



# Cultivating Hawaii's Tech Sector

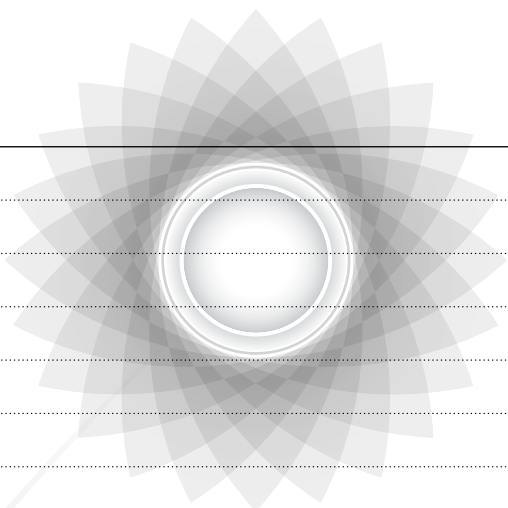
**HTDC**

HIGH TECHNOLOGY DEVELOPMENT CORPORATION

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### **HTDC Mission and Duties**

The mission of the High Technology Development Corporation (HTDC) is to facilitate the growth and development of high technology as a viable industry sector in Hawaii's economy. HTDC is an agency of the State of Hawaii created by the State Legislature in 1983 and is administratively attached to the Department of Business, Economic Development and Tourism (DBEDT).

HTDC's duties include, but are not limited to:

- developing industrial parks as high technology innovation centers and the development of projects within or outside of industrial parks;
- providing support and services to Hawaii-based high technology companies;
- collecting and analyzing information on the state of commercial high technology activity in Hawaii;
- promoting and marketing Hawaii as a site for commercial high technology activity; and
- providing advice on policy and planning for technology-based economic development.

(HRS Chapter 206M-2)



As the only State agency dedicated to supporting the high technology industry, HTDC fills a critical role in Hawaii's economic development. Technology-based companies are the foundation of any knowledge-based economy and promoting the development of this industry is an important and valid role for government to fill.

What does HTDC do? HTDC provides incubation facilities, services and support to new and developing technology companies. HTDC provides vital infrastructure and services that the private sector cannot and will not provide. One of HTDC's most critical services, for example, is the provision of office space at below market rents, on a month-to-month basis, to tenants with little or no credit history. For the aspiring entrepreneur, securing office space can be one of the most daunting hurdles in starting a technology business. With our agency's help, this mundane yet critical task is greatly simplified. For instance, Dustin Shindo, CEO of Hoku Scientific, states, "A high technology start-up oftentimes can have a very challenging time securing appropriate office facilities on a short-term basis. The availability of HTDC's incubation facilities helped Hoku at a critical time in its earliest stages of development." HTDC's aid in providing office space contributed to Hoku Scientific's ultimate success.

HTDC performs this service well; so well, in fact, that all of its facilities are not only full, they have waiting lists for office space. In essence, HTDC provides the infrastructure or foundation that allows the entrepreneur to focus on growing their enterprise rather than dealing with the mundane yet often frustrating chore of securing a place to run their business. As an entrepreneur who has participated in this part of the start-up process, I very much appreciate the value of this aspect of HTDC's mission.

This past year has been one of transition for HTDC, with Yuka Nagashima coming onboard as CEO. Yuka brings many years of technology industry experience to the job. As CEO of LavaNet, a pioneering Internet service provider here in Hawaii, Yuka steered the company in its early start-up stages and oversaw it through periods of significant growth. Under Yuka's new and vibrant leadership, I have great expectations for HTDC in the coming years.

I would also like to express my thanks and appreciation to Phil Bossert, who directed HTDC for over three years. Phil led the agency through challenging budgetary times and set HTDC's foundation for continuing progress. During his tenure, HTDC grew and delivered programs and benefits to our stakeholders.

With continued support from Governor Lingle and the Legislature, we will continue in our efforts to solidify the role of the high technology and life sciences industries in the diversification of Hawaii's economy.

BRIAN GOLDSTEIN  
*HTDC Chair*

## 2006 Highlights

- This year's graduates left the Manoa Innovation Center (MIC) with 10 times more employees than they had when they entered and relocated to 10 times more space than they occupied when they started at MIC. These successes represent the nuts and bolts of economic development: longevity, jobs, revenues, investment attracted, and other factors beneficial to Hawaii.
- The Hawaii Small Business Innovation Research (SBIR) Matching Grant program awarded \$270,000 to 13 local companies that won 18 federal SBIR Phase I awards worth \$3 million and three Phase II awards worth \$1.6 million. For every State dollar invested in the program since 1989, Hawaii companies attracted nearly \$15 in federal SBIR funds and nearly \$30 for every State dollar invested when Phase III dollars are included.
- HTDC's Hawaii Center for Advanced Transportation Technologies (HCATT) delivered and installed a deployable, modular hydrogen production and fueling station at Hickam to support the operation of present and future fuel cell vehicles. This fueling station is the first of its kind in the Department of Defense and the first hydrogen fueling station in Hawaii.



Mahalo for the warm welcome you have shown me. As HTDC's new Executive Director and CEO, my first five months on the job revealed the many stakeholders that HTDC serves. Our potential to truly facilitate the growth and development of Hawaii's commercial high technology industry is a fascinating opportunity and challenge. My hope is that this annual report captures the high level of excitement that sustains me daily in this endeavor.

In this report, we highlight a few of the companies assisted through the programs and services we provide, including physical and virtual incubation services, workshops and seminars that nurture entrepreneurship and assist tech businesses, consulting services, and the federal programs we administer or support.

Along with its current initiatives, HTDC has two significant goals for the coming year:

- Expanding on the International Incubator Initiative, born out of the vision of my predecessor, Dr. Phil Bossert, to reach out to China as a market beyond our own backyard and to position Hawaii as a gateway to the U.S. market for Chinese companies.
- Fulfilling House Concurrent Resolution (HCR) 218 ([www.capitol.hawaii.gov/session2006/Bills/HCR218\\_HD1\\_.htm](http://www.capitol.hawaii.gov/session2006/Bills/HCR218_HD1_.htm)).

This resolution mandated the coordination of the construction projects and entities in Kakaako to ensure that Hawaii's people enjoy the fruits of synergy from collaboration among education and research institutions, community organizations and government. HCR 218 selected the following entities to be part of a Consortium: HTDC, the University of Hawaii John A. Burns School of Medicine (JABSOM), the Cancer Research Center of Hawaii (CRCH), Department of Education (DOE), Kamehameha Schools/Bishop Estate, Hawaii Science and Technology Council, and the Department of Land and Natural Resources (DLNR).

In the coming year, I will align HTDC's role and mission in the two projects above as part of the Innovation Infrastructure Initiative mentioned by Governor Linda Lingle in her inaugural speech. An innovation-based economy requires strong leaders within our community, and strategic partners elsewhere. HTDC will combine efforts with DBEDT, economic development organizations and the private sector to continue our work in China, and also identify other Asian markets that will address the needs of Hawaii businesses and actively promote Hawaii as a great technology partner. Through the Innovation Infrastructure Initiative and HCR 218, we can transform Kakaako into the nexus of innovation. Having held several meetings with the Kakaako stakeholders already, I experienced first hand the jolt that comes from a meeting of the minds, which is a necessary seed in innovation-based economies for both innovation-generating entities and innovation-applying entities. HTDC has a big role to play in the transformation of our economy to one based on innovation, whether we are nurturing our community to be able to produce more innovations or encouraging others to apply innovations to continue to attain a high level of productivity.

I look forward to presenting the results for all of our projects and initiatives, which can only result from meaningful collaboration and relationships among our partners, from the neighbor island economic boards and trade organizations to other State agencies and divisions and companies both here and abroad. Developing a relationship with all of them and fostering clear communication among this big group will be the most challenging aspect of this office and the one I look forward to most.

Through these initiatives, we commit ourselves to be responsive in serving not only the technology sector, but our larger community, the State of Hawaii, as well.

Aloha,  
YUKA NAGASHIMA  
*Executive Director & CEO*

## BOARD OF DIRECTORS

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### Chair

BRIAN J. GOLDSTEIN  
 (term expires 6/30/07)  
*Chief Executive Officer*  
*Kona Bay Marine Resources, Inc.*

### First Vice Chair

JAMES D. LACLAIR  
 (term expires 6/30/09)  
*Vice President-Network Operations*  
*Hawaiian Telcom*

### Second Vice Chair

SHARON M. WONG  
 (term expires 6/30/07)  
*President*  
*IMS, Inc.*

### Secretary / Treasurer

GAIL ANN M. HONDA, Ph.D  
 (term expires 6/30/10)  
*President & CEO*  
*Global Optima, Inc.*

JOHN H. DELONG  
 (Representative for  
 Natural Energy Laboratory of Hawaii Authority)  
*President*  
*Hawaiian Cement*

ORION KOPELMAN  
 (interim appointment)  
*President*  
*Global Brain, Inc.*

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 (term expires 6/30/09; Representative for UH)  
*Chief Information Officer*  
*University of Hawaii*

THEODORE E. LIU  
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*Director*  
*Dept. of Business, Economic Development & Tourism*

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*Director of Corporate Services*  
*Hawaii Medical Services Association*

ANTONIO "TONY" J. SAGUIBO, Jr.  
 (Representative for  
 Hawaii Strategic Development Corporation)  
*Assistant Vice President, Marketing*  
*Hawaii Medical Services Association*

STANLEY T. SHIRAKI  
 (Ex-Officio Representative for  
 B&F Director Georgina Kawamura)  
*Deputy Director*  
*Dept. of Budget & Finance*

## STAFF

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YUKA NAGASHIMA, *Executive Director & CEO*  
 JANICE KATO, *Acting COO & MEP Center Director*  
 KAY YAMADA, *Project Development Manager*  
 COLEEN YOSHINA, *Executive Secretary*  
 STEVE SAKUDA, *Controller*  
 YVONNE ISOBE, *Senior Account Clerk*  
 GAIL YAMASAKI, *Account Clerk*  
 LAURIE AKAU, *Client Services Manager*  
 NANCY HIRAOKA, *Client Services Specialist -  
 Service Provider Program*  
 SANDI KANEMORI, *Client Services Specialist -  
 Business Development*

SANDRA PARK, *Client Services Specialist -  
 Workshops & Seminars*  
 ROBERT MON, *Federal Programs Specialist*  
 WAYNE INOUYE, *MEP Senior Project Manager*  
 DJULIANI SOEHARTO CORDIANO, *MEP Project Manager*  
 FRANK CHAN, *MEP Project Manager*  
 NINA ANN TANABE, *MEP Project Manager*  
 THOMAS QUINN, *HCATT Manager*  
 KRISTY CARPIO, *HCATT Secretary*  
 SYLVIA BOLLMEIER, *Contracts Administrator*  
 DEAN YOSHIDA, *Network Services Administrator*  
 TODD MASUI, *Web Services Administrator*

	FY 2006	FY 2005
<b>Revenues and Other Funding</b>		
State General Fund	\$ 921,934	\$ 965,365
HTDC Special Fund	\$ 1,987,542	\$ 1,864,055
HTDC Special Fund Reserves	\$ 53,552	\$ 2,406
Federal Funds	\$ 2,336,905	\$ 3,345,990
<b>Total Revenues &amp; Other Funding</b>	<b>\$5,299,933</b>	<b>\$6,177,816</b>
<b>Expenditures by Program</b>		
Federal Projects including Cash Match Contribution	\$ 2,541,550	\$ 3,567,174
Federal Project Support	\$ 176,106	\$ 198,411
SBIR Grants	\$ 260,000	\$ 270,000
Technology Centers	\$ 1,245,734	\$ 976,183
Administration	\$ 602,059	\$ 592,205
Client Services	\$ 371,330	\$ 396,576
Public Relations/Marketing	\$ 70,501	\$ 134,111
Others	\$ 32,653	\$ 43,156
<b>Total Expenditures</b>	<b>\$5,299,933</b>	<b>\$6,177,816</b>

## NOTES TO FINANCIAL INFORMATION

### Revenues:

HTDC primarily relies on three main sources to fund its programs and projects:

1. *The State of Hawaii's general fund:* HTDC, as an agency of the State of Hawaii receives an appropriation from the Legislature each year. The source of the funds is primarily from tax collections.
2. *HTDC special fund:* Revenues generated from HTDC's technology centers, conferences and workshops, contracts and consulting service fees are deposited into the HTDC special fund.
3. *Federal funds:* Funds received through agreements with federal agencies. Federally supported projects include the Hawaii Center for Advanced Transportation Technologies (HCATT) and the Manufacturing Extension Partnership (MEP) program.

The State's general fund appropriation was reduced each year since fiscal year 2004, so HTDC must rely on funds generated through its own technology centers, programs and federal funded projects to make up the difference. General funds were reduced in excess of \$100,000 in both FY04 and FY05, and by a smaller amount in FY06. Generating significant revenues from existing and new programs to make up for the reduced funding has been an ongoing challenge.

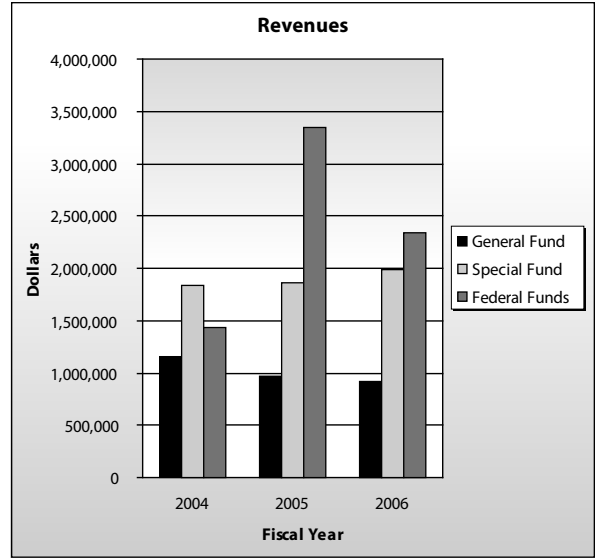
HTDC looked to federally funded projects to supplement its existing projects, such as the Manufacturing Extension Partnership (MEP) Program. Although the project provides federal funds to HTDC, most grants have a matching requirement which further taps the resources of the HTDC special fund.

**Revenues:**

The illustration shows the decline in general funds and shift in funding to the HTDC special fund and federal funds. The increase in HTDC special fund over the three years has not kept pace with the decline in general funds. Federal funding varies from year to year.

Special fund revenues increased over the three year period primarily by maximizing the use of available space at the technology centers for rentable offices, adjusting rental rates, and generating revenues from the MEP program. Although FY2006 revenues increased over prior years, rent collections from the Maui Research & Technology Center (MRTC) declined due to the departure of major anchor tenants that relocated to a new building within the tech park or graduated from MRTC. The decline was offset by reimbursements to the special fund from projects that were provided funds in advance.

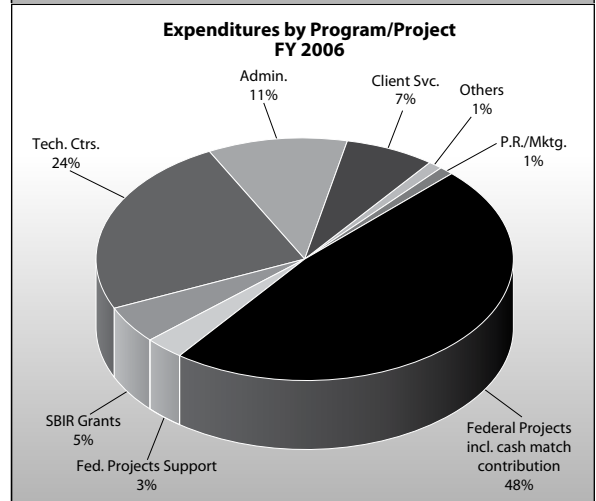
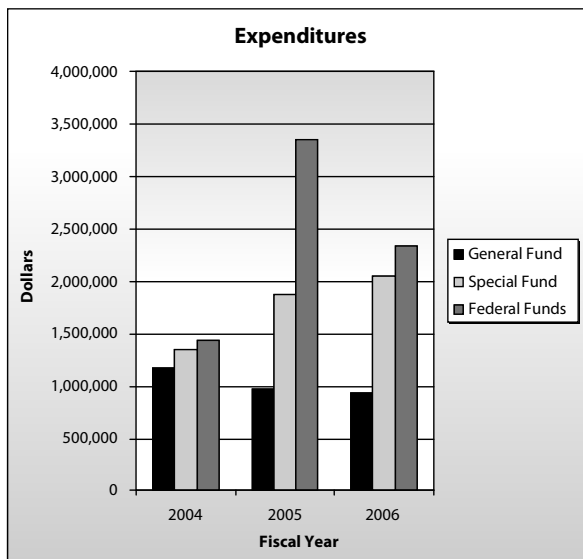
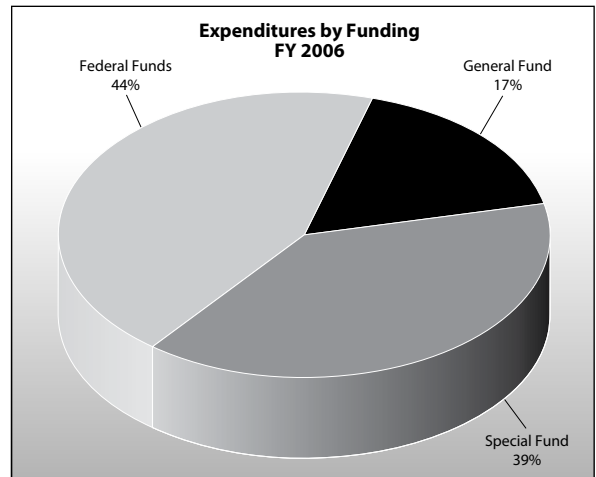
Federal funding received during a fiscal year fluctuates depending on the projects awarded federal funding and the timing of the awards. The illustration shows federal funding varies significantly from year to year due to these factors. Such is the case with HCATT, which received funding of approximately \$2.9 million from the Department of Defense



and U.S. Air Force in FY04 and FY05. The U.S. Air Force was the sole funding source for HCATT projects in late FY06, awarding approximately \$3.0 million, but due to the timing of the award, cash received during the fiscal year was considerably less than cash received in FY05.

**Expenditures:**

As the general fund decreased over the past few years, there was a corresponding upward shift in special and federal fund expenditures. Shortfalls in revenues to cover expenditures for the fiscal year are funded by reserves from the HTDC special fund. HTDC has limited resources to devote to developing major new project(s) requiring seed monies and a start-up period for the project(s) to become self-sufficient, as mandated by the Governor. HTDC took stock of its existing projects, reallocated resources and reassessed the benefits to its mission.





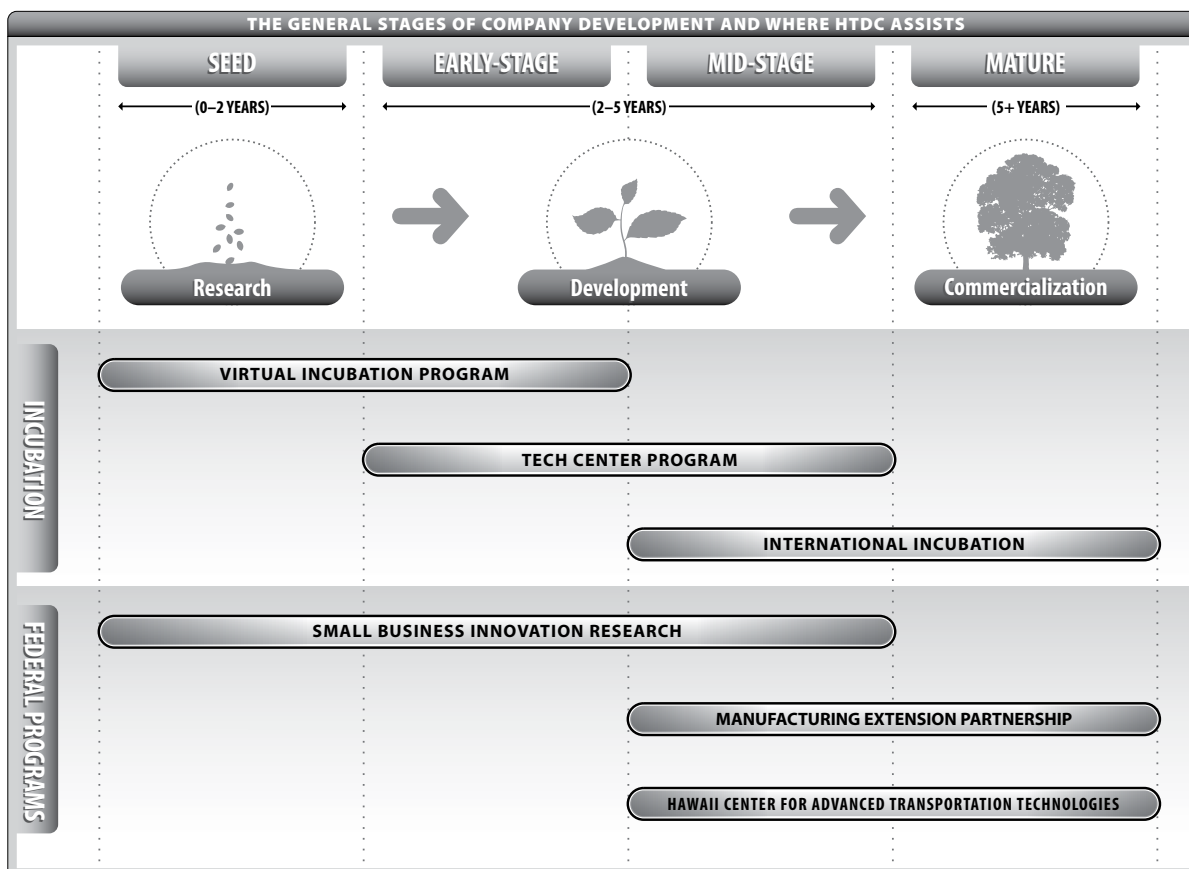
The **High Technology Development Corporation (HTDC)** assists technology entrepreneurs along the sometimes rocky, often challenging road from small seed company to mature company and from research and development to commercialization.

HTDC addresses the needs of Hawaii's tech companies, both in and outside of our incubation facilities, by tailoring our programs and services to best help these companies succeed. The graphic below represents the general stages of company development and where HTDC fits in.

Through our programs, tech entrepreneurs can:

- Be tenants in one of our technology centers (or virtual tenants) where there is a critical mass of technology-based companies;
- Develop their business savvy and know-how through mentoring, education, networking, and referrals to strategic partners and resources;
- Find qualified, trained employees for their high-tech companies through HTDC's job fairs, exhibitions and websites; and
- Acquire the funding their business needs, through greater access to alternative financing, by leveraging Federal programs and funds, and by learning how to be more successful in winning Federal contracts and grants.

*In the following pages, we turn the spotlight on a few high-tech companies and touch on some of the assistance that HTDC provided to them, followed by fuller descriptions of HTDC programs and services that serve to help Hawaii technology companies succeed. For more information and content, please visit [www.htdc.org/2006annualreport](http://www.htdc.org/2006annualreport).*





HTDC assists innovative companies in various stages of their development. We refer to companies in the first stage as Seed or “start-up” companies that have innovative ideas for products or services and often not much else ... except a passion and belief in that idea.

## IQT<sup>2</sup> Corporation

Jennifer Rush and Erin Rush-Nelson attended their first HTDC



workshop in February 2006 to connect with the local tech community. They each had a sole proprietorship and shared a client looking to go public on a large scale. They knew they needed direction to assist this bright programmer.

Jennifer and Erin decided to attend HTDC’s “Mergers, Acquisitions, and Compliance” workshop presented by Mark Egan because their client was looking to position his company and/or product as an acquisition. The information and encouragement they received helped jump-start their long-held goal of going into business together. It worked! By the next seminar they attended, they had formed IQT2.

Jennifer and Erin are a mother-daughter team. In the early 1980s, Jennifer dabbled in BASIC programming and in playing games to understand the terminology her husband used.

**“HTDC workshops inspired us to create our corporation.”**

Erin grew up playing games and figuring out programming on the early PCs. By the time she was a teenager, she was building PCs. Her comfort with computers led to becoming the first female tech support for an ISP on the Big Island.

On March 6, 2006, they established IQT2 Corporation. A crucial juncture in their business came by attending a HTDC workshop with Peter Kay. They realized while listening to Peter that they needed to be more than a service company: they needed a product. But what could it be?

As they continued serving their clients, they found their products when Global IT University approached them to become their alliance partner for the State of Hawaii. IQT<sup>2</sup> now offers software training and certification training for Microsoft, Cisco, CIW, Macromedia, Adobe, CompTia, HIPAA, OSHA, Test Quizzers, Diagnostic Tools, Novel and Oracle. They also offer business professional training

on communication skills, professional development and employee conduct.

“Mahalo HTDC and Peter Kay,” said Jennifer, “If not for your influence, we would not have taken advantage of this opportunity! As you can guess, there is much more to say about the value HTDC has been to our company. We look forward to a long relationship with this wonderful service to the tech community of Hawaii.”

## IQT<sup>2</sup> Corporation Q & A

**Q** Please tell us briefly about your company and what it does.

**A** Specializing in management and marketing consulting to high-technology companies, IQT2 offers high-tech businesses a reliable, high-quality alternative to in-house resources for business and market development.



Erin Rush-Nelson & Jennifer Rush

**Q** Please tell us about your initial contact with HTDC, what value you saw that caused you to become a tenant/participant?

**A** I became familiar with HTDC several years ago and have watched it grow. To assist a client Erin and I gained, we began attending HTDC workshops.

**Q** How has HTDC helped your business? What were some of the most significant, memorable ways?

**A** The main impact HTDC has had on our business is giving us the impetus to go from separate sole proprietorship businesses to forming a corporation. Because of the impact of HTDC, the SBDC [Small Business Development Center] and HWBC [Hawaii Women’s Business Center], for the first time in my years in business I am not only willing to become an employer but an actually excited about it.

**Q** What more could HTDC/the State do to assist innovative businesses like yours?

**A** The workshops have been invaluable to our business. As we grow, we are looking at becoming tenants at HTDC. I would like to encourage the legislature to continue the State’s investment in such services.

HTDC connects its clients and other Hawaii tech entrepreneurs and experts in a variety of ways, with the goal of creating an akamai technology community in Hawaii where, in the words of Blue Planet Software CEO Henk Rogers, everyone “gets it!” Here are some of our efforts to give Hawaii’s technology businesses a better chance to succeed.

## Workshops & Seminars

HTDC creates educational and networking opportunities by coordinating monthly workshops presented by technology industry experts. Attendees gain relevant information, insights and connections that add to their business knowledge and savvy, and make it more likely that they will run their businesses successfully. Workshops are normally held in the presentation room at HTDC’s Manoa Innovation Center (MIC).

Presenters in 2006 were:

- Mark Egan—CIO of Symantec  
*Mergers, Acquisitions, and Compliance*
- Peter Kay—President of Flat Earth Ventures  
*Tech Entrepreneuring*



- Jeff Au—Managing Director of PacifiCap Group  
*Venture Capital*
- Martin Hsia—Cades Schutte  
*Intellectual Property Patents*
- Eric Smith and Athena Lou—Teamworks  
*Facilitated Results*
- Kelli Wilinski—Colliers Monroe Friedlander  
*Office Leasing*
- Patrick Oki and Alan Schlissel—Grant Thornton  
*Federal Research Tax Credits*
- Rob Kay—PacTech Communications  
*National Publicity Campaigns*

- Kurt Kawafuchi—State Tax Director  
*Act 221/215 Updates*
- Bill Yuen, Esq.  
*Company Structures*
- Stuart Leudan, Esq.  
*Preparing for Angel and Venture Capital*
- Dr. Haidan Wang—  
UH Department of  
East Asian Languages  
and Literatures  
*Introductory Business  
Chinese (a six-week,  
12-hour course in  
Mandarin Chinese  
and Cultural Literacy)*



HTDC also coordinates Provider Express workshops presenting various effective business solutions to MIC clients. Presenters included:

- Henry Montgomery—Founder of Montpac  
*Outsourcing Accounting Functions*
- Greg Kim—Vantage Counsel  
*Funding*
- John Bingaman—CompUSA  
*Electronic Gadgets*

## Executive Coffee Hour

HTDC coordinates a monthly coffee hour forum for MIC CEOs to discuss and exchange ideas. Technology experts such as Rob Robinson of Hawaii Angels, Bill Spencer of Hawaii Venture Capital Association, John Chock of Hawaii Strategic Development Corporation, Ian Kitajima of Dual Use Networking Group, Representative Kirk Caldwell, UH College of Engineering Dean Peter Crouch and other University of Hawaii faculty, present topics of interest and offer useful business insights. CEOs also make presentations on their companies to update their peers. The goal of these gatherings is to provide CEOs with an expanded network of advisors and colleagues sharing their experiences, resources, lessons, best practices and camaraderie, to accelerate the tenant companies’ knowledge base and growth.

## Tech Ohana

Through partnerships with local Economic Development Boards and Chamber of Commerce organizations statewide, HTDC sponsors Tech Ohana events as a way of bringing relevant information and networking opportunities to the technology communities on Kauai, Maui and the Big Island.

HTDC used various media and events to help build awareness of its clients, programs, and the technology industry. These included television and radio appearances, public service announcements about HTDC's workshops and seminars, and stories about our programs, events, and successful graduates in the local dailies and Pacific Business News.

## MEDIA

### Tech Buzz Hawaii

This Tuesday morning show on Fox-2 Morning news with popular television anchorman, Kirk Matthews, produced in partnership with PacificNews.net and KHON-TV, featured HTDC clients, events and programs.

### Flavors of Technology

Flavors of Technology on Oceanic Time Warner Cable of Hawaii's channel 16 is a fast paced, youth oriented format TV show that showcased MIC tenant Pipeline Communications Technology and MRTC tenant Oceanit in 2006.

### HiTechHawaii.com Portal

HiTechHawaii.com is the portal to Hawaii's high technology industry, where you will find tech resources, news, events, businesses, and jobs under one virtual roof.



HiTechHawaii.com use increased from 600 visits per day in 2005 to 845 visits per day in 2006.

Over 1,700 people are on the HiTechHawaii.com mailing list and receive weekly highlights on Hawaii technology industry news and events, and notices of newly posted jobs from the TechJobsHawaii.org website.

### Tech Jobs Hawaii and TechJobsHawaii.org

Six years ago, when Hawaii's growing technology industry needed to connect with technologically skilled employees, the Tech Jobs Hawaii Consortium formed and created TechJobsHawaii.org to provide a no-cost, direct connection between job seekers, interns and employers. HTDC developed the original site and continues to maintain and enhance the website.

### HTDC.org

HTDC.org provides information about HTDC's programs and services as well as statewide conference room reservation access to HTDC clients. Use increased from 600 visits per day in 2005 to more than 800 per day in 2006.

## Hawaii Technology Report

HTDC contracted with the Hawaii Institute of Public Affairs (HIPA) to update HIPA's 2003 "A New Economy in Hawaii" report by adding 2005 indicators and recommendations for Hawaii's technology industry. The report is at [www.htdc.org/files/NewEconomyHTDC.pdf](http://www.htdc.org/files/NewEconomyHTDC.pdf).

## EVENTS

### 2006 Technology & Internet Expo

HTDC joined Oceanic Time Warner Cable and Pacific News. Net in sponsoring this Business to Business expo that offered technology companies, including HTDC client Oceanit and HCATT, a showcase for their high-tech innovations. The expo took place at the Neal Blaisdell Exhibition Hall on Oahu on March 31 and continued on Maui on May 11.

### Summer Science & Tech Fair

June 14, 2006, marked the date of HTDC's first Summer Science & Tech Fair. Attendees met with 22 companies from Hawaii's growing high-tech sector and explored career opportunities with them, including HTDC clients Pipeline Communications, Quantum Leap, 21CSI and Oceanit.

### CompUSA Entertainment & Tech Expo

HTDC participated in the first tech event targeted at Hawaii's consumer market, small office home offices (SOHO) and small businesses at the Neal Blaisdell Exhibition Hall on August 31 and September 1. The expo showcased the latest technologies in home entertainment, computers, video games, cars and various services. HTDC featured virtual client FINDERELF.com, which provides an online concierge service.

### Flavors of Technology Event

HTDC partnered with the Technology News Network and the Pacific Technology Foundation for the 6th Annual HTDC Flavors of Technology dinner held on October 22. The yearly event is a celebration of the achievements of Hawaii's high-tech companies and supporters.

On behalf of the Governor, HTDC presented winners of various awards, such as the Tech Company of the Year, Top High-Tech Leaders, Technology Hall of Fame, Tech Educator of the Year, Technology Community Service Award, and Technology Hall of Fame Award.

### 2006 Holiday Science & Tech Fair

HTDC will host the 7th annual Holiday Science & Tech Fair on December 28, 2006. This event provides an opportunity for recent graduates and expatriates who are home for the holidays to learn more about technology companies, including HTDC clients Pipeline Communications, Quantum Leap and Pukoa Scientific, and job opportunities in Hawaii. The event connects the companies with qualified workers who want to work and live in Hawaii, helping to reverse the brain drain.

## Tech Centers

HTDC's incubators—the Manoa Innovation Center (MIC) near the main research campus of the University of Hawaii, the Maui Research & Technology Center (MRTC) in Kihei, and the Hawaii Innovation



Center at Hilo (HICH)—are settings that promote the continuous exchange of meaningful ideas, information and connections to nurture and assist new and early-stage entrepreneurial ventures in creating their own success.

Each incubator provides:

- short-term leases;
- access to business facilities and equipment (offices, copiers, mailboxes, conference rooms);
- internet access;
- ample and affordable parking;
- business mailing addresses;
- client-centered business workshops;
- networking events;
- referrals to private sector business experts and service providers; and
- business reviews (covering marketing, financing, business planning, and organizational growth & effectiveness).

Since its inception in 1992, MIC's cumulative success rate has been 77%—meaning 77% of all MIC client companies were viable businesses at the time of graduation. Comparatively, the Small Business Administration finds that five out of six businesses fail within their first five years (Cullen, L. R. "On the Side of Angels." *Money*, Dec. 1998, pp.130–136). MIC's success rate demonstrates its effectiveness in nurturing small

businesses and increasing their odds of business success within the critical early years of business development.

## Virtual Incubation

HTDC's statewide Virtual Incubation Program allows seed and early-stage tech companies that do not require, cannot afford, or are waiting for (because HTDC's physical incubators are often fully occupied) physical office space to have access to all HTDC incubation common area facilities, services and programs for a nominal \$100 monthly fee.

Since the program's inception in 2004 under an Economic Development Administration (EDA) grant, 32 new start-up companies have participated, 85% have graduated successfully, and many have become physical tenants at MIC.

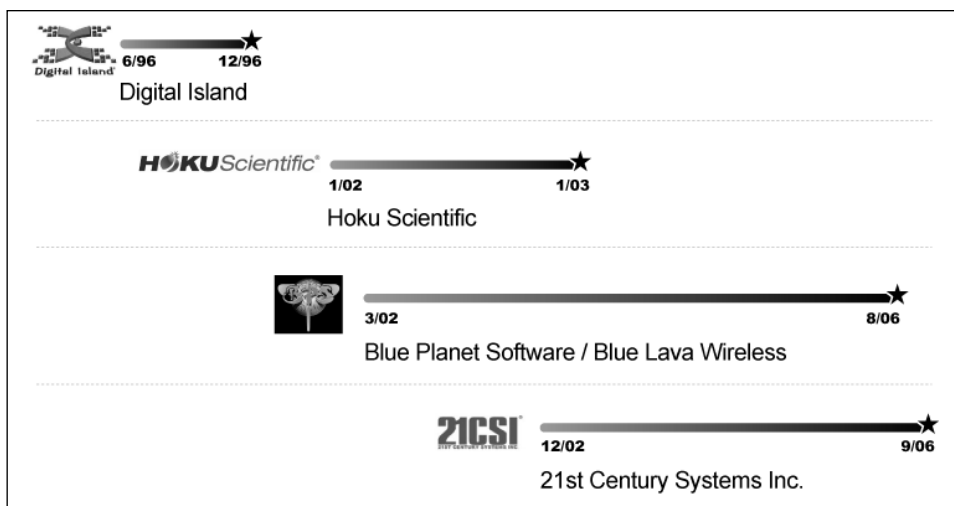
Eight new companies joined the program in 2006, working in such diverse technologies as alternative energy solutions, software development and hyperspectral imaging.

With the majority of program activity taking place on Oahu, the growth of the program—and the infrastructure available to support high-tech business in general—on the neighbor islands continues to be a challenge and an opportunity.

## Professional Service Providers

HTDC's Professional Service Provider (PSP) Program is designed to provide HTDC's client companies with the business support and consulting resources they need to accelerate their transition from incubator companies into vibrant and successful businesses. The PSP program is based on public-private sector partnerships between HTDC and experienced business professionals, who have agreed to provide their services at reduced costs to support the success of our client companies. Through a matchmaking process, HTDC's client companies access these consultants and professionals for assistance in such areas as law, accounting, marketing, human resources, and business plan development.

## Notable Graduates



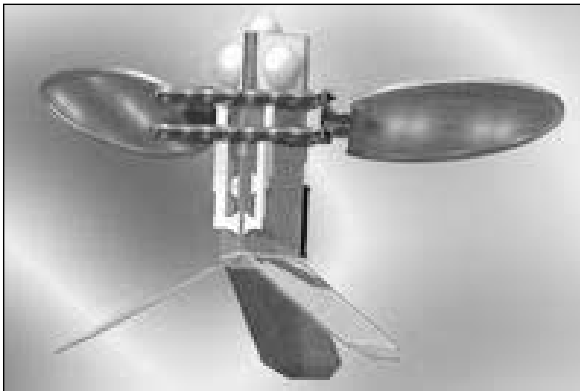


We refer to companies in the second stage of development as Early-Stage companies—when a company with a new, innovative product or service idea begins to “take root” and grow.

## Ambient Micro

In 2004, Scott Wecker and his company, HawaiiWave Wireless, then based at HTDC’s Maui Research and Technology Center in Kihei, were providing Internet access solutions to Maui hotels. Scott realized that the wireless networks his company set up and serviced were not really “wireless” in the sense that their nodes were tethered to power cords. He started thinking about how to provide truly wireless energy beyond the limitations of cords and battery power. His research led him to the wireless technology work of Dr. John Langley for Raytheon, and to the work of Dr. Bor Yann Liaw of the UH Electrochemical Power Systems Laboratory.

In late 2004, HawaiiWave won a \$90,000, six-month research and development contract through the Office



of Naval Research (ONR) and the Hawaii Technology Development Venture (HTDV), an MIC tenant, to investigate the potential of an ambient RF energy technology. The project team included Wecker, Langley and Liaw.

In October 2005, Wecker, Langley, and Liaw formed Ambient Micro LLC to explore ambient energy technologies. In November 2005, Ambient Micro won a \$300,000 follow-on, 12-month contract through HTDV/ONR to develop a prototype of a Multi-Source (solar, thermoelectric, vibration, and ambient RF wave) Ambient Power Supply. For many applications, such as remote sensors and radio frequency identification tags, this self-charging power supply technology can provide unlimited operating life and eliminate the need to replace or recharge batteries when battery replacement is impractical, costly, or dangerous. The device is currently about the size of a stick of gum. Wecker said the company hopes to make it the size of a fingernail within the next year and reduce that to the size of a pinhead within the next three years.

In April 2006, the Air Force Research Lab selected Ambient Micro for a \$100,000, nine-month Small Business Innovation Research (SBIR) contract to develop an ambient micropower supply to support UAV-mounted (Unmanned Aerial Vehicle) MicroElectroMechanical Systems (MEMS) sensors.

In May 2006, Ambient Micro received a \$15,000 Hawaii SBIR matching grant from HTDC that complemented the company’s SBIR award by providing for expenses that are not covered by the federal SBIR award such as travel to meet with Air Force Research Laboratory personnel on the mainland.

Ambient Micro’s primary laboratory and test facilities are located in Honolulu at HTDC’s Hawaii Center for Advanced Transportation Technologies’ (HCATT) Lab. The facility occupies 18,000 square feet of floor space and is equipped with state-of-the-art tools for testing electrochemical power source systems. This large open facility provides Ambient Micro with space to conduct full scale UAV engine testing and component integration.

[For information on HCATT, go to page 14]

**Mahalo** to the House and Senate for passing House Bill 3060 CD1 during the 2006 Legislative session and to Governor Lingle for signing it into law as Act 282. This act provides funding to train Hawaii companies so they can compete more successfully for federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards, at a time

when federal funding previously available for this purpose was cut. Act 282 also provides state matching grants to assist companies that win federal SBIR and STTR Phase I awards to better compete for subsequent funding leading to commercialization. For more information on SBIR, STTR and the Hawaii SBIR/STTR matching grant program, go to page 15.

## Ambient Micro Q & A

**Q** Can you tell us a bit about how you got into your industry?

**A** Ambient Micro was originally formed by Scott Wecker in 2001 as HawaiiWave High Speed Wireless Networks to develop high speed internet service for the hospitality industry. With HTDC's support, HawaiiWave established a development agreement with Oceanic Time Warner Cable to establish the first use of the commercial digital cable network to simultaneously support transactional high speed internet access services multiple hotel, time share, and resort condominium properties and vacation technologies. This system is now being deployed throughout Hawaii as the Oceanic Hospitality Network.

In 2004, while working on the challenge of supporting wireless deployments at large hospitality properties, it became apparent that the major challenge was that wireless deployments were not "wireless"—they needed wired power to operate the wireless nodes. This remains a significant cost factor and limitation on full wireless deployments. To address this need, HawaiiWave developed the concept of "wireless energy" in which the same energy used to transmit data in a wireless network could be used to transmit energy to wireless transceivers. As part of his research into the concept, Scott Wecker contacted Dr. John Langley. Dr. Langley quickly explained that the original concept of "wireless energy" was not viable—however, it might be viable to capture ambient radio waves as an energy harvesting source.

This led to a proof of concept funding contract in 2005 through the Office of Naval Research and the Hawaii Technology Development Venture and a follow-on contract in 2006 to further the development of multi-source energy harvesting. Scott Wecker formed Ambient Micro with Dr. Langley and Dr. Bor Yann Liaw (Director of the University of Hawaii's Electrochemical Power Systems Lab) in October 2005. In April 2006, Ambient Micro was awarded a SBIR Phase I contract from the Air Force Research Lab (AFRL) to develop a micro power supply for micro sensors mounted on Unmanned Aerial Vehicles.

HTDC provided Ambient Micro with a \$15,000 grant to assist it in developing its technology and contract proposal to support a follow-on two-year contract from AFRL. In September, these efforts were rewarded when Ambient Micro received an invitation from AFRL to submit a Phase II proposal. AFRL will announce the contract award in mid-December.

**"...more funds should be allocated to proactively promote awareness of the full range of available HTDC services..."**

**Q** Please tell us about your initial contact with HTDC, what value you saw that caused you to become a tenant/participant?

**A** Scott Wecker initially met with MEDB [Maui Economic Development Board] and HTDC in June 2002. They were extremely helpful in providing business planning support, as well as office facilities, and access to high speed internet, phone, and fax services.

**Q** How has HTDC helped your business? What were some of the most significant, memorable ways?

- A**
- Continued encouragement;
  - Provision of business development workshops on licensing, patents, accounting, business planning;
  - Periodic one-on-one business planning reviews;
  - HTDC SBIR Grant funds to pursue Phase II contract.

**Q** How did the Hawaii SBIR matching grant program help your company, and why should the State continue funding it?

- A**
- Provided the funds for Ambient Micro to have its two scientists travel to Dayton, Ohio to meet with the AFRL staff. This led to a better understanding of the AFRL areas of interest and enhanced Ambient Micro's credibility with the program manager;
  - Funded additional travel to meet with Naval Research Lab to discuss UAV power requirements and state of the art research for AFRL proposal;
  - Provided funds to purchase components for the design and testing of a micro ambient power supply demonstration module with a MEMS sensor.

The State has the opportunity to use this program to secure a very positive ROI. Once a local company has been awarded a SBIR Phase I, the odds of winning follow-on funding jumps significantly to almost 50%. This brings in \$750,000 of Phase II funding to Hawaii and potentially millions off incremental dollars and multiple new full time, high paying jobs if the technology transitions to a Phase III sub-contract with the major defense contractors.

**Q** What more could HTDC/the State do to assist innovative businesses like yours?

**A** If possible, more funds should be allocated to proactively promote awareness of the full range of available HTDC services to start-up and small high technology businesses—especially on the Neighbor Islands.

**Q** What's your opinion on ACT 221 or 215?

**A** It is a very important program that has suffered because of the uncertainty of its survival in the 2004–2005 periods. Only now is its full potential beginning to be felt in attracting both incremental Hawaii funding and significant incremental investments from Mainland companies.

[Read the rest of the interview at [htdc.org/2006annualreport](http://htdc.org/2006annualreport)]

## Hawaii Center for Advanced Transportation Technologies (HCATT)

HCATT's mission is to be a catalyst for zero emission vehicle advances in Hawaii. It is currently working with the U.S. Air Force Advanced Power Technology Office (APTO) to develop advanced alternative fuel vehicles and supporting infrastructure for evaluation at the National Demonstration Center at Hickam Air Force Base. These efforts are aimed at production and commercialization of advanced transportation technologies with military and commercial applications.

HCATT delivered a fuel cell/battery-powered hybrid electric bus in 2004, followed by a fuel cell/battery-powered hybrid electric step van in 2005, and then by a fuel cell-powered aircraft tow tractor in 2006. These vehicles are the beginning of a fuel cell vehicle fleet that HCATT will continue to develop for demonstration at Hickam.

HCATT is currently developing an electric motor/lithium battery powered step van and a plug-in parallel hybrid electric drive step van: diesel engine, electric motor, lithium batteries, and a continuously variable transmission. The three step vans will undergo comparison testing to evaluate the efficiencies of different alternative drive and fuel systems in a common vehicle. A hybrid electric dump truck is also in development.

A major accomplishment by HCATT in 2006 is the development and installation of a deployable, modular hydrogen production and fueling station at Hickam to

support the operation of present and future fuel cell vehicles. This station is unique because of its ability to produce 50kg of hydrogen per day on-site and because of its deployability. It is the first of its kind in the Department of Defense and the first hydrogen vehicle fueling station in Hawaii.

HCATT is also collaborating with the Electrochemical Power Systems Laboratory of the Hawaii Natural Energy



Institute at the University of Hawaii to evaluate lithium-ion batteries for vehicle applications.

As Hawaii and the rest of the country moves toward the vision of a hydrogen-based economy, with clean air and abundant energy, HCATT continues to produce evidence that the dream is within reach.





## Small Business Innovation Research (SBIR) Program

The federal Small Business Innovation Research (SBIR) program stimulates research and development activity throughout the country. The SBIR program provides funding for promising, though untested, ideas whose success is too uncertain to attract private investment from banks, angel funds or venture capitalists. The SBIR program accepts the risk that some of these innovations may not pan out because it is more often rewarded with technologies that meet the country's critical needs. In Hawaii, HTDC educates the technology community about the SBIR program and how it can help companies develop and commercialize their innovations and technologies.

Eleven federal agencies participate in the SBIR program: the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, and Transportation; the National Aeronautics and Space Administration; the National Science Foundation; and the Environmental Protection Agency. Together, they award over \$2 billion to U.S. small businesses annually.

These agencies regularly announce their most urgent needs, then companies throughout the country submit their solutions, and the agencies pick the one they like best. The agencies make a "Phase I" award of up to \$100,000 to that company to explore the feasibility of its solution. If the agencies like what they see, they invite the company to apply for a "Phase II" award of up to \$750,000 for research and development of a prototype and a commercialization plan. In "Phase III" the company secures funding from industry or other non-SBIR federal sources to commercialize their innovation.

The State of Hawaii, through the HTDC Hawaii SBIR Matching Grant Program, provides up to \$25,000 to each Hawaii Phase I awardee so these companies can better compete for Phase II awards. The State's goal is to aid each awardee's chances for commercial success, encourage R&D activity, create high quality jobs, and boost Hawaii's economy.

In FY 2006, the Hawaii SBIR matching grant program awarded \$270,000 to 13 local companies that won 18 federal SBIR Phase I awards worth \$3 million and three Phase II awards worth \$1.6 million. Over the last 17 years, 63 Hawaii companies won 262 SBIR awards worth nearly \$60 million, received \$4 million in State matching grants, and created hundreds of high quality, high paying jobs. Hawaii companies also attracted more than \$58 million in Phase III funding and revenue. For every State dollar invested in the program, Hawaii companies attracted nearly \$15 in federal SBIR funds or nearly \$30 for every State dollar invested when Phase III dollars are included.

**“Over the last 17 years,  
63 Hawaii companies  
won 262 SBIR awards  
worth nearly  
\$60 million...”**

## Hawaii SBIR Matching Grant Awardees, July 2005 – June 2006

(\*first ever SBIR awards)

- \***Ambient Micro LLC** (Kihei, Maui) Air Force: "Ambient Power Supply for On-Board Vehicle Health Monitoring MEMS Sensors"
- \***Archinoetics, LLC** (Honolulu, Oahu) DARPA: "Evolutionary and Neurobiologically Inspired Computational Platform for Autonomous Vehicle Control"
- \***Archinoetics, LLC** (Honolulu, Oahu) Office of Naval Research: "MedNet Consortium"
- \***DigiLore** (Hilo, Hawaii) Air Force: "Pattern Recognition for Aircraft Maintainer Troubleshooting"
- \***Great Pacific Chocolate Company Inc.** (Kailua-Kona, Hawaii) USDA: "Establishing a New (Cacao) Orchard Industry for Hawaii"
- \***Hawaii Biotech** (Aiea, Oahu) National Institutes of Health: "Expression of Recombinant Subunit Protein for Flu Vaccine"
- \***Hawaii Biotech** (Aiea, Oahu) National Institutes of Health: "Structure Based Design of Dengue Virus Fusion Inhibitors"
- \***Innovative Technical Solutions** (NovaSol) (Honolulu, Oahu) Navy: "Miniature Hyperspectral Digital Camera"
- \***Innovative Technical Solutions** (NovaSol) (Honolulu, Oahu) NASA: "BRASS (Broadband Advanced Spectral System)"
- \***IQF Dream LLC** (Hilo, Hawaii) USDA: "Improved Method of Processing Papayas for Food Safety and Quality"
- \***KCTP LLC** (Nakashima Greenhouses) (Hilo, Hawaii) USDA: "Feasibility of Hawaii Grown Green Tea for Rural Development"
- \***Kona Bay Marine Resources Inc.** (Honolulu, Oahu) USDA: "Development of a Novel Cold-Tolerant, Disease-Resistant Shrimp by Intraspecific Hybridization"
- \***Kona Blue Water Farms LLC** (Holualoa, Hawaii) USDA: "Expanding Domestic and Export Markets for Open Ocean Aquaculture Products by Value-Adding"
- \***Kuehnle AgroSystems Company, LLC** (Honolulu, Oahu) Army: "Chloroplast Genetic Engineering to Produce Diagnostic Antigens and Vaccines"
- \***Oceanit Laboratories** (Honolulu, Oahu) Army: "MEMS Technology for Sense Through the Wall Applications"
- \***Oceanit Laboratories** (Honolulu, Oahu) Army: "Hostile Fire Detection System"
- \***Trex Hawaii LLC** (Lihue, Kauai) Missile Defense Agency (MDA): "Chemical Vapor Composites Silicon Carbide for Radiation Hard Optics"
- \***Trex Hawaii LLC** (Lihue, Kauai) MDA: "Chemical Vapor Composites Silicon Carbide Optical Mounting Structure for Space Applications"

We refer to companies in the third stage of development as Mid-Stage companies. They have existing successful products or services and are seeking opportunities to grow by developing a new, innovative product or service, by expanding into a new market, or by increasing its productivity and effectiveness. 21<sup>st</sup> Century Systems is such a company, already successful in its own right, that decided to establish a presence in Hawaii.

## 21<sup>st</sup> Century Systems, Inc.

In early 2003, 21st Century Systems (21CSI), an already successful, fast-growing technology company headquartered in Omaha, Nebraska, did so much work in Hawaii for the Department of Defense that it decided to open an office in Hawaii, starting at MIC with one person.

“In less than four years, 21CSI’s office has grown from one person to 13,” says deputy program manager Don Wilson. “HTDC’s support throughout was invaluable, and a key factor in the company’s maturation process. We have hired local residents exclusively and will continue to recruit new employees from graduating classes at the University of Hawaii, HPU [Hawaii Pacific University], and Chaminade, and from those already established in computer science professions. HTDC has assisted in this process since inception and has provided succinct, cogent, and timely advice each time, every time.”

In layman’s terms, 21CSI develops very sophisticated video games to help military decision makers, such as pilots and submarine captains, simulate and predict the moves of their adversaries. The Marines, Army and Navy use their products.



“In the nearly four years 21CSI has been a tenant at the Manoa Innovation Center, HTDC officers provided requisite support quickly, thoroughly, and professionally,” says Wilson. “Their advice, guidance, mentoring, and support were uniformly outstanding, and contributed directly to the company’s success. Moreover, that support was provided graciously, and we were treated to service as if we were the only company relying on HTDC.”

In 2006, 21CSI received the Tibbetts Award which recognizes significant achievements involving technological innovation related to the federal Small Business Innovation



Research Program. Entering its 11th year with a three-year growth rate of 514.4% and 150 employees, 21CSI has offices in ten states.

“21st Century Systems is graduating from under the exemplary support and tutelage of the High Technology Development Corporation on September 1, 2006. 21CSI will relocate to the Airport Industrial Complex to accommodate more programmers, in response to greater business.

“Ironically, HTDC is a relatively unknown State of Hawaii asset, yet those who established and nurtured the concept of an ‘incubating’ place for high technology industries can take great pride in its ‘graduates,’ and the fact their employees can remain in Hawaii with their families, contributing to the tax base, and providing opportunities for generations to come.

“HTDC and its officers personify professionalism, and their encouragement is infectious. They will remain friends and colleagues, and I strongly recommend HTDC and the Manoa Innovation Center as the best asset to start and nurture a developing high technology company. Well done and mahalo!”

With existing successful products and services, this next Mid-Stage company saw an opportunity to develop a new, innovative product and expand into a whole new market.

## Black Pearls / Kona Blue Water Farms

In 1992, Neil Anthony Sims and Dr. Dale Sarver formed Black Pearls Inc. at NELHA [Natural Energy Laboratory of Hawaii Authority] in Kailua-Kona with \$4,800 invested and \$50 in legal fees. They went on to win their first National Science Foundation SBIR Phase I award in 1993 to develop pearl oyster hatchery culture techniques. A \$25,000 Hawaii SBIR matching grant from HTDC helped the company successfully compete for a subsequent Phase II award in 1994.

In 2001, they formed Kona Blue Water Farms to explore open-ocean aquaculture and address the world's shrinking seafood supply. "Pearls are great, but they're baubles," says Sims. "We wanted to do something that had more substantive reward to it, something that people could sink their teeth into and feed them in the fullest sense of the word."



They developed a hatchery and open-ocean fish cages underwater a half-mile offshore off Keahole Point. Similar to ancient Hawaiian fishponds, these cages provide a controlled environment for raising and harvesting fish.

They came across a native fish known as *kahala* (or Hawaiian yellowtail) that local commercial fishermen would throw back in the ocean because it is prone to a reef toxin called ciguatera in the wild. "There were a lot of serendipitous discoveries about this fish that just blew us away," says Sarver. "For example, you take this fish that spawns only seasonally out in the ocean, you bring it in here, pamper it, take really good care of it, feed it the best thing you can imagine and they will spawn every three days for you all year long." The hatchlings are not exposed to ciguatera while growing up in Kona Blue's open-ocean cages and are ready for harvest in about one year.

The cultivated kahala, trademarked as Kona Kampachi, is drawing raves from top chefs around the country. Chef Roy Yamaguchi is attracted by "its rich flavor and superb texture" as well as by the responsible manner it is grown. Chef Alan Wong simply declares, "The next big fish is Kona Kampachi."

Over the years, the companies won six SBIR Phase I awards and four SBIR Phase II awards worth \$1.3 million, plus \$135,000 in Hawaii SBIR matching grants from HTDC, including \$10,000 this year, to support their efforts and growth. Kona Blue now employs 35 biologists, marine scientists and divers who each understand the importance of ocean health and sustainability. "It's very important to all of us at Kona Blue that we prove the model can be economically viable," says Sims, "but more importantly, we passionately believe that what we are doing can make a difference."

## Black Pearls / Kona Blue Water Farms Q&A

**Q** Can you tell us a bit about how you got into your industry?

**A** As a fisheries biologist, the plight of the world's fish stocks was immediately apparent to me, from my very first professional posting. As the Cook Island government Fisheries Biologist, I had a microcosmic window on the future of the oceans. I was charged with instituting rational management of the high-value fisheries in the lagoons of these isolated atolls. Trying to manage fisheries for pearl shell, giant clams, trochus (a pearly snail) or reef fish was, to flog an old metaphor, like rearranging the deck chairs on the Titanic; it was pretty discouraging stuff.

The much-vaunted Polynesian conservation ethic held up well in subsistence fisheries, but as soon as a dollar value was ascribed to a resource, it lurched into the cycle of boom-and-bust, and often just went bust. I still remember a toothless old man on the shores of the lagoon, crying as we confiscated his pearl shell catch because the fishery had closed three days ago, and yet again there had been a quota overrun: "Why you close it?!" he demanded. "Why you stop? There's still some left!"

That was an epiphany for me. I realized then that I had to do something else that was more proactive; something that had more of a future. We couldn't just keep taking from the ocean ... we had to start to give something back. At that point, I was converted to aquaculture.

**Q** Please tell us briefly about your company and what it does?

**A** Kona Blue is the first sustainable operation in the United States to grow fish in the open ocean from an integrated hatchery. Four years ago, the company began culturing Kona Kampachi™ (or *Seriola rivoliana*), a delicious Hawaiian yellowtail fish. This fish is nurtured from hatch-to-harvest, fed sustainable feed and grown in some of the cleanest water on Earth. Kona Kampachi™ is healthy, pure and rich in healthy omega-3 fatty acids with no detectable mercury.

Kona Blue is committed to building an environmentally sustainable future through marine fish hatchery technology and deep-ocean mariculture.

**Q** *How has HTDC helped your business?*

**A** The SBIR matching program has been of huge assistance. The research funds from NSF or USDA SBIR grants are usually fully committed to do the essential research. The matching contribution from HTDC is of enormous value because it allows us to pursue additional research to excel in the Phase I. This, in turn, positions the company well, with a far better chance of obtaining a more lucrative Phase II SBIR grant. I can't say enough of HTDC; they have been very helpful in facilitating meetings with other agencies, such as ATP [Advanced Technology Program]. Introductions to other agencies and individuals have contributed greatly to our company's growth.

**Q** *What more could HTDC/the State do to help innovative businesses like yours?*

**A** For our company, it is critical to have HTDC and the State continue to assist us with identifying appropriate partners and funding. We also rely upon the State and HTDC to assist with regulatory challenges that come up.

**Q** *What's your opinion on ACT 221 or 215?*

**A** These were key to attracting investors with an understanding of Hawaii's economy and the opportunities that Hawaii can offer. The Hawai'i State Legislature enacted Act 221 in 2001 with the goal of increasing investment in local technology companies. By any measure, this goal has been well met.

Qualifying as a high technology business under the statute, Kona Blue caught the eye of local investors, who could see the potential competitive advantage that we had to offer. The initial investment was led by Thomas McCloskey, a part-time Kauai resident, and owner of Cornerstone Holdings, an Aspen, Colorado-based private equity investment firm. Tom, his partners, and other mainland investors were able to reduce the risk to their investment through the Act 221-215 structures. This meant that Kona Blue was able to assemble a group of experienced, business-savvy investors, who helped we founders see the bigger picture of the mammoth growth potential, and the marketing and branding opportunity.

U.S. consumers spent an estimated \$52 billion on seafood products in 1999 alone. National seafood imports are growing at 12 percent annually, contributing to an annual U.S. seafood export deficit of \$8 billion. Capitalizing on steadily increasing demand, Kona Blue could pioneer the growth of a sustainable, ecologically sound offshore aquaculture industry in the U.S. Hawai'i is the logical place for responsible growth in aquaculture: seafood consumption is three to four times the national average and open ocean cage culture research was pioneered in the Islands.

**Q** *What are the three biggest mistakes people make when starting their own business and what do you suggest for them to overcome these mistakes?*

**A** People don't realize the tremendous resources that are available within the state government that can be utilized. There are considerable resources in the state bureaucracy which can be tapped, such as HTDC. We also found DOA's [Department of Agriculture] Aquaculture Development Program to be incredibly helpful every step of the way. These resources can spur and guide growth for companies.

Another challenge for companies that seek to be pioneers in a new untested industry is the community. We found that once we involved the community and opened a sincere and ongoing dialogue, there was great receptiveness. We are very grateful to have the community so soundly supportive; without this, Kona Blue could not achieve the leadership that it has reached in the industry.

Perseverance is also important and those who set about starting a business must expect setbacks and work through them. In the end, it is all worth the effort.

**Q** *What was your biggest business challenge and how did you overcome it?*

**A** There were numerous challenges. Initially developing the hatchery technology was the primary hurdle, so that we could stock the farm without relying on wild fingerlings. Secondly obtaining the lease for an offshore aquaculture operation required close work with the community (as noted) and government agencies. Thirdly, finding the right partners to fund the operation, market the company and brand the product.

**Q** *Are entrepreneurs made or born?*

**A** I would say, a bit of both. Seizing opportunity is important. For Kona Blue, we were in the right time at the right place. When the technology for offshore aquaculture along with the state's Act 221, and the ATP grant from DOC [Department of Commerce] came through. All of the synergy made it possible to move forward very quickly. Certainly the \$1.5 million grant from ATP that came about because of HTDC's work was a key factor.

**Q** *How did you obtain financing?*

**A** The initial financing of the research was through Advanced Technology Program of DOC. The introduction to ATP was facilitated by HTDC. It was at an HTDC-sponsored seminar that I was first introduced to ATP staff and was able to pitch my research plan to them.

For the commercial financing of Kona Blue, we must give most of the credit to the UH angel investor network in Hawaii. Once again, it was through the efforts of HTDC that we got in contact with the UH angel group, and this then led to our assembling the team of investors.

**Q** *Any advice for today's young business person?*

**A** Call HTDC.



Although HTDC focuses on helping Hawaii technology companies succeed, our Manufacturing Extension Partnership (MEP) program consultants can help almost any Hawaii company improve its productivity and effectiveness. With MEP's help, this mid-stage company returned to profitability.

## Kahuku Farms

In the mid-1980s, Clyde Fukuyama's third-generation family business grew papaya, eggplant, watermelon and corn in Kahuku. Melvin Matsuda's grew watermelon, corn, bananas, bell peppers and bitter melon. The two men grew up as neighbors and shared similar crops, goals and philosophies, so they decided to partner on certain crops. When these ventures worked out well, they decided to merge their operations and created Kahuku Brand in 1986 to help them grow and distribute their wholesale Hawaiian fruit and vegetables. In 1995, Kahuku Farms was created as a place for learning, enjoying and experiencing diversified agriculture at its finest.

When the Waialua Sugar Mill closed down in 1996, they began leasing land from the Campbell Estate, Dole Foods, Inc., and Kamehameha Schools. Their combined acreage grew from about 80 acres to more than 300 acres.

"When we were doing papaya back in Kahuku, when we were doing 10 acres, we thought that was kind of big," says Fukuyama. "But now, from a small operation to more of a plantation-style, I think that really transitioned us to grow on a bigger scale." The number of employees also grew from about eight in 1995 to 40 today.

With Matsuda running operations, and Fukuyama handling marketing and administration, the company grew three different varieties of papaya, two different varieties of banana, taro and watermelon. By 2004, even though Kahuku Farms was one of the largest producers of papaya and banana in the state of Hawaii and employed 30 employees, the tools that Matsuda and Fukuyama relied on to manage their business when it was a smaller operation no longer applied. "Being a bigger operation has not necessarily meant a bigger bottom line," said Matsuda. While sales more than doubled over 10 years, the partners' biggest challenge was to turn a profit. To keep the company alive, they subleased their tractors and employees to other operations, such as Dole

and Del Monte. It was clear that something is wrong; the company was losing money. Kahuku Farms called on HTDC-MEP for help.

HTDC-MEP assessed the business side of the operations, studied the financials of the company and conducted a complete cost analysis. HTDC-MEP consultants spent time in the fields with the workers, timed harvest operations, calculated the cost of all farm inputs related to each specific crop, and developed a cost calculator to aggregate all of the data.

Working with the consultants, Kahuku Farms:

- Determined that cost of producing papaya was higher than thought by the owners;
- Renegotiated all contracts for papaya to guarantee profitability;
- Determined that the variety thought to be the least profitable and slated for discontinuation was actually the most profitable and production of that variety expanded;
- Moved to subcontract out banana harvesting to reduce expenses while also increasing planting to increase yield;
- Turned an \$188,000 loss into a profit the following year; and
- Purchased two of the largest tractors in the state to handle the increase in production.

"We needed to know more about what was profitable and what wasn't. Otherwise, we may just be expanding the losses," says Matsuda. "This gave us the tools we need to expand operations, hire new people, and to hopefully move into new markets."

Kahuku Farms' business performance earned the company the distinction of being named the SBA Family-owned Small Business of the Year for the City and County of Honolulu in 2005. Today, Kahuku Farms profitably produces papaya, apple banana, mango, long and round eggplant, and taro leaf (luau leaf).

## HTDC-Manufacturing Extension Partnership Program (HTDC-MEP)

HTDC manages the Manufacturing Extension Partnership (MEP) program under a cooperative agreement with the Department of Commerce's National Institute of Standards and Technology (NIST).

HTDC-MEP is part of a nationwide network of resource centers transforming manufacturers to compete globally. The program also supports greater supply chain integration and provides access to technology for improved productivity. Many technology companies qualify for HTDC-MEP assistance.

Four full-time project managers, including one in Hilo, provide services including lean manufacturing training and implementation, value stream mapping, growth strategies, product development consulting, financial analysis, marketing, entrepreneurial training, family business planning, and energy efficiency planning for new manufacturing businesses.

We refer to companies in the fourth stage of development as Mature. A mature company has the experience, funding and inspiration to “spin off” or start another company to develop a new idea.

## Blue Planet / Blue Lava Wireless

Henk Rogers founded Blue Planet Software at MIC in 1996 to manage the intellectual property rights to the popular game Tetris worldwide. He found that, “The benefit of being an incubator client at MIC is we have access to services that would normally cost a lot of extra money, especially as a startup. It can be a very difficult thing, you don’t know where to go for business services, and HTDC provides us with that ... access to legal advice, business advice, consultants ... even what to wear!” Rogers moved away the following year, then re-established the company at MIC again in 2002. He also founded Blue Lava Wireless at MIC around the same time to develop Tetris for mobile phones. He chose to locate in Hawaii in large part because of Act 221—Hawaii’s technology tax credit—which HTDC helped to create.



“Act 221 allowed me to start in Hawaii. Every dollar invested I got back as a tax credit. I thought I would need outside investments, yet my own money was enough till the company was profitable. Our products sold around the world are not taxed in Hawaii. And capital gains are not taxed for an Act 221 company, which really made a difference when I sold my company.”

In April 2005, Blue Lava Wireless was acquired by JAMDAT Mobile for \$137 million, which was then quickly acquired by industry leader Electronic Arts, maker of blockbuster game software *The Sims*. The new company, EA Mobile, had over 50 employees and moved out of MIC to, as Rogers put it, “make room for companies that are in the incubation stage.” EA Mobile is now located at 677 Ala Moana Blvd.

During the early stages of Blue Lava Wireless, the shuttle connecting UH and MIC made it easy for student game testers to both go to school and work each day. This arrangement provided a rich source of bright undergraduates who had grown up playing electronic games, while giving the students an opportunity to gain experience in their field of study and get paid too. Because the mobile phone game industry was new, it was also easier and cheaper to teach UH graduates and students to program games for mobile phones than it would have been to retrain more experienced programmers. “They also understood what’s fun,” says Rogers. “American consumers want fun games, so you need American programmers who understand what Americans think is fun.”

Henk Rogers came to Hawaii in 1972 to study (and eventually earn a B.S. in) computer science because he could afford to go to UH, though he also drove for Charley’s Taxi at night. Hawaii gave him a chance to succeed, and he wants to help others as a way to pay it forward. “I believe that HTDC will be the start of a bunch of new companies that will change the future of Hawaii,” says Rogers. “Software is the perfect industry for Hawaii ... it’s non-polluting and uses our creativity in a way that’s different from agriculture or tourism or the military.”

Blue Lava Wireless and Blue Planet Software graduated from MIC during 2006. Rogers now has three new technology start-up companies located on a full floor of Harbor Court in downtown Honolulu. He also operates a ranch on the Big Island focused on sustainability systems. He considers the most important value of MIC is the close proximity to other entrepreneurs who “get it” and feels “MIC is the best thing for a budding high-tech entrepreneur.”

**Blue Planet / Blue Lava Wireless Q & A**

**Q** Can you tell us a bit about how you got into your industry?  
**A** I studied Computer Science at UH. I started by designing and developing my own game on a personal computer. I tried to find a publisher, but had a bad experience. Softbank, then just a small software distribution company, suggested I start my own company. I started my first company Bullet-Proof Software in Yokohama, Japan, in 1983.

**Q** Please tell us briefly about your company and what it does?  
**A** Blue Planet Software manages computer game Intellectual Property. We license to big publishing companies (like Nintendo). We do quality control to make sure our licensed product is high quality. We also do R&D to come up with new variations of our product.

**Q** Please tell us about your initial contact with HTDC, what value you saw that caused you to become a tenant/participant?  
**A** I initially contacted HTDC because I heard from someone that it was a place where I could quickly and cheaply start a new company. I started Blue Planet Software in 1996 at the MIC.

**“ACT 221/215 is an integral part of making the conditions right in Hawaii.”**

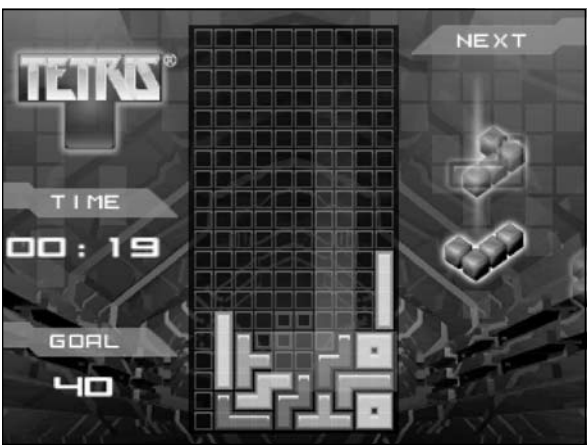
**Q** How has HTDC helped your business? What were some of the most significant, memorable ways?  
**A** HTDC helped me by providing me with infrastructure in the early stages of my business.

**Q** What’s your opinion on ACT 221 or 215?  
**A** Awesome piece of legislation that helps/will help many entrepreneurs start something here rather than on the mainland. Imagine if any of these companies were based here: AOL, Google, Myspace, YouTube, Blizzard (WarCraft), Microsoft, Oracle. All of these companies started someplace because the conditions were right. ACT 221/215 is an integral part of making the conditions right in Hawaii. We are not alone in providing such conditions. Montreal, Australia, Korea are a few examples where government support has created IP [intellectual property] industries where none existed before.

For one thing, Act 221 was a factor that caused me to move here from San Francisco to start a company, Blue Lava Wireless (which employed 50 people and I sold for \$137 million). The economic benefit to the State from Blue Lava Wireless and Blue

Planet Software in jobs, economic activity and ongoing income taxes justify the State’s investment. I would say that it was a great deal for the State. Plus, our economic activity is “clean.” Creating intellectual property is the ideal business for Hawaii. No landfill. No pollution. No containers.

In addition, I have started three new (separate) QHTB companies in Hawaii all with similar plans.



Tetris Online is an online game developer/publisher. Using Tetris as the 800 pound gorilla in the computer game space we will launch a site for casual gamers (that means you).

Blue Lava Technologies is developing digital photo management software. Using a revolutionary way of tagging your pictures we will great create slide shows for your iPod, mobile phone, PC and your HDTV.

RHSK [Rogers Hashimoto Sato Kawai] is building a virtual world-based social network system. The promise of virtual reality will be realized by a group of dedicated people who have a new way to build beautiful new worlds populated by artificially intelligent avatars.

These new businesses would probably not be here were it not for the successes of Blue Planet Software and Blue Lava Wireless, both of which were assisted by HTDC.

**Q** What more could HTDC/the State do to assist innovative businesses like yours?

**A** Provide more space and include world-class super fast Internet so we can compete with Japan and Korea. And foster a UH professional “virtual” community to create synergy and collaboration, like the Cal or Stanford alumni networks.

[Read the rest of this interview at [htdc.org/2006annualreport](http://htdc.org/2006annualreport)]



# HTDC Incubation Graduates

HTDC annually graduates clients and welcomes new ones. This year's graduations greatly surpassed 2005's in terms of total occupied square footage for MIC. The 9,300 square feet vacated by graduating clients allowed new clients to occupy nearly 4,000 square feet as well as provide opportunities for existing clients to expand their operations. The 2006 graduates left MIC with 10 times more employees than they had when they entered. Additionally, they relocated to three times more outside commercial space than they occupied as they exited MIC. More dramatically, they relocated to 10 times more space than they occupied when they started at MIC!

## Noteworthy 2006 Graduates

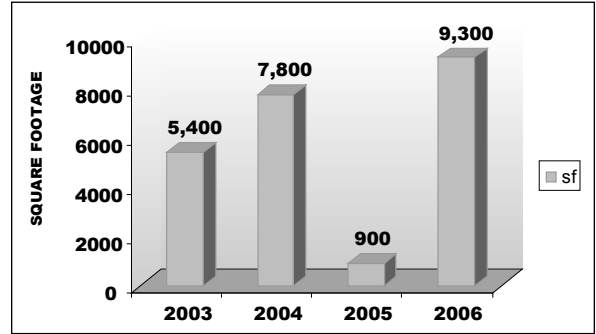
**Kamakura Corporation:** A risk management software development firm, Kamakura graduated and relocated to 2222 Kalakaua Avenue in Waikiki, doubling their office space. CEO Don van Deventer commented on MIC as "the perfect place for us to start...to make local connections ... to make international connections."

**GL Scientific:** This small instrumentation fabrication company graduated and relocated into a nearly nine times larger space in Kaimuki. CEO Gerry Lupino noted MIC as a good experience and incredibly convenient. He remarked MIC was a "good strategic move for (the) State to do an incubator. Extremely helpful for startups to have such entities. Greatly appreciate the opportunity to be there."

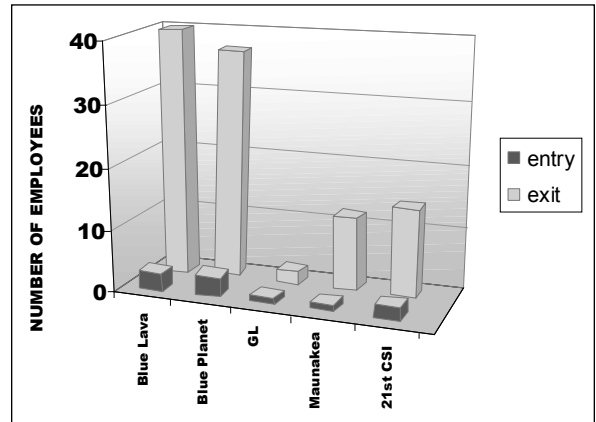
**Mauna Kea Infrared:** Another small instrumentation firm, this company graduated and relocated in Hilo to a newly built 3,500 square foot building that the company partially funded with research tax credits. Manager Doug Toomey enjoyed his close proximity to UH and the Astronomy department and felt a community of hardware users at MIC with nearby GL Scientific.

**Hawaii Wave:** A small company providing high-speed wireless and digital guest service R&D for the Hawaii hospitality industry, this firm graduated from MRTC earlier this year. President Scott Wecker is currently focusing his efforts on developing ambient energy solutions through his new company, Ambient Micro. He commented on MRTC as "the place where Maui's technology industry is building critical mass ... that provided me with the environment and connections that led me, almost unbelievably, to the exciting work I'm doing now at Ambient Micro."

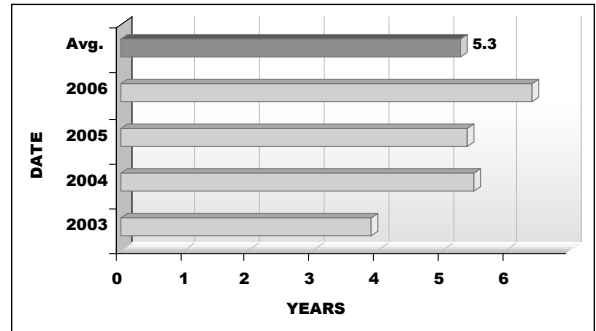
MIC Annual Client Graduations by Square Feet



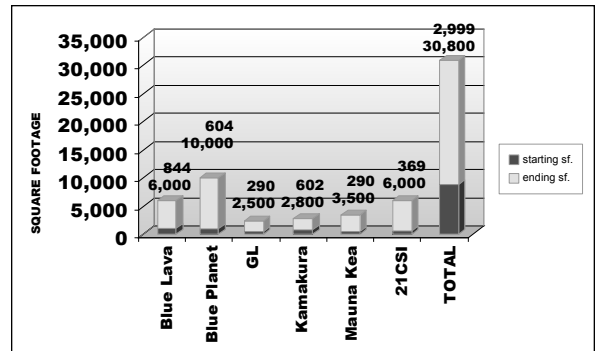
Job Growth



Average Length of Stay at MIC



Space Absorption



## MANOA INNOVATION CENTER - 2006

### CURRENT TENANTS

ADXPO: *remnant media exchange software*  
 Amagata U.S.A.: *software development*  
 ATCO Software, Inc.: *activity desk software development*  
 Blue Cliff, Inc.: *customization of Open Vista for the medical industry*  
 ChipIn, Inc.: *ecommerce online social network*  
 Concentris, LLC: *wireless networking technology development*  
 GeoRecovery, Inc.: *decentralized landfill systems solutions*  
 Go2Group: *production line automation software development*  
 Hawaii Environmental Biosolutions, Inc. - *water treatment technology and development*  
 Hawaii Technology Development Venture: *ONR Grant Funding*  
 Ikeyzo, Inc.: *IT consulting/dvlp. of web application localization*  
 Kuenhle AgroSystems, LLC: *biotech: plant/animal*  
 Office of Technology Transfer and Economic Development (OTTED) MIC Anchor  
 Pipeline Communications and Technology, Inc.: *advanced communication and decision support applications*  
 Produced By You.Com, LLC: *online multi player movie production platform*



Manoa Innovation Center

Pukoa Scientific, LLC: *high speed real time signal processing software and hardware architectures*  
 Quantum Leap, Inc.: *collaborative software*  
 Research Corporation of the University of Hawaii (RCUH) MIC Anchor  
     Hawaii Center for Advanced Communications (RCUH)  
     Hawaii Engineering Design Center (RCUH)  
     Institute for Astronomy, PanSTARRS Project (RCUH)  
     PSR (RCUH)  
     Special Projects (RCUH)  
 Sanjole: *WiMax test equipment development*  
 Technical Research Associates, Inc.: *hyperspectral and multi-spectral data analysis*

Tropical Solutions, LLC: *energy efficiency solutions*  
 UH College of Engineering  
 Ultimate Technologies, Inc.: *design solutions for printed circuit boards*  
 Zero Emissions Leasing, LLC: *developer of large scale solar power generation projects*  
**MIC GRADUATES**  
 21<sup>st</sup> Century Systems, Inc.: *decision support system software*  
 Blue Lava Wireless, LLC: *gaming software*  
 Blue Planet Software, Inc.: *gaming software*  
 GL Scientific, Inc.: *instrumentation fabrication*  
 GuideNet, Inc.: *software, internet*  
 Kamakura Corporation: *risk management software*  
 Mauna Kea Infrared, LLC: *infrared instrumentation*

### Noteworthy New Clients

**Hawaii Environmental Biosolutions, Inc. (HEB):** A 2004 UH Business Plan winner, this four-person start-up company utilizes technology developed at UH to safely and easily filter arsenic out of water. A MIC tenant since July, HEB is already in the process of marketing and licensing its technology to Chinese government and companies. The HEB technology will be used to address other environmental toxin issues facing Hawaii, the U.S., China, India and much of the industrialized world.

**Concentris Systems, LLC:** This two-year-old start-up company headed by well-known local serial entrepreneur, Tareq Hoque, is focused on wireless mesh communication technologies for rugged environments. A MIC tenant since June, Concentris received \$520,000 in HTDV funding for research & development for military applications and is exploring other R&D funding sources, including SBIR.

**Pipeline Communications and Technology, Inc.:** A 2004 UH Business Plan winner, Pipeline was co-founded by UH graduates Monte Littlefield (CEO) and David Hales (CFO). This young, specialized communications solutions provider is a two-year MIC client and is growing rapidly, increasing from two to 11 employees, receiving \$1 million in HTDV funds, and raising \$1.2 million in investor funding in 2006 alone. Pipeline personnel includes COO Norman Wayne Karo, UH graduate Eric Taketatsu (Chief Engineer), Kamehameha graduate Jon Ishikawa (Project Manager), and two UH students, Craig Crisler (Office Manager) and Adrienne Allen. The company is on track to become a successful graduate in the near future.

## MAUI RESEARCH & TECHNOLOGY CENTER - 2006

### CURRENT TENANTS

Clearwire, LLC: *wireless Internet service provider*

CrossFiber (Trex Subsidiary): *optoelectronics/R&D*

Maui High Performance Computing Center: *As of December 2006, the Maui-based supercomputer named JAWS ranked as the 11th fastest supercomputer in the world at a processing speed of 61 teraflops. JAWS is owned by the Air Force and is the Department of Defense's largest artificial brain.*



Maui Research & Technology Center

Maui Small Business Development Center (SBDC)

Mosaic Optical Laboratory (Oceanit): *designer and manufacturer of custom and proprietary optics*

NBT 168 Technik, LLC: *travel and hospitality services*

Oceanit Laboratories, Inc.: *engineering, scientific and technical services*

Schafer Corporation: *lightweight optics for aerospace applications*

University of Hawaii (Classrooms)

### MRTC GRADUATES

Hawaii Wave, LLC: *high speed wireless and digital guest service R&D*

Pacific Disaster Center: *federally supported information processing center for federal, state and local emergency managers in Hawaii, Asia and the Pacific and Indian Ocean regions*

TC Kokua, LLC: *multi-mode customer contact center*

## HAWAII INNOVATION CENTER AT HILO - 2006

### CURRENT TENANTS

ARA Wealth Management Group: *financial planning services*

Robert Belcher, CPA: *accounting services for small businesses*

Digilore: *helps companies to capture, retain and continuously refresh explicit and tacit knowledge and delivers it on demand*

Hawaii Island Economic Development Board (HIEDB): *supports balanced, sustainable economic development in the context of broad community goals and objectives*



Hawaii Innovation Center at Hilo

H2K Driver Training Services: *CDL and student/adult driver education*

Ted Hong, Attorney at Law: *law practice with an emphasis on employment law*

Pacific Pro Tech: *ISP Services, computer servicing, upgrading and networking installation*

Pat and Associates: *court reporting services to the public*

Pre-Paid Legal Services: *family, business, group pre-paid legal service programs*

## VIRTUAL INCUBATION PROGRAM

### CURRENT CLIENTS

Akeakamai Technologies, Inc.: *advanced signal and data processing and autonomous technology development*

Ambient Micro, LLC: *development of ambient energy solutions*

Applied Computer Electronics: *custom design custom microcomputer hardware and software instrument prototype developer*

FinderElf.com, LLC: *search and directory service with price comparisons and a consumer ratings system*

GuideNet, Inc.: *software, internet*

Pacific Sun Energy, Inc.: *renewable energy*

Smart House Control: *design, systems integration, and proprietary solutions in the home automation field*

Sopogy, LLC: *concentrated Solar Power (CSP) technologies*

UltraSpectral, Inc: *software; geospatial information products and services*

Williams Aerospace, Inc.: *developer and manufacturer of unmanned aerial vehicles*

XMLstar, LLC: *online software solutions and IT development projects*

### VIRTUAL PROGRAM GRADUATES

Activity Smart, LLC: *software development; reservation systems*

ADXPO: *remnant media exchange software*

Asia Pacific Environmental Technology, LLC: *waste management technologies*

ATCO Software, Inc: *activity desk software development*

Concentris, LLC: *wireless networking technology development*

Kealoha Technologies: *ecommerce online social network*

On'e Technology, LLC: *network security products*

Wakweb: *Search engine development*

Zero Emissions, LLC: *developer of large scale solar power generation projects*



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