



GRAYASSOCIATES

Gray's
Program Evaluation System
(PES)

February 2017

Introduction to PES

Her *College Scorecard* results were disappointing. Enrollment and tuition income were dropping, but costs continued to rise. The Trustees were impatient. Gayle Smith, the new President of Imagine University (IU) needed a workable plan to cut costs, increase tuition, and improve results for IU's students. She asked Bruce, IU's Chief Strategy Officer, a rapid string of questions:

- **Can we save money by cutting unsuccessful programs and campuses?**
- **Which of our current programs and campuses have the highest growth potential?**
- **Can we add current programs to more campuses? Which ones?**
- **What new programs could fuel our growth?**
- **Where should we focus our marketing investments in the programs we offer?**
- **What programs have the best potential outcomes for our students?**

"Wait a second," Bruce exclaimed. "Answering those questions for just one program, in one market, requires an analyst to pull data from IPEDS, BLS, the US Census, web sites, and a bunch of other sources. Then we have to guesstimate how many students are interested in the program. That takes about a week for an experienced analyst. But, you're asking us to evaluate 36 current programs at 10 campuses."

He paused, "Then, there are new programs to consider – over 1500 IPEDS programs, as well as programs that are not in IPEDS. Assuming five days of work for a program and market, we would need a few years and a small boatful of analysts. Or we could hire someone who does program analysis, at about \$4,000 per program."

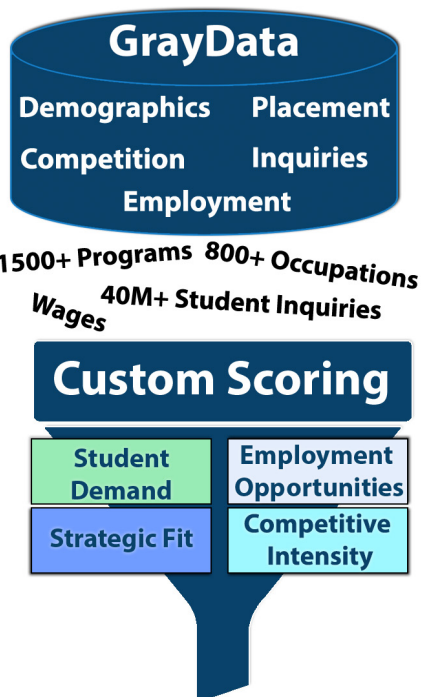
Gayle responded, "We don't have years, a boatful of analysts, or \$4,000 per program for dozens of programs at 10 campuses. There must be a better way. By now, someone must have built a system to collect the data and let us score it – for all our current and potential programs and markets."

Bruce paused, rubbing his forehead. "You know, I think I got an email that mentioned a Program Evaluation System. I'll look into it today." Bruce returned to his office and found the email from Gray Associates. It said that Gray had built a system that could answer Gayle's questions – in a few days. He picked up the phone.

He reached Gray, and their partner described a cloud-based system that would do everything Gayle wanted. Gray even had data on student demand and placement. With it, Bruce thought, "IU could add millions of dollars in tuition for new programs. We could substantially reduce costs by teaching out marginal programs. We could make better choices about where to expand and where to target our marketing spending. And, we could select programs that offer graduates well-paid jobs in growing fields."

"In a nutshell," Bruce thought, "The Gray Program Evaluation System would help us decide which programs to "Stop, Start, Sustain or Grow."

Introduction to PES (continued)



- Provides comprehensive, current data on student demand, jobs, and competition by census tract
 - Over 50 million inquiries
 - All Title IV completions, geo-enhanced
 - BLS jobs, wages, and projections
 - Current Job Postings
 - 8,000 placement rates
- Enables custom scoring on:
 - Student inquiry volume and growth
 - Jobs, job growth, and wages
 - Competitors' size and growth by program
 - Degree level
 - Market saturation

1500+ Custom Program Scores

Program A	8	12	6	4	30
Program B	14	4	5	7	30
Program C	3	14	4		21
Program D	6	15			21

- Ranks and reports on *every* IPEDS program in your markets
- Identifies programs to "Start, Stop, Sustain, or Grow"

Program Scores by Campus

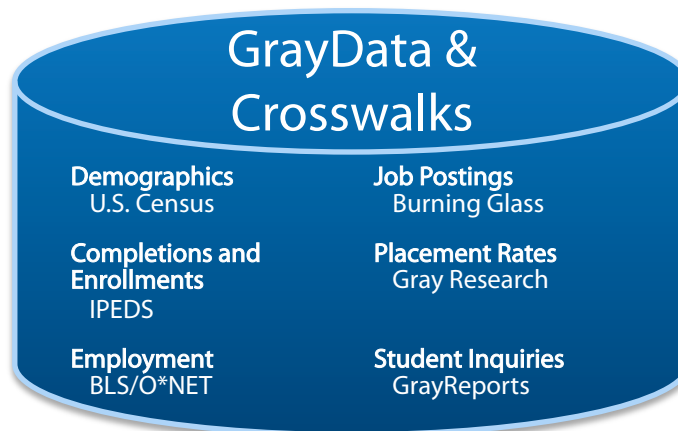
	Campus Locations		
	1	2	3
Program A	30	2	-10
Program B	30	24	19
Program C	21	1	0
Program D	21	-9	-14

- Scores *every* program in *each* of your markets
- Highlights *where* to Start, Stop or Grow programs
- Identifies new markets that are a good fit for your programs
- Gives easy access to a rich array of market data

Overview of (PES)

To achieve these objectives, Gray combines leading-edge databases, advanced analytics, and a robust Business Intelligence (BI) platform.

- **GrayData.** As illustrated below, Gray has assembled a database on the market drivers of a successful campus or program, including inquiries, applications, demographics, competition, job openings, job postings, and placement rates. We have mapped all the data down to the census-tract level. We have built crosswalks to link related variables, such as job openings and completions. We have invested in a BI tool (QlikView) that enables us to rigorously screen hundreds of cities, locations, or programs.

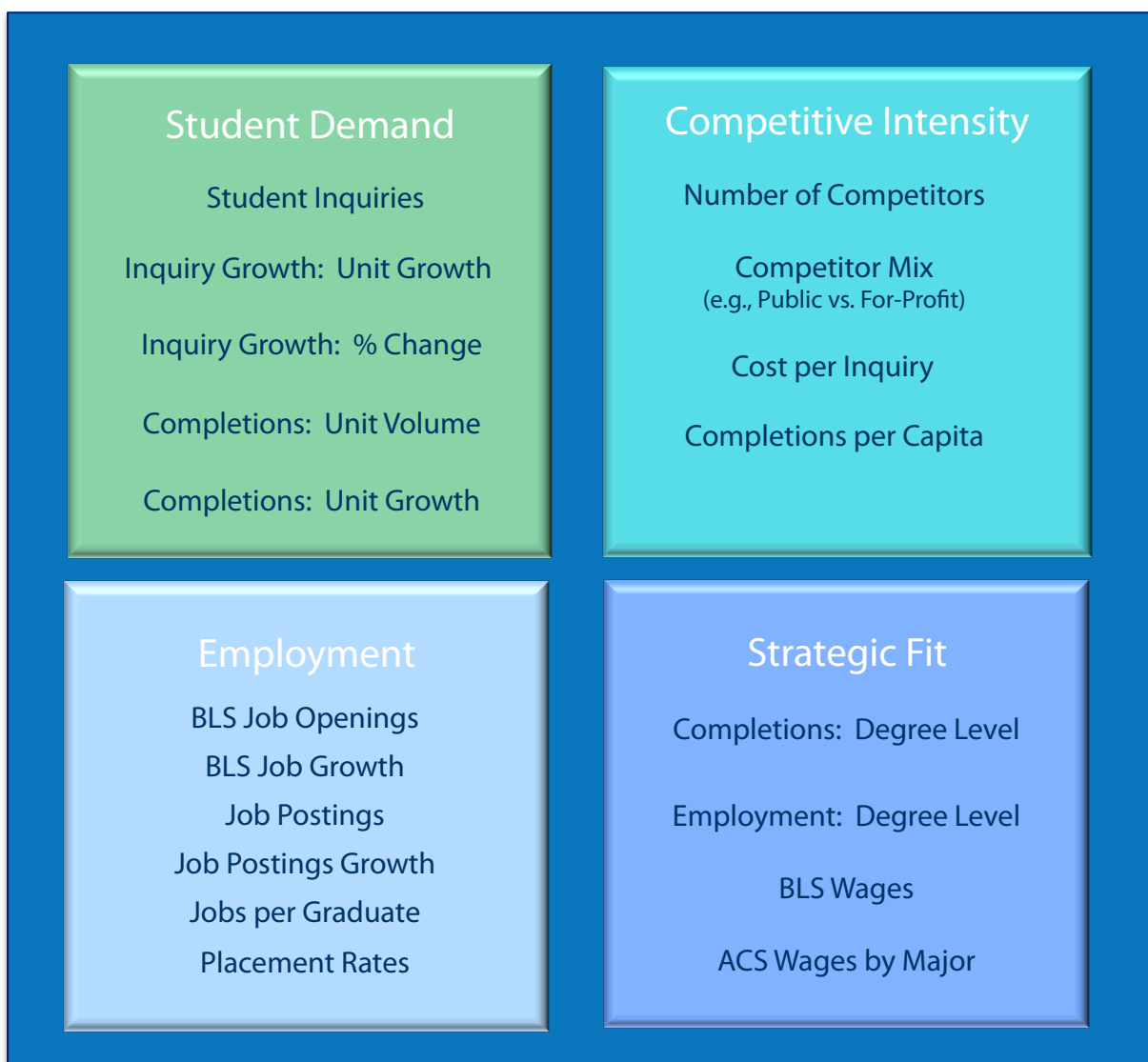


- **Comprehensive, systematic analysis.** Often, institutions lack the resources to analyze more than a few programs, so the selected programs may be only “good” rather than “best.” Similarly, schools often rely on manual processes to pull data from industry and regulatory databases, an approach that is slow, error-prone, and difficult (or impossible) to scale up. These approaches also lead to using unnecessarily simplistic data, such as competitor counts or lists, ignoring IPEDS data on program size. Also, BLS data is often pulled for the most common job for a program, ignoring other fields that compete for these jobs, and other jobs that may be appropriate for graduates. In contrast, Gray’s investments in data, tools, and processes enable scoring all potential IPEDS programs for each individual local market using the best available data on student demand, competitive intensity, and job opportunities.
- **Robust BI Platform.** Gray provides its data using secure, private, cloud-based servers and a BI application called QlikView. This combination ensures that you have fast, reliable access to GrayData from any device, anywhere there is internet access. In particular, QlikView allows you to point and click to select data (no SQL needed) and pull a custom report in a few seconds from the millions of records in our dataset.

Key Elements of PES: Metrics

For the selected geographic markets, Gray creates a dataset for all programs in IPEDS, using GrayData. Our markets usually are not MSAs or other standard market definitions. Instead, we pull all the data for a radius you choose, around each of your campuses. Using QlikView, you can evaluate campuses one at a time, in groups, or in total.

Our program evaluation criteria fall into four categories: student demand, employment, competitive intensity, and strategic fit. Within each category, we use several different metrics to cross-validate the information and provide a comprehensive rating. We can also construct additional or different metrics to better align with your view of the market. For example, different institutions target very different mixes of award levels for their programs. The chart below illustrates the categories and metrics we normally use.



Key Elements of PES: Job Postings

Gray includes job posting data¹ within the Employment Opportunities quadrant of PES. The data include:

- Count of annual job postings
- Year-over-year change in job postings

This data is updated quarterly. Unlike BLS, this data is current (to the most recent quarter) and tracks actual postings, rather than survey data.

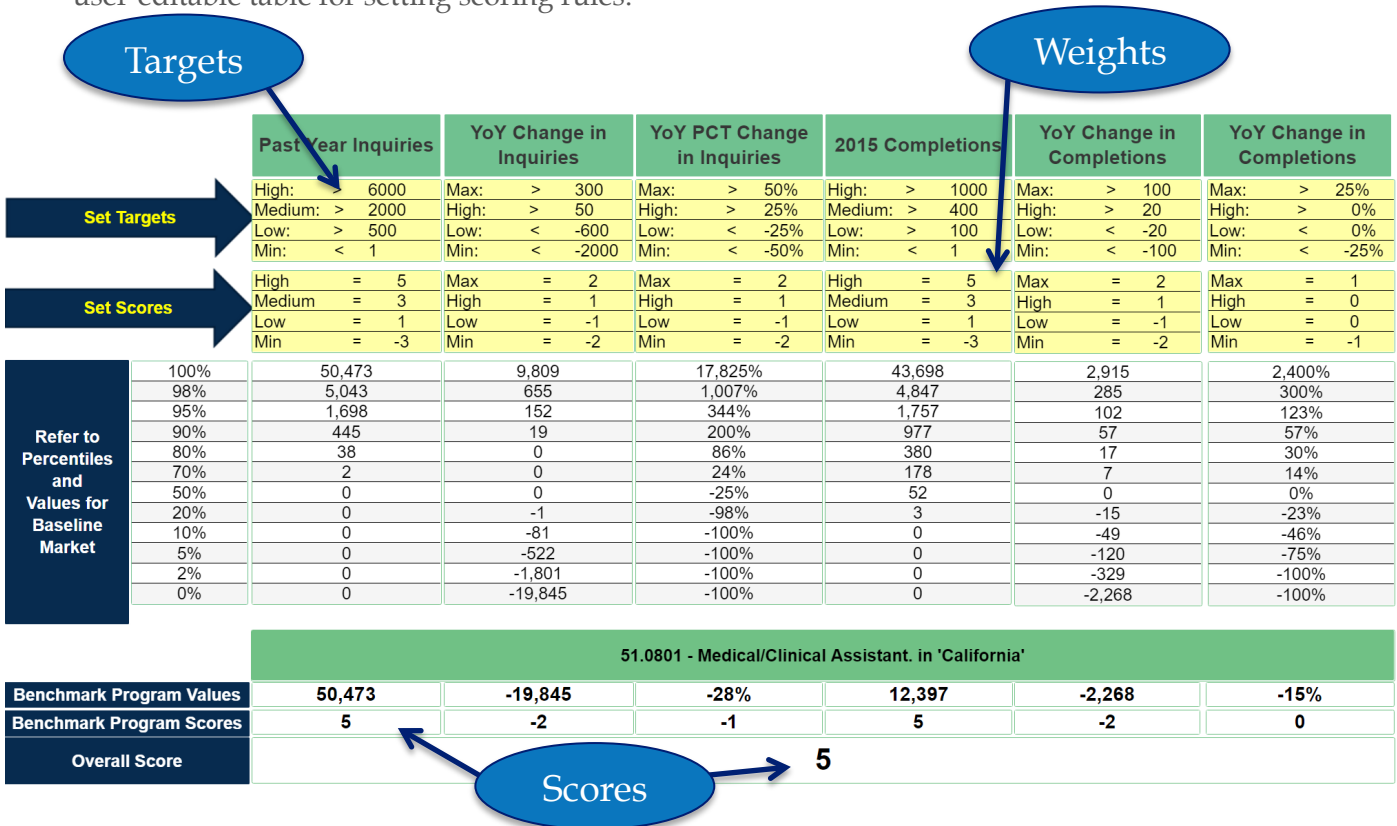
CIP Description	New Job Postings	Year-over-year Percent Change
14.0903 - Computer Software Engineering	500,211	16.0%
51.0912 - Physician Assistant	42,144	13.7%
14.1001 - Electrical and Electronics Engineering	47,828	-1.3%
26.0102 - Biomedical Sciences, General	13,287	26.6%
51.3801 - Registered Nursing/Registered Nurse	693,802	11.0%
14.2701 - Systems Engineering	82,943	1.9%
51.2010 - Pharmaceutical Sciences	40,034	24.8%

1. The job postings data is licensed from Burning Glass. A proprietary Gray cross-walk is used to assign the job postings data to programs.

Key Elements of PES: Scoring

The Program Evaluation System includes a scoring rubric (see below) in which you can assign values for every metric. It sums these values to calculate scores for each program in each of the four categories: student demand, employment opportunities, strategic fit, competitive intensity, and an overall score for each program. We will work with you to refine the rubric and ensure that it correctly identifies programs that fit your strategy.

The chart below shows a scoring rubric for student demand metrics in a selected market. The top of the image, in green, lists the metrics used for scoring. The next section, in yellow, is the user-editable table for setting scoring rules.



In the "Criteria Values" section you can define your targets for each metric. Next, you can assign "Scoring Weights" for each target. For example, the chart above shows that for Past Year Inquiries, the Medium range is between 2,000 and 6,000 inquiries. Any program with inquiries in that range would be assigned a score of 3.

The next section, in white, shows percentile values for each metric in that market. This information allows you to set targets that reflect the actual values achieved in this market. In this example, 95 percent of programs had 1,698 or fewer inquiries, while the highest-inquiry program had 50,473 inquiries. If you wanted to identify the top 50 programs (out of 1,600) you would set the target at 1,698 or higher. As you reset the targets and weights, the scores for the program being evaluated (shown in **bold**), automatically update.

There are similar scoring sheets for employment opportunities, competitive intensity, and strategic fit.

Key Elements of PES: Program Scorecards

Once you set your scoring, the system produces a variety of reports. The first is a Program Scorecard which provides data and *your* scores for over 40 metrics. Below is an illustrative Program Scorecard for Accounting in Denver.

Program Scorecard: 52.0301 - Accounting.

Overall Score: **25**

Category	Criterion	Value	Score	Total
Inquiries	Total	4,833	3	9
	Online	1,618		
	ABS Change	-1,608	-1	
	PCT Growth	-25.0%	0	
Completions	Total	2,945	5	10
	ABS Change	274	2	
	PCT Change	10%	0	
Job Postings	New Job Postings	58,766	3	10
	Change NJP	-712	-2	
	% Change NJP	-1.2%	0	
	Available Job Postings	11,239	3	
	Change AJP	-1,067	-1	
	% Change AJP	-8.7%	0	
	Job Postings Per Graduate	20.0	0	
BLS	Total	187,265	5	5
	Annual Job Openings	6,002	3	
	Jobs Per Grad	2.0	0	
	CAGR	2.4%	1	
ACS Wages (Bachelors)	Age < 30	\$47,591	0	5
	Age 30-60	\$96,856	0	
Placement Rates	Certificate	100.0%		5
	Associates	83.0%	-2	
	Bachelors+	9.0%		
Min Program Score: -18 Max Program Score:				

The colors of this column show what percentile the value is in compared to every other program in Denver. For instance, Total Inquiries are shown in dark green because this program is in the top 10% of programs in Denver compared to the other 1,500+ programs.

Percentiles:	< 40%	40%-60%	70%	80%	90%+
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This shows what percentile ranges the colors represent.

* Color scale in reverse. Completions per capita are compared to the top 100 cities in U.S..

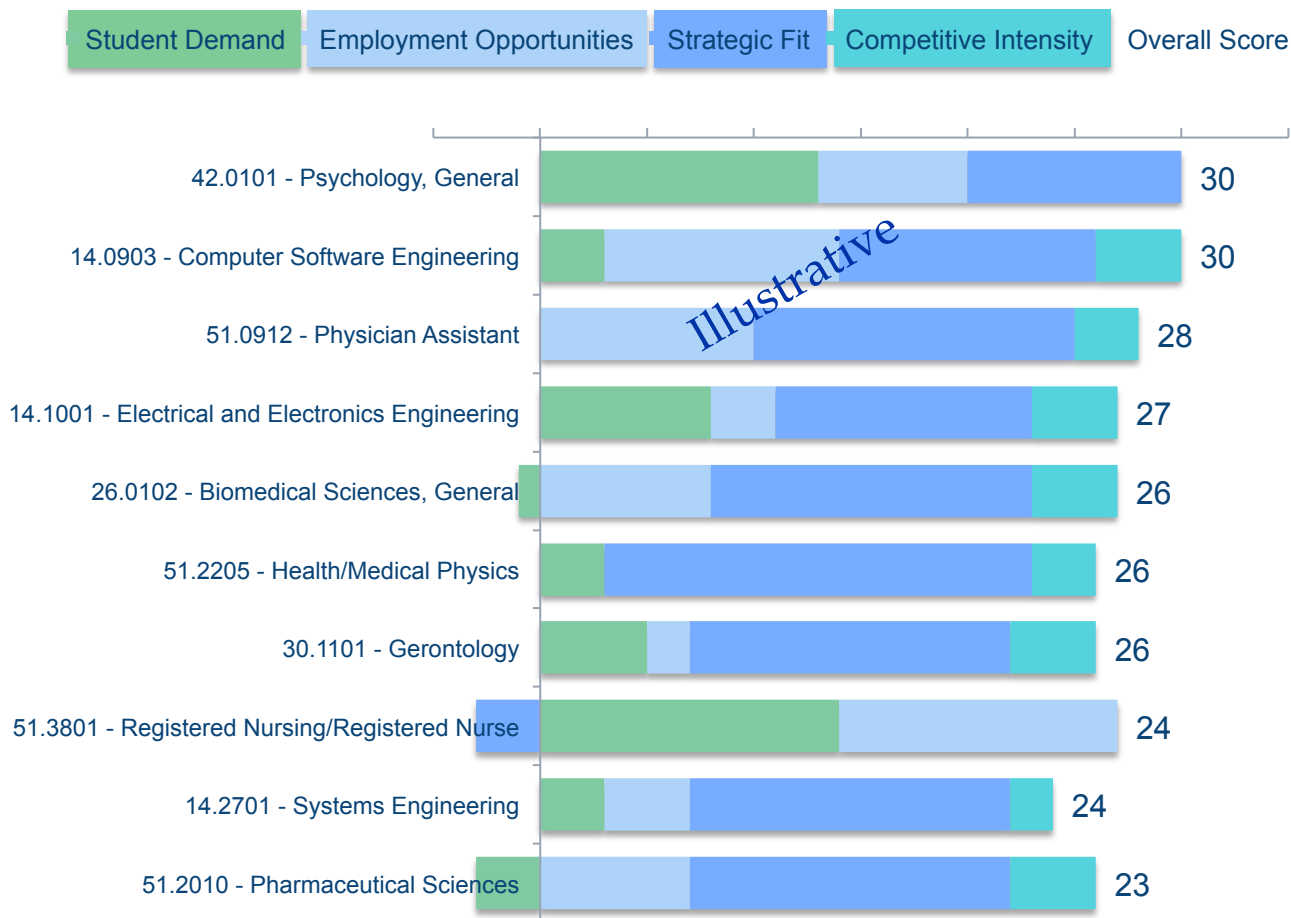
CIP Description
A program that prepares individuals to practice the profession of accounting and to perform related business functions. Includes instruction in accounting principles and theory, financial accounting, managerial accounting, cost accounting, budget control, tax accounting, legal aspects of accounting, auditing, reporting procedures, statement analysis, planning and consulting, business information systems, accounting research methods, professional standards and ethics, and applications to specific for-profit, public, and non-profit organizations.

Key Elements of PES: Program Comparisons

The system also produces a Program Ranking Report. Once you set your scoring and select a market, the Program Ranking Report scores and ranks your current programs, all other IPEDS programs, and any other groups of programs you choose.

This report allows you to identify current programs with strong growth potential, and the best new programs to offer in this market. It will also identify current programs that may not be a good fit for the market.

Program Ranking Report



Key Elements of PES: Competitors

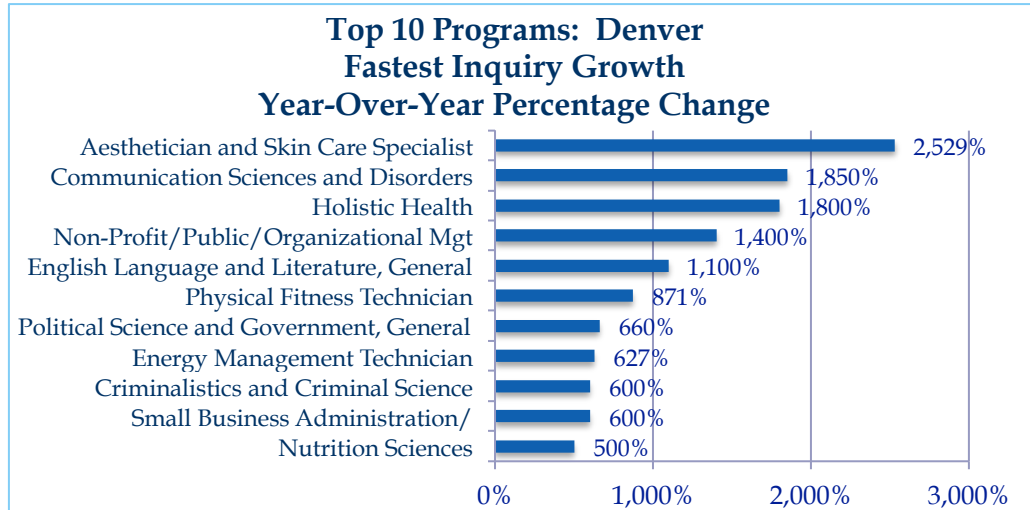
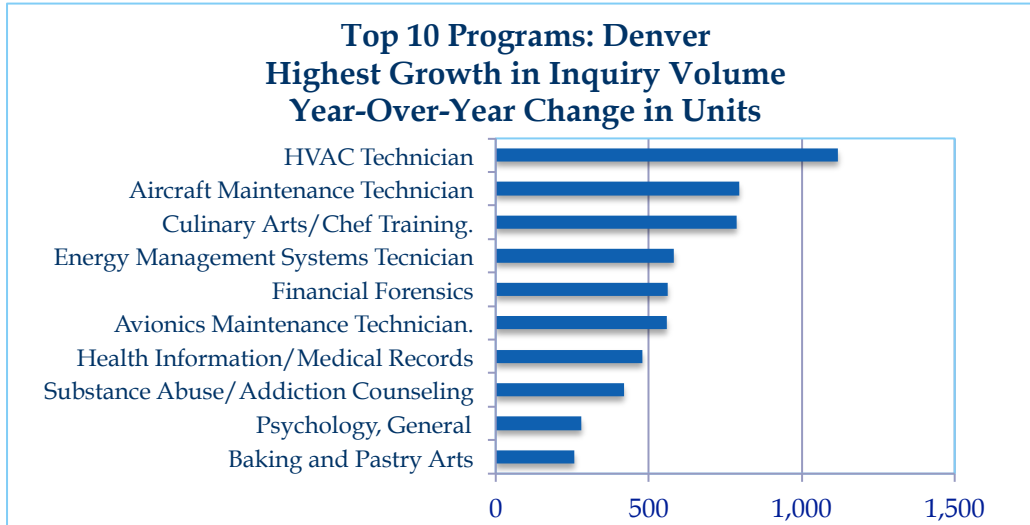
The system also produces a basic Report on Competition for each program and market. The Competitor report provides the name, degree level, and number of completions for every competitor for the last five years.

Report on Competition

Institution	Sector	CIP Code	CIP Title	Award Level	2012	2013	2014	2015	2013 Online	2014 Online	2015 Online
					2,229	2,574	2,671	2,945	849	827	849
Ashford University	Private for-profit, 4...	52.0301	Accounting.	Bachelors	353	394	364	277	394	364	277
University of Southern California	Private not-for-prof...	52.0301	Accounting.	Bachelors	197	236	228	262	0	0	0
California State University-Northridge	Public, 4-year or a...	52.0301	Accounting.	Bachelors	195	234	243	196	0	0	0
Golden Gate University-San Francisco	Private not-for-prof...	52.0301	Accounting.	Masters	104	104	106	143	104	106	143
University of San Diego	Private not-for-prof...	52.0301	Accounting.	Bachelors	134	118	115	136	0	0	0
University of Southern California	Private not-for-prof...	52.0301	Accounting.	Masters	102	114	123	122	0	0	0
Santa Clara University	Private not-for-prof...	52.0301	Accounting.	Postbacc...	104	102	128	114	0	0	0
National University	Private not-for-prof...	52.0301	Accounting.	Bachelors	0	83	96	92	83	96	92
Santa Clara University	Private not-for-prof...	52.0301	Accounting.	Bachelors	86	91	69	84	0	0	0
Kaplan University-Davenport Campus	Private for-profit, 4...	52.0301	Accounting.	Bachelors	79	74	61	78	74	61	78
University of California-Irvine	Public, 4-year or a...	52.0301	Accounting.	Masters	0	0	53	77	0	0	0
National University	Private not-for-prof...	52.0301	Accounting.	Masters	82	62	71	76	62	71	76
Kaplan University-Davenport Campus	Private for-profit, 4...	52.0301	Accounting.	Masters	28	28	37	71	28	37	71
University of San Francisco	Private not-for-prof...	52.0301	Accounting.	Bachelors	63	50	73	70	0	0	0
San Diego State University	Public, 4-year or a...	52.0301	Accounting.	Masters	69	79	72	67	0	0	0
Loyola Marymount University	Private not-for-prof...	52.0301	Accounting.	Bachelors	34	56	57	60	0	0	0
Chapman University	Private not-for-prof...	52.0301	Accounting.	Bachelors	47	44	39	54	0	0	0
California State University-Fullerton	Public, 4-year or a...	52.0301	Accounting.	Masters	55	41	45	52	0	0	0
San Francisco State University	Public, 4-year or a...	52.0301	Accounting.	Masters	0	0	0	51	0	0	0
California Polytechnic State University-San L...	Public, 4-year or a...	52.0301	Accounting.	Masters	5	58	15	50	0	0	0
University of California-Davis	Public, 4-year or a...	52.0301	Accounting.	Masters	0	29	39	47	0	0	0
Saint Mary's College of California	Private not-for-prof...	52.0301	Accounting.	Bachelors	36	24	37	45	0	0	0
San Jose State University	Public, 4-year or a...	52.0301	Accounting.	Masters	30	20	29	45	0	0	0
University of Phoenix-California	Private for-profit, 4...	52.0301	Accounting.	Bachelors	0	0	21	42	0	21	42
California Lutheran University	Private not-for-prof...	52.0301	Accounting.	Bachelors	26	29	33	40	0	0	0
DeVry University-California	Private for-profit, 4...	52.0301	Accounting.	Masters	0	6	22	37	0	0	0
University of California-Riverside	Public, 4-year or a...	52.0301	Accounting.	Masters	0	8	41	35	0	0	0
University of San Diego	Private not-for-prof...	52.0301	Accounting.	Masters	22	24	36	32	0	0	0
Azusa Pacific University	Private not-for-prof...	52.0301	Accounting.	Bachelors	29	20	28	29	0	0	0
California State University-San Bernardino	Public, 4-year or a...	52.0301	Accounting.	Masters	31	25	25	29	0	0	0
Menlo College	Private not-for-prof...	52.0301	Accounting.	Bachelors	9	10	21	29	0	0	0
University of Redlands	Private not-for-prof...	52.0301	Accounting.	Bachelors	13	10	20	28	0	0	0
California State University-Northridge	Public, 4-year or a...	52.0301	Accounting.	Masters	0	11	14	26	0	0	0
California State University-East Bay	Public, 4-year or a...	52.0301	Accounting.	Masters	0	0	0	25	0	0	0

Key Elements of PES: One-Dimensional Reports

In many cases, our clients would like to identify programs that score well on one dimension; for example, they may want to highlight the programs with the fastest employment growth or the highest wages. These reports are easy to generate using our custom reporting system (see examples below). These one-dimensional lists are often a good starting point for further discussion of programmatic opportunities.



Please note, one-dimensional views are seductive – but can be very misleading. Among potential students, Criminal Justice was a very popular, fast-growing program for several years. Unfortunately, there were very few good jobs for graduates, which led to low placement rates, low wages, many student complaints, and a host of regulatory issues.

Key Elements of PES: Programs by Market

The Master Scorecard allows you to score every IPEDS program in each of your current and potential markets. In this case, the Master Scorecard shows the scores with their color-codes. In other cases, we include client enrollment by program, so you can quickly identify programs that have low enrollment in weak markets (candidates to “Stop”) – and low enrollment in good markets (candidates to “Grow”).

The UberScorecard

The screenshot shows a 'Selections' window with a list of filters on the left and a dropdown menu for 'CIP Group' on the right. The dropdown menu is open, showing a list of CIP codes and titles. The top option is '51.08 Allied Health and Medical A...' which is highlighted in green. Below it is '1 -' followed by a list of sub-categories: '1.01 Agricultural Business and...', '1.02 Agricultural Mechanization.', '1.03 Agricultural Production Ope...', '1.04 Agricultural and Food Prod...', '1.05 Agricultural and Domestic...', '1.06 Applied Horticulture and Ho...', '1.08 Agricultural Public Services.', and '1.09 Animal Sciences.'

Program - Campus Scoring Matrix						
CIP Code	CIP Title	Campus 2	Denver-Aurora-La...	Campus 4	Campus 3	Campus 5
51.081	Emergency Care Attendant ...	-11	-7	-1	-15	-9
51.0801	Medical/Clinical Assistant.	-1	13	14	-6	6
51.0802	Clinical/Medical Laboratory ...	-12	-2	-2	-5	-3
51.0803	Occupational Therapist Assi...	12	-12	5	-16	-6
51.0805	Pharmacy Technician/Assist...	-2	1	8	-16	6
51.0806	Physical Therapy Technician...	10	3	6	2	2
51.0808	Veterinary/Animal Health Te...	-5	3	4	4	12
51.0809	Anesthesiologist Assistant.	-13	-4	-5	-15	-4
51.0812	Respiratory Therapy Technic...	-16	-7	-8	-8	-5
51.0813	Chiropractic Assistant/Techn...	-14	-4	-5	-15	-4
51.0814	Radiologist Assistant.	0	0	0	-4	3
51.0815	Lactation Consultant.	-7	-7	-7	-7	-7
51.0816	Speech-Language Pathology...	-15	-15	-5	-18	-5
51.0899	Allied Health and Medical A...	-7	-6	-7	-4	-7

Key Elements of PES: Ad Hoc Reporting

One of the most valuable features of the Program Evaluation System is the ability to pull custom data and reports from the comprehensive database underlying the system. The screen below shows this capability. At the upper left, the selection screen defines the filtering rules for the data table. These rules can address the program code or title, the campus or geographic market, or a larger program grouping such as 2-digit or 4-digit CIP code. This example shows data for one program (Agriculture, General) across three geographic markets.

The box on the lower left is for selecting the types of data to include in the table. The categories include the four categories used for program scoring, and the user can select any combination of data elements within each category. The example shows 6 selected data elements: inquiries, weighted-average placement rates, 2020 employment, replacement job openings, annual job openings, and the number of competitor institutions.

Data Table								
Selections								
Current Selections	Program Code							
	51_0801 Medical/Clinical Assistant							
Program Code	0 NA							
	1 Agriculture, General.							
CIP Title	1.0101 Agricultural Business and Manag...							
	1.0103 Agricultural Economics.							
Campus	1.0104 Farm/Farm and Ranch Manage...							
	1.0105 Agricultural/Farm Supplies Retail...							
CIP Family	1.0106 Agricultural Business Technology.							
	1.0199 Agricultural Business and Manag...							
CIP Group	1.0201 Agricultural Mechanization, Gene...							
	1.0204 Agricultural Power Machinery Op...							
	1.0205 Agricultural Mechanics and Equi...							
	1.0299 Agricultural Mechanization, Other...							
	1.0301 Agricultural Production Operation...							
	1.0302 Animal/Livestock Husbandry and...							
Table Components								
Dimensions		Metrics						
Student Demand	<input checked="" type="checkbox"/> Weighted Average Placement Rate							
	<input type="checkbox"/> WAPR Certificate							
Employment Opportunities	<input type="checkbox"/> WAPR Associates							
	<input type="checkbox"/> WAPR Bachelors and above							
Strategic Fit	<input type="checkbox"/> Completions in Placement Sample							
	<input type="checkbox"/> Current Employment							
Competitive Intensity	<input checked="" type="checkbox"/> Future Employment							
	<input checked="" type="checkbox"/> Replacement Jobs							
	<input checked="" type="checkbox"/> Annual Job Opportunities							
	<input type="checkbox"/> Job Openings to Graduates Ratio							
	<input type="checkbox"/> Average Annual Employment Growth							
	<input type="checkbox"/> 10th Percentile Wages							
	<input type="checkbox"/> 25th Percentile Wages							
		Market	Inquiry Volume (Trailing 12-months)	Weighted Average Placement Rate (WA...)	2020 Employment	Replacement Jobs	Annual Job Opportunities	Number of Institutions
		Boston-Cambridge-Newton, MA-NH	10,590	72%	8,332	980	419	18
		Denver-Aurora-Lakewood, CO	7,068	70%	4,695	508	271	11
		Knoxville, TN	1,420	91%	1,760	207	89	3

There is a separate screen for creating reports on competitor-level data, including completions by program by year.

PES Potential Value Creation

Gray's Program Evaluation System brings, data, rigor, speed, and scale to program analysis. Schools no longer need to evaluate one new program at a time – and hope to hit a winner. They can evaluate all potential new programs and pick the best for development. Schools can also evaluate all current programs, by campus, and decide where to invest and where to cut. The time required to make programmatic decisions can be reduced from months to days (or even minutes), which is increasingly important as the pace of change in education continues to accelerate and competition becomes more intense.

Fundamentally, the Program Evaluation System enables you to:

- Increase Revenue from Tuition
 - Quickly identify new programs
 - Identify existing programs for investment and growth

- Reduce Cost
 - Highlight weak programs in tough markets that you can cut
 - Automate time-consuming work on program evaluation

- Reduce Time-to-Market
 - Evaluate individual program opportunities in minutes.
 - Evaluate hundreds of programs in dozens of markets – in minutes
 - Establish a consistent, well-understood approach to program evaluation, which will speed up approvals
 - Launch new programs more quickly

Make better, faster decisions on which programs to Stop, Start, Sustain or Grow.