



VENTURE CAPITAL IN HAWAI'I 2010 to 2018

Analyzing the Critical Role
that Capital Plays in Growing
an Innovation Economy



FOREWORD

Long fueled by the two engines of our Tourism/Hospitality sector and the presence of U.S. Federal Government agencies and services, Hawai'i's economy has grown steadily and relatively resiliently through the economic cycles of the past four decades. In the process, the economy has provided the jobs and tax revenues that have funded a rising standard of living and the paradise so many people love to call home.

Hawai'i has competed well for global spending and investment in both of those "traded" sectors because of our incredible natural environment and unique and strategic geographical position in an ever-evolving geopolitical landscape.

Competitive strength in traded sectors is critical to the health of any economy serving as the turbocharger to the growth, jobs, and tax base that the rest of the local population relies on. But while our two main economic engines are steady, the growth potential in both tourism and the Federal Government's presence are no longer what they have been. As a business community we must intentionally build Hawai'i's competitive strength in new traded sectors . . . ones with the potential to attract new spending and investment into our economy.

I believe our best bet is building a strong innovation sector fueled by the creativity and entrepreneurship of our small business community and supported by the research and technology activities at our universities.

We already have strong positions to build on. The University of Hawai'i alone attracts \$400 million from public, private, and non-profit donors, who support the innovative research activities being conducted each year. In addition, we also have great incubator programs, great accelerator programs, and a growing community of innovators; all components of a successful innovation sector. Private companies have also played a role, relocating and/or extending their operations or headquarters to Hawai'i to be in the academic and geopolitical epicenter of the Pacific. They are bringing capital and talent along with them, furthering the growth of Hawai'i's innovation sector.

However, we have traditionally fallen short when it comes to having the venture capital needed by founders to move their startups from venture to viable. This report shows that we are making progress here as well. While encouraging, the numbers are still smaller than we need to compete effectively to retain and attract the critical mass of companies and entrepreneurs to build a truly strong and competitive innovation sector. Hawai'i's private sector has the capital to commit to venture investing, but is yet to significantly mobilize it. We must collaboratively explore how to

increase the access to venture capital for our innovative companies.

I thank the authors for their expertise and effort to produce this report. The recommendations provide the basis for debate and engagement so that we can achieve a community consensus on the best approach to building a strong innovation economy traded sector.

—Rich Wacker

Rich Wacker is the President and Chief Executive Officer of American Savings Bank. Prior to joining ASB in 2010, Rich was Chairman of Korea Exchange Bank, the fifth largest Korean commercial bank, and was integral in the establishment of the KEB Foundation, the first social welfare organization in the Korean financial industry.

EXECUTIVE SUMMARY


In 2017, the Kauffman Foundation released its annual index report, presenting entrepreneurship trends across the nation and state rankings for Growth Entrepreneurship.¹ The report relied on three composite indicators to generate its state rankings: Rate of Startup Growth, Share of Scaleups, and High-Growth Company Density. Hawai'i ranked second--the highest ever for the state--among 25 smaller states, exhibiting a startup growth rate of a remarkable 126%.

Part of the reason for Hawai'i jumping 9 places and ranking second is the growth and development of an active venture capital ("VC") market in Hawai'i, a critical ingredient of a startup ecosystem. This report highlights activity in Hawai'i's venture capital market, specifically four trends, each signaling growth and opportunity for venture capitalists and startups:

1. **Deal flow growth.** The number of total deals generated by Hawai'i-based startups is increasing.
2. **HI Growth Initiative a Stimulus for the Software Industry.** The HI Growth Initiative drove significant activity in the Information Technology sector through the support of startup development vehicles like accelerators and incubators. This is reflected in the trends during and after the HI Growth Initiative period; from 2012 and 2016, 64 software-related deals were completed, translating to 48% of total deals transacted in the same period. Early stage software startups were the most commonly funded group during HI Growth. This means we are likely to see an increase in demand for later stage deals as these startups grow and scale.
3. **VC Investment Stability.** Adjusting for the spikes in 2012 and 2016 in VC deployed, the amount of VC deployed remains at a steady baseline of around \$20.88M per year.
4. **Key Externalities Create High Impact in the Innovation Ecosystem.** Advances that reduced the cost and complexity of starting technology businesses coupled with efforts from public institutions like the Hawai'i Strategic Development Corporation and entrepreneurship entities like GVS Transmedia Accelerator, Blue Startups, Elemental Accelerator, and XLR8UH, a University of Hawai'i and Sultan Ventures program, helped to cultivate a healthy early stage innovation ecosystem.

VC trends highlighted in this report indicate a promising opportunity for VCs and entrepreneurs to make viable deals in Hawai'i. With adequate amounts of capital and a supportive policy environment, conditions have the chance to get even better over the next few years.

¹ Rankings, "State Rankings: Metropolitan Area Rankings." The Kauffman Foundation, last accessed October 3, 2018, <http://bitly.com/2OQpzoO>.



The future growth of Hawai'i's startup ecosystem will require continued long-term government initiatives, like the HI Growth Initiative to support capital raising, but also policies to provide more incentives and resources for companies to stay in Hawai'i. This will require greater investment in accelerators and incubators as well as in entrepreneurial and technical education. Startups continue to leave the state in pursuit of VC funding, access to human capital that exists only in mature entrepreneurship clusters, first-adoption opportunities, and better exit opportunities. That said, more VC availability and large local company participation will gradually allow startups to find those resources in Hawai'i's startup ecosystem as it matures.

OVERVIEW

Since 2010, investors have deployed \$468M into Hawai'i-related and Hawai'i-based companies. More than half (or \$247M) was invested across 203 deals in 128 unique Hawai'i-based companies, founded and headquartered in Hawai'i. This report will focus primarily on investment activity relating to Hawai'i-based companies and provide recommendations for public and private sector players to continue to grow Hawai'i's innovation ecosystem.

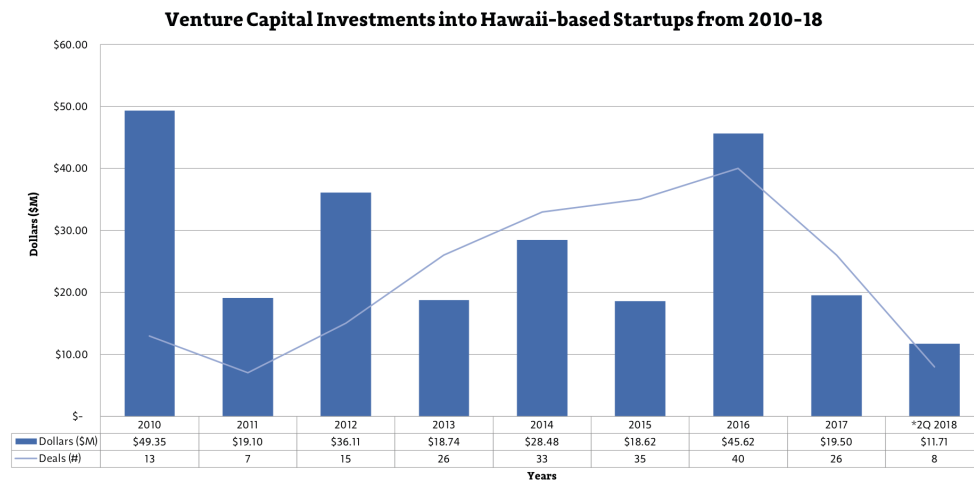


Figure 1: All Completed Equity Financing Events Deployed into Hawai'i-based Startups from 2010 to 2018.

DISTRIBUTION OF VC (DOLLARS & DEALS) IN HAWAII-BASED STARTUPS BY SECTORS AND INDUSTRIES

The top three sectors (Healthcare, Utilities, and Information Technology) attracted 80% of all VC dollars into Hawai'i-based companies; additionally, the same three sectors made up 73% of all deals.

Distribution of Venture Capital into Hawaii-based Startups Across Sectors from 2010-2Q 2018 (\$M)

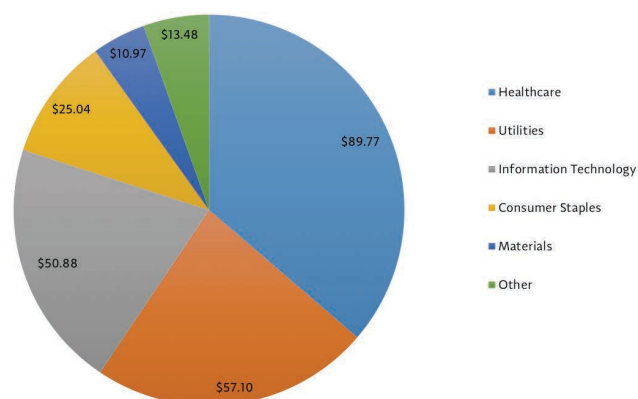


Figure 2: Distribution of investment dollars into Hawai'i-based startups deployed primarily in 3 sectors.

Sectors	Dollars (\$M)	% of Total		% of Total
		Dollars	Count (#)	Deals
Healthcare	\$ 89.77	36%	46	23%
Utilities	\$ 57.10	23%	14	7%
Information Technology	\$ 50.88	21%	87	43%
Consumer Staples	\$ 25.04	10%	18	9%
Materials	\$ 10.97	4%	4	2%
Other	\$ 13.48	5%	34	17%
Total	\$ 247.23	100%	203	100%
<i>Other</i>				
Communication Services	\$ 5.73	2%	14	7%
Industrials	\$ 5.62	2%	8	4%
Consumer Discretionary	\$ 2.12	1%	11	5%
Energy	\$ 0.01	0%	1	0%
	\$ 13.48	5%	34	17%

Figure 3: Table view of distribution of investment dollars and deals into Hawai'i-based startups.

Breaking down sectors by industry, as shown in Figure 4 below, shows that investment in just three sectors makes up 80% of the total dollars invested, while comprising 73% of the total number of deals. Within the Healthcare sector, the Healthcare Technology, Medical Marijuana, and Biotechnology industries comprises nearly all of the investment dollars deployed. The Utilities Sector accounted for 23% of all invested dollars (nearly all of those dollars were deployed from 2010 to 2012).

The Information Technology ("IT") sector accounted for 43% of all deals completed from 2010 to 2Q 2018. That high concentration of deals in the IT sector only corresponded to 21% of investment dollars deployed. Of the 87 deals closed with IT startups, just 12 were later stage investments. The vast majority of these investments were accelerator/incubator and early stage investments, which have the lowest average deal size.

Sectors: Industries	Dollars (\$M)	% of Total Dollars	Count (#)	% of Total Deals
Healthcare	\$ 89.77	36%	46	23%
Healthcare Technology	\$ 32.42		13	
Medical Marijuana	\$ 32.11		4	
Biotechnology	\$ 24.28		18	
Healthcare Services	\$ 0.97		11	
Utilities	\$ 57.10	23%	14	7%
Energy Production	\$ 50.56		3	
Commercial Services	\$ 3.81		9	
Energy Storage	\$ 2.43		1	
Energy Services	\$ 0.30		1	
Information Technology	\$ 50.88	21%	87	43%
Software	\$ 45.08		81	
Technology Hardware	\$ 5.80		6	
Consumer Staples	\$ 25.04	10%	18	9%
Food Products	\$ 15.35		9	
Beverages	\$ 9.14		1	
Other Commercial Services	\$ 0.53		7	
Food & Staples Retailing	\$ 0.03		1	
Materials	\$ 10.97	4%	4	2%
Chemicals	\$ 10.97		4	
Communication Services	\$ 5.73	2%	14	7%
Interactive Media & Services	\$ 3.92		12	
Entertainment	\$ 1.82		2	
Industrials	\$ 5.62	2%	8	4%
Energy Infrastructure	\$ 3.25		1	
Commercial Services	\$ 1.27		3	
Marine	\$ 0.96		2	
Aerospace & Defense	\$ 0.08		1	
Professional Services	\$ 0.07		1	
Consumer Discretionary	\$ 2.12	1%	11	5%
Household Durables	\$ 1.74		5	
Specialty Retail	\$ 0.39		6	
Energy	\$ 0.01	0%	1	0%
Energy Equipment	\$ 0.01		1	
Total	\$ 247.23	100%	203	100%

Figure 4: Breaking down sector investments by industries.

DISTRIBUTION OF VC (DOLLARS & DEALS) IN HAWAII-BASED STARTUPS ACROSS INVESTMENT STAGE

For Hawaii-based companies, early stage and late stage cumulatively account for 65% of all investment dollars deployed from 2010 to 2018, while only making up 18% of total deals. Due to the increasing strength of the accelerator and incubator environment, earlier stage investments will continue to be available. As these companies mature, access to later stage investment capital will be critical to continue the evolution of the Hawaii VC market.

Distribution of VC Dollars in Hawaii-based Startups by Investment Stage from 2010-2Q 2018

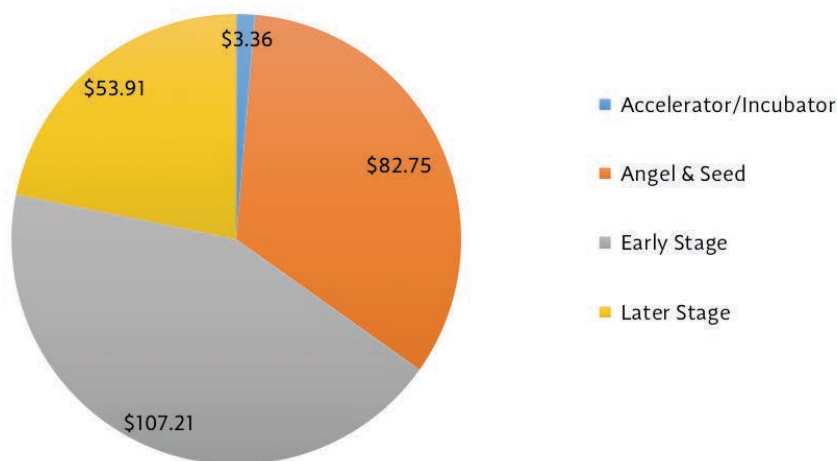


Figure 5: Venture capital investments were deployed largely into Early Stage deals.

Investment Stage: Sectors	Dollars (\$M)	% of Total Dollars	Count (#)	% of Total Deals
Accelerator/Incubator	\$ 3.36	1%	69	34%
Communication Services	\$ 1.82		12	
Information Technology	\$ 0.93		39	
Healthcare	\$ 0.23		6	
Industrials	\$ 0.17		3	
Consumer Discretionary	\$ 0.13		6	
Utilities	\$ 0.05		1	
Consumer Staples	\$ 0.05		2	
Angel & Seed	\$ 82.75	33%	96	47%
Healthcare	\$ 41.31		29	
Information Technology	\$ 15.39		36	
Consumer Staples	\$ 10.13		12	
Industrials	\$ 5.46		5	
Communication Services	\$ 3.92		2	
Utilities	\$ 2.64		4	
Consumer Discretionary	\$ 1.99		5	
Materials	\$ 1.91		2	
Energy	\$ 0.01		1	
Early Stage	\$ 107.21	43%	29	14%
Utilities	\$ 32.74		5	
Information Technology	\$ 26.14		9	
Healthcare	\$ 24.40		9	
Consumer Staples	\$ 14.87		4	
Materials	\$ 9.06		2	
Later Stage	\$ 53.91	22%	9	4%
Healthcare	\$ 23.83		2	
Utilities	\$ 21.67		4	
Information Technology	\$ 8.41		3	
Total	\$ 247.23	100%	203	100%

Figure 6: Breaking down investments into stages by industries.

VC IN HAWAII-RELATED STARTUPS

Investors deployed another \$220 million across 82 deals into Hawaii-related startups, defined as companies that either participated in Hawaii-based accelerator/incubator programs or were founded in Hawaii and may have relocated outside of Hawaii, but still maintain a business nexus in the state.

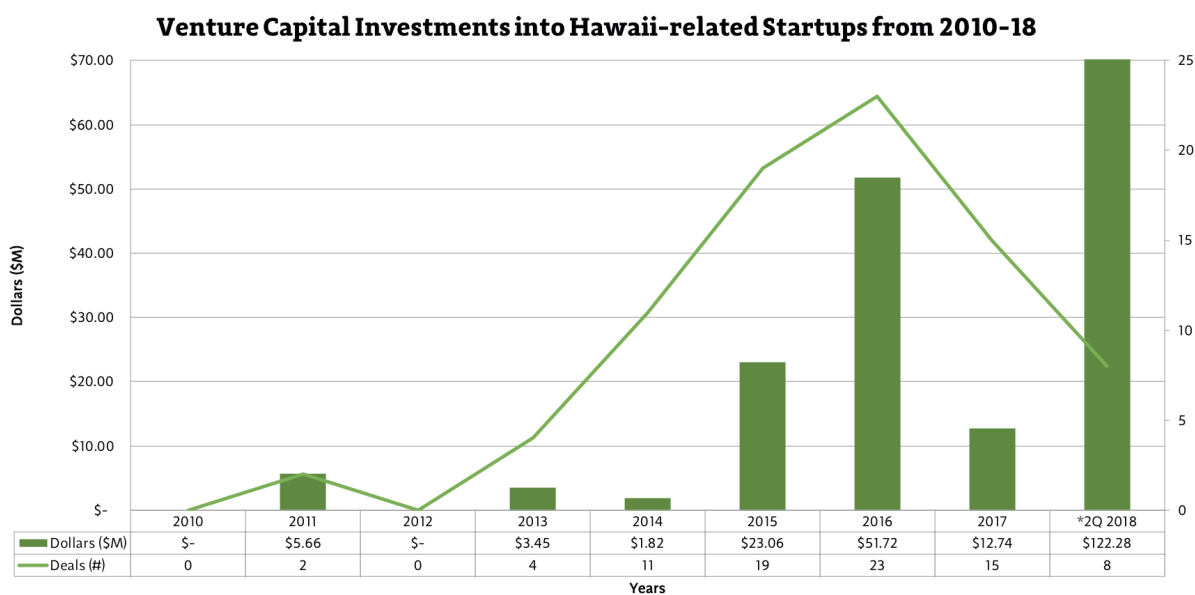


Figure 7: Completed equity financing events deployed into Hawaii'i-related startups from 2010 to 2018; note Y axis modified.

Some former Hawaii'i-based companies that are included in Figures 7 and 8 include: Adama Materials, AreaMetrics (f/k/a Happy Hour Pal), Comprend.io, FloWater, Meeting Sift, and Volta Charging.

Sectors	Dollars (\$M)	% of Total Dollars	Count (#)	% of Total Deals
Utilities	\$ 83.01	38%	7	9%
Industrials	\$ 62.34	28%	5	6%
Information Technology	\$ 57.83	26%	62	76%
Materials	\$ 13.39	6%	4	5%
Healthcare	\$ 3.63	2%	2	2%
Consumer Discretionary	\$ 0.53	0%	2	2%
Total	\$ 220.72	100%	82	100%

Figure 8.

DISTRIBUTION OF VC (DOLLARS & DEALS) IN HAWAII-RELATED STARTUPS ACROSS SECTORS & INDUSTRIES

Like the distribution of VC dollars into Hawaii'i-related startups, Utilities and Information Technology sectors comprised large chunks of the investment capital pie (Figure 9). Interestingly, the Industrials sector, which only accounts for \$5.62M of total investment in Hawaii'i-based companies, accounts for over \$62M of total investment in Hawaii'i-related companies. Hawaii'i-based industrials companies have closed eight deals while Hawaii'i-related companies have

closed just five. These five deals were represented by just two of the more successful companies referenced in this report: Volta Charging (an energy infrastructure company) and FloWater (a commercial services company).

**Distribution of VC Dollars into Hawaii-related Startups
Across Sectors from 2010 to 2Q 2018 (\$M)**

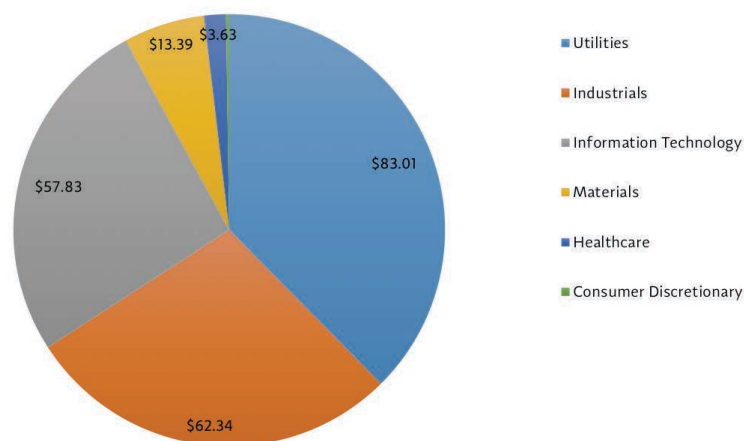


Figure 9.

Sectors: Industries	Dollars (\$M)	% of Total Dollars	Count (#)	% of Total Deals
Utilities	\$ 83.01	38%	7	9%
Commercial Services	\$ 0.07		1	
Energy Infrastructure	\$ 0.20		1	
Energy Production	\$ 0.80		3	
Energy Storage	\$ 81.94		2	
Industrials	\$ 62.34	28%	5	6%
Commercial Services	\$ 8.34		2	
Energy Infrastructure	\$ 54.00		3	
Information Technology	\$ 57.83	26%	62	76%
Commercial Services	\$ 0.07		1	
Software	\$ 57.22		59	
Technology Hardware	\$ 0.55		2	
Materials	\$ 13.39	6%	4	5%
Chemicals	\$ 13.39		4	
Healthcare	\$ 3.63	2%	2	2%
Diagnostic equipment	\$ 0.15		1	
Healthcare Technology	\$ 3.48		1	
Consumer Discretionary	\$ 0.53	0%	2	2%
Specialty Retail	\$ 0.53		2	
Total	\$ 220.72	100%	82	100%

Figure 10.

ANALYSIS

In 2017, the Kauffman Foundation released its annual index report, presenting entrepreneurship trends across the nation and state rankings for Growth Entrepreneurship.² The report relied on three composite indicators: Rate of Startup Growth, Share of Scaleups, and High-Growth Company Density to generate its state rankings. Hawai'i ranked second--the highest ever for the state--among 25 smaller states, exhibiting a startup growth rate of a remarkable 126%.

Part of the reason for Hawai'i jumping 9 places and ranking second is the growth and development of an active venture capital market in Hawai'i, a critical ingredient of a startup ecosystem. This report highlights activity in the Hawai'i venture capital market, specifically four trends, each signaling growth and opportunity for venture capitalists and startups.

1. INCREASING DEAL FLOW

From 2010 to 2Q 2018, there were 203 equity investments or deals completed in Hawai'i-based startups. An analysis of annual deal flow activity year-over-year indicates a general linear trend increase. This growth is largely attributable to the launching of the HI Growth Initiative ("HI Growth") in 2012. The Hawai'i Strategic Development Corporation ("HSDC") launched the HI Growth Initiative to catalyze the development of an innovation ecosystem by providing \$20M for three key functions: entrepreneur development, research commercialization, and the mobilization of startup investment capital.

During the HI Growth period (2012 to 2016), deal flow increased year-over-year, reaching its peak in 2016. However, rather than plummeting back to the seven deals closed prior to HI Growth, 2017 ushered in 26 deals. 2018 is projected to reach 24 if Q1 duplicates itself over the next three quarters. In this case, we assume the baseline for the number of deals is much higher now than it was pre-HI Growth because of the maturation of Hawai'i-based accelerators and incubators.

² Rankings, "State Rankings: Metropolitan Area Rankings." The Kauffman Foundation, last accessed October 3, 2018, <http://bitly.com/2OQpzoO>.

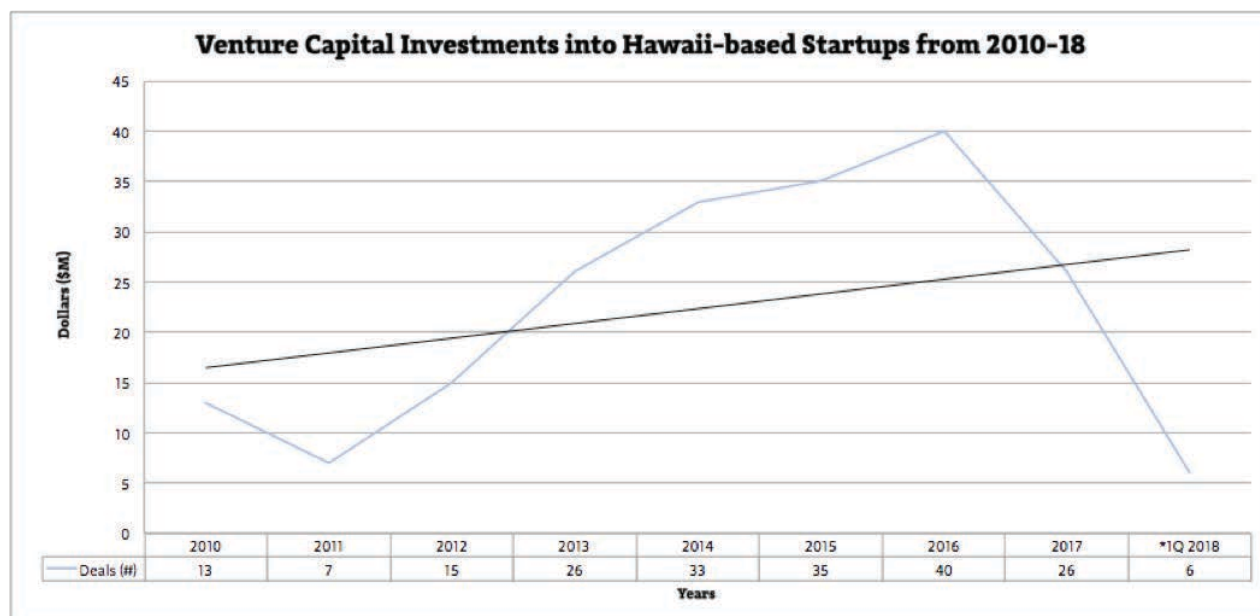


Figure 11: Steady upward trend in the number of VC deals closed.³

2. HI GROWTH INITIATIVE A STIMULUS FOR THE SOFTWARE INDUSTRY

The software industry is directly influenced by policy. This is represented by the trends exhibited during and after the HI Growth Initiative. During the period between 2012 and 2016, 64 deals in software companies were completed, translating to 43% of total deals transacted in the same period. During these years, the percentage of deals for both Hawai'i-based and Hawai'i-related software companies was the highest.

The sheer quantity of deals with both Hawai'i-related and Hawai'i-based software companies also increased dramatically during the HI-growth years. Immediately after HI Growth concluded in 2016, the number of technology deals declined.

Analyzing the distribution of deals by sector from 2010 to 2017, it is clear that the software industry is dominant, especially for Hawai'i-related deals (see Figure 14 below). The single sub-industry also exhibits dominance and consistency in Hawai'i-based deals ranging from 30-40% of the Hawai'i-based deal flow pie year-on-year. These data points are a reflection of the strength of the local incubator/accelerator ecosystem, the technical environment, and R&D activity, signaling an opportunity for VCs to make successful investments in Hawai'i's computer services cluster.

³ Due to a lack of seasonal trends in past years, we are unable to predict the number of 2018 deals in Q3 and Q4 with a high level of confidence, therefore, we chose to extrapolate from existing Q1 figures.

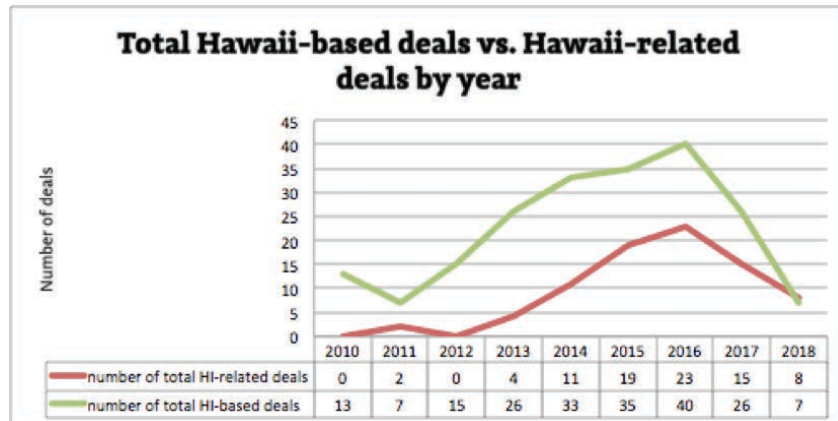


Figure 12.

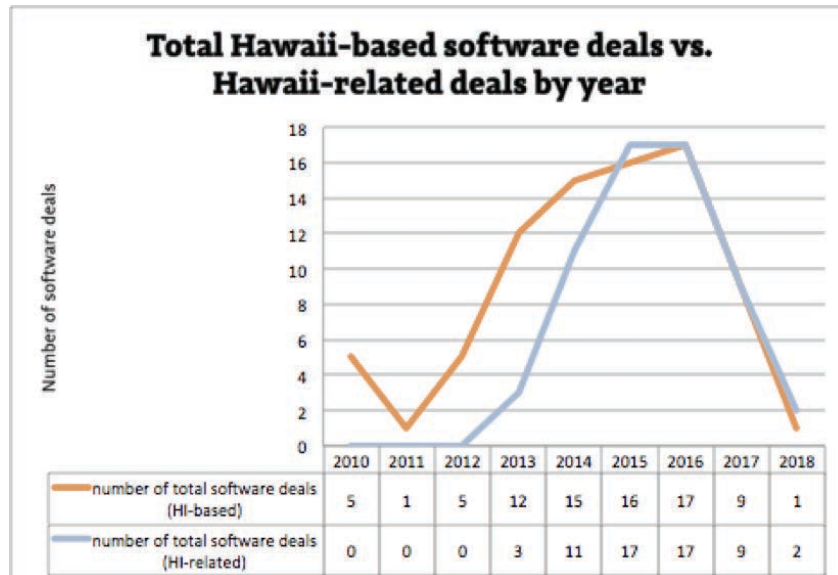


Figure 13.

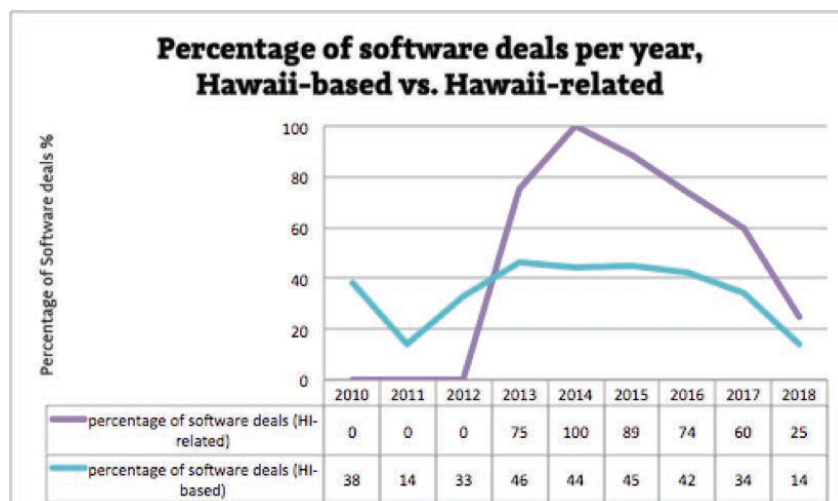


Figure 14.

3. VC INVESTMENT STABILITY

Adjusting for the VC investment spikes in 2012 and 2016, the amount of VC deployed remains at a steady baseline around \$20.88M per year.

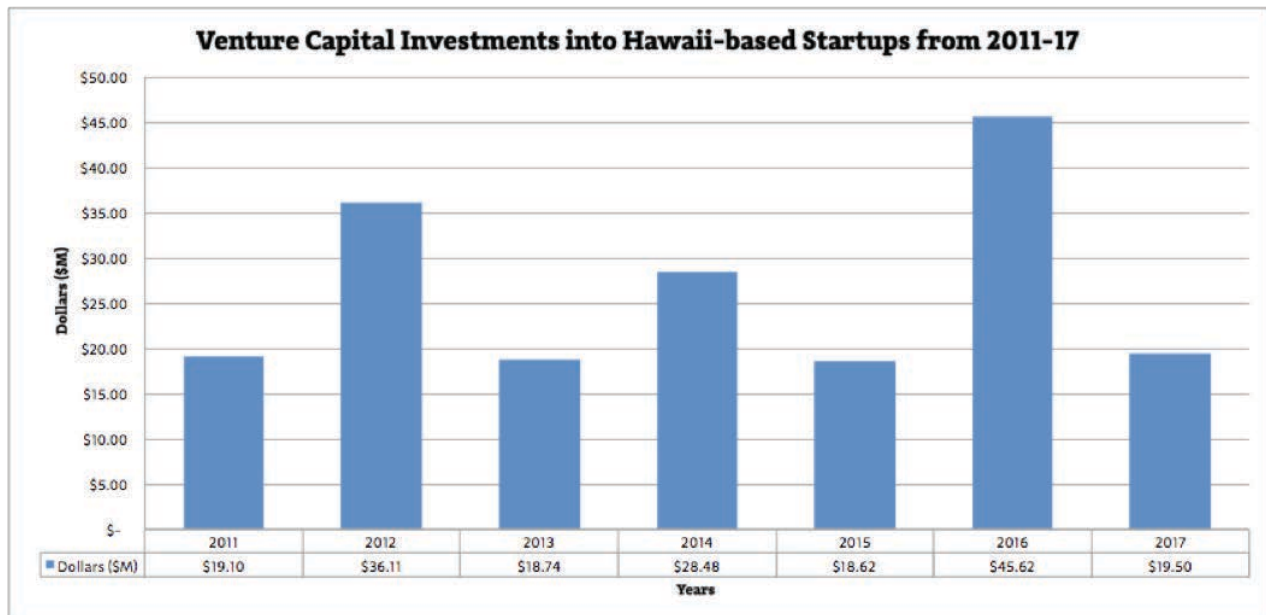


Figure 15.

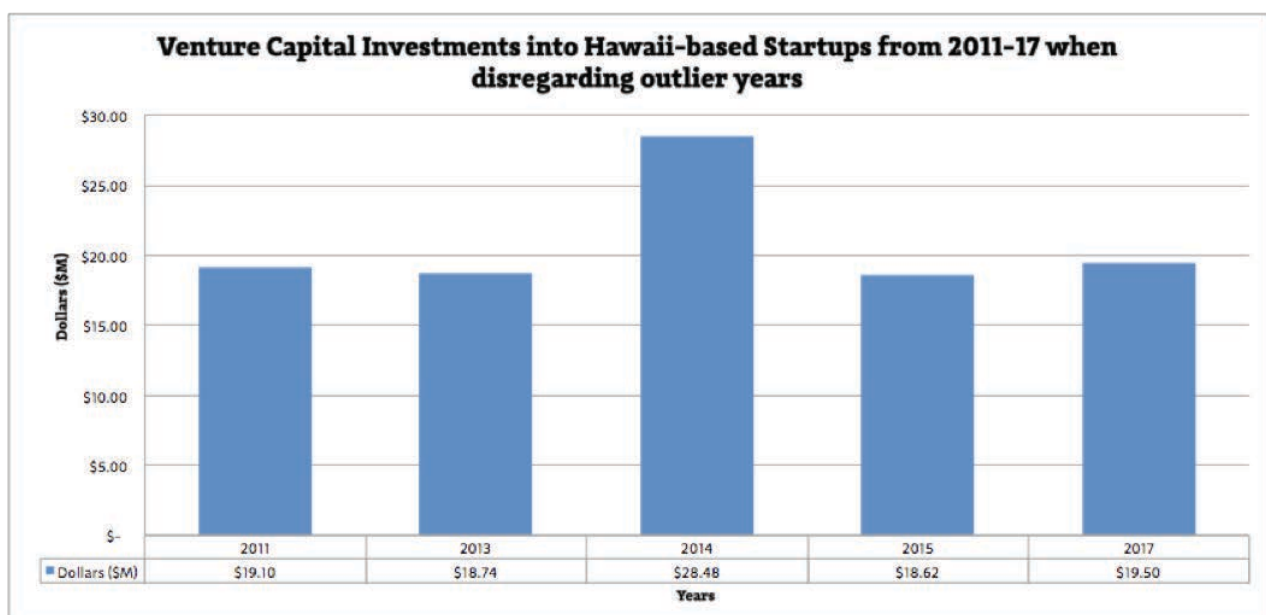


Figure 16. Consistency in non-outlier years demonstrated. Baseline is \$20.88M per year.

4. KEY EXTERNALITIES CREATE HIGH IMPACT IN THE INNOVATION ECOSYSTEM

As shown in Figure 17 below, 2011 saw the lowest number of deals and the highest deal-concentration in later stage startups. In 2012, the HI Growth Initiative catalyzed a change in the entrepreneurship climate, which ushered in a spike in VC investment and the number of deals made, especially in earlier stage deals.

Through the HI Growth initiative, HSDC funded Blue Startups and the GVS Transmedia Center accelerators as well as entering into limited partnerships with several VC funds. Additionally, the near simultaneous launch of the Elemental Excelsator (f/k/a Energy Excelsator) in 2013 and the XLR8UH program administered by Sultan Ventures in 2014 created additional deal activity as companies graduated from their respective programs and sought out and secured funding. To date, 7 cohorts have entered into Elemental Excelsator's program while 24 companies have graduated from the XLR8UH program.

Because of that key externality, we can assume the Hawai'i VC market will evolve to a more even distribution of investment opportunities, varying from accelerator/incubator capital investments to late stage investments.

To recall an earlier section on the Distribution of VC (Dollars and Deals) Across Investment Stage, for Hawai'i-based companies, later stage deals (early and late stage) cumulatively accounted for 65% of all investment dollars deployed from 2010 to 2018, while only making up 18% of total deals. Due to the increasing strength of the accelerator and incubator environment, earlier stage investments will continue to be available. However, as shown in Figure 17, the number of early stage deals has been proportionately decreasing. Companies still based in Hawai'i which received earlier stage funding during the HI Growth period will likely be seeking later stage investment in the near future. This change in stage of funding demand could explain the brief lull.

If our assumptions materialize, each of the data points previously referenced in this section indicate a promising and opportunistic VC environment where earlier stage and later stage deals are both available at similar quantities simultaneously.

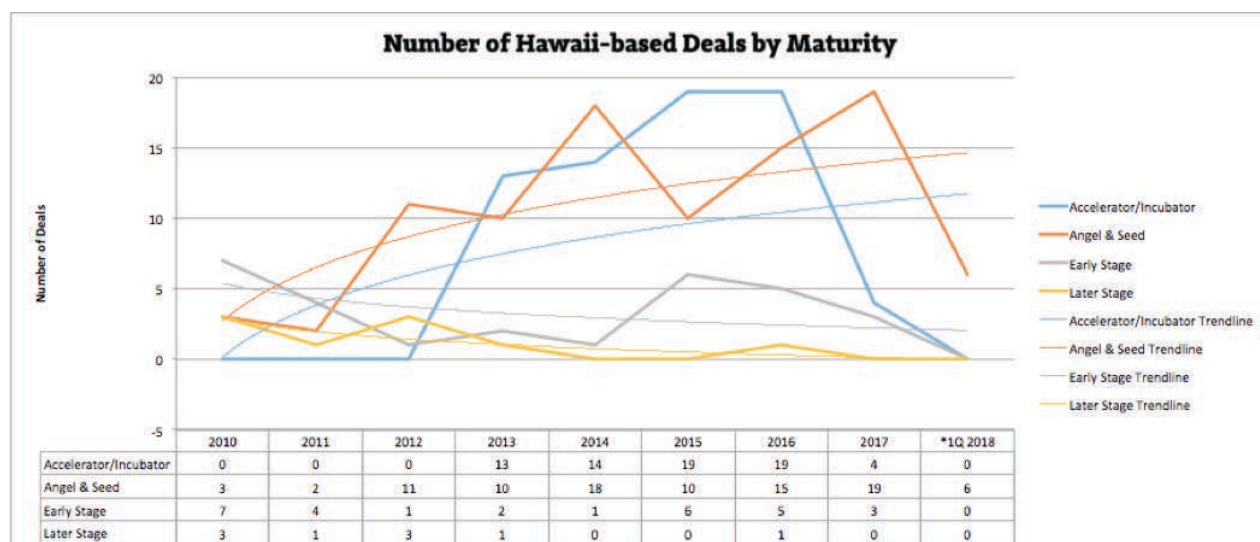



Figure 17: Opportunities in the accelerator/incubator and seed/angel company maturity categories experienced rapid growth during the HI Growth Initiative years, bounded by the 2016 Medical Cannabis Dispensary Program effective date. However, the number of these opportunities is shown to decrease, while the number of early- and late-stage deal opportunities is positioned on an upward curve. More equal distribution in the types of VC investment opportunities is expected.

INNOVATION FACTORS

The increase in technology industry opportunities became available due to innovations reducing the capital intensiveness and complexities of starting up technology enterprises. The most evident example of this is in the huge growth of companies in the software industry.

Since 2013 alone, 70 out of 168 venture capital deals in Hawai'i-based companies have been for software companies. These 70 deals made from 2013 to 2Q 2018 make up 34% of all VC investments made since 2010 in Hawai'i-based companies, so there is clearly substantial activity in this industry in Hawai'i.

Innovation and the consequent declining capital expenditures for software companies in Hawai'i is also presenting an opportunity for greater event frequency since the industry has several verticals, e.g., internet software and services, application software, communication software, entertainment software, and information services. Other established industries in Hawai'i such as biotechnology have also been venture capital friendly over the last several years.



Although these opportunities exist, availability of VC must keep up with the pace of ecosystem maturation. As the ecosystem grows, VC must be adequately supplied to address the needs of both young and more mature companies or Hawai'i-based companies will need to relocate in pursuit of VC funding. Indeed, former Hawai'i-based companies like AreaMetrics (f/k/a Happy Hour Pal), Comprend.io, Meeting Sift, FloWater, and Volta Charging relocated, sought out and received VC funding outside of Hawai'i.

For purposes of this report, deal activity data for those companies are typically reflected as Hawai'i-related activity post-graduation from their respective local accelerator/incubator programs. While not ideal to furthering an innovation ecosystem here, these companies' efforts provide an additional signal that the Hawai'i innovation ecosystem is growing and worthy of VC investment. To that point, Figure 18 below illustrates the growing number of VC deals made with Hawai'i-related companies. Since 2012, more and more Hawai'i-related companies have participated in the accelerator/incubator programs or have a similar nexus and successfully raised VC, demonstrating an increased maturity of the overall ecosystem.

CONCLUSION

MOBILIZING INVESTMENT CAPITAL

The growth and development of an active venture capital market in Hawai'i plays a critical role in growing an innovation ecosystem and economy. Established investment entities like the Hawai'i Angels, HiBEAM, and Kolohala Ventures helped early on to fund promising high growth companies. Subsequently, a key externality--namely the HI Growth Initiative--helped catalyze a flurry of deal activity through the funding of various accelerator programs and venture capital firms; some early investments into promising companies have grown and begun to scale nationwide.

Volta Charging, a Blue Startups Cohort 1 company, provides a successful case study for one of the stated functions of the HI Growth Initiative, that is the mobilization of startup investment capital. Volta Charging was one of 15 companies in the initial Blue Startups cohort that graduated in May 2013. The company designs, installs and maintains a network of free electric vehicle charging stations funded by sponsor brands throughout the country. From taking on accelerator funding in 2013 to its announced \$35 million Series C financing deal earlier this year, Volta Charging has raised \$54 million in venture capital financing to support the growth and nationwide scaling of its business. The company's investors include notable firms like GE Ventures, EPIC Ventures, Orsted Venture, Nautilus Venture Partners, Idinvest, Invenergy Future Fund, and Activate Capital. Early investors from Hawai'i include the Hawai'i Angels and Ulupono Initiative.

Hobnob provides an example of a Hawai'i-based company that has successfully raised capital from notable VC firms outside of Hawai'i. Founded in 2014 by serial entrepreneur Tina Fitch, Hobnob has developed a mobile application designed to help users to organize events. The company's mobile application is an iOS and Android application that helps to create an invitation design and send it to guests by text message or email. Hobnob successfully raised a seed round of financing in 2016, led by Aspect Ventures, Norwest Venture Partners, with participation by Bessemer Venture Partners, and Greycroft Partners; Startup Capital Ventures anchored a seed extension round in 2017.

While Volta Charging, and Hobnob highlight the successes that some technology companies have had in growing their businesses and attracting capital, the majority of deal activity in Hawai'i at present is still at the early stage with these companies looking outward for later stage needs. Therefore, it is important to consider educational and political factors that can help accelerate growth and provide resources that are stage agnostic. In Hawai'i's case this is even more important, given the ecosystem's smaller size and relative vulnerability to externalities.

ADDITIONAL FACTORS TO HELP TO ACCELERATE THE GROWTH OF AN INNOVATION ECOYSTEM

During the HI Growth Initiative, the HSDC supported four of the six accelerators, invested in six active Hawai'i-based investment funds, and supported a full calendar of international conferences and networking events.

The HTDC is another resource that provides financial and other support services to Hawai'i-based technology companies, promotes and markets Hawai'i as a site for commercial tech activity, and provides significant resources for research and development of applied technologies.

Among HTDC's more recent initiatives is its 80/80 Initiative, which sets a goal to create 80,000 new technology and innovation jobs posting salaries of \$80,000 or more by 2030. This ambitious goal is both respondent to and symbolic of the recent surge in technology-related VC deals in both Hawai'i-based and Hawai'i-related companies. For the 80/80 Initiative goals to be achieved a comprehensive set of concrete public-private initiatives that attract investment capital and provide incentives and resources for startups to remain in Hawai'i to grow and scale will be required.

Another encouraging example of the State's forward-looking entrepreneurship position is demonstrated by the State's Employee Retirement Service (ERS) retirement and benefits fund. The ERS committed \$35M in venture funds targeting later staged startups based in Hawai'i in 2017, a clear sign of support for Hawai'i's entrepreneurial ecosystem.

Private sector actors with strategic interests have also helped catalyze VC activity. Hawai'i Medical Services Association (or "HMSA"), Queen's Health Systems, and UPSIDE are investors in Kineticor. Founded on the belief that for-profit sector business and non-profits can be a force for good, Ulu pono Initiative has invested in for-profit companies like Ibis Networks, Honolulu SeaWater Air Conditioning, Volta Charging, and WaySine as well as supporting non-profit organizations like Kanu Hawai'i, the Kohala Center, and the Kokua Festival to name a few.

DevLeague a coding bootcamp founded in 2014 by serial entrepreneurs Russell Cheng and Jason Sewell has been steadily producing software developers; some of whom have gone on to join existing Hawai'i-based technology companies.

Running alongside these improvements are entrepreneurial programs run by non-profit organizations and primary and secondary educational institutions. Organizations like Purple Mai'a Foundation and Education Incubator are working to provide foundational skills in technology

and entrepreneurship. The University of Hawai‘i has partnered with Sultan Ventures to operate XLR8UH, an accelerator that seeks to commercialize UH intellectual property. The university has also encouraged entrepreneurship by housing programs like the Pacific Asian Center for Entrepreneurship and hosting business competitions like the UH Breakthrough Innovation Challenge and the UH Business Plan Competition.

GOING FORWARD: POLICY ACTION AND PRIVATE SECTOR COOPERATION

It is clear that recent policy intervention made a significant positive impact on the startup ecosystem in Hawai‘i. Although on track to surpass the VC baseline of \$20.88M/year, continued support for early and late stage funding will be important to build on this momentum and allow more startups to remain in Hawai‘i to grow and scale.

Continued growth of Hawai‘i’s innovation ecosystem will require foresight and entrepreneurship-friendly programs from state policymakers. Potential actions could include long-term, state institution-driven initiatives similar to the HI Growth Initiative, which stimulated local capital deployment, VC fundraising, and valuable entrepreneurship growth vehicles like accelerators and incubators; reallocation of resources to be distributed to institutions like the University of Hawai‘i, which focuses on early entrepreneurship education and startup formation; and direct investment like that being done by the State Employee Retirement System.

A key point to be considered is that the HI Growth Initiative only required the allocation of \$20M. The creation of similar initiatives targeting the conditions of the startup ecosystem would be a cost-effective way to continue to address the capital demands of Hawai‘i-based companies. HI Growth catalyzed the growth of early stage startups between the years of 2012 and 2016. These early stage startups will likely be seeking later stage investments in the coming years. That said, a “HI Growth Initiative 2.0” stimulating later stage dealmaking and enterprise development may be a strong option.

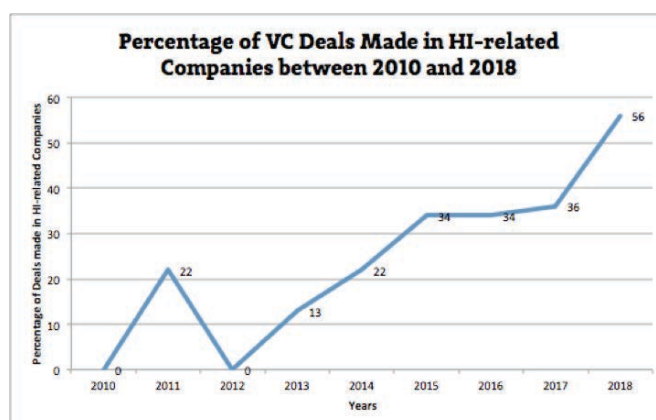


Figure 18.

It is also critical that if Hawai'i's startup ecosystem is to grow, a greater emphasis on enterprise and human capital retention is needed. Startups, especially in demand of technical talent and lower supply-chain-related capital expenditures frequently relocate to more mature entrepreneurship clusters to meet these demands and to gain greater access to VC, first-adoption opportunities, and better exit opportunities.

The government can also do less to stimulate more VC activity. Act 241 is an example of this, demonstrating that less restrictive economic policy can catalyze more VC activity and higher levels of entrepreneurship.

ACT 241 - THE MEDICAL CANNABIS DISPENSARY PROGRAM

In July 2015, Act 241, the Medical Cannabis Dispensary Program, was enacted, allowing for the sale of medicinal marijuana products at dispensaries beginning in July 2016 with State Department of Health's approval. This policy change seemed to outweigh the discontinuance of the HI Growth Initiative's public and private funding distribution campaign. The promise of medical marijuana appears evident, demonstrated by the fact that investment into medical marijuana alone makes up for 37% of all venture capital investment in the healthcare sector.

It is not solely up to the government to attract, incentivize, and provide the resources required to improve the startup ecosystem here in Hawai'i. Large local private and public companies also need to step in, serving startups as first-adopters, clients, investors, and acquirers. Early efforts from businesses and organizations like HEI, HMSA, Queen's Medical System are promising, more is needed. This is reflected in the data: 50% of all deals made this year were with Hawai'i-related companies and 62.5% of those deals were more mature (either early- or late-stage) investments. This statistic begs the question of whether those companies would have headquartered in Hawai'i if they had access to VC, customers, and exit opportunities available in more mature entrepreneurship clusters.

NOTABLE VC INVESTMENTS IN HAWAII

Healthcare Technology Company Spotlight



www.TruTags.com

Founded in 2011, TruTag Technologies has developed a technology to provide product authentication and brand protection for pharmaceutical and nutraceutical companies. TruTag has raised \$16.78 million investment dollars, and has 31 employees. The company is based out of Kapolei, Hawai'i. Notable investors include DiNova Venture Capital, Skai Ventures and corporate VC WuXi Healthcare Ventures.

In 1Q 2018, the company announced its intention to safeguard the cannabis supply chain through an announced partnership with Seattle-based Tag-It Tech.⁴

Research Commercialization Spotlight



www.Kineticor.com

Founded in 2011, KinetiCor is a developer of a medical imaging technology designed to bring clarity to MR imaging. The company's MRI image correction technology use motion correction optical imaging which is applicable to both 2D and 3D MR sequences and allows any sequence to be motion correction enabled with a quad camera and in-bore patient monitoring, enabling patients to save money by reducing the need for multiple procedures. KinetiCor counts Hendale Capital, HMSA, Queen's Health Systems and the UPSIDE Fund, a partnership with the University of Hawai'i Foundation and HSDC, as investors.

Utility Sector Company Spotlight



www.BluePlanetEnergy.com

Founded in 2015 by Henk Rogers, Blue Planet Energy Systems is a provider of energy storage system designed to provide reliable, safe and cost-effective clean energy solutions. The company's energy storage technology delivers responsible energy storage by using Lithium Ion batteries that can last 20 years, have high energy density and contain no rare minerals, enabling businesses or homeowners to manage electricity storage by day, and the use of battery power by night.

⁴ Hrushka, Anna, "TruTag Technologies targets marijuana market." March 15, 2018, available at <https://www.bizjournals.com/pacific/news/2018/05/15/trutag-technologies-targets-marijuana-market.html>

In 1Q 2018, Blue Planet energy storage systems were deployed in service of humanitarian and disaster relief efforts in Puerto Rico.⁵

Information Technology Sector Company Spotlight



Founded in and spun out of Oceanit Laboratories, Ibis Networks is a provider of plug load energy management products. The company offers socket level monitoring and control of electrical devices that helps commercial and government enterprises to cut their plug load energy consumption, enabling users to manage energy load. The company has 12 employees and is headquartered in Santa Clara with an office in Honolulu. Notable investors in Ibis Networks include the Hawai'i Angels, Ulupono Initiative and EEX Fund One, a partnership of Hawai'i corporate investors and HSDC.

Industrials Spotlight




FloWater participated in the initial cohort of Blue Startups. The company is an operator of reusable water bottle refilling stations intended to provide fresh and purified water without the plastic waste. The company's reusable water bottle refilling stations provides an alternative to plastic water bottle usage to control pollution, along with this it helps in the distribution and operation of water vending machines as well as the distribution and sale of reusable water bottles, enabling people to get a superior option for hydration without adding to the number of plastic bottles piling up in the ecosystem. The company has raised nearly \$10M from investors like Connected Ventures, Blue Startups and the Hawai'i Angels.

Hawai'i-related Information Technology Company Spotlight



LiveAction was spun out of Hawai'i-based Referentia Systems. LiveAction's corporate office in Palo Alto, California with additional engineering and support teams in Romania, India, Hawai'i and Walnut Creek, CA. LiveAction is a Provider of next generation network performance monitoring software designed to simplify network management. The company's network performance monitoring

⁵ Zipp, Katie, "Blue Planet Energy provides solar+storage systems and training for Puerto Rico," March 8, 2018, available at <https://www.solarpowerworldonline.com/2018/03/blue-planet-energy-provides-solar-and-storage-systems-and-training-for-puerto-rico/>



software features an innovative visual display, real-time big data analytics, enabling businesses to help in decision-making and deep integration with routers and switches for unparalleled network control. In 2016, the company reported raising a Series B round of investment of \$36M, led by Insight Venture Partners, Accelerate-IT Investments, and Cisco Investments.

ACCELERATORS, INCUBATORS, AND INVESTMENT FIRMS

Blue Startups



Blue Startups is an accelerator that invests in businesses specializing in technology and e-commerce sectors. It was founded in 2012 and is headquartered in Honolulu, Hawai'i.

Blue Startups is focused on helping technology companies compete on a global scale. With an extensive global network, Blue Startups serves as a nexus of entrepreneurial activity in Hawai'i, and between Asia and North America.

Elemental Excelsator



Elemental Excelsator is a start-up program seeking to invest in energy companies based in Hawai'i and the Asia Pacific. The program primarily focuses in the sectors such as technology, grid, transportation, agriculture, cleantech, energy innovation and water. It is headquartered in Honolulu, Hawai'i and was founded in 2010.

ERS HiTIP Program

The Hawai'i Targeted Investment Program (HiTIP) is was created in 2007 by the Hawai'i Employees Retirement System to fulfill the mandate of Act 260, "A Bill For An Act Relating To The Innovation Economy." The ERS committed \$25M in HiTIP Fund I and \$35M in 2017 to HiTIP Fund II.

GVS Transmedia Accelerator



Launched in April of 2014, the GVS Transmedia Accelerator Program is a public-private initiative between GVS, the Hawai'i Strategic Development Corporation/ HI Growth Initiative, the County of Hawai'i and the GTA Development Fund. The Program utilizes disciplined development models, mentorship and coaching relationships, seed financing, and synergistic collaboration to empower Hawai'i's creative entrepreneurs to launch original transmedia franchises.

Hawai'i Angels



www.HawaiiAngels.com

Hawai'i Angels provides a forum for members to review investment presentations and share opinions about these opportunities. This forum also allows for networking with professionals of various backgrounds, and exploring new opportunities in Hawai'i.

The Hawai'i Angels process is proven and well-suited to Hawai'i's start-up scene. Since its founding in February 2002, the member angels have invested more than \$30 million in nearly 60 companies.

Hawai'i Investment Ready



www.HIRReady.net

Hawai'i Investment Ready is a social enterprise incubator that helps companies develop innovative and sustainable ways of solving their social and environmental challenges. HIR was initiated in 2013 by the Kamehameha Schools, Social-Impact International, and the KL Felicitas Foundation.

Maui Food Innovation Center



www.Maui.Hawaii.edu/foodinnovation

The Maui Food Innovation Center (MFIC) is a unique first in-state incubator fostering Agribusiness and Foodpreneurs x-celeration and education. Part of the University of Hawai'i Maui College, located in Kahului, Hawai'i, MFIC is helping build a stronger, economically diverse, and sustainable Maui by supporting the value-added food industry.

Purple Mai'a Foundation



www.PurpleMaia.org
www.PurplePrize.com

The Purple Mai'a Foundation is an Education Technology non-profit whose mission is to educate and empower the next generation of culturally grounded, community-serving, technology makers and problem solvers.

The Purple Mai'a Foundation also hosts the Purple Prize, an innovation competition that brings together people across sectors to build technology solutions that create value for Hawai'i's land and people.

Skai Ventures



Skai Ventures is a venture capital firm that prefers to invest in companies operating in the life sciences, medical, defense and security technology sectors. The firm was established in 2003 and is headquartered in Honolulu, Hawai'i.

Startup Capital Ventures



www.StartupCV.com

Startup Capital Ventures is an early stage venture capital firm based in Menlo Park, California with an office in Honolulu, Hawai'i. Our geographic focus is Silicon Valley along with selective investments in Hawai'i and elsewhere.

SCV invests in early-stage, capital efficient B2B technology companies with proof of first revenue.

Sultan Ventures



Sultan Ventures is a boutique venture firm based in Honolulu, Hawai'i and was founded in 2009. The firm seeks to invest in the healthcare, biotech, crowdfunding, entertainment, information technology, aviation, energy, food and beverage sectors.

Uluono Initiatives



Uluono Initiative is a Honolulu, Hawai'i based social investment firm that strives to improve the quality of life for the people of Hawai'i by working towards large-scale solutions that create more locally grown food, increase renewable energy and reduce waste. Uluono Initiative is a corporate venture arm of Omidyar Group and was founded in 2009.

Upside Fund



Managed by Sultan Ventures, the Upside Fund focuses on investing in startups utilizing intellectual property from the University of Hawai'i.

XLR8UH



www.xlr8uh.com

XLR8UH, a nationally recognized startup program, educates, mentors, and invests in Hawai'i's top talent and research. As one of the first university startup investment programs in the nation, we are revolutionizing the way innovation is commercialized. XLR8UH was recently recognized by Forbes as one of the top 30 Accelerators of 2017.

BACKGROUND

The Hawai'i Strategic Development Corporation commissioned this report to quantify investment capital deployed into the local innovation economy. This report builds upon two 2016 studies. The first study, "Startup Paradise: Brief Snapshot on the Impact of Hawai'i Accelerators Over the Last Four Years," was written by Mr. Tarik Sultan of Sultan Ventures.⁶ That study analyzed data gathered from the four different Hawai'i-based accelerator programs to produce a snapshot of the Startup Paradise⁷ ecosystem. Among the notable study findings:

- The number of startups in Hawai'i has increased from 18 in 2013 to 145 in 2016 and total capital (revenue and funding raised) jumped from \$28 million in 2013 to over \$252 million in 2016.
- Of the 145 startups in 2016, two had exits, 114 are growing, 13 are "zombie" stage (no or little movement) and 16 hit a dead end.

The second study, "The Evolution of the HI Growth Initiative," was written by UHERO, the Economic Research Organization at the University of Hawai'i at Mānoa. The purpose of that report was to document the evolution of funding, spending, and jobs created by HSDC's HI Growth Initiative since its inception in 2011.⁸ Among the notable conclusions in that study:

- The rapid growth in Hawai'i based accelerators may finally provide the necessary impetus to draw attention to entrepreneurship in the state, leading to further growth in venture capital, one of the necessary ingredients in a vibrant innovation ecosystem.⁹

SCOPE OF RESEARCH & REPORT

This report covers the time period from 2010 to 2Q of 2018, and focuses on investment deal activity and investment dollars (venture capital, VC, or venture investments) deployed in companies:

- that are generally operating in knowledge-based sectors (e.g., Information Technology, Electronics, Energy) and industries (e.g., Internet Software & Services, Media Information & Services, Creative Media) or other novel industries (e.g., Medical Marijuana);

⁶ Sultan, Tarik, "Startup Paradise: Brief Snapshot on the Impact of Hawaii Accelerators Over the Last Four Years," available at <https://www.slideshare.net/TarikSultan/sultan-ventures-state-of-startup-paradise>, last visited 2018 June 23

⁷ Moniker used to describe Hawaii's innovation and entrepreneurial ecosystem.

⁸ Bonham, Carl, et al, "The Evolution of HI Growth Initiative," February 23, 2016, available at

⁹ Id. at page 15.

- founded in Hawai'i, and/or
- that have a legitimate business nexus to Hawai'i, defined as having participated in a
- Hawai'i-based accelerator/incubator program or have been founded in Hawai'i and subsequently relocating outside of Hawai'i but still maintaining a presence or connection to Hawai'i.

METHODOLOGY

This report utilizes, as its primary source, data from PitchBook, a financial data and software company, providing data, research, and analysis on private and public companies. As noted on its website, PitchBook provides the investment community with a proprietary data platform, research tools, and custom analysis to enable better investment decisions. Data is collected through the company's extensive research process that includes machine-learning and natural language processing technology, comprehensive review of publicly available sources, direct primary research with all parties involved in deal flow, online surveys, and ongoing quality assurance.

As a secondary resource, the following organizations ("Startup Paradise organizations"), listed alphabetically, supplied additional information used in this report:

- Blue Startups
- Elemental Excelsior Fund One
- GVS Transmedia Accelerator
- Reef Capital Ventures
- Startup Capital Ventures
- Sultan Ventures
- Ulupono Initiative
- XLR8UH

Best efforts were employed to present the most accurate completed deal information. While this report is substantive, it is not exhaustive. Unless otherwise noted, all figures contained herein are generated using PitchBook as a primary source, and data from the various Startup Paradise Organizations as a secondary resource. In some instances the authors verified investment amounts and dates with the companies directly. Announced deals are not included. Grant awards are not included. Very late-stage, private equity types of transactions are also not included.

In some years companies may have completed multiple financing events. When those financing events occurred within 6 months of each other and the records were silent as to whether those events were distinct, those multiple events have been considered as a single financing event.

DEFINITIONS & TERMINOLOGY

Unless otherwise noted, this report adopts PitchBook's terminology and definitions with respect to stages or rounds of financing (noted below). In the absence of PitchBook data, the author supplied the sector and industry classifications, then standardized them in accordance to S&P 500 index sector definitions and industry definitions.

Deals

A deal is defined as completed equity financing event (convertible loan to priced equity round, or priced equity round); the term "deal" is used interchangeably with "investments", "equity investments", "financing events", and "events."

Sector

Sector describes those industries that are related or share common economic characteristics and activities.

Accelerator/Incubator

These terms describe fixed-term, cohort-based programs that include investment, training, and mentorship that culminates in a public pitch event. Hawai'i-based accelerators/incubators include: Blue Startups, XLR8UH, Elemental Exceleator, Global Virtual Studio, Hawai'i Investment Ready, and Mana Up.

Accelerator/Incubator rounds are defined as investment received as part of the program and is treated as a unique deal instance. Any subsequent financing(s) that a company receives from that same program that is approximate--if not the same amount--to the initial investment is also considered a unique accelerator/incubator event(s). Deals that are far outside the typical Hawai'i accelerator/incubator amounts (i.e., > \$75k) are categorized as Angel & Seed events.

Angel & Seed

We define financings as angel rounds if there are no PE or VC firms involved in the company to date and we cannot determine if any PE or VC firms are participating. In addition, if there is a press release that states the round is an angel round, it is classified as such. Finally, if a news story or press release only mentions individuals making investments in a financing, it is also classified as angel. As for seed, when the investors and/or press release state that a round is a seed financing, or it is for less than \$500,000 and is the first round as reported by a government filing, it is classified as such. If angels are the only investors, then a round is only marked as seed if it is explicitly stated.

Early Stage

Not to be confused with “Earlier Stage” which is used throughout the report to refer to either Accelerator/Incubator or Angel & Seed rounds. Early Stage Rounds are generally classified as Series A or B (which we typically aggregate together as early stage) either by the series of stock issued in the financing or, if that information is unavailable, by a series of factors including: the age of the company, prior financing history, company status, participating investors, and more.

Later Stage

Rounds are generally classified as Series C or D or later (which we typically aggregate together as late stage) either by the series of stock issued in the financing or, if that information is unavailable, by a series of factors including: the age of the company, prior financing history, company status, participating investors, and more.

AUTHORS

Donavan Kealoha is a Director at Startup Capital Ventures, an early stage venture capital firm with offices in Menlo Park, California and Honolulu, Hawai‘i. In this role, Kealoha is actively involved in the Hawai‘i innovation ecosystem, serving as a lead mentor at Blue Startups and on the boards of venture capital backed companies Hobnob, AreaMetrics, and Shifted Energy. He is also a co-founder of the Purple Mai‘a Foundation. Additionally, Kealoha volunteers regularly at the Pacific Asian Center for Entrepreneurship at the University of Hawai‘i at Mānoa’s Shidler College of Business. Prior to joining Startup Capital Ventures, Kealoha co-founded a venture-capital backed materials science company that was spun out of the University of Hawai‘i at Mānoa.

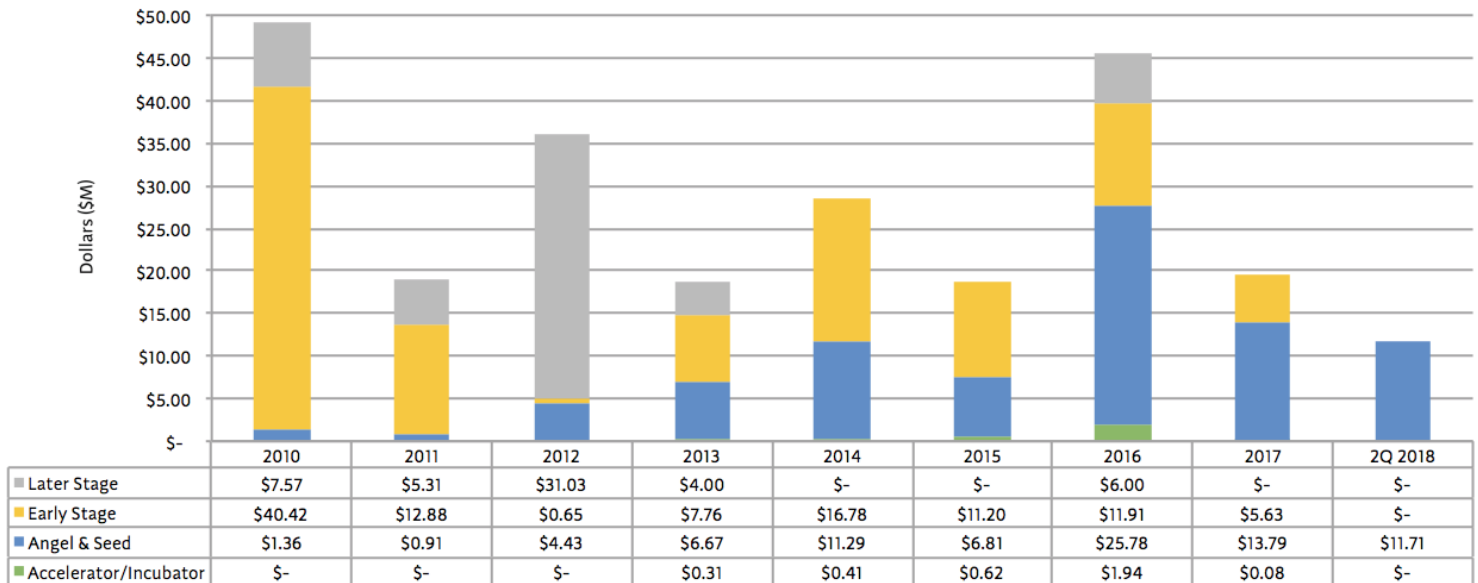
Note: HSDC is a limited partner of Startup Capital Ventures.

Alec Wagner is the Director of the Purple Prize, a project of the Purple Mai‘a Foundation. Originally from Maui, Hawai‘i, Wagner attended Saint Mary’s College of California earning his bachelor’s degree in political science. Prior to joining the Purple Mai‘a Foundation, Wagner was an impact investment analyst at One World Training & Investments, a Bay Area impact investment and consulting outfit. In 2016, Wagner was nominated as a David Rockefeller Fellow of the Trilateral Commission. He has since been a part of the international organization’s Asia-Pacific Secretariat.

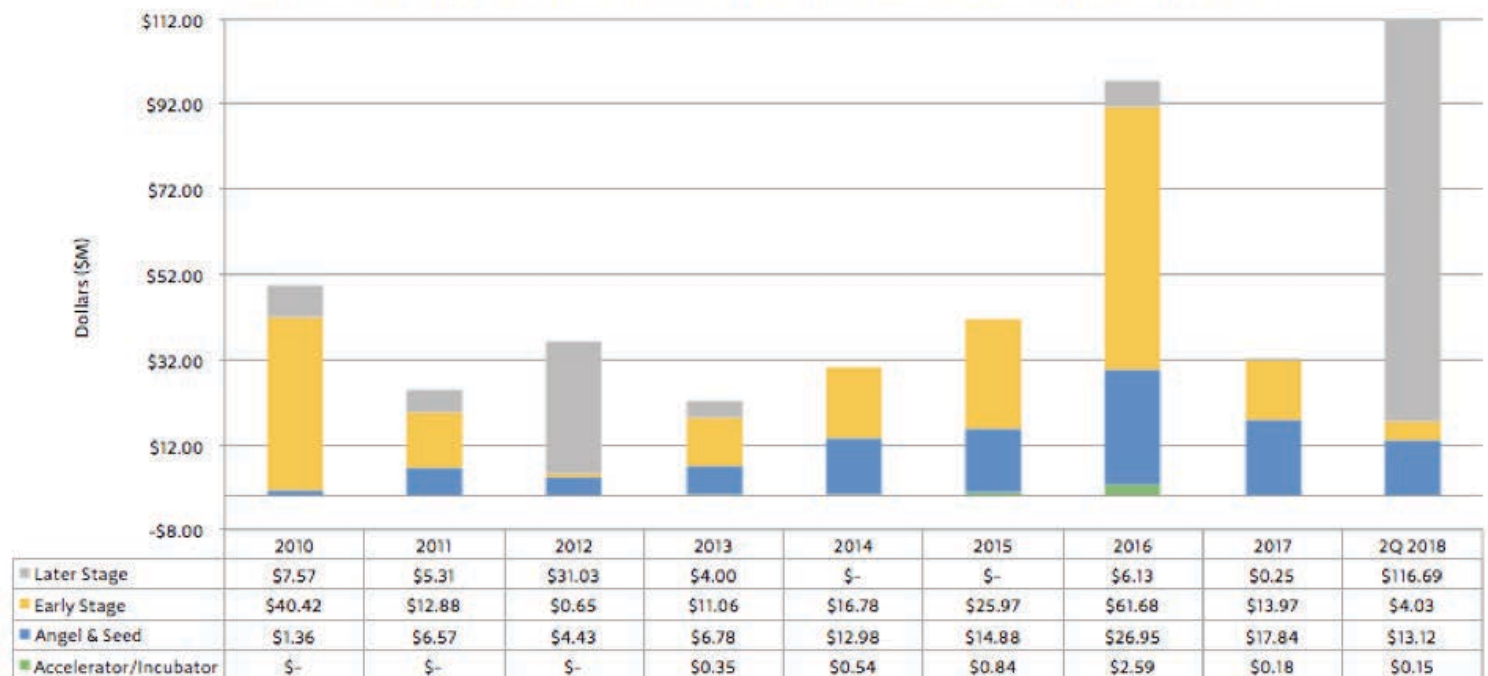
*For more information about the report or data used in this report, please email hawaiiventurecapital@gmail.com

APPENDIX

All Venture Capital Investments into Hawaii-based Companies



All Venture Capital Investments into Hawaii Innovation Ecosystem



Investment Stage: Industries	Dollars (\$M)	% of Total Dollars	Count (#)	% of Total Deals
Accelerator/Incubator	\$ 3.36	1%	69	34%
Entertainment	\$ 1.82		12	
Software	\$ 0.83		36	
Healthcare Technology	\$ 0.20		5	
Technology Hardware	\$ 0.10		3	
Aerospace & Defense	\$ 0.08		1	
Specialty Retail	\$ 0.07		3	
Energy Infrastructure	\$ 0.07		1	
Household Durables	\$ 0.06		3	
Energy Production	\$ 0.05		1	
Biotechnology	\$ 0.03		1	
Food & Staples Retailing	\$ 0.03		1	
Beverages	\$ 0.02		1	
Commercial Services	\$ 0.02		1	
Angel & Seed	\$ 82.75	33%	96	47%
Medical Marijuana	\$ 32.11		11	
Software	\$ 15.32		34	
Beverages	\$ 9.12		8	
Healthcare Technology	\$ 5.69		8	
Interactive Media & Services	\$ 3.92		2	
Energy Infrastructure	\$ 3.18		1	
Biotechnology	\$ 2.60		7	
Commercial Services	\$ 2.57		4	
Chemicals	\$ 1.91		2	
Household Durables	\$ 1.68		2	
Energy Production	\$ 1.02		1	
Marine	\$ 0.96		1	
Healthcare Services	\$ 0.92		3	
Other Commercial Services	\$ 0.53		1	
Food Products	\$ 0.48		3	
Specialty Retail	\$ 0.32		3	
Energy Services	\$ 0.30		1	
Technology Hardware	\$ 0.08		2	
Professional Services	\$ 0.07		1	
Energy Equipment	\$ 0.01		1	
Early Stage	\$ 107.21	43%	29	14%
Energy Production	\$ 27.82		3	
Healthcare Technology	\$ 20.53		4	
Software	\$ 20.52		8	
Food Products	\$ 14.87		4	
Chemicals	\$ 9.06		2	
Technology Hardware	\$ 5.62		1	
Biotechnology	\$ 3.82		4	
Commercial Services	\$ 2.49		1	
Energy Storage	\$ 2.43		1	
Healthcare Services	\$ 0.06		1	
Later Stage	\$ 53.91	22%	9	4%
Energy Production	\$ 21.67		4	
Biotechnology	\$ 17.83		1	
Software	\$ 8.41		3	
Healthcare Technology	\$ 6.00		1	
Total	\$ 247.23	100%	203	100%

