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**Report on**  
**Hawaii Tax Credit for Research Activities**  
**for Tax Year 2018**

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**August 2019**

**Prepared Pursuant to Act 270, Hawaii Revised Statutes, 2013**

**Department of Business, Economic Development and Tourism**

**State of Hawaii**



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## **Executive Summary**

- A total of fourteen Qualified High Technology Businesses (QHTBs) completed the survey with the State Department of Business, Economic Development and Tourism (DBEDT) for the Hawaii research tax credit for the tax year 2018. The fourteen QHTBs reported that they spent an aggregate amount of \$19.9 million in research activities in Hawaii in 2018. Among those, \$18.7 million (94.2 %) was eligible for the research tax credit, and a total of \$1.4 million was claimed or to be claimed for the research tax credit in the State of Hawaii tax form N346.
- Among the fourteen QHTBs that completed the survey with DBEDT for the tax year 2018, all except one were established before 2010 and have been undertaking the research activities for at least seven years.
- A total of 93 patents were owned or filed by seven QHTBs as of December 2018 (64 owned, 29 pending). Three QHTBs reported that they didn't own any type of intellectual property as of December 2018.
- “Defense/Aerospace” was the most popular business sector among the QHTB hosting six QHTBs in the sector. “Information/Communication Technology” and “Biotechnology/Life Sciences” were another popular industry sectors with four and three QHTBs doing business each in the sector.
- In 2018, the fourteen QHTBs generated a total of \$81.4 million revenue from all goods and services produced in Hawaii, of which 39.8% (\$32.4 million) was derived from out-of-state sales or activities. About half of the total revenue was earned from intellectual properties that QHTBs produced in Hawaii.
- The fourteen QHTBs spent a total of \$66.9 million in 2018 as operating expenses or capital expenditures for sales and activities performed in Hawaii. Receiving \$24.0 million, 35.9% of the spending, “Film/Digital Media” was the sector where the QHTBs spent most in 2018.

- As of December 2018, the fourteen QHTBs employed a total of 358 regular employees (343 full-time and 15 part-time employees) altogether. About three out of four regular employees were employed in research activities.
- About 75% of full-time employees in the QHTBs were paid \$60,000 and more annually, of which about half were paid more than \$100,000 annually.
- The combined jobs of the fourteen QHTBs increased by 10.5% in tax year 2018 from the prior year. It is the second year since 2013 that the survey showed an increase in the combined jobs of the QHTBs. Job increases were observed both in research and non-research positions.
- Nine QHTBs, or 65%, reported that they had independent contractor expenses in 2018. The nine QHTBs spent a total of \$11.0 million to hire 226 contractors or external services for jobs performed in Hawaii in 2018.
- According to the State Department of Taxation, fourteen claims (including corporations and individuals) were processed as of July 30, 2019 for the state research tax credit for the tax year 2018. The total amount of the fourteen claims was \$0.78 million.
- Statistics of research activity tax credits claimed with the State Department of Taxation are now available for the tax year 2013 to 2017<sup>1</sup>. In comparison with the credit amount reported in the survey with DBEDT, the credit amount claimed with the State Department of Taxation were about two to two and half times higher except the first year. It suggests a high possibility that not all businesses that claimed the tax credit with the State Department of Taxation completed the survey with DBEDT.

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<sup>1</sup> Data for the tax year 2017 are preliminary.

Table S1. Summary statistics on the characteristics and activities of QHTBs

	2018 tax year	2017 tax year	2016 tax year	2015 tax year	2014 tax year	2013 tax year
Number of QHTB submitted TCRA survey	14 <sup>1</sup>	15	11	12	13	10
Total Tax credit claimed for Hawaii TCRA	\$1.4 M	\$1.3 M	\$1.3 M	\$1.1 M	\$1.3 M	\$1.1 M
Total Research expense incurred in Hawaii	\$19.9 M	\$23.4 M	\$23.1 M	\$20.1 M	\$28.1 M	\$25.7 M
Avg. TCRA tax credit claimed per QHTB	\$99 K	\$86 K	\$122 K	\$89 K	\$100 K	\$109 K
Top three areas of research <sup>2</sup>	Computer Software Non-fossil fuel Ocean science	Computer Software Non-fossil fuel Ocean science	Computer Software Non-fossil fuel Ocean science	Computer software Non-Fossil fuel Ocean science	Computer software Biotechnology Ocean sciences	Computer software Biotechnology Ocean sciences &Non-fossil fuel
<b>Business/Revenue/Expense</b>						
Top three areas of businesses <sup>2</sup>	Defense/Aerospace Info./Comm. Tech Biotech/Life Science	Ocean science Defense/Aerospace Energy	Ocean science Defense/Aerospace Energy and Info./Comm. Tech	Energy Ocean science Defense/Aerospace Info./Comm. Tech	Defense/Aerospace Energy Other Sciences	Defense/Aerospace Biotech/Life Science Info./Comm. Tech
Total number of patents owned or filed	93	137	105	116	158	107
Avg. Revenue per QHTB	\$5.8 M	\$5.1 M	\$6.1 M	\$3.9 M	\$4.0 M	\$5.4 M
% of revenue from out of state sale	39.8%	40.5%	49.6%	70.3%	65.2%	66.2%
% of revenue from intellectual property	48.4%	45.6%	61.3%	32.5%	23.4%	30%
Avg. Operating expenses per QHTB	\$4.7 M	\$4.3 M	\$4.2 M	\$3.2 M	\$3.4 M	\$4.3 M
Avg. Capital expenditure per QHTB <sup>3</sup>	\$101 K	\$150 K	\$75 K	\$59 K	\$26 K	\$247 K
<b>Employment <sup>4</sup></b>						
Total number of employees	358	391	330	270	297	338
Avg. number of employees per QHTB	25.6	26.1	30.0	22.5	22.8	33.8
Research jobs as % of total jobs	75.7%	73.7%	76.9%	72.6%	78.5%	77.2%
Full time jobs as % of total jobs	95.8%	95.4%	93.0%	91.1%	86.9%	82.8%
% of jobs with wage \$60K or higher	74.0%	74.4%	74.2%	76.3%	78.5%	71.7%
% of jobs with wage \$100K or higher	39.9%	37.1%	34.2%	41.5%	39.4%	31.7%
Change in total jobs from last year	34 (10.5%)	-30 (-7.1%)	-25 (-7.0%)	-14 (-4.9%)	18 (6.5%)	-20 (-6.0%)
Change in research jobs from last year	25 (10.2%)	-17 (-5.6%)	-25 (-9.0%)	-13 (-6.2%)	24 (11.5%)	-7 (-2.8%)

1. All except one QHTB have completed the research tax credit survey in at least one tax year since 2013.
2. Based on the number of QHTBs allowing multiple counting of multi-sect companies.
3. Capital expenditure includes land, construction, and equipment purchase.
4. Includes both full-time and part-time jobs, but doesn't include temporary or seasonal jobs.

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## 1. Introduction

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Many states have been implementing a state research tax credit in conjunction with the federal research tax credit, to further promote research activities of businesses in the state.

Hawaii's effort to encourage research activities through tax incentives started as early as 1999. Act 178 in 1999 contained a state tax credit for research activities. However, the tax credit was limited to 2.5% of new research expenses in Hawaii and was non-refundable.

Benefits of the Hawaii research tax credit increased substantially in 2000, when Act 297 raised the Hawaii research tax credit from 2.5% to 20% of the qualified research expenses to match the federal standard and made the credit refundable. Act 221 in 2001 further augmented the benefits by allowing the credit to be claimed for all qualified research expenses, not just the incremental amount. Hawaii research tax credit was amended once more in 2004 when Act 215 limited credit eligibility to qualified high technology businesses (QHTBs) only. This old research tax credit sunsetted in 2010.

Act 270, Session Laws of Hawaii 2013, re-established Hawaii's research tax credit for tax year from 2013 to 2019. The credit remains to be 20% of the qualified research expenditures and continues to be refundable. However, it defined QHTBs more narrowly and adopted federal rules again for eligibility, which means that qualified research expenses are limited to incremental amounts only.

Act 270 also enhanced reporting requirements. It mandated all QHTBs that claim the state research credit to complete an annual survey with DBEDT. Based on the survey result, DBEDT is required to submit a report to the legislature on the activities of the QHTBs to measure the effectiveness of the research tax credit.

This is the sixth report that is prepared pursuant to Act 270. This report includes statistics on various activities of QHTBs that completed the research activity tax credit survey with DBEDT for their taxable year 2018. Most statistics reported in this report are for activities undertaken in calendar year 2018.

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## 2. Characteristics of QHTBs

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For the tax year 2018, a total of fourteen QHTBs completed the survey with DBEDT on the Hawaii tax credit for research activities. It was one QHTB smaller than the number of QHTBs for the tax year 2017, but bigger than the number of QHTBs for the tax year 2013-2016. All except one QHTB have completed the research tax credit survey in the past at least one tax year since 2013. QHTBs in this report refer to the fourteen companies unless otherwise stated.

### Age of QHTBs

All QHTBs that submitted the Hawaii research tax credit survey for the tax year 2018 have been doing business for many years. All except one company were established before 2010. Six QHTBs were established before 2000 whereas seven QHTBs were established between 2000 and 2010 and one recently in 2017.

Table 1. QHTBs by year established

Year established	~ 1990	1991-1999	2000-2005	2006-2010	2011 and after
Number of QHTBs	4	2	2	5	1

History of research activity was also long. All QHTBs except one established recently reported that they had been undertaking the research activities for at least seven years.

Table 2. History of research activities

Years	Less than 7 years	7 years or longer
Number of QHTBs	1	13

### Intellectual Properties

The fourteen QHTBs together owned or filed 93 patents with the U.S. Patents and Trademark office. As of December 31, 2018, a total of 64 patents were owned by the QHTBs while another 29 patents were filed and pending. However, not all QHTBs owned or have filed patents. Half of the fourteen QHTBs had no patent owned or filed as of December 31, 2018.



Table 3. Patents owned or filed by QHTBs (as of Dec 31, 2018)

Total number of patents owned or filed by QHTBs			Number of QHTBs with at least one patent owned or filed	Number of QHTBs with more than 20 patents owned or filed
Owned or Pending	Owned	Pending		
93	64	29	7 out of 14	2 out of 14

About two third of the QHTBs reported that they owned intellectual property such as copyrights and trademarks. Three QHTBs reported that they didn't own any type of intellectual property at all as of Dec 31, 2018.

Table 4. Other intellectual property owned by QHTBs (as of Dec 31, 2018)

Total number of QHTBs that submitted tax credit surveys	Number of QHTBs with other intellectual property			
	Copyrights	Trade Secrets	Licenses	Trademarks
14	4	3	6	7

### Business sector of QHTBs

The survey asked each QHTB to indicate all industry sectors in which the QHTB conducted business in 2018. Eight major business sectors consisting of eighty-four subsectors were provided in the survey as business categories. By broad category, over two third of the QHTBs indicated that they conducted business only in one business sector while four QHTBs indicated that they did business in multiple sectors.

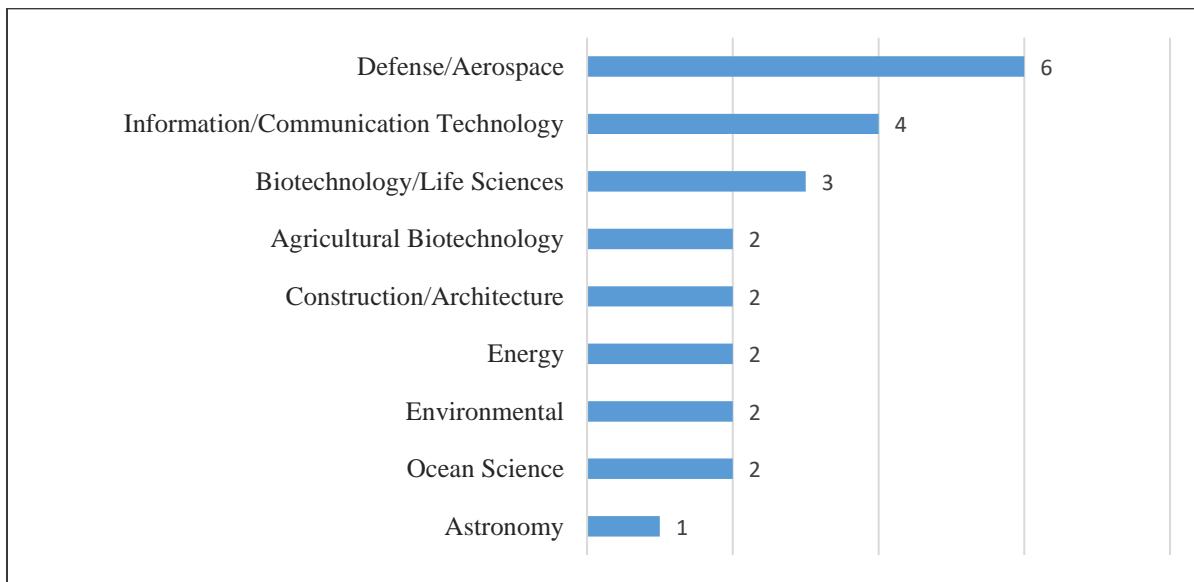
Table 5. Business areas of QHTBs in 2018 (number of QHTBs)

Business sectors		Number of QHTBs
One sector only	Defense/Aerospace	4
	Information/Communication Technology	2
	Construction/Architecture	2
	Astronomy	1
	Ocean Science	1
Doing business in more than one sector		4

Figure 1 shows total number of QHTBs that conducted business in each industry sector in 2018, counting the multi-sector companies multiple times for all industry sectors they did business in.

“Defense/Aerospace” was the most popular business sector among the QHTB hosting six QHTBs in the sector. “Information/Communication Technology” and “Biotechnology/Life Sciences” were another popular industry sectors with four and three QHTBs doing business each in the sector.

Figure 1. Number of QHTBs that conducted business in each sector (with multiple counting) <sup>1</sup>



<sup>1</sup> Multi-sector companies were counted for all sectors in which they did business.

Table A-2 and Figure A-1 in the appendix at the end of this report show business activities of QHTBs by detailed business activity. Specialty software development in the “Defense and Aerospace” sector was the most prevalent business activity amongst the QHTBs who submitted the survey for tax year 2018. This subsector was the most prevalent business activity in the tax year 2016 and 2017 as well.

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### 3. Revenue and Spending Structure

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#### Revenue structure of QHTBs

In 2018, the fourteen QHTBs generated a total of \$81.4 million revenue from all goods and services produced in Hawaii, of which 39.8% (\$32.4 million) was derived from out-of- state sales or activities.

About half of the total revenue was earned from intellectual properties that QHTBs produced in Hawaii. The combined revenue of the fourteen QHTBs from their intellectual properties, by selling patented products or licensing royalty, etc., was \$39.4 million in 2018. Among the revenue from intellectual properties, 30.6% (\$12.1 million) was earned from out-of-state sales.

Table 6. Revenues of QHTBs, by revenue source

Source of revenue	Revenue in 2018	
Total revenue	\$81,384,974	100%
- from out-of-state sales	\$32,409,714	39.8%
Revenue from intellectual property	\$39,420,817	100%
- from out-of-state sales	\$12,055,102	30.6%

#### Hawaii expenses of QHTBs

The fourteen QHTBs spent a total of \$66.9 million in 2018 as operating expenses or capital expenditures for sales and activities performed in Hawaii.

Table 7. Operating and capital expenditure spent by QHTBs in 2018

Operating Expenses spent by QHTBs	Capital Expenditures spent by QHTBs
\$65,552,748	\$1,408,364

Table 8 presents where the QHTBs made the spending in 2018 by industry sector. Receiving \$24.0 million, 35.9% of the spending, “Film/Digital Media” was the sector where the QHTBs spent most in 2018. Another 18.3% (\$12.2 million) of the spending incurred in the “Defense/Aerospace”.

By detailed categories, the subsector that received the largest QHTBs' spending in 2018 was Content Development in "Film/Digital Media sector", with \$23.9 million, 35.7% of total spending, having been made in this subsector. Other subsectors that received a large expenditure include Contract Research Organization in "Biotechnology/Life Sciences sector" (\$8.9 million), Ocean Engineering in "Ocean Sciences sector" (\$7.7 million), and Telecommunication/Networks in "Information and Communication Technology sector" (\$7.5 million).

Table 8. Areas where QHTBs spent their operating and capital expenditures in 2018

<b>All sectors</b>	<b>\$66,931,112</b>	<b>100.0%</b>
<b>Film/Digital Media</b>	<b>\$24,006,902</b>	<b>35.9%</b>
- Content Development	\$23,888,817	35.7%
- Enhancer	\$118,085	0.2%
<b>Defense/Aerospace</b>	<b>\$12,219,607</b>	<b>18.3%</b>
- Specialty Software Development	\$4,258,323	6.4%
- Unmanned Vehicles/Robotics	\$4,158,422	6.2%
- Modeling/Simulation/Training	\$2,482,933	3.7%
- Remote Sensing	\$1,319,929	2.0%
<b>Biotechnology/Life Sciences</b>	<b>\$9,875,439</b>	<b>14.8%</b>
- Contract Research Organization	\$8,877,941	13.3%
- Marine Biotechnology	\$10,962	0.02%
- Other	\$986,537	1.5%
<b>Information/Communication Technology</b>	<b>\$8,845,893</b>	<b>13.2%</b>
- Telecommunications/Networks	\$7,514,822	11.2%
- Specialty Software Development	\$1,331,071	2.0%
<b>Ocean Sciences</b>	<b>\$7,684,998</b>	<b>11.5%</b>
- Ocean Engineering	\$7,684,998	11.5%
<b>Environmental</b>	<b>\$2,492,908</b>	<b>3.7%</b>
- Water Technologies	\$2,492,908	3.7%
<b>Energy</b>	<b>\$911,614</b>	<b>1.4%</b>
- Energy Efficiency	\$911,614	1.4%
<b>Astronomy</b>	<b>\$305,097</b>	<b>0.5%</b>
- Modeling & Simulation	\$158,342	0.2%
- Precision Mechanics	\$73,378	0.1%
- Photonics	\$73,378	0.1%
<b>Agricultural Biotechnology</b>	<b>\$131,275</b>	<b>0.2%</b>
- Plant Tissue Culture	\$98,654	0.1%
- Seed Propagation/Seed Corn	\$32,621	0.0%
Unidentified	\$2,950,287	4.4%

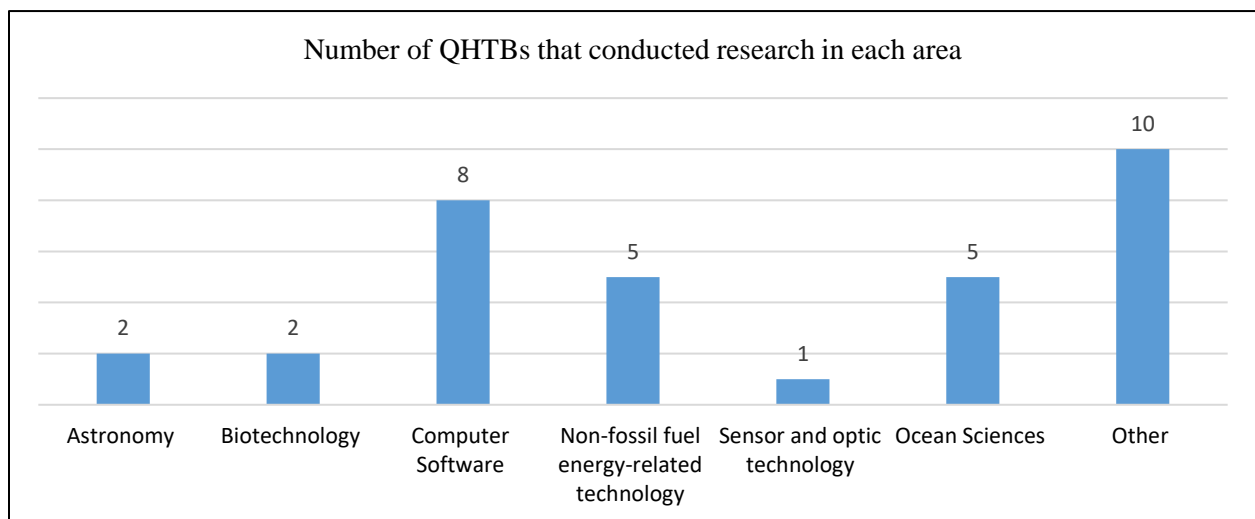
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## 4. Research Activities and Tax Credit

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Businesses were asked to indicate in which area they conducted research during the year. Seven broad categories were provided in the survey. Figure 2 presents the number of QHTBs that conducted research in each research area allowing multiple counting of a QHTB if it conducted research in multiple areas. Among the fourteen QHTBs, eight companies reported that they conducted research in more than one area. “Computer Software” was the most widely held research area with eight companies having conducted research in this area in 2018. Other research area that were popular among the QHTBs includes “Non-Fossil Fuel Energy Related Technology” and “Ocean Sciences”.

Figure 2. Areas where QHTBs conducted research in 2018



In defining “Qualified Research Activities” for the Hawaii research activity tax credit, Act 270 adopted §41 of the Internal Revenue Code, meaning that only incremental amounts are eligible for the credit, with a further requirement that qualified research activities do not include research expenses incurred outside of the state.

The fourteen QHTBs who completed the Hawaii research credit survey for the tax year 2018 reported that they spent an aggregate amount of \$19.9 million in research activities in Hawaii in

2018. Among those, \$18.7 million (94.2%) was eligible for the Hawaii tax credit for research activities (TCRA), and a total of \$1.4 million was claimed or to be claimed by the fourteen QHTBs for the tax credit on Form N346.

The amount that individual QHTB claimed for the Hawaii research tax credit varied significantly ranging from about \$500 to about \$400,000. Four QHTBs reported that they claimed more than \$100,000 for the research credit on Form N346 for the tax year 2018. All fourteen QHTBs reported that they paid zero corporate income tax for tax year 2018.

Table 9. Reported research expenses and tax credit for tax year 2018

Total Research Expenses occurred in Hawaii	Total Research Expenses eligible for Hawaii TCRA	Total Tax Credit reported for Hawaii TCRA
\$19,874,087 100%	\$18,726,226 94.2%	\$1,390,087

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## 5. Job Characteristics and Creation

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### Employment overview

As of December 12, 2018, the fourteen QHTBs had a total of 358 regular employees. Majority of the regular employee were full-time employees as 96 percent of them worked full time. About three out of four regular employees were employed in research sectors. The share of research activity jobs was not different between full-time and part-time jobs.

A total of 20 workers were employed on a temporary or seasonal basis by the QHTBs during the calendar year 2018. Out of the 20 temporarily or seasonally hired workers, 17 workers were employed to work on research activities.

Table 10. Number of employees employed by QHTBs, by employment status

	As of December 2018			Temporary / Seasonal in 2018
	Total	Full-time	Part-time	
All areas	358	343	15	20
In research activities	271	260	11	17
Research activity jobs as % of total jobs	75.7%	75.8%	73.3%	85.0%

### Employment size

Size of the fourteen QHTBs in terms of number of employment varied substantially. The number of regular employees that each of the QHTBs had as of December 2018 ranged as small as 0 to as big as 91. Five companies were particularly small with one or no employees. On the other hand, two companies were relatively big with 80 or more employees.

Table 11. QHTBs by employment size

Number of regular employees <sup>1</sup> (as of December 12, 2018)	Number of QHTBs
0-5	5
6-10	2
11-25	1
26-50	4
51-100	2

<sup>1</sup> Excludes temporary and seasonal employees

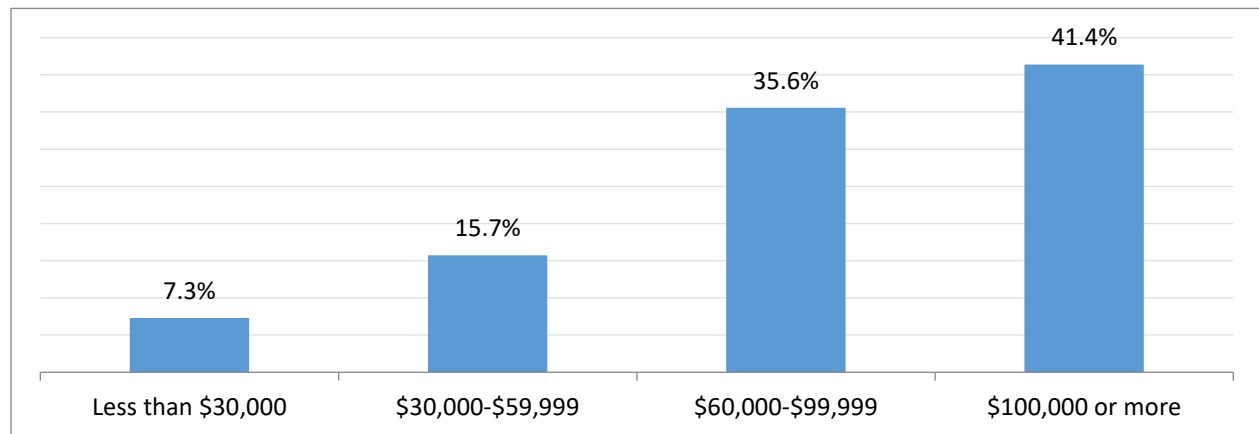
### Compensation levels of jobs in QHTBs

Table 12 shows the number of employees and their shares of total employees by four wage groups. Over 75% of full-time employees in the QHTBs were paid \$60,000 and more annually, of which about half were paid more than \$100,000 annually.

Table 12. Full-time and part-time employees in 2018 by wage level

Annual wage	Full & Part-time		Full-time		Part-time	
	Jobs	Share	Jobs	Share	Jobs	Share
Total	358	100.0%	343	100.0%	15	100.0%
Less than \$30,000	37	10.3%	25	7.3%	12	80.0%
\$30,000-\$59,999	56	15.6%	54	15.7%	2	13.3%
\$60,000-\$99,999	122	34.1%	122	35.6%	0	0.0%
\$100,000 or more	143	39.9%	142	41.4%	1	6.7%

Figure 3. Full-time employees of QHTBs in 2018 by wage level



Job changes in QHTBs from the previous year

The combined jobs of the fourteen QHTBs increased in tax year 2018 from the prior year. It is the second year since this new research activity tax credit was introduced in 2013 that the survey showed an increase in the combined jobs of the QHTBs. Despite incremental research activities being expected for the QHTBs the survey showed a decrease in the combined jobs of the QHTBs for four tax years among five tax years since 2013. Among the fourteen QHTBs that submitted the survey with DBEDT this year, only two QHTBs reported a decrease in its employment between 2017 and 2018. Other twelve QHTBs reported either an increase or no change in its employment between 2017 and 2018. Job increases were observed both in research and non-research positions. In December 2018, the aggregate number of full-time research jobs in the fourteen QHTBs was 24 higher, showing 10.2% increase from the prior year.



Table 13. Employment changes in QHTBs between 2017 and 2018

Type of Employment		2018	2017	Changes from 2017
Full-time &Part-time	In all areas	358	324	34
	In research activities	271	246	25
Full-time	In all areas	343	307	36
	In research activities	260	236	24
Part-time	In all areas	15	17	-2
	In research activities	11	10	1

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## 6. Impacts of QHTBs' Activities on External Companies

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Table 14 summarizes impacts of the QHTBs' business activities on external companies in Hawaii in 2018. Nine QHTBs, or 65%, reported that they had independent contractor expenses in 2018. The nine QHTBs spent a total of \$11.0 million to hire 226 contractors or external services for jobs performed in Hawaii. Majority of this spending, 98.8%, was spent in the area of "Scientific and Technical Contract Services".

The survey also asked if there was any new company established to commercialize the intellectual property owned by the QHTBs. The survey results indicated that there was one new company established in 2018.

Table 14. Impacts of QHTBs' activities on external companies in Hawaii in 2018

Independent contractor expenses incurred by the QHTBs	\$11,022,532
Total number of independent contractors hired/external services procured by the QHTBs	226
Number of new companies established in Hawaii to commercialize the QHTBs' intellectual property	1

## 7. Tax Credit Claimed with the State Department of Taxation

According to the State Department of Taxation, fourteen claims (including corporations and individuals) were processed as of July 30, 2019 for the state research tax credit for the tax year 2018. The total amount of the fourteen claims was \$0.78M.

The number and amount reported in the DBEDT survey and the tax credit claims processed by the Department of Taxation are not directly comparable for two reasons. First, the number of claims with the Department of Taxation for the tax credit may be greater than the number of surveys completed with DBEDT by the QHTBs because of the pass-through taxation. If a QHTB is a partnership or other pass-through entity, the tax credits earned by the QHTB are passed through to its individual members, who claim the tax credits on their tax returns. The second cause of the discrepancy is timing differences. The surveys completed by QHTBs this year were due June 30, 2019. If a taxpayer is an individual or corporation with a tax year same as the calendar year, the tax return for the tax year 2018 was due April 20, 2019. However, the due date may be extended to October 20, 2019 if the taxpayer requests an automatic extension. Thus, the claims processed until July 2019 likely represent only a part of total claims that will be filed for the tax year 2018.

Meanwhile, summary statistics for tax credits claimed with the State Department of Taxation are now available for the tax year 2013 to 2017. Compared with the credit amount reported in the survey with DBEDT, the total credit amount claimed with the Department of Taxation were about two to two and half times higher except the first year. It suggests a high possibility that not all businesses who claimed the tax credit with the State Department of Taxation completed the DBEDT survey.

Table 15. Research Activity Tax Credits Claimed with the State Department of Taxation

Tax Year	Claimed with State Department of Taxation				Reported in the survey with DBEDT	
	Number of Claims			Credit Amount	Number of QHTBs that completed the survey	Credit Amount
	All	Individuals	Corporations			
2013	25	13	12	\$1.3 M	10	\$1.1 M
2014	69	49	20	\$2.9 M	13	\$1.3 M
2015	57	33	24	\$2.9 M	12	\$1.1 M
2016	58	31 <sup>1</sup>	27	\$3.1 M	11	\$1.3 M
2017 <sup>2</sup>	54	35 <sup>1</sup>	19	\$2.5 M	15	\$1.3 M

<sup>1</sup> Includes two fiduciaries.

<sup>2</sup> Statistics from the State Department of Taxation for 2017 are preliminary

# Appendix

Table A- 1. List of QHTBs that completed Hawaii TCRA survey with DBEDT

Company name	Business Location	Tax Year					
		2018	2017	2016	2015	2014	2013
Architects Hawaii LLC	Honolulu County	0	0	0			
Advanced Integrated Photonics INC.	Culver City, California						0
Alternative Energy Technologies, LLC	Honolulu County						0
AT&T Services, INC	San Antonio, Texas	0	0				
Computer Software Associates, INC.	Maui County				0		
DataHouse Consulting, INC.	Honolulu County						0
Domegaia LLC	Hawaii County	0					
Douglas W Toomey	Hawaii County				0		
Innovasc LLC	Honolulu County				0	0	
Kamakura Corporation	Honolulu County						0
Kuehnle AgroSystems INC.	Honolulu County	0	0	0	0	0	
Laulima Systems LLC	Kauai County					0	
Limitiaco Consulting Group. INC.	Honolulu County		0				
Makai Ocean Engineering, INC.	Honolulu County	0	0	0	0	0	0
Mauna Kea Infrared, LLC	Hawaii County	0	0				
Navatek Alternative Energy Tech.	Honolulu County	0	0	0			
Navatek CFD Technologies, LLC	Honolulu County	0	0	0	0	0	
Navatek Lifting Body Tech., LLC	Honolulu County	0	0	0	0	0	
Navatek LTD	Honolulu County	0	0	0	0	0	
Oceanit Laboratories, INC.	Honolulu County	0	0	0	0	0	0
Quantify IP	Honolulu County	0	0	0			
Resurgo, LLC	Honolulu County					0	
Spirent Communications Hawaii LLC	Honolulu County	0	0	0	0	0	0
Sustainable Bioresources, LLC	Honolulu County	0	0				
TeraSys Technologies LLC	Honolulu County					0	0
Tissue Genesis Institute, LLC	Honolulu County		0			0	0
Tissue Genesis, INC.	Honolulu County					0	0
Tritium Enterprises LLC	Honolulu County				0		
Velocitek INC.	Maui County			0	0		

Table A- 2. Business areas of QHTBs in 2018, by detailed activity

(A QHTB is counted multiple times if it conducted business in multiple areas)

Industry sector	Subsector	Number of QHTBs conducted business in the subsector
Agricultural Biotechnology	Aquaculture	1
Astronomy	Adaptive Optics	2
	Remote Sensing	2
	Modeling & Simulation	1
	Photonics	1
	Precision Mechanics	1
Biotechnology/Life Sciences	Diagnostics, Therapeutics	1
	Other	1
Defense/Aerospace	Specialty Software Development	6
	Modeling/Simulation/Training	4
	Unmanned Vehicles/Robotics	3
	Communications & Computer Systems	1
	Optics	1
	Photonics	1
	Remote Sensing	1
	Testing & Evaluation	1
	Other	1
Energy	Energy Efficiency	2
	Other	1
Environmental	Disaster Mitigation Management	1
	Water Technologies	1
	Other	1
Information/Comm. Technology	Specialty Software Develop.	2
	Telecom/Networks	2
	Wireless	2
	Information Services	1
	Modeling/Simulation/Training	1
	Testing & Evaluation	1
	Others	1
Ocean Sciences	Ocean Engineering	2
	Unmanned Vehicles	1
Others	Architecture/Construction	2
	Innovation technology	1

Figure A-1. Number of QHTBs that conducted business in each subsector  
 (A QHTB is counted multiple times if it conducted business in multiple areas)

