



**Economy
League**

GREATER
PHILADELPHIA

2016

University City Science Center: An Economic Catalyst for Greater Philadelphia

ECONOMIC IMPACT ANALYSIS METHODOLOGY AND FINDINGS

JUNE 2016

PREPARED FOR THE UNIVERSITY CITY SCIENCE CENTER

BY THE ECONOMY LEAGUE OF GREATER PHILADELPHIA AND ECONCONSULT SOLUTIONS, INC.

1. Background

The Economy League of Greater Philadelphia and Econsult Solutions, Inc. worked with the University City Science Center to collect employment data for Science Center incubator graduate and resident firms and used IMPLAN input-output modelling to estimate economic impacts associated with Science Center incubator graduate firms located in Greater Philadelphia and current incubator residents.

This analysis quantifies the aggregate, current (as of February 2016) economic impacts of organizations that: 1) are located within the Greater Philadelphia region (11 counties including New Castle County in Delaware; Burlington, Camden, Gloucester, Mercer, and Salem Counties in New Jersey; and Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania); and 2) received incubation services and/or were early-stage organizations that received growth benefits from being located at the Science Center, or are current residents of the Science Center's Port business incubator or the Innovation Center @3401 (ic@3401).

Quantifying the impact of the jobs created by companies that have exited from or currently participate in the Science Center's incubation programs captures the ripple effect these jobs have on employment growth, labor income, and contributions to the regional economy.

2. Collecting Data

The first step in the data collection process was to create a list of all of the firms that have received Science Center incubation services as well as firms that received a benefit from being located at the Science Center before the 2000 launch of the Port business incubator. Data was drawn from a variety of sources dating to 1968.

Information on current incubator resident and graduate firms was gathered by Science Center staff. Once identified, the following information was determined for each firm:

- current address;
- total employment as of February 2016;
- primary type of good or service it produces.

This analysis categorized graduate firms according to the six possible outcomes listed below.

The outcomes for individual incubator graduate organizations include:

- It exited, but remained at the Science Center in dedicated space as a non-incubator resident.
- It exited and moved within the region and is still operating as the same corporate entity.
- It exited and moved within the region, but later ceased operations.
- It exited and moved within the region, was later purchased by (or merged with) another organization, and employment associated with the graduate stayed in the region.
- It exited and moved within the region, was later purchased by (or merged with) another organization, and employment associated with the graduate company left the region.
- It exited and left the region.

To determine the current aggregate economic impact of Science Center business incubation services in Greater Philadelphia, the project team narrowed the list of companies used in this analysis to current resident firms at both the Port and ic@3401 as well as graduate firms currently operating in the region.

For the region's graduate organizations, current employment levels were obtained by contacting the firms and by searching the Hoover's database.

For companies that went through a merger or acquisition and currently have offices in the region, employment figures for 2016 were calculated using industry- and region-specific employment growth rates. These rates were calculated using data from the Quarterly Census of Employment and Wages from 1990 through 2015. This dataset was then limited to the 11-county region and the industries of interest, identified by North American Industry Classification System (NAICS) codes. The sum of the total employment by industry for the complete 11-county region led to the calculation of year-over-year growth rates for the complete region for each industry. These growth rates were then uniquely applied to each company, matched by NAICS code and applied beginning in the year after acquisition through 2015. For companies in NAICS 5417, 1992 growth rates were applied for growth from 1989 through 1992 given that data were unavailable to calculate growth rates from 1989-1991.

Data collection efforts found that 442 companies that have benefited from the Science Center's business incubation services since its founding in 1963. Today 214 of these firms remain in operation and 155 have offices in the Philadelphia region. Of the 155 firms in-region, 86 are Science Center incubator graduates, 37 are current residents of the Port incubator, and 32 are current residents of ic@3401. As of February 2016, these firms employed 11,898 people in the region. The full list of companies and employment counts is available in Appendix A.

3. Estimating Economic Impacts

The total economic impact of Science Center incubator graduate and current resident organizations was determined using the Minnesota IMPLAN Group's (MIG) IMPLAN input-output model for the 11-county Greater Philadelphia region. IMPLAN represents an industry standard approach to assess the economic and job creation impacts of economic development projects, the new business creation, and public policy changes. The study area data used in the IMPLAN model come from several federal government sources including the US Bureau of Economic Analysis, the US Bureau of Labor Statistics, and the US Census Bureau.

The role of input-output models is to determine linkages across industries in order to understand how the change in economic activity in one industry impacts the rest of the economy. This analysis estimates three types of impacts associated with Science Center incubator graduate and current incubator companies:

- Direct impacts that occur as a direct result of the 155 in-region incubator graduate and current incubator companies;

- Indirect impacts, which include spending on materials, equipment, and professional services by the in-region incubator graduate and current incubator companies, and;
- Induced impacts, which include spending that is supported by labor income paid to workers as a result of direct and indirect employment in industries such as food, entertainment, housing, retail, and transportation.

The combination of direct, indirect, and induced impacts constitutes the total spending output. Total economic impact, therefore, is the sum of the direct economic activity, the indirect effects (purchases of materials and services), and induced effects (worker re-spending) of that direct activity.

The IMPLAN model for this analysis was created specifically for the Greater Philadelphia region study area by using the MIG's modeling software to adjust national input-output coefficients using 2013 employment, wage, and income estimates by economic sector for the 11 counties. An IMPLAN model created for a regional economy like that of Greater Philadelphia produces economic multipliers for employment, income, value added and economic output for individual economic sectors, with the size of each sector's multiplier determined by the structure of the local economy.

The total economic impacts were then determined by taking the current employment figures for each of the incubator graduate and current incubator companies and assigning them to one of the 440 economic sector categories in IMPLAN, and then inputting the industry-level employment into IMPLAN in order to calculate total output, indirect and induced impacts, and employment multipliers. The model results were used to derive the average annual salary per employee by adjusting the IMPLAN model's result for direct labor income (i.e., labor compensation consisting of wages and salaries, fringe benefits, and proprietors' income) to remove fringe benefits, converting the 2013 figures to 2015 dollars and then dividing by current direct employment.

4. Findings of the Economic Impact Analysis

While the full effect of the Science Center's diverse programming is difficult to capture, it is possible to quantify the impact of the jobs created by companies that graduated or currently participate in the Science Center's incubation programs and the ripple effect these jobs have on employment growth for the region. Each of the nearly 12,000 jobs at the 155 existing companies currently operating in the Philadelphia region that have benefitted from Science Center business incubation services generate more than two additional secondary jobs. Considering the full impact of both the direct approximately 12,000 jobs and the additional jobs they generate, the Science Center's business incubation efforts have led to the creation of 40,000 jobs, or 1.1% of the current regional workforce.

4.1. Employment Impact

The 155 companies currently operating in the Philadelphia region that have benefitted from Science Center business incubation services directly employ nearly 12,000 people. Estimating the number of jobs indirectly supported by the activities of these firms requires the use of an employment multiplier. Employment multipliers represent the number of jobs created as a result

of employment in a particular industry. A multiplier of three suggests that for every employee hired in a given industry, two additional jobs are created in other industries, for a total of three jobs added to the region.

The Science Center’s incubator graduate and resident organizations are largely concentrated in sectors that have higher-than-average employment multipliers (e.g., life sciences, information technology, and professional and scientific services). Many of the sectors represented by the 155 Science Center incubator graduate and current incubator firms are “traded sectors,” meaning that they sell goods and services outside the region. Selling outside of the region brings money into the region, which generates more jobs. This chain of influence includes additional jobs in non-traded sectors.

In order to understand sector-level impacts in greater detail, the overall employment multiplier can be broken down into multipliers for select industries. Across the incubator graduate and resident industries, the employment multipliers vary from 1.42 in civic and professional organizations to 5.68 in pharmaceuticals. The high multiplier for pharmaceuticals is due to the amount of economic activity the companies in this sector generate.

The overall regional employment multiplier for Science Center-incubated organizations is 3.39, indicating that on average a job at one of the 155 in-region Science Center incubated organizations results in 2.39 additional jobs introduced to the regional economy. Thus, the direct employee count of 12,000 jobs swells to over 40,000 jobs when the multiplier effect of the direct jobs is captured.

TABLE 1 – EMPLOYMENT IMPACT OF SCIENCE CENTER BUSINESS INCUBATION IN GREATER PHILADELPHIA

Philadelphia Region Science Center-Incubated Organizations	155
Employment	
Direct	11,898
Total	40,313
Employment Multiplier	3.39
% of Region	1.11%

Source: IMPLAN, Science Center, Econsult

TABLE 2 – EMPLOYMENT MULTIPLIERS FOR SELECTED INDUSTRY SECTORS IN GREATER PHILADELPHIA

Sector	Direct Employment	Regional Employment Multiplier
Pharmaceuticals	4,461	5.68
Software Publishers	613	4.47
Electromedical Manufacturing	300	2.94
Scientific R&D Services	491	2.57
Financial Services	2,463	2.43
Custom Computer Programming Services	2,867	2.01
Professional and Technical Services	165	2.00
Private Educational Services	232	1.43
Civic and Professional Organizations	149	1.42
Science Center, Total	11,898	3.39

Note: Numbers do not sum as only sectors with more than 100 employees are represented

Source: IMPLAN

4.2. Labor Income

The highly skilled jobs at Science Center incubated companies in Greater Philadelphia command an average wage of approximately \$103,000 per year. The approximately 12,000 jobs at the 155 in-region, Science Center-incubated companies pay a total of \$1.4 billion in labor income each year. The approximately 40,000 total direct and secondary jobs created in the region pay a combined income of \$3.7 billion annually.

TABLE 3 – LABOR INCOME IMPACT OF SCIENCE CENTER BUSINESS INCUBATION IN GREATER PHILADELPHIA

Philadelphia Region Science Center-Incubated Organizations	155
Labor Income	
Direct	\$1.4 billion
Total	\$3.7 billion
Average Salary	\$103,000

Source: IMPLAN, Science Center, Econsult

To estimate the average wage for jobs at Science Center-incubated organizations, the IMPLAN calculation of direct employee compensation was divided by the total number of direct employees. This calculation yielded a figure of \$103,000 for jobs at graduate and resident companies. These average wage levels are high because much of the direct employment occurs in two sectors that have above-average wage levels: pharmaceutical manufacturing and custom computer programming services.

TABLE 4 – AVERAGE WAGE CALCULATIONS

Category	All Science Center-Incubated Organizations
Labor Income (\$ millions)	\$1,418
Employment	11,898
Wage and Salary as a % of Labor Income	86.6%
Average Wage per Direct Job	\$103,000

Source: IMPLAN, City of Philadelphia, Econsult

Data in IMPLAN for the region is derived from actual employment, income and output data from US Bureau of Economic Analysis, the US Bureau of Labor Statistics, and the US Census Bureau for the counties covered by the model. High employee earnings for pharmaceutical manufacturing in the Greater Philadelphia region is consistent with the fact that this sector is a major part of the regional economy, is very productive (i.e., capital intensive with a high level of output and earnings per worker), and requires the use of highly educated scientific and technical workers who command above-average salaries. In addition, start-up companies in the pharmaceutical manufacturing sector are competing in a regional labor market and will therefore have to pay prevailing market-rate salaries to attract the skilled workers they need. Finally, about 19% of the labor income estimated by IMPLAN is proprietors' income; while the amount of money received by a self-employed person may seem high in gross terms, they generally pay all of their benefits out of this income.

4.3. Economic Output

Economic output is a measure of economic activity in a set area over a set period of time. To determine the annual spending on goods and services—or the total economic output—of a firm or firms in a region, both the final purchases and the intermediate inputs are combined. The total annual impact measures the gross output of the 40,000 regional jobs directly and indirectly supported by the Science Center's business incubation efforts at approximately \$13 billion, or 2.2% of the region's total economic output. Science Center-incubated organizations themselves account for \$7.1 billion in total expenditures, and \$5.8 billion in spending is attributable to firms that directly and indirectly serve Science Center-incubated firms and their workers.

TABLE 5 – OUTPUT OF SCIENCE CENTER BUSINESS INCUBATION IN GREATER PHILADELPHIA

Philadelphia Region Science Center-Incubated Organizations	155
Output	
Direct	\$7.1 billion
Total	\$12.9 billion
Percent of Region	2.18%

Source: IMPLAN, Science Center, Econsult

4.4. Value Added

It is possible to isolate the direct economic contributions of a company or group of companies by filtering out purchases they make from other firms or contractors. In aggregate these contributions, known as value added, by the region’s firms make up Greater Philadelphia’s gross domestic product (GDP). Employee compensation and net revenue combine to yield the value added at the 155 Science Center graduate and resident firms active in the region. These firms directly contribute \$2.4 billion to the regional economy every year. The contribution of the firms supported directly and indirectly by Science Center graduates and residents adds \$5.9 billion in value to Greater Philadelphia’s economy annually, or 1.7% of regional GDP.

TABLE 6 – VALUE ADDED OF SCIENCE CENTER BUSINESS INCUBATION IN GREATER PHILADELPHIA

Philadelphia Region Science Center-Incubated Organizations	155
Value Added	
Direct	\$2.4 billion
Total	\$5.9 billion
Percent of Region	1.68%

Source: IMPLAN, Science Center, Econsult

4.5. Graduate and Incubator-Resident Firm Impact

Graduate companies are responsible for the majority of the Science Center-incubated workforce and economic impact. Of the 155 in-region companies, 86 are graduates while the Science Center currently houses 69 organizations in the Port and ic@3401. The 86 graduate organizations employ nearly 11,700 individuals, an average of 135 employees per company as compared to the 231 individuals employed by the 69 current incubator resident organizations, an average of approximately three employees per organization. Graduate organizations produce 2.4 additional jobs for each direct job (a total employment multiplier of 3.4), nearly \$1.4 billion in wages annually and \$12.9 billion in annual output, accounting for 2.18% of the region’s total economic output.

TABLE 7 – IMPACT OF SCIENCE CENTER BUSINESS INCUBATION IN GREATER PHILADELPHIA, BY ORGANIZATION TYPE

Category of Economic Impact	Graduate Organizations	Current Resident Organizations	All Science Center-Incubated Organizations
Number of Companies	86	69	155
Employment			
Direct	11,667	231	11,898
Indirect	13,415	229	13,664
Induced	14,539	232	14,771
Total	39,621	692	40,313
Employment Multiplier	3.40	3.00	3.39
Percent of Region	1.09%	0.02%	1.11%
Labor Income (\$ millions)			
Direct	\$1,389	\$29	\$1,418
Total	\$3,639	\$60	\$3,699
Percent of Region	1.58%	0.03%	1.61%
Output (\$ millions)			
Direct	\$7,000	\$78	\$7,078
Total	\$12,719	\$157	\$12,876
Percent of Region	2.15%	0.03%	2.18%
Value Added (\$ millions)			
Direct	\$2,376	\$45	\$2,421
Total	\$5,786	\$94	\$5,880
Percent of Region	1.65%	0.03%	1.68%

Source: IMPLAN, Science Center

Note: Numbers may not add up due to rounding.

4.6. Fiscal Impact

Science Center-incubated organizations make an important contribution to the City of Philadelphia and Commonwealth of Pennsylvania through tax revenues. Approximately one in three employees at Science Center-incubated organizations work in the city of Philadelphia. These workers pay \$16.7 million in city resident and non-resident wage taxes each year. Of employees who work in the Pennsylvania suburbs, 2014 census data shows approximately 12% live in Philadelphia and thus pay the resident wage tax rate. These workers contribute another \$3.5 million to city coffers, totaling \$20.2 million in annual Philadelphia City Wage Tax revenues. Nearly all of the in-region employees also pay state income tax, contributing \$34.9 million annually in tax revenue to the Commonwealth.

TABLE 8 – WAGE TAX CONTRIBUTIONS OF SCIENCE CENTER-INCUBATED ORGANIZATIONS

Taxing Jurisdiction	Employees	Effective Tax Rate	Total Tax Revenues
City of Philadelphia Wage Tax			
Employees of City Organizations	4,378	3.70%	\$16,705,000
Employees of Suburban Organizations	7,336	3.91%	\$3,494,000
			\$20,199,000
Pennsylvania State Income Tax			
All Pennsylvania Employees	11,714	3.07%	\$34,933,000

Source: IMPLAN, City of Philadelphia

Note: Numbers may not add due to rounding.

Careful consideration must be given to the specific tax structure of various jurisdictions in order to appropriately estimate fiscal impacts. To determine the economic and fiscal impacts in the Philadelphia region, Econsult developed a custom fiscal impact model that translates total economic impacts (as estimated by the IMPLAN model described above) into the commensurate tax revenue gains for the City and Commonwealth.

The analysis took the proportion of Science Center-related jobs to all Philadelphia city and suburban employees to determine an effective Philadelphia City Wage Tax rate. The analysis used US Census Bureau “On the Map” 2013 Commuting Flows data to determine county-based proportionate shares of employment. It was assumed that 52% of all employees of Philadelphia-based companies that receive or have received incubation services from the Science Center also live in Philadelphia, and that 12% of employees of companies in Pennsylvania’s Philadelphia suburbs live in Philadelphia. Similarly, 94% of employees of Pennsylvania-based companies in the region that receive or have received incubation services from the Science Center also live in Pennsylvania.

TABLE 9 – COMMUTER FLOW CALCULATIONS FOR WAGE TAX ESTIMATES

Company Geography	Number of Science Center Incubated Employees	Employees Residence:	
		Philadelphia	Pennsylvania
Philadelphia	4,378	52%	
Philadelphia Suburbs in Pennsylvania	7,332	12%	
Commonwealth of Pennsylvania	11,714		94%

Source: Census Longitudinal Employer-Household Dynamics, City of Philadelphia, Econsult

4.7. Location of Science Center Incubator Graduates in Greater Philadelphia

Science Center incubator graduates are distributed across the Greater Philadelphia region, with offices in six of the region’s 11 counties including each county of southeastern Pennsylvania and

Mercer County in New Jersey. Approximately half of these firms are located in suburban communities, though 63% of all regional Science Center graduate company jobs are currently in the suburbs.

TABLE 10 – GEOGRAPHIC DISTRIBUTION OF SCIENCE CENTER-INCUBATED GRADUATES

County	Number of Organizations ¹	Jobs	Organizations With >100 Employees
Bucks (PA)	2	236	3-D Pharmaceuticals (141)
Chester (PA)	11	1,218	Bentley Systems (470) CardioNet (300) Fujirebio ² (209) Morphotek, Inc. (185)
Delaware (PA)	6	97	None
Mercer (NJ)	2	184	Learning Ally (180)
Montgomery (PA)	22	5,785	Janssen Biotech ³ (3,000) SEI Investments (2,430)
Philadelphia (PA)	45	4,149	Astrolabe Analytica (620) Avid Radiopharmaceuticals (116) CGFNS (105) Monell Chemical Senses Center (120) Universal Building Services (2,554)

Source: Science Center

¹ Two companies have locations in multiple counties – BioAdvance is located at the Port (Philadelphia County) and also in Delaware County; Data-Core Systems has three locations: one in Philadelphia County and two in Bucks County.

² Fujirebio Diagnostics, Inc., a Japanese company, purchased a Centocor oncology diagnostics business line in 1998.

³ Janssen Biotech was formerly known as Centocor Ortho Biotech, Inc. The company was formed as a result of the 2008 merger between Centocor, a former Science Center incubator resident, and Ortho Biotech.

Table 1: Science Center Graduate Organizations

Graduate Company	County	State	Industry	Business Status ¹	2016 Employees
3-D Pharmaceuticals (acquired by Johnson & Johnson)	Bucks	PA	Pharmaceutical preparation manufacturing	Acquired - in region	141
ACI Clinical	Montgomery	PA	Management, scientific, and technical consulting services	In Business in region	55
Adaptimmune	Philadelphia	PA	Pharmaceutical preparation manufacturing	In Business in region	38
AlumiFuel	Montgomery	PA	Aluminum product manufacturing from purchased aluminum	In Business in region	1
Apcot Corporation	Philadelphia	PA	Custom computer programming services	In Business in region	10
Applied Clinical Intelligence, LLC	Montgomery	PA	Pharmaceutical preparation manufacturing	In Business in region	55
Astrolabe Analytica (acquired by Thomas Reuters)	Philadelphia	PA	Pharmaceutical preparation manufacturing	Acquired - in region	620
Avid Radiopharmaceuticals	Philadelphia	PA	Pharmaceutical preparation manufacturing	Acquired - in region	116
Bachem Bioscience, Inc	Montgomery	PA	Pharmaceutical preparation manufacturing	In Business in region	4
Ben Franklin Technology Partners	Philadelphia	PA	Civic, social, professional, and similar organizations	In Business in region	30
Bentley Systems	Chester	PA	Software publishers	In Business in region	470
Biomedical Research & Education Foundation	Philadelphia	PA	Scientific research and development services	In Business in region	1
Biometric Imaging	Philadelphia	PA	Pharmaceutical preparation manufacturing	In Business in region	11
BioRexis (acquired by Pfizer)	Montgomery	PA	Pharmaceutical preparation manufacturing	Acquired - in region	13
Campus Copy Center	Philadelphia	PA	Business support services	In Business in region	13
CardioNet	Chester	PA	Electromedical and electrotherapeutic apparatus manufacturing	In Business in region	300

¹ For “Acquired - in region” firms, a growth rate was applied to the employment at acquisition based on year-over-year growth rates within the relevant industry. Growth rates were not applied to acquired companies for which up-to-date employment information was available.

Table 1: Science Center Graduate Organizations

Graduate Company	County	State	Industry	Business Status ¹	2016 Employees
Career Pro (formerly Career Pro Resume Center)	Montgomery	PA	Management, scientific, and technical consulting services	In Business in region	4
CarePartners Plus (formerly National Center for Patient Interactive Research)	Montgomery	PA	Software publishers	In Business in region	6
Center for Applied Research	Philadelphia	PA	Management, scientific, and technical consulting services	In Business in region	15
Janssen Biotech (acquired by Johnson & Johnson; formerly Centocor)	Montgomery	PA	Pharmaceutical preparation manufacturing	Acquired - in region	3,000
Commission on Graduates of Foreign Nursing Schools	Philadelphia	PA	Civic, social, professional, and similar organizations	In Business in region	105
Community Accountants	Philadelphia	PA	Management, scientific, and technical consulting services	In Business in region	1
Controlled Chemicals (formerly Cryoguard)	Montgomery	PA	Scientific research and development services	In Business in region	3
Daedalus	Delaware	PA	Pharmaceutical preparation manufacturing	In Business in region	3
Data-Core Systems (3 locations)	Philadelphia, 2 offices in Bucks	PA	Custom computer programming services	In Business in region	110
Design Science Consulting	Philadelphia	PA	Miscellaneous professional, scientific, and technical services	In Business in region	30
Dilks Consulting	Philadelphia	PA	Management, scientific, and technical consulting services	In Business in region	3
DLC Solutions	Philadelphia	PA	Custom computer programming services	In Business in region	2

¹ For Acquired - in region companies: A growth rate was applied to the employment at acquisition using year-over-year growth rates for the industry. Growth rates were not applied to acquired companies for which up-to-date employee information was available.

Table 1: Science Center Graduate Organizations

Graduate Company	County	State	Industry	Business Status ¹	2016 Employees
DoseCue	Philadelphia	PA	Scientific research and development services	In Business in region	2
Econsult	Philadelphia	PA	Management, scientific, and technical consulting services	In Business in region	16 FT, 10 PT
ESCO Technologies, Inc.	Montgomery	PA	Miscellaneous professional, scientific, and technical services	In Business in region	9
Exocell	Philadelphia	PA	Scientific research and development services	In Business in region	9
ExpenseWatch (formerly Harriton Software)	Montgomery	PA	Software publishers	In Business in region	18
False Memory Syndrome Foundation	Philadelphia	PA	Individual and family services	In Business in region	8
Foreign Policy Research Institute	Philadelphia	PA	Scientific research and development services	In Business in region	10
Fujirebio (spinoff of Centocor)	Chester	PA	Scientific research and development services	In Business in region	209
Geewax, Terker and Co. LLC	Chester	PA	Securities, commodity contracts, investments, and related activities	In Business in region	20
Gentis Inc.	Chester	PA	Pharmaceutical preparation manufacturing	In Business in region	1
HaRo Pharm	Montgomery	PA	Pharmaceutical preparation manufacturing	In Business in region	2
Health Sciences Library Consortium	Philadelphia	PA	Information services	In Business in region	12
IHS Global Insight	Philadelphia	PA	Management, scientific, and technical consulting services	In Business in region	50
Innophase (acquired by Thermo Fisher Scientific)	Philadelphia	PA	Pharmaceutical preparation manufacturing	Acquired - in region	77

¹ For Acquired - in region companies: A growth rate was applied to the employment at acquisition using year-over-year growth rates for the industry. Growth rates were not applied to acquired companies for which up-to-date employee information was available.

Table 1: Science Center Graduate Organizations

Graduate Company	County	State	Industry	Business Status ¹	2016 Employees
Integral Molecular	Philadelphia	PA	Pharmaceutical preparation manufacturing	In Business in region	31
Intellicomm	Montgomery	PA	Custom computer programming services	In Business in region	13
Intelligence at Large (acquired by BTG International)	Montgomery	PA	Custom computer programming services	Acquired - in region	14
Invisible Sentinel, Inc.	Philadelphia	PA	Pharmaceutical preparation manufacturing	In Business in region	36
Japan Technology	Philadelphia	PA	Miscellaneous professional, scientific, and technical services	In Business in region	2
Jenrin Discovery	Chester	PA	Pharmaceutical preparation manufacturing	In Business in region	1
KGL Skin Study Center	Delaware	PA	Pharmaceutical preparation manufacturing	In Business in region	10
Kibow Biotech, Inc.	Delaware	PA	Pharmaceutical preparation manufacturing	In Business in region	8 FT, 3 PT
Learning Ally (formerly Recording for Blind and Dyslexic)	Mercer	NJ	Educational services	In Business in region	180
Longevity Biotech	Philadelphia	PA	Pharmaceutical preparation manufacturing	In Business in region	5
Medical Data Systems	Delaware	PA	Custom computer programming services	In Business in region	7
Mighty Engine (formerly Osiris)	Philadelphia	PA	Advertising and related services	In Business in region	10
Mitergy	Montgomery	PA	Pharmaceutical preparation manufacturing	In Business in region	1
Monell Chemical Senses Center	Philadelphia	PA	Scientific research and development services	In Business in region	120
Morphotek Inc.	Chester	PA	Pharmaceutical preparation manufacturing	Acquired - in region	185
National Disease Research Interchange (formerly National Diabetes Research Institute)	Philadelphia	PA	Scientific research and development services	In Business in region	40

¹ For Acquired - in region companies: A growth rate was applied to the employment at acquisition using year-over-year growth rates for the industry. Growth rates were not applied to acquired companies for which up-to-date employee information was available.

Table 1: Science Center Graduate Organizations

Graduate Company	County	State	Industry	Business Status ¹	2016 Employees
Nelum Sciences	Philadelphia	PA	Scientific research and development services	In Business in region	2
NeuroDX Development LLC (formerly Neurodiagnostic Devices)	Mercer	NJ	Surgical and medical instrument manufacturing	In Business in region	4
Nuvon	Philadelphia	PA	Software publishers	In Business in region	3
Optofluidics	Philadelphia	PA	Scientific research and development services	In Business in region	5
Opulus	Philadelphia	PA	Custom computer programming services	In Business in region	6
OxiCool, Inc.	Chester	PA	Air conditioning, refrigeration, and warm air heating equipment manufacturing	In Business in region	8
Palmer Group, Inc.	Philadelphia	PA	Securities, commodity contracts, investments, and related activities	In Business in region	4
Phila Association for Clinical Trials (acquired by Covance, Inc.)	Montgomery	PA	Scientific research and development services	Acquired - in region	2
Photonics, Inc.	Philadelphia	PA	Scientific research and development services	In Business in region	1
Physicians for Social Responsibility	Philadelphia	PA	Civic, social, professional, and similar organizations	In Business in region	4
PKPD, Inc. (acquired by KinderPharm LLC)	Chester	PA	Pharmaceutical preparation manufacturing	Acquired - in region	8

¹ For Acquired - in region companies: A growth rate was applied to the employment at acquisition using year-over-year growth rates for the industry. Growth rates were not applied to acquired companies for which up-to-date employee information was available.

Table 1: Science Center Graduate Organizations

Graduate Company	County	State	Industry	Business Status ¹	2016 Employees
Portfolio Associates, Inc.	Philadelphia	PA	Management, scientific, and technical consulting services	In Business in region	10
PrimBio Research Institute	Chester	PA	Pharmaceutical preparation manufacturing	In Business in region	7
Pulsar Informatics, Inc.	Philadelphia	PA	Pharmaceutical preparation manufacturing	In Business in region	25
Radiation Management Corporation	Philadelphia	PA	Pharmaceutical preparation manufacturing	In Business in region	5
Reality Technologies (acquired by Thomson Reuters)	Philadelphia	PA	Custom computer programming services	Acquired - in region	33
SEI Investments	Montgomery	PA	Securities, commodity contracts, investments, and related activities	In Business in region	2,430
Strategic Management Group (acquired by BTS Group)	Montgomery	PA	Custom computer programming services	Acquired - in region	47
Syngetics, Inc.	Philadelphia	PA	Custom computer programming services	In Business in region	2
Brightwood Career Institute (formerly Thompson Institute and Kaplan Institute)	Philadelphia	PA	Educational services	In Business in region	50
TRC Market Research (formerly TRC Holdings)	Montgomery	PA	Miscellaneous professional, scientific, and technical services	In Business in region	35
Uni-Coll Corporation (acquired by Sun Gard Corp.)	Delaware	PA	Custom computer programming services	Acquired - in region	66
Universal Building Services, Inc. (acquired by Aramark)	Philadelphia	PA	Technical consulting services	Acquired - in region	2,554
Vector Biolabs	Chester	PA	Pharmaceutical preparation manufacturing	In Business in region	9

¹ For Acquired - in region companies: A growth rate was applied to the employment at acquisition using year-over-year growth rates for the industry. Growth rates were not applied to acquired companies for which up-to-date employee information was available.

Table 1: Science Center Graduate Organizations

Graduate Company	County	State	Industry	Business Status¹	2016 Employees
VGX Pharmaceuticals (merged with Inovio)	Montgomery	PA	Pharmaceutical preparation manufacturing	Acquired - in region	18
Vitae Pharmaceuticals (formerly Concurrent Pharmaceuticals)	Montgomery	PA	Pharmaceutical preparation manufacturing	In Business in region	55
Znetics	Philadelphia	PA	Scientific research and development services	In Business in region	3

¹ For Acquired - in region companies: A growth rate was applied to the employment at acquisition using year-over-year growth rates for the industry. Growth rates were not applied to acquired companies for which up-to-date employee information was available.

Table 2: Science Center Incubator Residents/ic@3401 Members

Current Incubator Resident Company	Incubator Program	Industry	2016 Employees
Admire Capital	Port	Securities, commodity contracts, investments, and related activities	2
AG Strategic Design	ic@3401	Custom computer programming services	1
Alltham	ic@3401	Software publishers	1
ANGLE (formerly Parsortix)	Port	Scientific research and development services	5
Annapurna	Port	Scientific research and development services	2
Arzoo	ic@3401	Securities, commodity contracts, investments, and related activities	1
AUM LifeTech	Port	Scientific research and development services	1
BioAdvance	Port	Securities, commodity contracts, investments, and related activities	5
Biobots	Port	Scientific research and development services	8
Biomeme	ic@3401	Surgical and medical instrument manufacturing	10
Bioscript Science, Inc.	Port	Management, scientific, and technical consulting services	1
Carevive Systems	ic@3401	Software publishers	15
Choosito!	ic@3401	Software publishers	4
Cognizance Biomarkers	Port	Scientific research and development services	2

Table 2: Science Center Incubator Residents/ic@3401 Members

Current Incubator Resident Company	Incubator Program	Industry	2016 Employees
Coldlight	ic@3401	Software publishers	3
CytoVas	Port	Scientific research and development services	9
Deep Lake Holdings	Port	Scientific research and development services	1
Dreamit Ventures	ic@3401	Civic, social, professional, and similar organizations	10
enAble Games	ic@3401	Software publishers	2
Epismart Nutrition	Port	Scientific research and development services	1
epoXtal	ic@3401	Scientific research and development services	1
Evol Science	Port	Scientific research and development services	1
Fitly	ic@3401	Software publishers	3
Freenome	Port	Scientific research and development services	2
Fymed	Port	Scientific research and development services	1
Gearhart Law	ic@3401	Legal services	1
Grand Round Table	ic@3401	Software publishers	3
Graphene Frontiers	Port	Scientific research and development services	11
Haystack Informatics	ic@3401	Software publishers	3

Table 2: Science Center Incubator Residents/ic@3401 Members

Current Incubator Resident Company	Incubator Program	Industry	2016 Employees
HealthNEXT	ic@3401	Miscellaneous professional, scientific, and technical services	2
HealthShift (formerly Forward Thinker)	ic@3401	Custom computer programming services	3
Hyalo Technologies	Port	Scientific research and development services	2
Immunome	Port	Scientific research and development services	6
iPraxis	Port	Educational services	1
Keosys	Port	Software publishers	1
Kite Medical	ic@3401	Scientific research and development services	1
Lenima Field Diagnostics	Port	Scientific research and development services	2
LignaMed	Port	Scientific research and development services	3
Literacy Ace	ic@3401	Software publishers	2
MedCity News/Breaking Media	ic@3401	Internet publishing and broadcasting	1
Metasense Digital Marketing Inc.	ic@3401	Software publishers	1
Noble.MD	ic@3401	Software publishers	3
Oncocoetics	Port	Scientific research and development services	5

Table 2: Science Center Incubator Residents/ic@3401 Members

Current Incubator Resident Company	Incubator Program	Industry	2016 Employees
Optiflame	Port	Lighting fixture manufacturing	1
Orange Maker	Port	Scientific research and development services	4
OriMabs	Port	Scientific research and development services	1
Pad Porter	ic@3401	Management, scientific, and technical consulting services	1
Persistent Telecom Solutions, Inc.	Port	Management, scientific, and technical consulting services	1
Persona Partners	Port	Miscellaneous professional, scientific, and technical services	2
Peter Buchak	ic@3401	Software publishers	1
Phelix Therapeutics	Port	Scientific research and development services	8
PhenGen Biotech	Port	Scientific research and development services	1
Point.io	ic@3401	Software publishers	30
Pulse Infoframe	ic@3401	Software publishers	1
RegDesk	ic@3401	Software publishers	2
REGENXBIO Inc.	Port	Scientific research and development services	1
RistCall	ic@3401	Software publishers	3

Table 2: Science Center Incubator Residents/ic@3401 Members

Current Incubator Resident Company	Incubator Program	Industry	2016 Employees
ROAR for Good	ic@3401	Software publishers	5
Robin Hood Ventures	Port	Securities, commodity contracts, investments, and related activities	1
RSC Worldwide	Port	Periodical publishers	4
SAB Tech	Port	Scientific research and development services	2
Sensory Technologies	ic@3401	Software publishers	2
Smart Activities of Daily Living	ic@3401	Software publishers	2 FT, 1 PT
SWELL	Port	Management, scientific, and technical consulting services	3
Telesis Therapeutics	Port	Scientific research and development services	1
Temple Office of Technology Commercialization and Business Development	Port	Educational services	1
UE LifeSciences	ic@3401	Surgical and medical instrument manufacturing	4
Viventia Bio US Inc.	Port	Scientific research and development services	2
Whose Your Landlord	ic@3401	Software publishers	2 FT, 2 PT