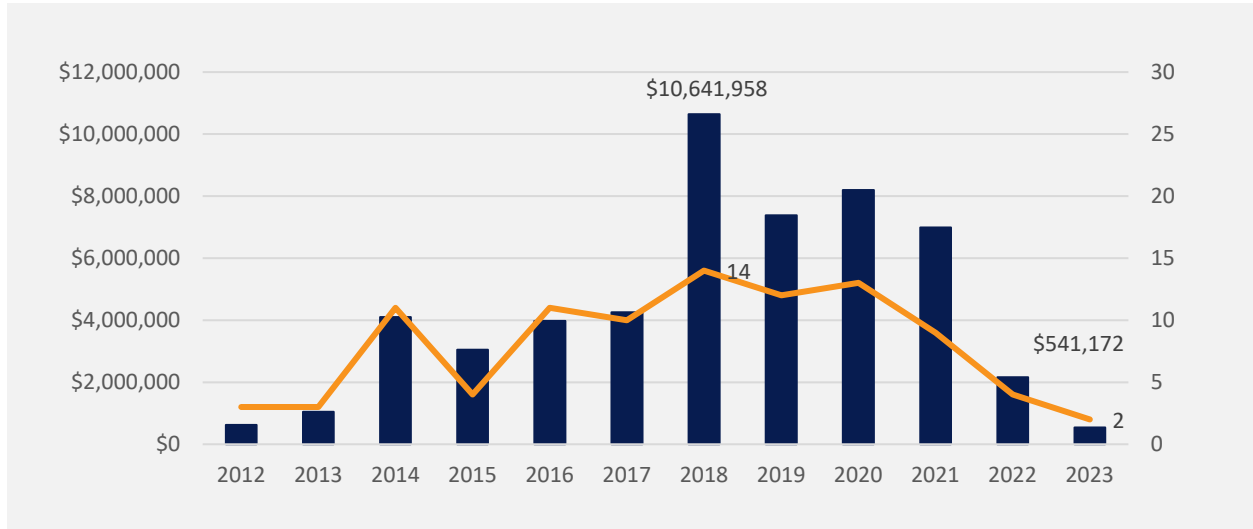
⁴ The other top two states for venture capital funding are New York and Massachusetts.

⁵ Crunchbase Fundings Rounds (2023).

programs, which encourage domestic small businesses to engage in Federal Research/Research and Development (R/R&D) with the potential for commercialization. Figure 4 illustrates SBIR and STTR funding awards in Santa Cruz County from 2012 to 2023. As shown, SBIR and STTR funding has fallen dramatically in 2022 and continued to decline in 2023.

Figure 4 shows federal small business funding assistance in the county sharply declined in 2022 and continued to fall in 2023.

Figure 4. SBIR and STTR Funding Awards in Santa Cruz County (2012 – 2023)⁶



Other resources available to entrepreneurs within the county are outlined below.

⁶ United States Small Business Administration Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Award Data. <https://www.sbir.gov/>



Entrepreneurship Resources

The UCSC Innovation & Business Engagement Hub (IBE Hub) is the point of entry for industry partners to connect with campus researchers. Its partners and constituents include:

- UCSC industry consortia, research centers, and institutes
- Alumni and partnership networks
- Entrepreneurship programs and resources
- Innovation transfer, incubators & accelerators
- Student-led organizations and events

Grant funding for research projects may also be available via the Academic Senate Committee on Research; the UCSC Center for Coastal Climate Resilience and/or the CITRIS Interdisciplinary Innovation Program (I2P) for multidisciplinary projects focused on climate resilience; UCSC's Arts Research Institute; UCSC's Humanities Institute; and UCSC's Institute for Social Transformation for projects focused on social justice.⁷

In addition to its work on the human genome project, UCSC has produced the first-ever toolkit for RNA sequencing analysis and made the first unmistakable carbon dioxide detection in an exoplanet atmosphere using the James Webb Space Telescope. UCSC is also home to one of the world's top marine mammal research centers at Long Marine Laboratory on the shores of Monterey Bay, the second-largest marine sanctuary in the world.

In addition, UCSC operates a Silicon Valley campus focused on research and education for students and faculty of the Baskin School of Engineering, including assistive robotics, autonomous vehicles, cybersecurity, and interactive gaming. UCSC operates four natural reserves that provide living labs for hands-on learning and has an R1 Carnegie classification, indicating very high research activity.^{8 9}

Over the last five years, extramural funding to UCSC research has risen by approximately 63 percent, reaching over \$203 million in 2022. As of September 2023, the UCSC innovation portfolio included more than 350 U.S. patents under management.¹⁰

UCSC's Center for Innovation & Entrepreneurial Development (CIED) provides student coursework, supports venture creation, hosts pitch competitions and events, and facilitates internships to empower student entrepreneurship. In the 2023-2024 school year, UCSC is launching an Innovation & Entrepreneurship certificate program, which offers three courses supporting venture creation and internship opportunities with

⁷ <https://officeofresearch.ucsc.edu/ord/seed-initiatives.html>

⁸ <https://www.ucsc.edu/wp-content/uploads/2023/12/2023-campus-factsheet.pdf>

⁹ <https://siliconvalley.ucsc.edu/research/index.html>

¹⁰ <https://news.ucsc.edu/2023/09/innovation-entrepreneurship.html>

startup/industry partners. UCSC also hosted its first-ever Demo Day on November 29, 2023, whereby five student teams presented early-stage projects to a closed audience of venture capitalists, serial entrepreneurs, and UCSC faculty.

In addition, UCSC hosts the Santa Cruz Launchpad, a networking, job fair, and pitch competition event open to the public, with up to \$50,000 in cash prizes available for student pitch contest competitors. The Launchpad offers fellowships funding eight weeks of programming, a \$5,000 prize to fund startups' launch and growth during the summer, and mentorship opportunities.¹¹

UCSC's Office of Research also provides competitive seed funding for center-scale initiatives and early-stage initiatives that have not previously received funding from public or private sources. UCSC believes that it is well-positioned to accelerate innovation activity in two areas:

- Climate action, due to funding recently received from the UC Climate Action Innovation and Entrepreneurship Awards, will continue building its Climate Action Solutions Catalyst program.
- Advanced aviation, via the MBEST Initiative and UCSC's proximity to Joby Aviation and other prominent advanced aviation companies, which ongoing economic development initiatives have targeted.¹²

Another entrepreneurial resource available to Santa Cruz County residents is GetVirtual, a nonprofit student-led organization established in March 2020 to provide free services to businesses in Santa Cruz County. Its portfolio of

services includes customized business plans, business owner education, and no-code virtual solutions. GetVirtual has successfully launched 150 projects and has a community of over 250 alumni and clients. GetVirtual also offers paid student internships in partnership with the Small Business Development Center of Santa Cruz.¹³

The Santa Cruz Small Business Development Center (SBDC) also provides free, confidential one-on-one advising services to help businesses grow and launch and offers workshops and training on subjects such as business planning, e-commerce, web marketing, human resource management, accessing and increasing capital, legal and business issues, and best practices. In addition, the SBDC offers tools and access to capital sources to help foster the growth of small businesses. Specific support is also available to

owners of restaurants or food businesses and technology startups in Northern California.¹⁴



¹¹ <https://www.cied.ucsc.edu/news>

¹² The Monterey Bay Education, Science, and Technology Center (MBEST Center) is a multi-institutional center for science, technology, education, and policy, located on the shores of Monterey Bay. The MBEST Center, in partnership with the adjacent California State University, Monterey Bay, is working to promote regional economic development within the Monterey Bay region. See: [UCSC MBEST Center](https://www.cied.ucsc.edu/programs)

¹³ <https://www.cied.ucsc.edu/programs>

¹⁴ <https://www.santacruzsbdc.org/services/>



Conclusion

Innovation activity is critical to addressing the challenges of boosting economic opportunities, fostering job growth, and increasing competitiveness within a region. In order to foster the development of local innovation clusters, regions must invest in human capital, scientific infrastructure, and knowledge-based infrastructure, leveraging public and private funds to build on existing local competencies and assets to grow the industries of the future. Sustained support is needed from both public and private stakeholders in order to support innovation activity. Thus, educational institutions like UCSC play a critical role in providing research facilities and a trained workforce able to develop novel technologies, and public-private partnerships facilitate the collaboration needed to foster the innovation workforce and to support commercialization of new technologies. Nonprofits can also play a catalytic role in initiating, complementing, and sustaining innovation development activity.¹⁵ Each of these elements continue to play a critical role in fostering innovation activity in Santa Cruz County.

¹⁵ For more information on the contributions that nonprofits make to Santa Cruz County's economy, please see the 2024 State of the Workforce Report.