UNIVERSITY OF HAWAIʻI SYSTEM REPORT

REPORT TO THE 2023 LEGISLATURE

Biennial Report on University
Innovation and Commercialization Program

HRS 304A-1969

November 2022

Biennial Report on University Innovation and Commercialization Program
HRS §304A-1969

Pursuant to HRS §304A-1969, the University of Hawai‘i (UH) respectfully submits this report describing (1) the coordinated efforts between the UH's innovation and commercialization initiative program and other state agencies to move the State's technology innovation and commercialization goals forward; and (2) the revenue and expenditure activity in the UH's innovation and commercialization initiative special fund (established at HRS §304A-1963).

This inaugural report covers the period from November 2020 to October 2022.

This biennial report should be read in conjunction with the annual University Report on Technology Transfer Activities, submitted pursuant to HRS §304A-121, to have a more complete description of UH's commercialization and innovation activity.

Coordinated efforts with other state agencies regarding innovation and commercialization

The University of Hawai‘i occupies a pivotal niche in Hawai‘i's "ecosystem" of organizations who are engaged in innovation and commercialization in the state.

First, as the state's only institution of public higher education, UH has been entrusted with public funds to generate ideas and discoveries, invent products, services and discover new processes. These products, if successfully commercialized, have tremendous potential to increase public benefit, such as company and job creation and generating new revenue sources. Act 39, Session Laws of Hawai‘i, 2017 (updated under Act 8, Special Session Laws of Hawai‘i 2021), recognized that just as basic research and teaching are part of the traditional core mission of UH, so too is it a proper use of public resources to support and encourage the commercialization of UH-developed inventions and discoveries. A significant public benefit that comes from technology transfer is enlarging and diversifying Hawai‘i's economy and workforce opportunities, thus making Hawai‘i an attractive place for its students to stay or return to Hawai‘i following formal education elsewhere.

Second, in addition to being a generator of new technology, UH is also a "state actor" among other state agencies and other incubators and accelerators that are also similarly engaged in economic development and diversifying employment opportunities, and commercializing new technology. The University of Hawai‘i recognizes that to have the most long-lasting effect, it must coordinate its activities with other state agencies and work synergistically so that its efforts are not at cross-purpose or duplicate programs and initiatives of other state agencies or non-profits.

Not only must the efforts of various players be coordinated, but their joint efforts should also be focused in areas and deep technologies and high growth ventures where Hawai‘i has a natural advantage and ready resources. For the near term, UH has identified climate resilience, environmental protection, agriculture, health, data science, cybersecurity, space sciences, and ocean, earth and atmospheric sciences as the fields most likely to generate innovation and commercialization opportunities.

The following sections describe UH's efforts during this reporting period to coordinate projects and programs with other state agencies and others in the ecosystem of innovation.

Joint effort with Natural Energy Laboratory of Hawai'i Authority (NELHA) to establish EDA-funded accelerator program at Hawai'i Ocean Science &Technology Park

The partnership between UH, the Natural Energy Laboratory of Hawai'i Authority (NELHA) and HATCH to operate an accelerator site located at NELHA's technology park in Kona, Hawai'i resulted in HATCH putting an investment fund together and launching its inaugural accelerator program in Fall 2019. The objectives of the partnership are to assist proof-of-concept development and provide commercialization services as well as lab, testing, and office space to start-up companies working in Hawai'i marine aquaculture. These companies aim to service global markets, develop new cultured species, explore new feed sources or develop related technologies to support aquaculture. The project also hopes to attract investment funds and follow-on funding to support these companies. The first cohort of the HATCH accelerator program at NELHA kicked off in August 2019 with 13 teams, with one Hawai'i company participating in the program.

Collaboration with Hawai'i Technology Development Corporation (HTDC) to grow Hawai'i's technology ecosystem

The strong partnership between UH and HTDC to collaborate on a variety of technology development initiatives to drive company and job creation in deep technology and high growth ventures. One initiative aims to grow Hawai'i's technology ecosystem by increasing participation in the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. In Summer 2021, a series of seven webinars on the SBIR & STTR programs was co-hosted with HTDC's Innovate Hawai'i to introduce and encourage Hawai'i's companies to participate in the programs.

More Engaged Coordination with Hawai'i accelerators

The University of Hawai'i regularly consults and assists with the local accelerators, including HATCH, Purple Maia, Elemental Excelerator, BlueStartups and ManaUp, to discuss the startup pipeline and ecosystem resources. UH assists with outreach, mentoring, among other key entrepreneurial activities.

University Stewardship of the Mānoa Innovation Center

Effective July 1, 2018, UH through its Office of the Vice President for Research and Innovation (OVPRI) assumed stewardship over the land and building complex commonly known as the Mānoa Innovation Center (MIC) from the Hawai'i Technology Development Corporation (HTDC). Located a short distance from the main UH Mānoa campus, MIC provides incubator space for several local startup companies.

The MIC also houses state agencies that promote state-supported research or technology development, including the Research Corporation of the University of Hawai'i (RCUH). The University of Hawai'i's STEM Pre-Academy program and its Applied Research Laboratory are also long-standing tenants at MIC.

For the near term, to minimize disruption during the transition, rents and suite allocations were kept to the status quo as much as possible. In the long term, UH intends to more sharply focus MIC facilities to assist and incubate companies that are commercializing intellectual property generated by or affiliated with its research.

Outreach Efforts to the Broader Innovation Community

The University of Hawai‘i continues to create networks and sponsor annual conferences focusing on commercialization and innovation efforts in theme-based substantive areas.

Blending of Culture and Science, UH Innovation Virtual Conference 2021: . With the ongoing COVID-19 pandemic, UH hosted a virtual conference focused on the balancing of culture and science for a more sustainable future. The three-day conference covered the topics of connecting Hawaiian culture and modern astronomy, environmental conservation and the impact of innovations.

Water Resilience in Hawai‘i – a UH Innovation Conference 2022: The University of Hawai‘i hosted *Water Resilience in Hawai‘i*, a conference focused on UH's efforts to help develop resilient and sustainable practices to ensure the availability of fresh water in Hawai‘i through collaboration with its industry and community partners.

Research and Innovation Magazine of the UH System: In July 2016, OVPRI published the inaugural issue of its research and innovation magazine entitled, *Noelo*, which means to "delve, seek out or verify". As an annual publication, *Noelo* captures the essence of UH researchers and the broad scope of their work in one of the most geographically diverse locations in the world. It is used as a marketing tool to share and promote UH research to the community, fellow higher education institutions and other constituents - as well as to define UH's commitment toward building an innovation-based economy in Hawai‘i.

Office of Innovation and Commercialization (OIC) Strategic Initiatives

The Office of Innovation and Commercialization, within OVPRI, launched a number of new strategic initiatives and continued to offer innovation and entrepreneurship support and resources.

The Office of Technology Transfer sits within the OIC and is tasked with IP assessment and protection, Guidance in Intellectual Property UH policies, pathways, marketing, networking, other programs. In addition, this unit provides commercialization support in the areas of Identifying, protecting, commercializing UH based technologies.

UH Incubator Program: In 2022, OIC launched HITIDE (Hawai‘i Technology Innovation Development Ecosystem) which incubates faculty and student innovations to amplify impact. The program offers training, concierge services, seed funding, resources and mentorship tailored to each startup's unique needs.

Office of Indigenous Knowledge & Innovation (OIKI): In 2021, the OIKI collaborated with the Office of Strategic Health Initiatives to establish the Center for Indigenous Innovation and Health Equity (CIIHE) which aims to advance indigenous innovations to address health disparities in Native Hawaiian and Pacific Islander communities. The CIIHE is supported by federal funds from the National Institutes of Health's Office of Minority Health and private donations. The OIKI is also collaborating on multiple projects that weave indigenous knowledge and practices with current technologies, including a five-year NSF Established Program to Stimulate Competitive Research (EPSCoR) award focusing on developing Indigenous Data Science hubs through community partnerships to provide indigenous-focused data visualization training opportunities and an USDA award focusing on local food

resilience through partnerships with indigenous food system practitioners.

Bio-Materials Licensing: In addition to, Kerafast, an expert company that identifies research bio-materials created by UH (such as antibodies, cell lines, proteins, compounds, etc.), UH is establishing a relationship with a couple other companies to license and distribute UH developed bio-materials for distribution to researchers.

Hi-Touch Technology Marketing: UH continues active "push- marketing," to expand UH's reach to the worldwide market. OTT continues its contract with IN-PART, an international service based in the United Kingdom, to distribute UH research results direct to relevant industry contacts for commercialization opportunities. Through IN-PART, UH has made contact with various companies in Europe as well as the U.S. interested in UH innovations.

SBIR/STTR Pipeline: The Office of Innovation and Commercialization continues its partnership with HTDC Innovate Hawai'i to expand the Hawai'i SBIR/STTR pipeline. Through this partnership, OIC encourages UH affiliated startups and researchers to participate in the SBIR/STTR programs and organizes information sessions on the various SBIR/STTR program, including a series co-hosted with HTDC Innovate Hawai'i leading up to the 2021 National SBIR Week. OIC is actively participating and supporting the Hawai'i SBIR Program (HSBIR) which is administered by HTDC and provides matching grants to help Hawai'i companies further the development of new products to solve critical issues.

OIC also continues to be a part of Accelerating Solutions for Commercialization and Entrepreneurial Development hub (ASCEND) that provides support to build an entrepreneurial culture and encourage researchers to commercialize their research in the biomedical area. ASCEND is part of the National Institutes of Health (NIH) program to bridge the gap between NIH-funded research and improved healthcare solutions.

Innovation Impact Challenge Initiative: This initiative is focused on increasing participation of UH faculty, staff and students in innovation and entrepreneurship, with the goal of finding solutions to local challenges, and creating new businesses. Launched in Fall 2019 as a pilot program, OIC's efforts have expanded to include a Hacking program series (Hacking for Defense, Hacking for Recovery, Hacking for Oceans), HITIDE (UH's incubator program for academic entrepreneurs) and its traditional technology transfer services.

National Security Innovation Network (NSIN): UH continues the partnership with NSIN to offer innovation and entrepreneurship resources and programming in collaboration with the various defense agencies. NSIN's University Program Director for UH has worked with OIC staff to provide opportunities for students participate in various NSIN programs, such as the Hacking for Defense, Capstone and X-Force Fellowship.

National Science Foundation Innovation Corps (I-Corps): UH is part of the new Desert and Pacific Region Hub along with Arizona State University, Boise State University, Northern Arizona University, University of Arizona, University of California San Diego, University of Idaho and University of Nevada, Las Vegas. The UH I-Corps program will provide opportunities to UH faculty and students to expand their mindset to include entrepreneurship and commercialization through experiential learning and training.

Revenue and Expenditure Activity in the University Innovation and commercialization initiative special fund.

Overview of the special fund

Act 39, Session Laws of Hawai‘i, 2017 (HB No. 847) established a special fund at UH called the “University Innovation and Commercialization Initiative” special fund, codified at HRS §304A-1953 (“ICI Special Fund”).

This special fund supports transparency and accountability for UH’s Innovation and Commercial Initiative Program (“Program”) (codified at Subpart P, Chapter 304A, HRS sections 304A-1951 through 304A-1959). Revenues generated by the Program and expenditures to support the mission can be isolated from and not be comingled with other UH funds. A separate fiscal structure also enables UH to better identify, isolate and manage any conflicts of financial interest.

Revenues that may be deposited into the ICI Special Fund include funds specifically appropriated by the Legislature, and in general, any commercial revenues generated by the commercialization of UH technology. These commercial revenues include, for example, any royalties or license fees received from commercial developers who licensed a University patent. Any investment income generated by equity held by UH in a start-up company may also be deposited into the ICI Special Fund.

Funds in the ICI Special Fund may be used for costs and expenses associated with the operation of the Program. To provide flexibility to UH, and allow it to respond rapidly to this fast-paced, dynamic environment of technology transfer, expenditures can be made without regard to the State’s Procurement Code and personnel statutes.

Activity for reporting period November 2020 through October 2022.

Financial activity of this special fund has consisted of:

(1) deposits of rental income, common area assessments and other fees generated from tenants occupying office suites at Mānoa Innovation Center. As of October 2020, revenues from these sources totaled approximately $2,139,317.00.

(2) expenditures to pay the operating costs for Mānoa Innovation Center (utilities, property management fees, custodial services, etc.). For this period, expenditures totaled approximately $1,748,421.00.