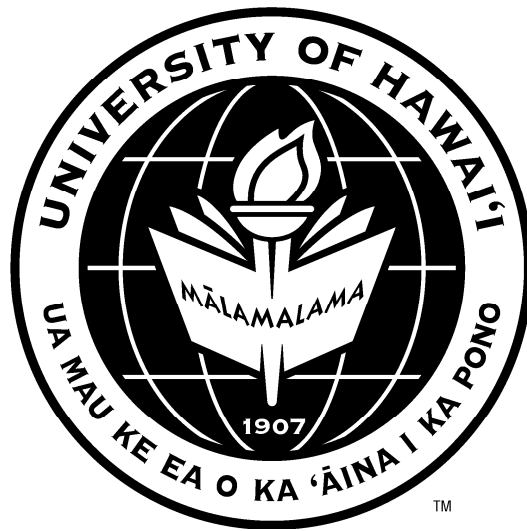


UNIVERSITY OF HAWAI‘I SYSTEM REPORT



REPORT TO THE 2019 LEGISLATURE

Report on University Innovation and
Commercialization Program

HRS 304A-1959

December 2018

Biennial Report on University Innovation and Commercialization Program
HRS § 304A-1959

Pursuant to HRS § 304A-1959, 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-1953).

This inaugural report covers the period from July 1, 2017 (the effective date of Act 39, Session Laws of Hawai'i 2017) to November 2018.

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, invent devices and discover new processes. These products, if successfully commercialized, have tremendous potential to increase public benefit. Act 39, Session Laws of Hawai'i, 2017, 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 UH-generated inventions and discoveries. A significant public benefit that comes from technology transfer is enlarging and diversifying Hawai'i's workforce opportunities, thus making Hawai'i an attractive place for its students to stay or return home 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 technologies where Hawai'i has a natural advantage and ready resources. For the near term, UH has identified energy conservation and marine aquaculture 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 Hawai'i Strategic Development Corporation (HSDC) and Natural Energy Laboratory of Hawai'i Authority (NELHA) to establish EDA- funded incubator program at Hawai'i Ocean Science & Technology Park.

In October 2018, the Hawai'i Strategic Development Corporation (HSDC) announced a unique partnership with the University of Hawai'i and the Natural Energy Laboratory of Hawai'i Authority (NELHA) to establish and operate an accelerator site located at NELHA's technology park in Kona, Hawai'i. The objectives 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, or 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. Seed money for this project will come from an Economic Development Administration federal grant. The University of Hawai'i will provide matching funds and NELHA will provide additional funds and in-kind services consisting of facilities and program support at its unique Hawai'i Ocean Science and Technology Park. This project builds upon existing assets at the UH Mānoa's College of Tropical Agriculture and Human Resources, UH Hilo's Pacific Aquaculture and Coastal Resources Center, and UH Mānoa's Sea Grant College Program.

More Engaged Coordination with Elemental Excelsior

Elemental Excelsior is a community-focused, 501(c)(3) non-profit that has funded 15 to 20 startup companies each year, since its initial cohort in 2013. These cohorts work on improvements to large scale systems -- energy, transportation, water, food and agriculture—through innovations keyed to local conditions. Elemental Excelsior is supported by a coalition of utility partners, corporate partners, philanthropic organizations and the U.S. Navy. The University of Hawai'i is exploring ways to better integrate its own accelerator and incubator efforts (named "XLR8UH") with Elemental Excelsior.

University Stewardship of the Mānoa Innovation Center

Effective July 1, 2018, the University of Hawai'i (UH) through its Office of the Vice President for Research and Innovation 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 HTDC and 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.

Future Focus Conferences (annually during the Fall): The inaugural Future Focus conference was held in September 2015 and focused on energy, cybersecurity and entrepreneurship. The following year's conference focused on medical research, cybersecurity and entrepreneurship. In 2017, the conference covered astronomy, space exploration, cybersecurity and disaster management. Other subtopics for discussion included the future of innovation in Hawai'i, small satellite launches, big data and workforce development. The conference also served as the official launch of CyberHawaii, a partnership of local, federal, state, county, private industry, professional organizations and academia to establish a "cybersecurity-ecosystem" to defend Hawai'i against cyberattacks. This past October, the conference covered the topics of sustainable agriculture, food security and cybersecurity. This year's conference scheduled for October 15 and 16 is expected to cover ocean and climate sciences.

Hawai'i on the Hill (annually in June): For the fourth consecutive year this past June, the UH's Office of the Vice President for Research and Innovation (OVPRI) coordinated the UH's presence at the event in Washington, D.C. as part of the overall effort led by the Chamber of Commerce Hawai'i to showcase Hawai'i's businesses and industries to policy makers on Capitol Hill. This past year, the UH Hilo's Adopt-A-Behive Program and Hawai'i Community College's Culinary Program showcased UH's research in the value-added food products sector and in agriculture.

AMOS Conference (Annually in September): The OVPRI continues its coordination of the UH presence at the annual Advanced Maui Optical and Space Surveillance Technologies (AMOS) Conference sponsored by the Maui Economic Development Board (MEDB). This past September, UH's Pan-STARRS Observatories and Pacific Disaster Center Global were featured, joining UH research in astronomy, data visualization, space exploration and small satellite launches that were previously showcased.

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 define UH's commitment to the Hawai'i Innovation Initiative.

Office of Innovation and Commercialization (OIC) Strategic Initiatives

Under a new director of the Office of Innovation and Commercialization/Chief Innovation Officer, within OVPRI, UH has launched a number of new strategic initiatives.

Lab Ambassadors: The Office of Technology Transfer (OTT) has started a program to connect the office directly with productive laboratories which are the source of innovations. Specifically,

OTT has begun to select liaisons carefully (from existing lab personnel, designated by lab directors) who will help UH in 1) identifying promising innovations; 2) filling out invention disclosures (instead of relying on the PIs to do so); 3) working with the office in subsequent patenting and marketing processes. With more than 10 large and productive labs being the target, OTT has already visited and obtained support from four of them to launch this program, which should ease the process and build a robust ecosystem to support the innovation base.

Bio Materials Licensing: OTT has engaged an outside expert company, Kerafast, to identify research bio-materials created by UH (such as antibodies, cell lines, proteins, compounds, etc.) that are needed by other researchers, and assist in the marketing, selling and distribution of such life science research products through its e-commerce website to academic and industrial research laboratories worldwide. Such assistance is not only appreciated by UH researchers who are often too busy to deal with external requests for such materials, but is a good way to generate royalty payments to scientists and UH when their materials are purchased. More importantly, the office will help disseminate the research outcome and encourage further research to achieve a higher impact.

Hi-Touch Technology Marketing: To improve the University of Hawai'i's reach into the worldwide market for its technologies, UH must adopt active "push- marketing," and not rely only on its personal networks or passive web-page posted on the UH Research website to attract potential users of the technologies. OTT has contracted with IN-PART, an international service based in the United Kingdom, to distribute UH research results direct to relevant industry contacts for commercialization opportunities. With 120 university clients like Oxford, Cambridge, George Washington University and the University of Pennsylvania, IN-PART is a leader in facilitating the transfer of university technology across the globe in order to positively impact society by leveraging their international community of over 9,000 R&D decision-makers.

iE Certificate: With the help of colleagues at UH Mānoa (Outreach College, School of Architecture and the Office of the Vice Chancellor of Research), OIC is launching the first Innovation Certificate of Distinction in the Fall 2018 semester. The certificate program is based on a series of seminars and workshops outside the usual classroom curriculum, featuring outstanding speakers – many of whom flying in from the mainland – to cover a diverse set of topics, capped with an experience-based team project. This unique program does not require any prerequisite, so it is accessible to all students; and all lectures will be free for students to attend each session, so there is no financial burden. The same speakers will also deliver longer workshops to community members, separately and for a fee – organized by the Outreach College – to maximize the positive benefits that UH brings to Hawai'i.

HI-END (Hawai'i Entrepreneurial Network Developers): HI-END is an informal network of people and programs involved in Hawai'i entrepreneurship, innovation, tech investment and start-ups. Since the inaugural meeting in April 2018 at MIC, monthly meetings have been held at the John A. Burns School of Medicine, which is a convenient location for downtown participants.

The idea is to facilitate the sharing of community resources and information of the separately managed entities in this great community of innovation and entrepreneurship.

Participants include the Hawai'i Department of Business, Economic Development & Tourism (DBEDT), HTDC, UH Mānoa's Pacific Asian Center for Entrepreneurship (PACE), XLR8UH, UH Mānoa's Outreach College, ManaUp, Blue Startups, Hawai'i Business and Entrepreneur Acceleration Mentors (HIBEAM), Hawai'i Tourism Authority (HTA), and individuals interested in Hawai'i's high tech community whom are working towards similar industry development and economic growth opportunity goals. Leaders from other university, government and private sector organizations are included as well. The monthly collaboration meetings allow different organizations to jointly coordinate community events, share ideas, contacts and referrals, and leverage resources to collectively build and foster Hawai'i's entrepreneurship and innovation ecosystem.

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 July 2017 through October 2018.

Financial activity of this special fund have 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 2018, revenues from these sources totaled approximately \$368,542.
- (2) expenditures to pay the operating costs for Mānoa Innovation Center (utilities, property management fees, custodial services, etc.). For this period, expenditures totaled approximately \$365,634.00. The expenditures for this period are unusually large because UH paid for capital repairs and improvements that had been deferred, and it also replaced equipment or furniture that belonged to and was removed by HTDC.