

# DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM

## RESEARCH & ECONOMIC ANALYSIS DIVISION

### Report to the Legislature on Criteria Used To Measure Growth of Emerging Industries

Pursuant To

#### Hawaii Revised Statutes 201-19 (b)

HRS 201-19 (b) requires that “The department [DBEDT] shall submit to the legislature no later than twenty days prior to the convening of each regular legislative session, a report that provides an update on the criteria used to measure growth of these emerging growth industries. In updating its reports on growth of emerging industries each year, the department shall develop updated measurements and analyses in collaboration with the University of Hawaii, county economic development boards, and private, non-profit economic research activities.”

#### TARGETED INDUSTRY PORTFOLIO

In 2009, DBEDT’s Research and Economic Analysis Division undertook a project to identify and define industries believed to be potential sources of growth and diversification and that could help balance and supplement the contributions of tourism and defense spending.<sup>1</sup> The purpose was to measure and evaluate the performance of these activities to determine how well they had achieved their potential. The result was a list of roughly 50 activities identified in more than a half dozen studies over the last three decades or more. This list constituted *Hawaii’s Targeted Industry Portfolio*.

Most of the activities in the portfolio were well defined for measurement purposes in the source reports, including the technology, creative, health, and education sectors. For activities such as diversified agriculture, DBEDT sought national models for defining the activities in a way that could be measured with available economic statistics. Still other activities, including such popular ones as Dual Use Technology, Astronomy and Ocean Science & Technology, had no correspondence to standard industry statistics and were addressed with the best available data from responsible agencies. DBEDT consulted with numerous agencies in the establishment of definitions and measurements for the targeted industry Portfolio, including the University of Hawaii, and Hawaii Science and Technology Council, which included representatives of the County Economic Development Boards.

After the activities were defined for measurement purposes, standard industry statistics for jobs and earnings were compiled for both the Hawaii industries and their U.S. counterparts. A series of performance measures that had been developed in the field of Regional Economics were applied to assess the activities of the targeted industry portfolio with respect to Hawaii’s economic

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<sup>1</sup> *Benchmarking Hawaii’s Emerging Industries*, DBEDT, December 2009.  
[http://hawaii.gov/dbedt/info/economic/data\\_reports/emerging-industries](http://hawaii.gov/dbedt/info/economic/data_reports/emerging-industries)

performance, the U.S. economic performance and performance of the comparable national industry level.

## PERFORMANCE MEASURES

The first key performance measure is the change in jobs over time. We expect promising industries to show a net increase in jobs over time. In particular, how jobs among the portfolio activities have grown relative to the state as a whole is an important aspect of the change in jobs. An activity may be showing positive job growth but unless it grows faster than the rest of the state's economy it is not helping to diversify the economy.

Another measure of performance focuses on the competitiveness and concentration of portfolio activities in Hawaii compared to elsewhere. An activity growing faster in Hawaii than nationally suggests that the state has some amount of competitive advantage in the activity. Likewise, if an activity has achieved a greater proportion of jobs in the state than the same activity has in the national economy, it is likely an activity in which Hawaii has a competitive advantage. A higher proportion (or concentration) also suggests that the activity has matured to the point that it is likely exporting a portion of its output directly or indirectly.

A final performance measure looks at the earnings average for workers in the portfolio activities. Higher earnings generally come from high quality jobs. A relatively higher earnings average in a competitive activity suggests that the activity is creating high quality jobs that can help keep Hawaii's well educated youth in the state, as well as help boost productivity and the standard of living.

## IDENTIFYING EMERGING INDUSTRIES

Neither the Hawaii Revised Statutes nor the enabling legislation for HRS 201-19 (Act 148, SLH 2007) defines an *emerging industry* or *emerging growth industry*.<sup>2</sup> Neither is there an official Federal definition for the concept. The general consensus in the popular and much of the technical literature, is that an emerging industry is one that is producing products that have not appeared in the market before, or in the case of regional economies, have not been produced in the local economy before.

However, in Hawaii, many of the activities that we think of as *emerging* have existed for decades. The emphasis on the Technology Sector and Ocean Science has been around since at least the 1970s. Hawaii's film industry dates back to the 1920s.

Fortunately, regional economics literature has considered the problem of defining an emerging industry and has provided a measureable definition. In fact, it has established a framework that permits all industries to be classified into several categories of performance, of which an *emerging* activity is one of those four.<sup>3</sup> This framework with some adjustments was used to combine the various measures into a composite framework that grouped the targeted industry portfolio into a performance map. The framework constitutes criteria for defining emerging industry groups within the Targeted Industry Portfolio. The four categories within the framework and criteria for placement are:

**Base-Growth activities:** These activities rate highest on the basis of state and national performance and are more concentrated in Hawaii's economy than nationally. Placement in this category suggests that Hawaii has been developing a competitive advantage in the activity and

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<sup>2</sup> Although examples are provided.

<sup>3</sup> That is, those activities that can be measured in a way that permits comparison with other industries in Hawaii and in the U.S. Activities that cannot be measured with available statistics cannot be easily placed within the framework.

probably exporting some proportion of industry output. These activities can be said to have moved past the emerging stage and have arrived as competitive growth industries that are probably contributing to the export base.

**Emerging activities:** These activities also rated high on growth and competitive performance but had not reached a level of concentration that would as yet suggest they have a strong competitive advantage in Hawaii compared with elsewhere. Some of these activities will graduate to Base-Growth industries, while others may slip into the Transitioning category.

**Transitioning activities:** Activities in this category are showing growth in jobs over the measurement period but were out-performed by the same activity nationally, suggesting that the activities are not as competitive in Hawaii.

**Declining activities:** These activities have lost jobs over the measurement period and in most cases are less competitive than their national counterparts. This is not necessarily a permanent condition, but is of concern nonetheless.

## UPDATED PERFORMANCE MEASURES

The most recent measures of size and growth among the major sectors of the Targeted Industry Portfolio are shown in Table 1 below.

TABLE 1. CHANGE IN JOBS FOR MAJOR TARGETED INDUSTRY SECTORS

TARGETED INDUSTRY SECTORS	JOBS <sup>1</sup>				CHANGE IN JOBS Annual Average			
	2002	2008	2009	2010est.	2002- 2008	2008- 2010	2009- 2010	2002- 2010
<b>TOTAL CIVILIAN EMPLOY.</b>	<b>700,368</b>	<b>814,106</b>	<b>782,426</b>	<b>778,267</b>	<b>2.5%</b>	<b>-2.2%</b>	<b>-0.5%</b>	<b>1.3%</b>
TECHNOLOGY SECTOR	20,088	25,291	25,412	24,669	3.9%	-1.2%	-2.9%	2.6%
CREATIVE SECTOR	39,049	47,393	45,838	44,687	3.3%	-2.9%	-2.5%	1.7%
HEALTH & WELLNESS	45,791	52,266	52,083	52,401	2.2%	0.1%	0.6%	1.7%
AGRIBUSINESS	24,241	23,779	23,074	23,303	-0.3%	-1.0%	1.0%	-0.5%
EDUCATION (PVT)	8,344	9,775	9,860	10,088	2.7%	1.6%	2.3%	2.4%
OTHER TARGETED								
Apparel	1,727	1,414	1,265	1,346	-3.3%	-2.4%	6.4%	-3.1%
Call Centers	210	408	371	356	11.7%	-6.6%	-4.0%	6.8%

<sup>1</sup> Includes wage & salary, sole proprietors & self employed.

Source: DBEDT based on data from Economic Modeling Specialists, Inc. (EMSI). Estimates for 2010 are based on early 2010 actual data and are also from EMSI.

Updated performance measures for the portfolio industry groups through preliminary data for 2010 are presented in Table 2.

## DETAILED REPORTS

Tables 1 and 2 contain data from, *Hawaii's Targeted and Emerging Industries: 2010 Update Report*. That will be available shortly on the DBEDT website which may be accessed at: [http://hawaii.gov/dbedt/info/economic/data\\_reports/test-reports](http://hawaii.gov/dbedt/info/economic/data_reports/test-reports). The report will discuss the most recent performance results in detail and also examine performance of the major portfolio sectors such as the Technology and Creative sectors. Other reports focused on the performance of Hawaii's industries may also be found at this website.

TABLE 2. OVERALL PERFORMANCE OF THE TARGETED INDUSTRY PORTFOLIO

SECTORS & INDUSTRY GROUPS	JOBS 2010	AVE. ANN. JOBS GROWTH 2002 TO 2010 est.		HAWAII JOBS ADDED 2002-2010	COMPETITIVE MEASURES <sup>1</sup>			COMPARATIVE AVE. ANNUAL EARNINGS	
		HAWAII	U.S.		GROWTH ABOVE OR BELOW U.S. 2002-2010	CONCENTRATION IN HAWAII ECONOMY COMPARED WITH U.S.		HAWAII	U.S.
						2010	% Point CHNG 2002-2010		
<b>TOTAL CIVILIAN EMPLOY.</b>	778,267	1.3%	0.7%	77,899	0.7%	na	--	\$45,510	\$49,761
<b>Base-Grwoth Activities</b>									
Research & Devel.	4,072	5.0%	2.0%	1,324	3.0%	132%	22%	\$68,983	\$103,979
Biotechnology	1853	5.0%	2.4%	601	2.6%	268%	37%	\$51,102	\$120,377
Medical Testing	1,764	3.5%	3.1%	429	0.4%	151%	-3%	\$57,399	\$67,031
Aquaculture	190	3.5%	-0.6%	46	4.1%	719%	169%	\$40,711	\$30,096
Engrng and R & D Serv.	7,671	3.3%	1.4%	1,757	1.9%	102%	9%	\$78,987	\$95,574
<b>Emerging Activities</b>									
Specialty Health Care	7,759	8.9%	5.4%	3,826	3.4%	85%	16%	\$43,118	\$38,515
Call Centers	356	6.8%	1.5%	146	5.4%	18%	5%	\$19,714	\$32,288
Business Consulting	4,518	6.2%	4.9%	1,728	1.3%	62%	3%	\$49,871	\$72,036
Design Serv.	1,533	3.7%	3.3%	389	0.4%	85%	-2%	\$34,791	\$43,566
Tech Manufacturing	936	3.6%	-0.7%	231	4.3%	11%	3%	\$60,108	\$103,535
Agric. Support Serv.	1,296	3.0%	2.0%	273	1.0%	54%	1%	\$39,149	\$48,208
Computer Services	6,505	2.5%	2.4%	1,174	0.1%	75%	-3%	\$68,795	\$89,069
Computer and Digital Media	6,615	2.3%	2.1%	1,120	0.2%	66%	-3%	\$68,981	\$94,074
Hospitals/Nursing Facilities	18,797	1.5%	1.3%	2,172	0.2%	65%	-2%	\$66,992	\$55,503
Engrng. and Related	4,482	0.8%	0.2%	292	0.6%	78%	0%	\$81,668	\$83,162
<b>Transitioning Activities</b>									
Tech Consulting Serv.	4,031	5.2%	5.8%	1,347	-0.6%	63%	-7%	\$48,692	\$70,542
Arts Education	624	3.4%	4.7%	148	-1.3%	69%	-11%	\$10,553	\$10,237
Specialty Education	4,428	3.1%	5.0%	971	-1.9%	90%	-20%	\$22,242	\$23,524
Higher Education	5,660	1.9%	1.9%	773	-0.1%	69%	-4%	\$42,126	\$55,706
Performing & Creative Arts	9,616	1.8%	1.8%	1,263	0.0%	142%	-8%	\$21,033	\$25,256
Marketing, & Related	4,771	0.8%	2.0%	285	-1.3%	78%	-13%	\$35,973	\$57,807
Music	1,059	0.5%	0.5%	45	0.0%	144%	-8%	\$36,343	\$38,875
Cultural Activities	2,017	0.3%	1.2%	45	-0.9%	242%	-33%	\$48,985	\$43,616
Health Practitioners	20,564	0.2%	2.5%	319	-2.3%	94%	-25%	\$69,773	\$73,561
Farm Production	13,341	0.0%	-1.1%	21	1.1%	96%	3%	\$22,754	\$27,921
<b>Declining Activities</b>									
Agric. Inputs	415	-0.1%	-0.9%	-5	0.8%	40%	0%	\$62,277	\$60,795
Architecture	1,998	-0.2%	-0.8%	-37	0.6%	142%	-1%	\$72,568	\$67,039
Pharmacies	3,517	-0.5%	0.8%	-136	-1.3%	105%	-17%	\$44,410	\$42,260
Agric. Processing	6,434	-0.7%	-0.4%	-350	-0.3%	92%	-7%	\$42,048	\$50,571
Tech Equip Distribution	807	-0.7%	-1.1%	-49	0.3%	35%	-1%	\$79,907	\$102,450
Information Tech Serv.	2,072	-1.0%	-0.1%	-167	-0.8%	48%	-6%	\$63,675	\$96,061
Broadcasting	1,226	-1.6%	-0.9%	-165	-0.6%	106%	-12%	\$57,846	\$76,070
Publishing & Information	1,980	-2.4%	-2.1%	-434	-0.4%	75%	-7%	\$57,747	\$65,620
Apparel	1,346	-3.1%	-6.3%	-381	3.3%	154%	31%	\$18,673	\$37,401
Fishing	1,540	-4.5%	-3.6%	-680	-0.9%	442%	-59%	\$18,606	\$31,336
Agric. Packaging/Warehsg	210	-4.8%	-1.0%	-100	-3.8%	28%	-12%	\$62,113	\$49,090
Film, TV, Video	1,059	-4.8%	-0.2%	-506	-4.6%	64%	-34%	\$51,433	\$88,291

<sup>1</sup> See Table 4 and narrative text for explanation of competitive measures.

Source: DBEDT based on data from Economic Modeling Specialists, Inc. (EMSI). Estimates for 2010 are based on early 2010 actual data and are also from EMSI.