



ONE COMMUNITY ONE GOAL STRATEGIC PLAN

REPORT 3 : EDUCATION ASSETS INVENTORY

Presented to the Beacon Council Economic Development Foundation
and the Miami-Dade Beacon Council

by Avalanche Consulting, McCallum Sweeney Consulting, and
the Council for Adult and Experiential Learning

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American Airlines	Miami Dade Broadband Coalition
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For more information on One Community One Goal, please go to www.onecommunityonegoal.com or call 305-579-1390

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EXECUTIVE SUMMARY: ONE COMMUNITY ONE GOAL EDUCATION ASSETS INVENTORY

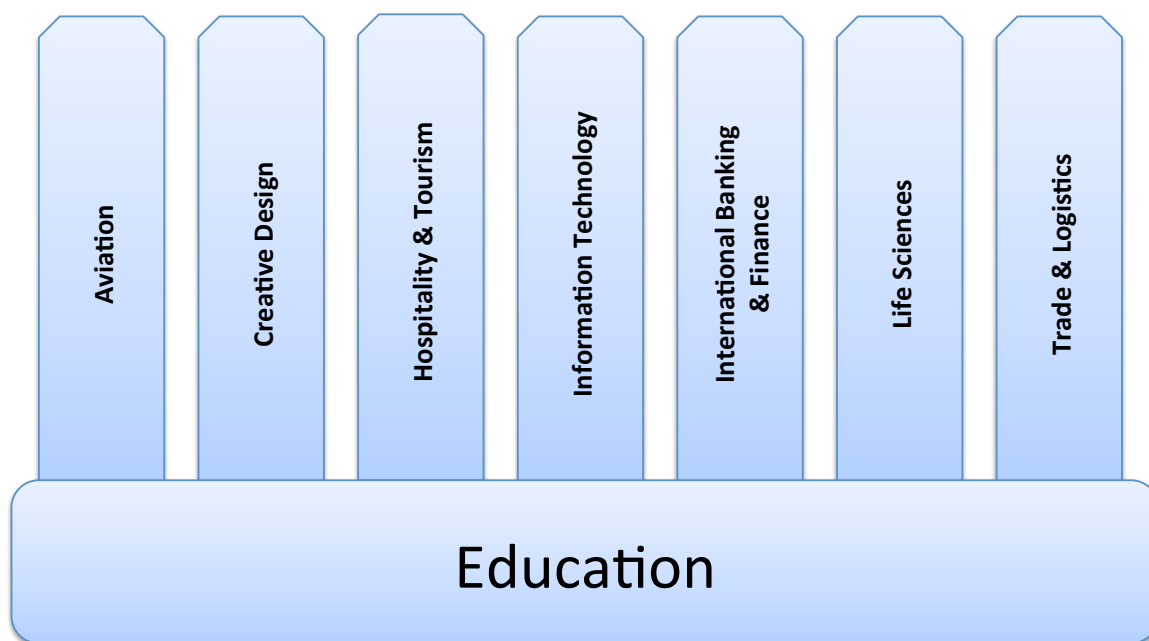
INTRODUCTION

This *Educational Assets Inventory* is the third of four reports within the *One Community One Goal* initiative. The first report, *Competitive Assessment*, evaluated Miami-Dade County's strengths and challenges from a corporate site selector's perspective. This process combined site selection tours, stakeholder focus groups and interviews, data analysis, a community survey, and an examination of existing studies to evaluate the County's assets and opportunities. The second report, *Target Industries*, provides a list of recommended target industries and niche sectors for Miami-Dade County, based on the competitive assessment of local assets and industry trends. These industries reflect both current industries as well as aspirations for the community to develop new industries outside of traditional sectors of the economy.

This third report, the *Education Assets Inventory*, addresses the skills development component of Miami-Dade County's future. Here we identify the skills, education, and training assets in the community. We examine the availability of learning opportunities in Miami-Dade County and more specifically assess how well the current workforce and education and training systems meet the needs of the County's recommended target industries.

Employers frequently state that access to talent is their most important site selection factor. Having a skilled workforce can be a key factor in determining whether industries will thrive in a region or if they will migrate to other locations. Rapid changes in technology, scientific discovery, global economics, business strategy, and human demographics require regions to have an educational ecosystem in place that ensures worker availability and skill sets keep pace with business needs.

Having a world-class educational system is a critical requirement for growing jobs in all of Miami-Dade's target industries. Thus, providing a stand-alone report on education was programmed as a crucial deliverable of the One Community One Goal plan. It is the foundation for future economic success, and as opposed to defining education as a Target Industry, it was elevated and characterized as a leading infrastructure asset.



Miami-Dade's educational leaders are committed to the County's economic development and have taken a strong leadership role in *One Community One Goal*. The Miami-Dade County Public Schools Superintendent, South Florida Workforce, and all major college and university presidents in the County serve on the project's Steering Committee. They have been active in the planning process since the beginning and are dedicated to staying involved through its implementation.

The role of education in Miami-Dade's economic development is so important that the topic warranted its own in-depth evaluation. This report, the *Education Assets Inventory*, does just that. It examines the education and training infrastructure of Miami-Dade County. Here, we evaluate the region's capacity to develop a talent pool whose competencies align with the target industries and niche sectors identified in the *Target Industries* report. It reveals opportunities to enhance the number and types of learning opportunities, programs, and policies that will lead to target industry growth and a prosperous economy.

Miami-Dade County is home to a formidable array of education and training assets that are leveraged to develop the capabilities of the workforce and meet the needs of the target industries. In addition to offering a mix of courses, majors, and programs, the education and training providers must also be positioned to attract, retain, and help students successfully complete the programs. Education and Training Institutions' programs and policies for addressing the needs of learners impact whether area residents can benefit from the education and training community. Local, state, and federal policies and programs exert significant impact as well.

This report is intended to set the stage for the final *One Community One Goal* strategy and indicates areas where additional capacity of education and training providers can increase the region's ability to meet current and future demand.

STAKEHOLDER INPUT TO-DATE

From the beginning of the *One Community One Goal* strategic planning process, project leaders set the goal of making this a highly inclusive, open process that involves the widest diversity of Miami-Dade County residents possible. The ultimate economic development strategy must reflect the vision and needs of all Miami-Dade County residents.

For this report, *Education Assets Inventory*, the consultant team engaged in the following input.

- Interviews with all major colleges and universities serving Miami-Dade County, and review of offerings, majors, divisions and initiatives relevant to the target industries including school instructional faculty, as well as student support personnel
- Interviews with public secondary school officials and review of career academies relevant to the target industries
- Review of workforce development programming in the region
- Review of Workforce Investment Act data and Miami-Dade Workforce Investment Act (WIA) eligible training provider offerings
- Interviews and Focus Groups with representative employers of the key industries
- Review of federal and state investments in workforce and education initiatives aligned with the target industries
- Review of education statistics, census bureau information, and other national data sources

STAKEHOLDER INPUT TO-DATE

- 4,133 survey responses
- 7 focus groups with over 100 total participants
- GMCC Goals Conference workshop
- Life Sciences industry survey
- 40+ personal and small group Interviews
- 4 Steering Committee meetings
- Entrepreneurship and Innovation workshop with more than 50 participants

Education and Training institutions and individuals who participated in the process related to this report included the following.

Barry University

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Dr. Andrea Allen
Dr. Tomislav Mandakovic
Dr. John McFadden
Dr. John Moriarty

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St. Thomas University

Monsignor Franklyn Casale, President
Beverly Bachrach
Dr. Gregory Chan
Dr. Beatriz Gonzalez Robinson
Peter Kelly
Terry O'Connor

For the overall *One Community One Goal* planning process, multiple avenues were set up to allow Miami-Dade residents to share input with the consulting team.

- The **OneCommunityOneGoal.com website** was created with access to completed OCOG reports.
- A **55-member Steering Committee** was organized to advise the creation of the *One Community One Goal* strategy. The Steering Committee is designed to represent a wide diversity of interests and is responsible for meeting with the consultants during each visit, sharing ideas, providing input on draft reports, and representing the strategic planning process within the greater community. A list of Steering Committee member organizations is provided on the following page.
- Five members of the consulting team have taken **four visits to Miami-Dade County**, conducting three tracks of interviews, focus groups, and tours per trip.
- The consultants facilitated a 1.5-hour **SWOT Workshop with the Steering Committee** that collected members' thoughts on Miami-Dade County's strengths and challenges in business climate, infrastructure, entrepreneurship and innovation, marketing, and workforce development and education.
- Consulting team member McCallum Sweeney Consulting, a national consulting firm that assists major corporations with location evaluations, conducted **two full-day mock site selection tours** of the County.
- The consultants facilitated **seven focus groups**, each attended by 5-20 participants, on the following topics: New Leaders; Tourism and Hospitality; Logistics and Trade; Aviation and Aerospace; IT and Telecommunications; International Banking and Professional Services; Design, Fashion and Lifestyle. In addition, the consultants facilitated a 200-attendee session at the **Greater Miami Chamber of Commerce's 2011 Goals Conference**.
- A survey of area life sciences companies was conducted to solicit their thoughts on the future of their industry in Miami-Dade County.
- Members of the consultant team attended the Greater Miami Chamber of Commerce's 2011 Education Summit and reviewed findings from the 2011 Town Hall Meetings.
- A public survey was conducted and widely promoted across Miami-Dade County. The results are provided in the Appendix to this report. **4,133 residents of Miami-Dade County and the region responded to the survey**. Topics ranged from satisfaction with various characteristics of the County to preferred economic development targets and business climate issues.
- The consulting team conducted **more than 40 personal and group interviews** during their visits to Miami-Dade County as well as on the telephone.
- During their fourth trip to the region, the consultants facilitated a workshop with **more than 50 participants on the topic of entrepreneurship and innovation** in Miami-Dade County.

Organizations Represented on the *One Community One Goal* Steering Committee:

American Airlines	Miami Free Zone
Baptist Health South Florida	Miami-Dade Chamber of Commerce
Barry University	Miami-Dade County
Becker & Poliakoff, P.A.	Miami-Dade County Board of County Commissioners
BlueCross BlueShield	Miami-Dade County Department of Cultural Affairs
CAMACOL (Latin Chamber of Commerce of the U.S.A.)	Miami-Dade County League of Cities
Catalyst Miami (Human Services Coalition)	Miami-Dade County Public Schools
Coalition of Chambers	Miami Downtown Development Authority
DelancyHill	Miami International Airport
Esslinger-Wooten-Maxwell Realtors	Perry Ellis International, Inc.
Flagler Real Estate Services LLC	Port of Miami
Florida International Bankers Association	Sandler, Travis & Rosenberg, P.A.
Florida International University	Sant La Haitian Neighborhood Center
Florida Memorial University	Seaboard Marine
Florida Power and Light	South Florida Hospital & Health care Association
Gibraltar Private Bank and Trust Co.	South Florida Workforce
Goldfarb Management Services	St. Thomas University
Greater Miami Chamber of Commerce	The Beacon Council
Greater Miami Convention & Visitors Bureau	The Miami Foundation
HEICO Corporation	The Miami Herald and El Nuevo Herald
MCM Corp.	United Way of Miami-Dade
Miami Dade College	University Of Miami
	Wells Fargo
	World Trade Center Miami

KEY FINDINGS

Businesses frequently identify human capital as their most important asset. Relocation and expansion decisions can hinge upon the availability of a capable workforce and the resources (institutions, funding, information, etc.) that enable skill development at all levels. How communities invest in learning and skills development is a key factor to consider when building an infrastructure that supports healthy communities, businesses, industries, and quality of life. As important as the number, quality, and relevance of learning opportunities are, it is also important to consider how those opportunities connect to the broader community and to one another. A community's learning network addresses the range of needs across industries, institutions, and growth strategies. Communities that prioritize education place themselves in a more competitive position for economic development. Strong education and workforce development results in a healthier economy.

There are many factors that comprise a high functioning learning community. Some of those factors for Miami-Dade County are described below.

Retaining Talent

Miami-Dade County serves and graduates a substantial number of individuals, and supplies a workforce that possesses degrees and certificates highly valued by employers in (but not limited to) the industries targeted by the *One Community One Goal* initiative. Among the benchmark communities studied in the *Competitive Assessment* report, Miami-Dade ranked highly in terms of concentration of college students per capita. Higher education is a draw for the County.

While many Miami-Dade students may prefer to remain in Miami after graduation, many ultimately leave Miami-Dade County. The County's young professional population and educational attainment is low compared to other regions, indicating an outmigration of graduates. Interviewees cite costs of living and fewer professional opportunities as the primary reasons for this out-migration of skilled and credentialed workers. For those who come to Miami from outside of the US in order to take advantage of the educational opportunities and institutions, immigration laws often prevent them from laying down roots in the community and applying their talent here. As stated in the earlier report, Miami-Dade is educating people for other communities. Talent retention should be a priority.

Matching College Output with Job Demand

Today's high-unemployment, low-job-growth economy requires a more deliberate approach to connect the occupational demands of industry with the output of college graduates. Simply put, we cannot afford to educate and train students in areas where no jobs exist, or where job demand isn't sufficient. If we do, young professionals risk higher rates of unemployment or might choose to leave Miami-Dade County to find jobs elsewhere.

To assess whether college output is aligned with future job growth, we perform an analysis of degrees conferred by Miami-Dade colleges and universities versus the long-term occupational job forecast for the County. In a later section of this report, we discover several imbalances in the workforce supply-demand situation. Modest

undersupply exists in Marketing and Accounting graduates. Sizeable undersupply exists in Computer Sciences / Software graduates. Oversupply issues may currently exist for some students graduating in biomedical engineering, biology, nursing, and creative design, mostly due to the significant increase in students seeking these degrees in recent years. However, new demands, new industries, and increased growth in existing industries may require redesigned or new specialties/programs that are more in line with the workforce needs. Therefore, educational institutions should place emphasis on direct employability skills and work closely with employers. Such workforce/education linkages should ensure that graduates remain in the area and should enable Miami-Dade County to attract and retain new business.

The Educational Ecosystem

Miami-Dade County has many schools that offer a variety of learning experiences and contexts. There are offerings at every level: large public institutions, private institutions based on religious affiliations, a historically black college, top-tier research institutions, numerous short-term training providers, and others. Each of these institutions addresses learning needs of at least some (if not all) of the target industries recommended in *One Community One Goal*.

There appears to be mutual high regard among the institutions' leaders and frequent alignment and linkage of programs between institutions. Articulation and transfer agreements between institutions are strong across the board. There is a wide array of commercial training organizations who enjoy an active market for short-term, occupationally-focused (non-credit, non-academic) training and a large number of individuals engaged in some level of skill development and learning.

Foundation for Targeted Learning and Skill Development

Employers frequently cited a lack of basic skills and basic workplace behaviors as a challenge in hiring qualified employees. Poor math, reading, and writing abilities can hinder individuals' success in attending and succeeding in post-secondary education and employment. *One Community One Goal's* target industries often require high levels of math, reading, communication, and technical capabilities.

Too many Miami-Dade residents are not prepared for careers in the emerging and target industries, nor do they possess the foundational skills that will make target-industry learning possible. For instance:

- Over half of Miami-Dade adults lack even basic English literacy with 900,000 adults with limited English proficiency – up from 400,000 in 1992 (National Adult Literacy Survey)
- Miami-Dade trails the Florida average in adult high school and postsecondary degree attainment (Census 2000 gaps of 12% and 1%, respectively)
- 200,000 Miami-Dade adults age 25+ have less than 9th grade education, and nearly as many are without a high school degree—a total of 24% locally versus the US average of 15%. (2005-09 American Community Survey)

In addition to those foundational academic capabilities, employers report that workforce challenges also include a common inability to deal with failure and setback, a sense of entitlement, lack of technological facility, and the

ability to work collaboratively and flexibly. The ability to work in meaningful roles in the target industries requires that learners, job seekers, and incumbent workers possess these basic workplace capabilities. Programs specifically addressing these elements (but not specifically addressing target sector learning needs) are a key portion of the education and workforce development infrastructure, as are specific industry programs and their ability to address these broad concerns within their own context.

Digital Literacy

Some of the target industries and niche sectors like Information Technology and Health IT require significant computer skills. The other target industries require the majority of their workforce to possess at least basic computer literacy. Though they are not technology companies per se, they have information technology operations within them that require workers as skilled as those who work for IT firms. Learning, working and seeking employment increasingly depends upon access to and facility with digital technology. Efforts like those of the Miami Broadband Network aim to reduce barriers to accessing and learning technology.

Public Education Challenges – Real and Perceived

As with most large urban public school districts, Miami Dade Public Schools face many challenges. Poverty, immigrant populations, and behaviors often associated with distressed communities have an impact upon school participation and success at all levels. Low per-pupil expenditures as compared to competitor cities, standardized test scores lower than state and national averages, and high dropout rates remain a challenge in both preparing a highly-skilled workforce and addressing quality of life for business owners, managers and their families.

Miami Dade Public Schools have made great strides in recent years to improve test scores, create new learning models and choice options and reduce dropout rates. The School District's innovative approaches and strong recent results are gaining national recognition from national organizations such as the National Center for Education Statistics' National Assessment of Educational Progress (NAEP). However, negative perceptions about the secondary school system remain locally. Increasing the number of advocates for Miami Dade Public Schools, especially from the business community, is an ongoing need and will help reinforce improvements that are currently taking place.

Career Awareness and Career Guidance

To make good decisions about pursuing career-focused learning, it is important for individuals to have access to accurate, detailed information about the target industries and associated careers. Residents need to know which industries will be creating jobs in the future so that they can plan their career pathway appropriately.

Miami-Dade's Career Academies (a list of which is provided in Appendix 2) provide a strong foundation for young people to become aware of careers in the target industries and their respective skills needs. Adults not currently attending an educational institution may have a difficult time accessing career information and guidance. While most schools offer career services that provide some information about jobs within the target industries, this information lacks detail and is generally confined to a particular program and not the wider

industry. Detailed industry and career information that spans niche sectors and education levels will help individuals consider a wider set of options and encourage ongoing learning and career planning.

Lifelong Learning

The community's skills needs can be addressed in part by raising the capability and success of those coming through the public elementary and secondary school systems. However, to support emerging sectors Miami-Dade County must also leverage and expand the capabilities of adults as well. To remain competitive in any industry, individuals must continually pursue learning opportunities. The large number of commercial training providers focused on skills in health care, business, hospitality, and information technology indicates that there is a large and motivated demand for lifelong learning. These short-term, occupation-specific offerings often address only the lowest rungs on a career ladder. Using these entry-level skills as a foundation and building upon the initial motivation, these individuals can connect to long-term, high-value learning. Most post-secondary institutions in Miami-Dade County have policies and programs that are friendly to adult learners, offering non-traditional delivery methods and schedules. They recognize the value of workplace and experiential learning.

As well, Miami-Dade County is home to too many adults who do not yet possess skills and behaviors valued by employers in general and in the target industries in particular. Re-engagement of these individuals in education and skill development efforts can more effectively utilize this human capital.

Employer Engagement in Education and Workforce Development Strategy

Employer participation in area schools is important. The business community helps students gain practical, applied knowledge of their fields through internships, apprenticeships, mentoring, and other career exposure. In many communities, the business community donates funding and volunteer time to improving local education.

Educators in Miami-Dade County report that they are continually striving to engage the business community and that there is competition among institutions for employer attention. Smaller companies tend to have a greater commitment to the local community, but have more difficulty finding the time and resources to devote to education. In addition, many educators report that one of the County's greatest assets – its international position – is a challenge for getting companies involved. Executives may be located in Miami, but are less compelled to invest their time and resources in local efforts as their core markets are located elsewhere. These executives may have come from other countries whose culture is to send children to private schools and not engage with the local public school systems.

Businesses engaged in the Greater Miami Chamber of Commerce's 2011 Town Hall Meetings reported that they are interested and willing to explore further partnerships with educational institutions, including facilitating internships, providing guest speakers and hosting workshops. Connecting with those companies and creating options for various levels of engagement can help firms to act upon this stated interest.

Culture and Language

South Florida and Miami-Dade County in particular have a strong international foundation. Both the learner and instructor population are more linguistically and culturally diverse than perhaps any other community in the country. While certainly an asset, this also poses a challenge. For example, Spanish spoken at home or casually among friends and acquaintances is often inadequate for use in a business setting. While Miami is still a dominant business center for Latin America, business engagement with Europe and Asia has become increasingly important. The local multi-lingual population is largely Spanish speaking. Fluency in Portuguese, Mandarin, Japanese and other languages is also becoming increasingly important, as indicated in the *One Community One Goal* survey. Miami Dade College provides substantial multi-lingual training. It is one of seven institutions in the country that offers a formal certificate in Translation and Interpretation, has a dual language honors program, and is home to the internationally recognized Confucius Institute which offers a full complement of Mandarin instruction.

ABOUT ONE COMMUNITY ONE GOAL

Miami-Dade County is among the most dynamic communities in the world. The *One Community One Goal Targeted Industry Strategic Plan* will provide the unified vision and direction needed to translate those visionary initiatives and many others into long-term economic development opportunities for all Miami-Dade County residents.

The strategic planning process involves four major phases as described and illustrated on the following pages.

PHASE 1: Competitive Assessment

The *One Community One Goal Targeted Industry* strategic planning process began with the *Competitive Assessment*, which analyzes Miami-Dade County's strengths and challenges from a corporate site selector's perspective. This phase of the report combines mock site selection tours, stakeholder focus groups and interviews, data analysis, a community survey, and an examination of existing studies to evaluate the County's assets and opportunities.

Prior to starting the *Assessment*, the project team read more than 50 past studies, reports, and strategic plans conducted for Miami-Dade, its neighboring metros, and the State of Florida over the past 15+ years. Our objective is not to duplicate the good work that has already taken place. Instead, it is to update information, draw together ideas, and offer a fresh external perspective on future opportunities.

PHASE 2: Target Industries

During Phase 2, the team evaluated Miami-Dade County's current target industries utilizing a series of analytical tools, including location quotient and shift-share analysis, and explored local potential for expansion in emerging industries. This phase has culminated in detailed profiles of recommended target industries and niche sectors.

PHASE 3: Education Assets Inventory

One of the most significant differentiators of *One Community One Goal* is the extraordinary involvement of the educational community and the desire to closely align economic development and workforce development activities. This collaboration gives Miami-Dade an advantage.

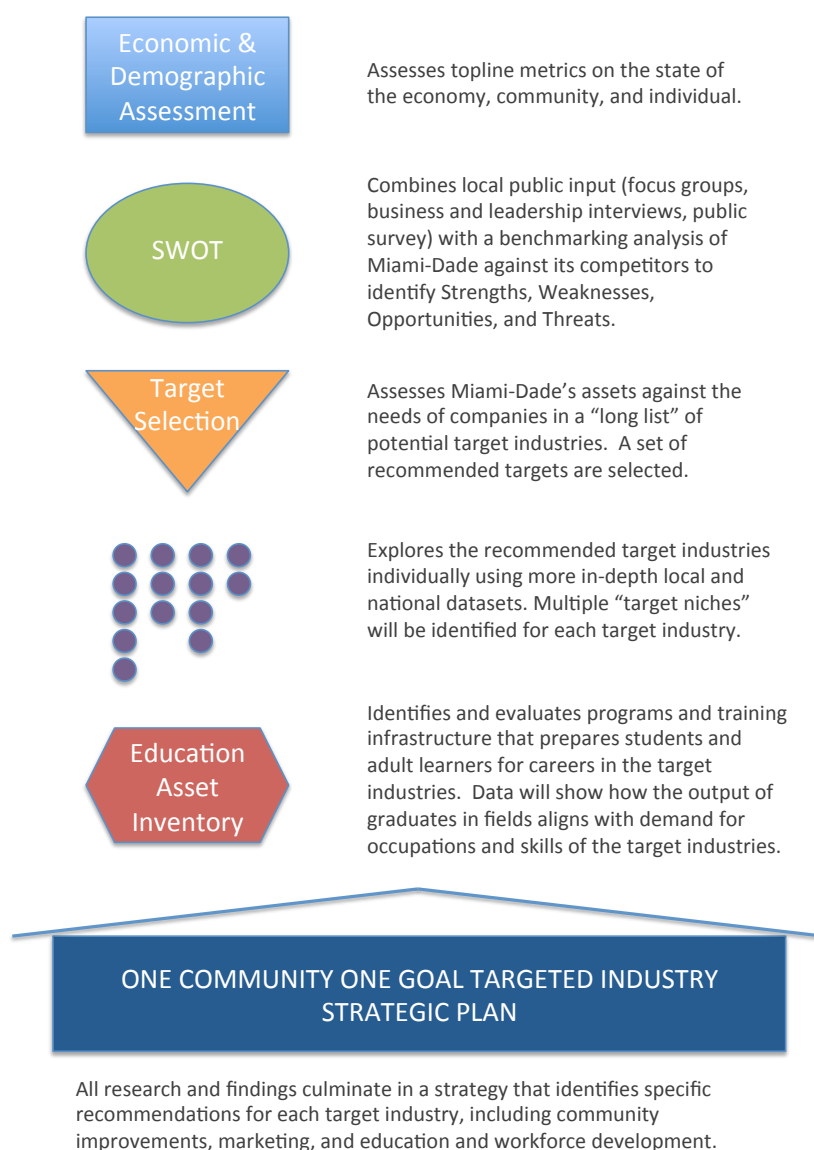
The *Education Assets Inventory* report follows the Targeted Industry report. This report examines how well Miami-Dade is prepared to meet the talent needs of the target industries. For each industry, the report describes related educational offerings, throughput, initiatives aimed at attracting individuals into those programs, and programs in which educators and industry are collaborating. Based on those findings, the report identifies topic areas that are currently underserved relative to industry needs, best practice examples, career transition models, and other recommendations to boost availability of and participation in programs that fuel Miami-Dade's target industry growth.

PHASE 4: Target Industry Strategies

One Community One Goal will conclude with an action plan for each target industry. These strategy recommendations will be custom tailored for Miami-Dade County and will address workforce development, community development, and marketing. Phase 4 will also generate an implementation calendar, task assignment, and performance metrics.

The following diagram illustrates the *One Community One Goal* strategic planning process and how each phase of the project feeds into the final target industry action plans.

Strategic Planning Process



CONTENT AND PROGRAM DEVELOPMENT OPPORTUNITIES

Miami-Dade County offers abundant education and training opportunities in all seven target industries identified in this strategy. Miami-Dade County is also home to large numbers of individuals at all stages of learning and careers who can continue to increase their value through ongoing learning. Across all of the target industries, additional information about the nature of the industries and careers **not specific to particular institutions or programs** can engage learners at a variety of levels and at any number of access points within the educational ecosystem. Promotion and utilization of experiential learning programs can encourage individuals to engage in additional career development and associated learning opportunities.

In several areas the strong base of programs can be augmented to address particular sub-sectors and critical skill areas.

Aviation	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Expand programming to include composite technologies and other aviation manufacturing related programs • Add aviation specializations to engineering programs (DER) • Specify niche sectors to guide educational emphasis
Creative Design	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Increase availability of short term and degree programs in and across design and entertainment sub-industry areas • Provide cross-training between Engineering and Design programs • Increase technology-based offerings • Reverse negative growth in industrial engineering degrees
Hospitality & Tourism	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Enhance short-term training on software applications specific to the industry • Focus on Information technology across industry • Attract entry-level workers to degree programs and accelerate completion through validation of experiential learning
Information Technology	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Develop bridge from certificate level to credit/degree programs and more advanced study to increase degree-seekers
International Banking & Finance	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Add focus on venture capital and investment • Develop career ladder information and guidance • Increase focus on international business at the secondary level • Develop bridge programs for lower level learners/employees to engage in

	more advanced learning
<i>Life Sciences & Health Care</i>	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Continue to increase programming in biotechnology, genetics, medical device research, agricultural bioscience, quality assurance, laboratory technician and scientists • Partner with Tourism/Hospitality to grow Health Tourism niche sector • Build on entry-level skills of the patient-care workforce to develop research and manufacturing capacity • Further specify niche targets to guide educational emphasis
<i>Trade & Logistics</i>	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Continue to increase programming in geospatial, geographic information Systems (GIS), freight forwarding, transportation management, food/agricultural product storage management, logistics information technology and software, • Further emphasize Logistics at the secondary level

Recommendations for further building the education and learning infrastructure to support economic development in Miami-Dade County will be included in the forthcoming Strategy report.

SECTION 1: INVENTORY OF EDUCATIONAL INSTITUTIONS

EDUCATION AND TRAINING PROVIDERS: THE EDUCATIONAL ECOSYSTEM

Miami-Dade County is home to a wide array of opportunities for learning and skill development. The education and training community is notably large and there are a variety of providers offering individuals the opportunity to customize their own learning experience in terms of type of institution, program length, learning style, credentials, occupational target, cost, and access to support services. Many of the providers are connected to the Public Workforce Investment system. Federal funding for job training and associated programming flows through the state workforce agency – Workforce Florida – and is in turn distributed to Florida’s 24 Workforce Investment Boards to address skills needs on the state’s list of target industries and occupations. South Florida Workforce is the local entity that administers funds and programming for Miami-Dade and Monroe Counties and utilizes Workforce Investment Act (WIA) funding to support education and training. Institutions and providers whose students are eligible to utilize WIA Individual Training Account (ITA) vouchers are indicated on the following list.

The educational ecosystem in Miami-Dade County includes the following types of providers:

- Public Secondary Institutions, including industry-focused Career Academies
- Private Secondary Institutions
- Public, Degree-Seeking Opportunities
- Public, Non-Degree Offerings
- Private Independent Educational Institutions
- Private Training Organizations

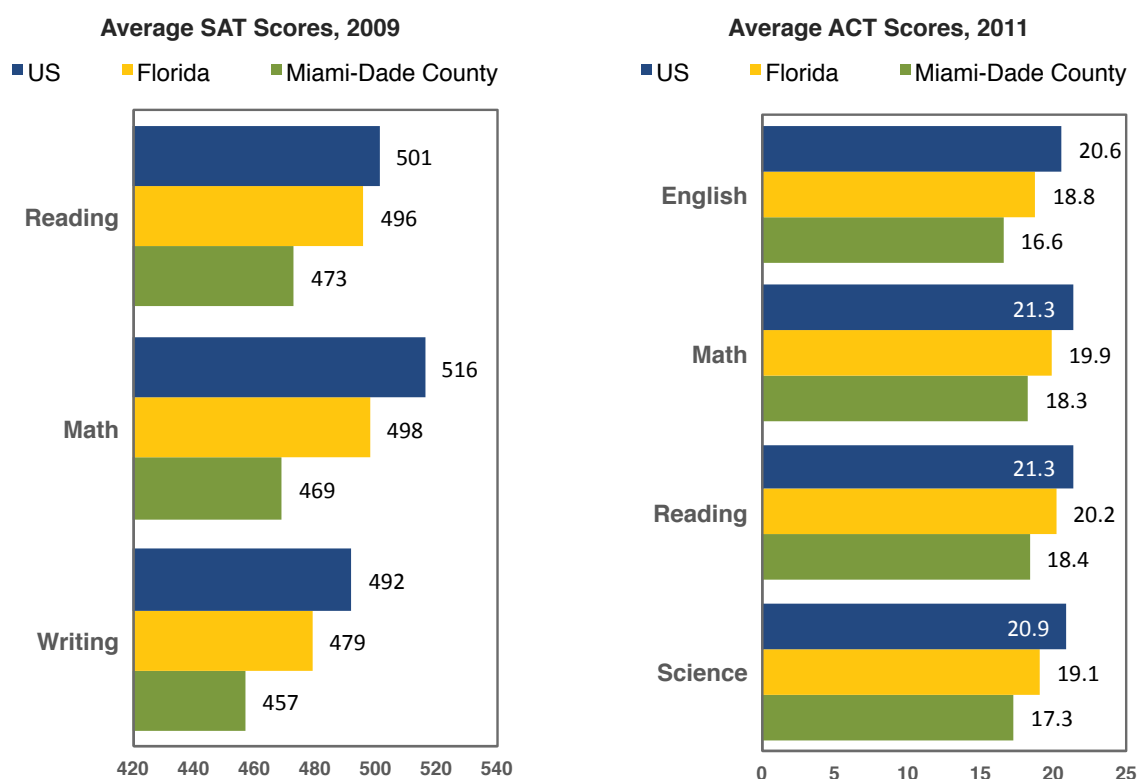
K-12 Education System Challenges

Until recently, Miami-Dade County’s K-12 education system has performed below state and national levels and the perception (and often the reality) was that the system was at a sub par level compared to other school districts in the country. Employers were not satisfied with the skill levels of students graduating from the Miami-Dade County Public School system. And companies looking to locate in Miami-Dade County were under the impression that they would have difficulties finding skilled labor and that relocating employees would be reluctant to moving to Miami because of having to put their children in the public school system or having to pay for private school. Miami-Dade County is certainly not alone in facing these perceptions – similar perceptions are reported across the US.

In recent years, Miami-Dade County’s K-12 education system has seen great improvements in a variety of areas. For instance, the 2011 NAEP results have shown positive changes in the math and reading scores for students in 4th and 8th grade. This improvement means that the changes made over the last few years are beginning to pay off, but these students will not graduate any time soon. For the immediate future, the current students finishing high school in the coming years will either enter the workforce or go on to post-secondary institutions and their achievement levels are not at the desired level that is expected by companies or universities and colleges. In an analysis of Miami-Dade County’s K-12 education system, their indicators that show the County has not been keeping pace with state and national level achievement. While standardized test scores are by no means a

complete picture of student achievement, they do provide some measure of educational achievement and proficiency.

Most recently available data shows some challenges, but demonstrates meaningful improvements. Miami-Dade County trailed both the State of Florida and the U.S. averages in all three components of the SAT's: Reading, Math, and Writing. As shown in the chart below, Miami-Dade County's average SAT Reading scores are 23 points below the state average and 28 points below the national average. Likewise, Miami-Dade County's scores in Math were 29 and 47 points below the state and national averages respectively. And in the Writing portion, Miami-Dade County students tested 22 and 35 points below the state and national averages respectively.



Source: Florida Department of Education

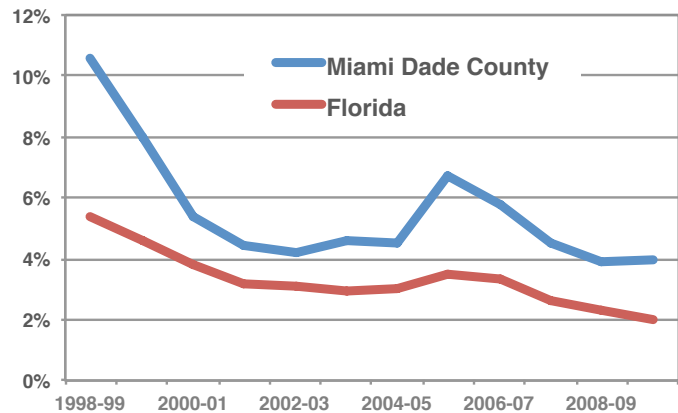
In a similar analysis of ACT scores, an alternative standardized test used for college readiness, Miami-Dade County performs below the state and national levels as well. Miami Dade students in Grade 10 performed closer to statewide averages on the 2011 FCAT, the Florida Comprehensive Assessment Test. In the writing portion of this exam, Miami Dade students scored just 0.1 points lower on average than students statewide while in the Reading section 38% of Miami Dade students scored at levels 3-5 compared with 39% statewide. In Mathematics 68% of Miami Dade students scored at the 3-5 level, while 71% scored at that level statewide.

While college readiness as measured by the SAT and ACT data demonstrate challenges in college preparation, Miami Dade County Public Schools are also making important improvements in this area. In 2010, 67% of Miami Dade graduates completed a college preparatory curriculum compared to 60% at the state level. Even amid challenges in college readiness, more Miami-Dade County graduates are enrolling in post-secondary institutions immediately following high school graduation than their counterparts across the state. In 2010 55% of Miami Dade graduates enrolled in Florida public or private postsecondary institutions immediately following graduation compared to 52% statewide.

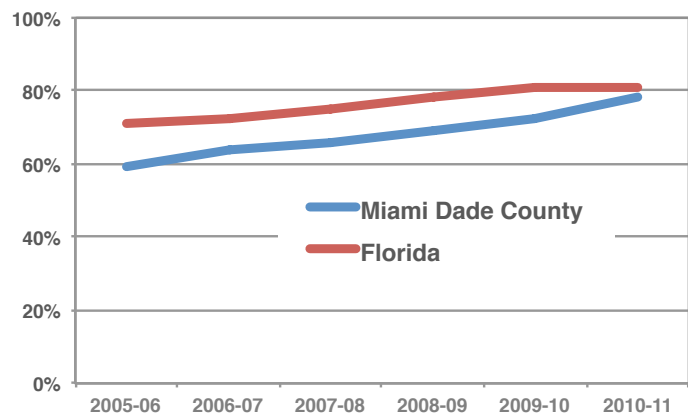
Miami-Dade County also faces dropout rates roughly twice that of the state average. While both state and county dropout rates have significantly improved over the last 13 years (1998-2010), rates in Miami-Dade County were measured at 4% for the 2009-2010 school year, compared to 2% statewide during this period.

Graduation rates, however, have been improving steadily over the course of the last 5 years with Miami-Dade County, graduating an all time high percentage of students – 77.7%. The gap between Miami-Dade County’s graduate rate and that of the state diminished dramatically, from 7.7% in 2008 to only 2.4% in 2011

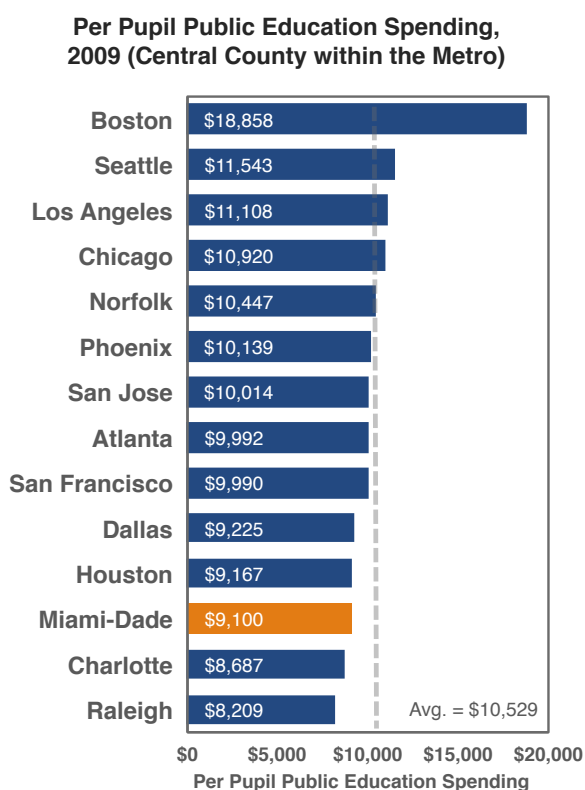
Dropout Rates, 1998-2010



Graduation Rates, 2006-2011



Another major challenge facing the Miami-Dade County education system is a relatively low amount of spending per pupil in the public school system. While Miami-Dade County per-pupil expenditures slightly exceed the State of Florida average in this respect, spending \$9,100 per student compared to the state average of \$8,760, the County still lags well behind the national average of \$10,529 per student. It should also be noted that Florida ranks 38th nationally among states in per-pupil spending, so exceeding this average still places per-pupil investment well below that of competitor regions. It is clear that Miami-Dade County must increase funding per pupil to compete with other large metropolitan counties such as Suffolk County, MA (Boston, \$18,858 per pupil), King County, WA (Seattle, \$11,543 per pupil), and Cook County, IL (Chicago, \$10,920). The high cost of living, high poverty, and other exogenous factors effectively reduce the already low funding levels in Miami-Dade County schools.



While this report has indicated several areas where there is room for improvement, the meaningful improvements at MDCPS are being recognized in the national press. In December 2009, *US News & World Report* recognized nine Miami-Dade schools at the gold, silver, bronze, or honorable mention level. In 2011, three Miami Dade schools were recognized as the Best High Schools for Math and Science. Likewise a 2011 Newsweek ranking of the 500 Best High Schools in America recognized eight Miami-Dade schools on that list. And it is also quite notable that Miami-Dade County Public Schools has been named a finalist for four out of the five years for the Broad Prize for Urban education, an award that honors urban school districts that are making the greatest progress in raising student achievement. These indications of major improvements are encouraging, however the results of system-wide changes will not be seen for several years when the first wave of students with improved skills graduate and enter the workforce or move on to post-secondary institutions. Once this happens, hopefully the current negative perception will be replaced by a new positive reality.

Secondary Education

Employers require an elementary and secondary education system that can prepare its workforce, and support quality of life for its employees and their families. Before sector-specific skills development and post-secondary education can be meaningfully applied, it is necessary for the learner population to gain some basic foundational capabilities. In addition to the traditional Reading, Writing and Arithmetic, meaningful work and learning require communication skills, teamwork, basic computer user abilities, and interpersonal skills. While all of these abilities continue to develop over a lifetime, the learning that takes place during one's teenage years lay

the groundwork for and enable the more advanced and sector-focused learning to take place. Large urban areas have been challenged to meet the varied needs of large and diverse populations, manage large bureaucracies, and contend with social and economic issues well beyond the control or influence of the schools and their staffs. Miami Dade County Public Schools – the fourth largest school district in the nation is no exception, and is further challenged by especially high rates of poverty, large numbers of students – both American-born and foreign-born – with limited English proficiency, high drop-out rates and other barriers to learning and teaching.

One approach that Miami Dade County Public Schools and school districts across the US have applied is the creation of Charter Schools. Charter Schools leverage public funds but operate independently of many rules and regulations that apply to traditional schools. They are managed by independent for-profit or non-profit organizations under a performance contract, or charter. Charter schools are among the “choice” options afforded students and parents who otherwise are eligible to attend traditional schools. There are currently 109 charter schools operating in Miami Dade County, including 27 senior high schools.

Charter Schools have been the subject of significant controversy in Miami Dade County and across the country. On the positive side, Charter Schools enjoy flexibility far beyond that of their traditional school counterparts, as well as attention from prominent media outlets and philanthropic foundations. As with any experimental approach, however, student achievement outcomes are by no means universally positive. Direct comparison between charter and traditional schools can be problematic as there can be stark imbalances in how these schools select, admit and retain students, pay instructors and fund their operations.

Adult Literacy

Those who are no longer school age but do not possess basic academic capabilities generally gained in and before high school – whether due to language and other challenges facing those born outside of the US, and/or previous negative experiences in the educational system – struggle to find meaningful, family-supporting work. They often avoid formal education and training opportunities where they are often frustrated, intimidated, and unsuccessful. The Miami-Dade County Public Schools and Miami-Dade College have both offered Adult Basic Education (ABE) programming for many years, but with high dropout rates and low success rates. One major new initiative which will address the issue is an excellent collaboration project between the two systems focused on developing a new model for ABE which focuses on Career Pathways and aims to take dozens of disparate ABE programs and form a more coherent system. Currently in the strategic planning process, the two systems are offering pilot Career Pathway ABE programs at 21 MDCPS adult centers and six MDC college campuses, 19 night school campuses as well as 200 community-based organizations and off-campus sites.

The Need for Education, The Need for Training

While all relevant learning can add value to one’s experience and employability, it is important to note that there are particular types of value gained from a Training experience versus from an Educational experience. Education and Training are not necessarily or always aligned with providers who refer to themselves as Trainers

or Educators. **Training** can be important for addressing particular technical problems or using particular equipment. Ideally, training takes place in a shorter period of time and can be applied to work situations quickly. As particular equipment or technologies are replaced by newer ones, so too must training be refreshed. While often immediately important, the value of targeted training may rapidly decrease as technologies and workplace realities evolve and change. Often **Educational** experiences take longer to complete and involve theoretical as well as practical learning. Understanding gained from an educational experience may not translate as quickly to practical situations, but ideally can be applied to many and changing situations over a longer period of time.

Both Education and Training have their place within the learning ecosystem and are both essential for addressing short and long-term problems. Skill development practitioners, learners, and community leaders are encouraged to keep in mind the respective limitations and value of both education and training experiences.

Sector Specific Learning

Each education and training provider varies in mission, objectives, mix of offerings, teaching strategies, and its place in Miami-Dade County's learning ecosystem. Education and training providers also vary in how and if they have been evaluated by independent educational authorities. At the secondary level, the Council on Occupational Education (COE) provides accreditation for career programs. At the post-secondary level, the regional accreditation bodies in the US that are recognized by the US Department of Education and the Council for Higher Education Accreditation are generally viewed to have more rigorous accreditation standards than their national counterparts. Colleges and universities in Miami-Dade County which are accredited by the Southern Association of Colleges and Schools (SACS) offer programs that address the OCOG target industries and offer the range of degree and certificate options. The following table shows which institutions have programs that apply to the OCOG Target Industries.

**Regionally Accredited
Colleges & Universities**

Programs Related to the Target Industries

	Degrees Offered	Aviation	Creative Design	International Banking & Finance	Information Technology	Health Care	Life Science	Hospitality & Tourism	Trade & Lc
AI Miami International University of Art and Design	A,B,M		◆						
Barry University	C,B,M,P		◆	◆	◆	◆	◆		
Carlos Albizu University	B,M,P			◆					
Devry University*	A,B,M			◆	◆	◆	◆		
Florida International University+	C,B,M,P	◆	◆	◆	◆	◆	◆	◆	◆
Florida Memorial University	C,B,M	◆		◆	◆	◆	◆	◆	◆
Florida National College+	C,A,B		◆	◆		◆			
Johnson & Wales University-Florida Campus*	A,B			◆				◆	
Kellogg School of Management	C,M, P			◆					
Miami Dade College+	C,A,B	◆	◆	◆	◆	◆	◆	◆	◆
St. Thomas University	C,B,M,P		◆	◆	◆	◆	◆	◆	
University of Miami	C,B,M,P	◆	◆	◆	◆	◆	◆	◆	◆

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

+Providers eligible for reimbursement of Workforce Investment Act Individual Training Account (ITA) vouchers

*DeVry University and Johnson and Wales University are regionally accredited, but not by SACS. With campuses in other accreditation jurisdictions, Kellogg and DeVry are accredited by the North Central Association of Colleges and Schools, while Johnson and Wales is accredited by the New England Association of Schools and Colleges.

Nationally accredited schools are typically those with either multiple locations in more than one of the six regional jurisdictions, and/or which are career, occupation, and technology focused and are evaluated by a variety of national accreditation bodies. Education and Training providers in Miami-Dade County which are nationally accredited offer programs that address the OCOG target industries and offer the range of degree and certificate options as shown below.

**Nationally Accredited
Education & Training Providers**

Programs Related to the Target Industries

	Degrees Offered	Creative Design	International Banking & Finance	Information Technology	Health Care	Life Science	Hospitality & Tourism	Trade & Logistics
Advanced Technical Centers+	C		◆				◆	
ATI Career Training Center+	C		◆	◆	◆			
Brown Mackie College	A,C,B	◆	◆	◆	◆	◆		
Center for Cinematography, Art and Television	C,A	◆						
City College	A,B				◆			
College of Business and Technology +	A		◆	◆				
Compu-Med Vocational Careers Corp+	C			◆				
Dade Medical College+	A,B			◆				
Everest Institute+	C,A		◆	◆				
FastTrain+	C		◆	◆				
Florida Career College	A		◆	◆	◆			
Florida Education Institute+	C		◆	◆				
Florida Medical Training Institute	C			◆				
Future Tech Institute	C		◆	◆				
International Training Careers	C	◆	◆	◆				
ITT Technical Institute-Miami	C,A,B	◆		◆				
Jones College	A,B			◆	◆			
Keiser Career College+	C,A			◆	◆			
Management Resources Institute +	C			◆	◆			
MDCPS Technical Institutions +	C	◆		◆	◆			
Millenia Atlantic Unveristy	A		◆	◆	◆			
New Professions Technical Institute	C		◆	◆	◆			◆
Professional Training Centers	C,A			◆				
South Florida Institute of Technology	C			◆				
Sullivan & Cogliano Training Centers	C			◆	◆			
Technical Career Institute / Fortis College	A			◆	◆			
Total International Career Center	C			◆				

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

+Providers eligible for reimbursement of Workforce Investment Act Individual Training Account (ITA) vouchers

In addition to these providers, there are many who offer instruction solely in the area of aviation. Those providers are listed in the Aviation section (page 61).

Many providers have not been accredited by regional or national accrediting bodies but still address skills needs within the OCOG target industries, as follows.

Miami-Dade County Public School

Career Academies and Training Programs

Programs Related to the Target Industries

	Aviation	Creative Design	International Banking & Finance	Information Technology	Health Care	Life Science	Hospitality & Tourism	Trade & Logistics
Miami-Dade County Public Schools Career Academies	◆	◆	◆	◆	◆	◆	◆	◆
Hialeah Technology Center		◆		◆				
Lindsey Hopkins Technical Education Center		◆		◆			◆	
Miami Lakes Educational Center		◆		◆	◆		◆	◆
The English Center (MDCPS)		◆		◆	◆		◆	
Robert Morgan Education Center		◆		◆	◆		◆	◆
George T. Baker Aviation	◆							
DA Dorsey Education Center		◆			◆			
South Dade Adult Center					◆			

Postsecondary programs within the Miami-Dade County Public School system meet the standards of the Council on Occupational Education (COE) Accrediting Agency of the Southern Association of Colleges and Schools. Career Academies and training programs addressing OCOG target industries include the following.

Miami-Dade Non-Accredited Institutions

Programs Related to the Target Industries

Degrees Offered	Aviation	Creative Design	International Banking & Finance	Information Tech	Health	Life Science	Hospitality/Leisure	Trade/Logistics
C				◆				
C,A,B,M			◆	◆				
C,A				◆	◆			
C								◆
Center for Financial Training			◆					
Logistics Training Systems								◆
Metropolitan Technical Institute+								◆
C				◆				
C				◆				
A					◆			
C				◆				

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

+Providers eligible for reimbursement of Workforce Investment Act Individual Training Account (ITA) vouchers

The market for learning in the areas of **health care delivery** and **information technology** is robust, with all institution types – public, private, for-profit, and non-profit institutions – offering instruction across the range of occupations, skill areas, levels and credential types. While information technology training is common among the private for-profit providers, those offerings concentrate on many entry-level certifications that are often specific to particular hardware and software products (Microsoft certifications, for example). Programs that develop competencies in hardware, software, project management, and application development that cut across vendors and products are available largely (though not exclusively) at the public and non-profit colleges and universities.

Learning opportunities to support the **life sciences (apart from patient care), hospitality, and trade/logistics** programs are predominant among the public and non-profit providers.

While many of the private and for-profit providers offer programs related to business, most of these learning opportunities focus on accounting, finance, lower-level office technology and similar operational activities within financial institutions. With few exceptions, these providers offer little specialization in **international business**.

Career Guidance and Placement Assistance

In addition to programming and course instruction, a high-functioning educational ecosystem also provides information that helps guide education and career decisions as well as opportunities for non-traditional learners to pursue education and training. Individuals need to know what opportunities exist, how to become qualified for them, and how to access hiring and advancement decision-makers (employers).

Learners' understanding of these critical elements will evolve over the course of the educational process. High school students are offered substantial support and guidance in exploring careers, determining interests, setting goals, and creating career and learning plans. Adults and potential learners not engaged in **a training or degree program generally lack comprehensive information about what careers are available, which ones will result in the highest probability of employment, and how to pursue opportunities in those fields.**

Today, individuals in Miami-Dade County have access to the following career resources:

- In the Secondary System Career Academies. The Miami-Dade County Public School system offers interest and aptitude inventories, career fairs, and planning assistance from faculty, staff and computer-based systems. Miami-Dade County Public Schools developed the Secondary School Reform program which included the creation of career academies to provide college preparatory curricula based on career themes. Career Academies provide focused instruction, information, guidance, internships and career awareness. Nearly all of the industry-themed career academies support skills development and career awareness related to one or more of the *One Community One Goal* target industries, and some focus on sub-sector niche areas. The depth of the Career Academy program supports broad student awareness of career-focused secondary and post-secondary education. While these academies provide necessary career development opportunities, their impact may be limited by communications and marketing that makes it difficult to find particular academies and identify which disciplines are

addressed at which school. Public information about where one can pursue particular industry-focused education and which schools host which academies is inconsistent, and in some cases information at the district level conflicts with information at the school level. A list of Career Academies can be found in Appendix 2.

- **Career Centers.** The One-Stop Career Centers supported through the Workforce Investment Act (WIA) and administered by South Florida Workforce serve as the community's most important source of career information for those unattached (recently or historically) to current employers in those industries. Programming supported by the Career Centers aligns with the State of Florida's target occupations list and includes *One Community One Goal* targets. Emphasis on compliance with WIA regulations, performance measures, and increasing caseloads can inhibit Career Center staff from providing guidance that is highly detailed. More consultant observations on career planning resources will be provided in the *Strategic Recommendations* report.

In other communities, career awareness efforts are often led by industries themselves and their representative associations and allied sectoral workforce initiatives. **Limited industry-led career awareness efforts have been revealed during the *One Community One Goal* discovery process.** General internet searches for industry-specific career information result in information that is either not specific to Miami-Dade County, links to information sponsored by particular (often for-profit with a local presence but not locally based) training providers, or includes results of "job board spidering" – information that is an accurate indicator of current demand but that does not account for economic development goals, growth projections or the peculiarities of the current economic climate.

Many of the colleges, career academies, and training providers offer information on their websites and brochures about job and career opportunities related to the particular programs. However, for the most part this information is brief and general in nature, consisting mainly of job titles for which the associated education and training is ostensibly appropriate, though limited. Additional information on industry career paths, types of hiring firms, wage ranges, employment outlook, and transferable skills from other industries could serve as a more thorough and more encouraging resource for those contemplating making education and career decisions.

Once enrolled, schools offer career services and academic advising that incorporates industry information and industry contacts, but necessarily focuses on the academic experience within the institution and within the particular program. All of the providers interviewed emphasized the importance of students participating in career exploration, internship, and cooperative education programs. Several providers also reported that alumni are frequently tapped to deliver adjunct instruction, to provide guidance, mentoring, as well as sponsoring student workplace visits.

As students near completion of their programs, most providers offer placement assistance. Placement assistance is largely delivered through a centralized office at the school with staff that is charged with serving a large number of students, and seeks to engage the breadth of employers and industries in Miami-Dade. Schools that focus on fewer disciplines specialize more than those who offer a more comprehensive set of programs within a wider array of disciplines. Notable examples of this model include the addition of dedicated career services and placement offices in the business schools at the University of Miami and Florida International University, and in other disciplines not among the *One Community One Goal* target industries such as teaching

and social work. **Similar resources dedicated to students preparing for careers in other target industries would focus more attention on those industries and enable individuals to receive more information and intensive career services** resulting in a better, more focused talent pipeline for those industries.

Experiential Learning

Individuals learn in a variety of settings. College, university, and training center classrooms represent just one venue for skill development. Corporate and military training, work experience, and community engagement also provide learning opportunities that contribute to individuals' skills, yet often go undocumented and unrecognized when pursuing further education and work. The large number of individuals coming to Miami-Dade County from outside of the US brings experiential and academic learning that may not be readily recognized or valued among business and educational organizations.

The large number of providers offering curricula in lower-level health care, business, and information technology areas indicates a strong demand for those training programs and a large number of graduates who have indicated some interest in and desire for careers in those industries. That population represents a large pool with some experiential learning and formal training that is not connected to college credit and as such is more likely to remain at the lower levels of the industries' career ladders. Efforts to validate and build upon their foundational skills in a way that is specific to the niche sectors can further enhance the talent pool for these industries.

All schools represented on the Steering Committee (Barry University, Florida International University, Florida Memorial University, Miami Dade College, St. Thomas University, University of Miami) allow college credit to be awarded for learning that has taken place at other schools or through prior experiences, such as work or military service. The most important strength is the common course numbering system among Florida colleges (required for public colleges and universities, and available to private colleges and universities) and universities that facilitates easy transfer of credit between institutions. All of the major schools accept credit for college level examination program (CLEP) and military (DSST) examinations. These policies allow students' prior learning to apply towards their degrees. Those students can complete their degrees in a shorter period of time and avoid the frustration that goes along with taking classes on subjects they already know. Use of Prior Learning Portfolios – where learners gather evidence of their college level learning to be assessed for credit – is somewhat less common. While nearly all schools represented on the Steering Committee have policies for assessing prior experiential learning through Portfolios, information about these policies can be more difficult to find. Promotion is limited and at the discretion of faculty.

Employers who participated in the Greater Miami Chamber of Commerce Town Hall meetings expressed an interest in partnering with educators and may be amenable to linking the workplace learning within their operations to experiential learning credit options at local colleges and Universities.

Entrepreneurship

Not specific to an industry, a key part of growing jobs and opportunities in the community pertains to entrepreneurship skills. Regardless of the business industry, there is a growing need for individuals to gain the knowledge and the ability to start, market, manage, and grow new companies. Miami-Dade County residents

have a history of starting small businesses, and that drive can be leveraged into new fields that create the next generation of companies in Miami-Dade, building from self-employment to truly entrepreneurial work that creates wealth and strong job growth. Expanding an entrepreneurial climate also increases the opportunity to retain recent college graduates.

Miami institutions offer a number of programs and support for building entrepreneurship skills:

St. Thomas University

- Institute for Global Entrepreneurship(MBA in Global Entrepreneurship)

Miami Dade College

- The Carrie P. Meek Entrepreneurial Education Center (EEC)-North Campus
 - FastTrac New Venture Program
 - FastTrac Planning Program
- Certificate in Entrepreneurship
- Concentration in Entrepreneurship, with A.S. in Marketing Management

University of Miami

- Undergraduate Major in Entrepreneurship, Department of Management
 - Includes Student Entrepreneurship Consulting Program
- MBA in Entrepreneurship
- Entrepreneurship Lecture Series
- Entrepreneurship Practicum
- The Launch Pad

Florida International University

- Eugenio Pino and Family Global Entrepreneurship Center
 - Undergraduate Business, Entrepreneurship Track
 - Undergraduate Business, Entrepreneurship Certificate
 - Non Business Undergraduate, Minor in Entrepreneurship
 - Entrepreneurship Forum
- College of Engineering and Computing
 - MS in Engineering Management with a track in Entrepreneurship

Barry University

- Institute for Community and Economic Development
 - Center for Social Entrepreneurship
 - Entrepreneurial Institute

Additional teaching and learning opportunities can focus on how to integrate entrepreneurship education in K-12 education along with specialization within higher education in industry-specific instruction. Differentiating between how new businesses succeed in health care versus international business versus hospitality can help

emerging entrepreneurs to both network with a community and apply the broad entrepreneurship principles in context.

WORKFORCE DEVELOPMENT FUNDING

External support for skills training programs can supplement longer-term investments in education and degree programs. These funds frequently address more immediate skills needs that are often specific to particular industries and even particular employers.

Federal Workforce Investment

The Workforce Investment Act is the primary source of funding for job training and labor exchange services nationwide. All areas in the US receive federal job training funds based on formulae including population, unemployment rates, and poverty rates. The local Workforce Investment System which is administered by South Florida Workforce (which includes Miami-Dade County and Monroe County) includes seven public education institutions and 28 private providers. Total funding for workforce investment is \$307.7 million statewide. In the Workforce Investment Area that covers Miami-Dade County (and also includes Monroe County) funding for workforce investment currently includes:

- \$15.3 million for adult services
- \$19.8 million for dislocated worker services
- \$18.2 million for youth services

South Florida Workforce has recently been commended by Workforce Florida for ranking first among the 24 local workforce boards for the number of participants placed into jobs during the month of January, 2012 having placed 9,500 individuals into jobs which accounted for 30% of the job placement statewide.

The system administered by South Florida Workforce includes ten one-stop career centers in Miami-Dade County operated by five different organizations including one national for-profit vendor, three non-profit providers, and one municipality (Hialeah). There are 45 education and training providers approved to receive WIA funds to support training.

Training vouchers are issued in order to address skills needs associated with occupations on the state's target occupation list. For Miami-Dade County's high population of low-income individuals who have multiple barriers to employment (such as literacy deficiencies, criminal background issues, and limited English proficiency), there are provisions that allow for WIA funds to support training for lower-level positions. The value of the training vouchers issued depends on whether the target position is low or high growth, and whether the target position is low or high wage. Funding amounts are:

- High growth, High wage positions can leverage up to \$10,000 in training funds
- High growth, Low wage positions can leverage up to \$5,000 in training funds
- Low growth, High wage positions can leverage up to \$5,000 in training funds
- Low growth, low wage positions can leverage up to \$2,500 in training funds

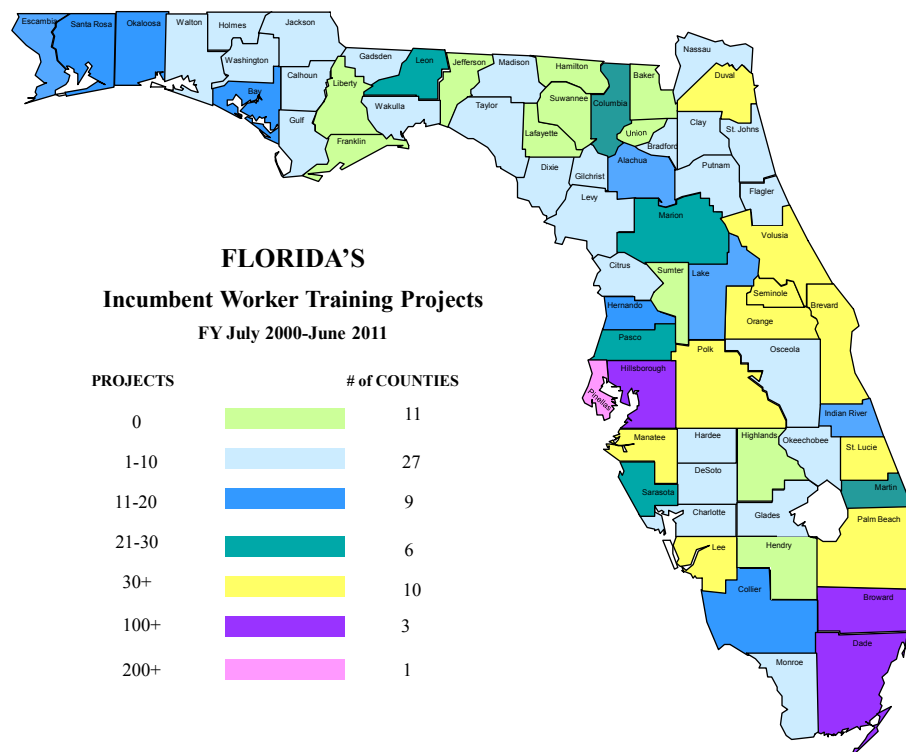
The majority of ITA users (Individual Training Accounts) utilize training funds for positions in the low wage/high growth category.

Under special circumstances, additional training funds can be approved if the anticipated wage levels are far beyond the training expenditures. In the last several years, most funds have been used to prepare workers for positions in nursing, life sciences, and truck driving. The Workforce Investment Board policy limits training duration to one-year, making it difficult to use funds for degree programs which typically last for two or more years.

Miami-Dade County leverages substantial discretionary funds (as opposed to the WIA funds allocated through formulae) through both federal and state sources. The County has been more successful at leveraging the smaller pool of state funds while accessing fewer workforce development grants at the federal level.

State Incumbent Worker Training

The State of Florida supports employer skills development through its Incumbent Worker Training (IWT) program. Allocated competitively across the state, employers in Miami-Dade County are among the top recipients in terms of number of awards and total dollars since the program's inception in 2000. The number of grants awarded in Miami-Dade County is on par with Broward and Hillsboro Counties and is exceeded only by Pinellas County.



The State of Florida's **Quick Response Training (QRT)** Grants also provide support for workforce training. QRT funds are administered by the State of Florida/Workforce Florida and reimburse expenses related to new employee training. Funds are available to companies producing exportable goods and hiring permanent, full-time employees. Once awarded, funds are administered by public education institutions, and training can be delivered by public or private training organizations and consultants. Of the 75 currently active QRT grants statewide, only one is in Miami-Dade County.

Discretionary Workforce Funding

The US Department of Labor supports special workforce development initiatives through a series of discretionary grant programs. These programs address a variety of priorities including priority industries, priority learner populations, and institutional and system capacity building. Miami-Dade County has received only four such grants, three of which have been shared with other regions. Of those awarded, only one addresses a target industry – health care, an industry which already enjoys substantial attention from education and training institutions across the County.

US Department of Labor Discretionary Grants awarded since 2006 include the following:

Grant Name	Grantee Organization	Amount Awarded	Notes
Green Jobs Innovation Fund	Laborers International Union of North America Training & Education Fund	\$5,507,602	Funds split among 5 locations (Total of 6 grants awarded)
Workforce Data Quality Initiative	Florida Agency for Workforce Innovation	\$1,000,000	Statewide grant (Total of 13 grants awarded)
Health Care Capacity Building Grants	SER-Jobs for Progress National, Inc.	\$2,223,649	Consortium grant, Miami along with 12 other cities (Total of 4 grants awarded)
Young Parents Demonstration Grants	Youth Co-Op Inc.	\$999,500	Total of 13 grants awarded

The US Department of Labor has also awarded funds through the following grant programs, none of which have been awarded in Miami-Dade County in the past three years:

- ARRA Health care and High Growth Industries Grant
- Community Based Job Training Grants
- Energy Training Partnership Grants
- Pathways Out of Poverty Grants
- Serving Juvenile Offenders in High-Poverty, High-Crime Communities
- Enhanced Transitional Jobs Demonstration (ETJD) Grants

- Older Worker Demonstration Grants
- Trade Adjustment Act and Community College Career Training Grants
- (Upcoming) Workforce Innovation Fund Grants

SECTION 2: THE FUTURE OF MIAMI-DADE COUNTY WORKFORCE

RECOMMENDED TARGET INDUSTRIES

In the *Target Industries* report for Miami-Dade County, the consulting team made its recommendations for target industries and niche sectors that should be the focus of the County's future economic growth efforts. These targets were determined based on significant public input, an objective evaluation of the County's assets, and a forward-looking view of the US economy.

The following industries and niche sectors were recommended as economic development and workforce development / education targets. Industries and niche sectors are listed in alphabetical order.

Aviation	Creative Design	Hospitality & Tourism	Information Technology
<ul style="list-style-type: none"> Aircraft Parts & MRO Assembly & Manufacturing Composite Shops Flight Simulation & Training 	<ul style="list-style-type: none"> Advertising & Marketing Architecture & Engineering Fashion / Lifestyle Film, TV Production, & Digital Media Industrial Design 	<ul style="list-style-type: none"> Conventions, Conferences & Trade Fairs Cruise Tourism Cultural Arts High Income International Tourists Medical Tourism Tourism IT 	<ul style="list-style-type: none"> Back Office Support & IT Computational Science & Health IT Data Centers Digital Media Logistics IT Mobile Applications Simulation Technology Tourism IT
International Banking & Finance	Life Sciences & Health Care	Trade & Logistics	
<ul style="list-style-type: none"> International Banks International Insurance & Wealth Management Maritime Services & Trade Finance Mobile Applications Technical Customer Support & Back Office Venture Capital & Private Equity 	<ul style="list-style-type: none"> Agricultural Sciences Back Office Operations Biologics Computational Science & Health IT Medical Devices Medical Tourism Pharmaceuticals 	<ul style="list-style-type: none"> Distribution Centers Logistics IT Maritime Services & Trade Finance Perishables Value-Added Services – Assembly & Kitting 	

The *Target Industries* report discussed what it means to “target” an industry and how it should influence the economic, workforce, and education programs in the region. Simply put, targeting involves the proactive pursuit of activities that support the growth of those industries. This could include adapting marketing campaigns to the targets, investing in infrastructure and business policies that support the industry, funding new training programs in occupations required by those targets, and boosting the output and skills of college graduates in areas that support the targets.

In this section of the *Education Assets Inventory* report, we examine the existing and future demand for specific occupations and how the output of college students aligns with demand.

- What occupations are most critical to the target industries and therefore should become “target occupations”?
- What is the current occupational profile of Miami-Dade County’s workforce and which strengths could further support the growth of target industries?
- What is the output of graduates with degrees that support these target occupations?
- Are there gaps in program availability or output that should be addressed?

By connecting the educational institutions – from K-12 to universities – to the future workforce requirements of the County’s target industries, we arrive at a very clear “call to action” for new programs and priorities.

TARGET OCCUPATIONS

Identifying “target occupations” for a region is a natural extension of the targeting process for industries. As with industries, occupations should be targeted based on a set of criteria which in our view includes the following.

- **Concentrated: Is the occupation uniquely concentrated in the industry?** Typically, critical occupations are highly concentrated in an industry. An obvious example is when an industry has a strong need for technical skills, such as scientists in the biomedical research industry. We can also see when non-technical occupations such as Purchasing or Sales are more concentrated in some industries. To determine how concentrated an occupation is in a specific industry, we calculate a “concentration quotient” (which is similar to an industry’s “location quotient”). Highly concentrated occupations typically require specialized education or advanced degrees and enjoy high or above-average wages.
- **Growing: Is the demand for that occupation growing in the industry?** Growth is usually a reflection of an occupation’s growing importance to an industry. Often, we see that Information Technology workers are increasingly important to a range of industries both high-tech and non-tech. Sometimes, an industry’s business model will cause a shift in its occupational mix. For example, offshoring manufacturing may reduce the demand for production workers but increase demand for logistics workers. Occupations that are of increasing demand typically enjoy wages that are growing as the supply of new workers trails demand.
- **Large Share: Does the industry require a large share of workers in an occupation?** We know that hospitals require a lot of nurses, warehouses require a lot of handlers, and restaurants require cooks and waitstaff. Whether or not these occupations are growing above-average in their industry, the gross demand requires that a steady stream of workers be trained to fill these positions. Sometimes, high turnover rates can be found in “large share” occupations, which further elevates the need for workers in these fields. Wage levels for these occupations are usually below-average, but the occupations play an important role in employing the full range of workers across all skill levels.

Target occupations are not a one-size-fits-all proposition. In fact, targeting is applied differently depending on where you are in the workforce pipeline. Workforce agencies prefer to fund training of young workers and retraining adults in target occupations that have a high likelihood of employment at the end of a worker’s training. Their performance metrics require high rates of job placement. These occupations typically fall in the “large share” category. Universities tend to graduate students with more specialized and advanced educations, which typically fall under the “concentrated” category. Or, some students prefer a more liberal arts education that prepares them to move deftly between occupations that are growing or are specialized. Community colleges fund a wide range of education and training that delivers workers across all three categories.

Given these variations in needs and priorities, we know that target occupations should satisfy one or more of the requirements above. To arrive at a target list for the *One Community One Goal* project, the consulting team examined the demand for all 600+ occupations that exist in the database managed by the US Bureau of Labor Statistics across 22 industries that best comprise the definitions for the seven target industries previously shown. Occupations that ranked highly within the list were flagged as being Concentrated, Growing, or Large

Share. From the resulting list of dozens of potential target occupations for each industry, we combined occupations that naturally fit together to arrive at a list that could be more easily understood and are aligned with programs found at workforce agencies and colleges. For example, we combined two Information Technology occupations that have little useful distinction for the education world: 15-1031: Computer software engineers, applications and 15-1032: Computer software engineers, systems software.

Our process was all-inclusive and therefore includes occupations which are typically not included in target occupations lists because they are so common or do not match with specific education or training programs (for example, sales, customer service representatives, purchasing, and others). However, most of the occupations in our list are education-specific.

Based on our analysis of occupational demand for Miami-Dade County's target industries, we recommend the following general target occupation groups.

Management & Operations

- Operations Managers
- Sales & Marketing
- Public Relations
- Purchasing, Billing, & Accounting
- Entrepreneurship
- Compliance
- Human Resources
- Customer Service & Sales Agents

Technical & Professional

- Management, Operations, & Research Analysts
- Financial Analysts & Examiners
- Legal Assistants
- Logisticians
- Software Managers, Engineers & Programmers
- Database Administrators
- Network Analysts (incl. Security)
- Multimedia, Fashion, Art & Industrial Designers
- Multimedia Equipment Technicians
- Aerospace Engineers & Technicians
- Agriculture/Food Engineers & Technicians
- Biomedical Engineers & Technicians
- Industrial Engineers & Technicians
- Medical Scientists
- Nurses, Aides & Therapists
- Physician Assistants & Pharmacists

- Medical Laboratory Technicians
- Medical Equipment Technologists & Assistants

Certified Training

- Culinary
- Surveillance & Security Officers
- Inspectors
- Truck & Transport Drivers
- Assemblers/Welders
- Industrial Cargo Equipment Operators & Handlers
- Machinery & Equipment Maintenance/Repair

We recognize that some occupations are more specific than others. Our definitions are designed to provide the detail that is required for educators to act upon. Furthermore, each of these target occupations is demanded by industry in different ways. Some are foundational across all industries (such as Sales or some Information Technology occupations). Others are exclusive to one industry.

The table on the following page indicates where a specific target occupation group is demanded by one of the recommended industry targets for Miami-Dade County.

As mentioned before, this list of target occupations is not meant to be the “final say” for educators and workforce developers. Following the completion of One Community One Goal, education leaders may wish to convene industry working groups and choose to add additional detail to the list, or provide specific job titles that are highly demanded in their fields. In addition, education leaders may want to plot career pathway maps for occupation, illustrating the education and training needed at each step of the career ladder and what institutions offer those programs.

Our recommendations to the education and workforce community will be included in the final report, *Target Industry Strategies*. For the purposes of this *Education Assets Inventory*, we provide supporting data in the following pages about the output of college students by degree, the mix of occupations in the existing workforce, and forecasted changes in occupational demand over the next 10 years.

Each of the target occupations in the table below represents small groups of detailed occupations (which have their own SOC Code, or Standardized Occupation Classification code). Each of these groups is flagged as being primary to a single target industry and which industries are supported by it. The Management & Operations occupations are important to a majority of the target industries, so they do not have a primary target industry. It is also understood that as an increasingly global community, all programs in Miami-Dade County should include an international perspective. In addition, programs should include an increased emphasis on language and communication skills.

RECOMMENDED TARGET OCCUPATIONS

Target Occupations	Target Industries						
	Aviation	Creative Design	Hospitality & Tourism	Information Technology	Int'l Banking & Finance	Life Sciences & Health Care	Trade & Logistics
Management & Operations							
Operations Managers	•		•		•	•	•
Sales & Marketing		•	•	•			
Public Relations		•	•			•	
Purchasing, Billing & Accounting	•	•	•			•	•
Entrepreneurship	•	•	•	•	•	•	•
Compliance	•			•	•	•	•
Human Resources	•	•	•	•	•	•	•
Customer Service & Sales Agents		•	•	•	•	•	•
Technical & Professional							
Mgmt, Ops, & Research Analysts		•	•	•	⊙	•	•
Financial Analysts & Examiners	•				⊙	•	•
Legal Assistants					⊙	•	
Logisticians							⊙
Software Managers, Engineers & Programmers	•	•		⊙	•	•	•
Database Administrators				⊙	•	•	
Network Analysts (incl. Security)	•	•	•	⊙	•	•	•
Multimedia, Fashion, Art & Industrial Designers		⊙					
Multimedia Equipment Technicians		⊙					
Aerospace Engineers & Technicians	⊙						
Agriculture/Food Engineers & Technicians						⊙	•
Biomedical Engineers & Technicians						⊙	
Industrial Engineers & Technicians	•	•				⊙	•
Medical Scientists						⊙	
Nurses, Aides & Therapists						⊙	
Physician Assistants & Pharmacists						⊙	
Medical Laboratory Technicians						⊙	
Medical Equipment Technologists & Assistants						⊙	
Certified Training							
Culinary			⊙				
Surveillance & Security Officers			⊙				
Inspectors							⊙
Truck & Transport Drivers							⊙
Assemblers/Welders	⊙						
Industrial Cargo Equip. Operators & Handlers							⊙
Machinery & Equipment Maintenance/Repair	⊙		•			•	•

For Non-Management & Operations occupations:

- ⊙ = Primary industry for the target occupation
- = Target occupation for the industry

COLLEGE GRADUATE OUTPUT

Companies and site selectors describe a “war for talent” when talking about the importance of workers to business success, and college graduates are at the front-line of this battle. Prominent forces that are sweeping through the economy today (such as globalization, offshoring, automation, and mobile technology) are creating new demands on workers. Skills must be upgraded and some skills are invented anew. Fast growing companies seek a reliable stream of college graduates. Communities that have a lot of college graduates in high-demand fields enjoy stronger growth as the economy recovers from the recession.

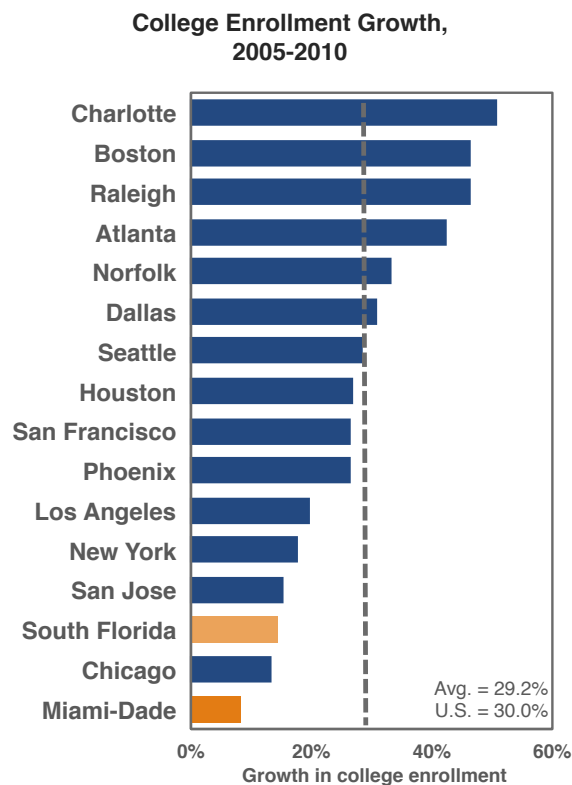
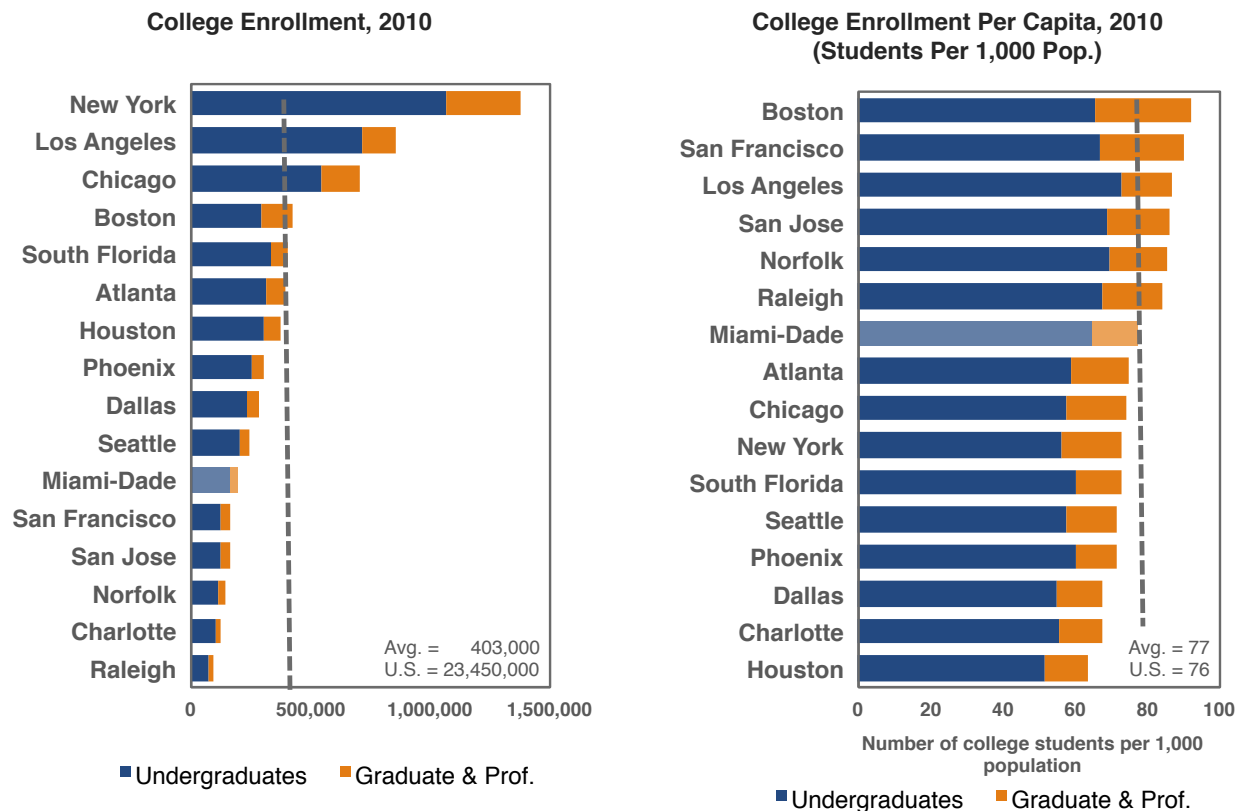
College graduates are also highly mobile and tend to prefer more cosmopolitan cities that provide a high quality of life for young professionals. As the economy recovers, demand for educated workers is increasing. Because many experienced workers who own homes cannot move because their housing values are under water, companies are intensifying their recruitment of recent graduates. Under these conditions, the need to take action to retain young professionals is more important than ever.

Miami-Dade County enjoys a very large number of college students and college graduates. Miami Dade College has the largest student body of any community college system in the country. Furthermore, the region’s culture and entertainment are a natural draw for young workers, as shown by recent data from the Miami Downtown Development Authority that 57% of downtown Miami residents are between the age of 20 and 44.

Today, nearly 200,000 students are enrolled in college in Miami-Dade County. This is an 8% increase in just five years. Graduate output is also impressive: the University of Miami, Barry University, Miami Dade College, and Florida International University alone graduated 28,000 students in 2010 and that number is expected to continue to rise.

Miami-Dade County has a large population and should be expected to have a high number of students. However, the County performs even better when viewed on a per capita basis. The *Competitive Assessment* report examines 15 benchmark regions to provide a baseline understanding of Miami-Dade County’s performance relative to other major metros. In the following charts, we see that while the County’s total college enrollment is 11th among the benchmarks, the County’s per capita enrollment is 7th. College enrollment has seen modest growth in Miami-Dade County – 8% in the five years between 2005 and 2010 – but this growth trails the national average of 30%.

Slower growth in the college student population in Miami-Dade County was largely driven by slow growth in undergraduate students. Students earning graduate and professional degrees in the County grew 25% during this period, faster than the benchmark average of 24% and national 19%. The undergraduate population in Miami-Dade County only grew 6%.



Source: U.S. Census Bureau, American Community Survey

The large number of college students in Miami-Dade County is certainly a strength for the region, but are college students graduating with the right degrees and do they align with Miami-Dade's target industries? Which technical degrees are the fastest-growing and which ones might be under-represented given the target industry priorities? To assess these questions, the project team pulled data from the National Center for Education Statistics (US Dept of Education) that inventories data from colleges and universities across the nation. College graduates by degree is available from their "IPEDS" database (The Integrated Postsecondary Education Data System). IPEDS includes all levels of degrees and some certificates in their numbers.

In the following sections, we examine output trends for Associate's, Bachelor's, and Master's/Ph.D./Professional degrees individually.

We show the data using "bubble charts", which provide an interesting perspective of both local and national dynamics. As with industry employment in the previous *Competitive Assessment* report, the bubble chart in the following section provides three metrics per degree group: **growth rate** (annualized, 2005-2010), "**concentration quotient**" (which is the per capita concentration in the County relative to the US), and **number of degrees** (the relative size of the bubble. (See below for more explanation of how to interpret a bubble chart, "Methodology of a Bubble Chart.")

By showing the data by degree level in three similar charts, we can see where Miami-Dade County's strengths are and which programs are growing the fastest. The charts were designed to be as comparable as possible (the sizing of the bubbles uses the same scale).

Hundreds of degree codes are available in the IPEDS database. To make the data easier to interpret, we aggregate degree codes into 15-20 groups (some groups such as Mechanics and Machine Repair only appear in the Associate's chart). More detail about specific degrees can be found in the Appendix, and all data has been provided in an accompanying spreadsheet.

Methodology of a Bubble Chart

Concentration Quotients (CQs) compare the relative concentration of a degree type (or occupation) in a local economy with the average concentration at the national level. A CQ of 1.5 indicates that the local economy has 50% more degrees per capita in that sector than the national average. A CQ of 1.0 indicates parity, and a CQ below 1 reveals below-average concentrations. The “bubble charts” on the following pages show concentration (CQ) by degree type in Miami-Dade County on the vertical axis. The horizontal axis shows 5-year growth rates for the degree type, and the size of each bubble indicates the actual number of degrees awarded in each sector.

The chart’s four quadrants each tell a different story for the degree type. Sectors in the top-right quadrant are viewed as highly competitive, with significant concentrations in Miami-Dade County and high growth. Sectors in the bottom-right, which are growing but have below-average concentrations, are emerging sectors for the region. We characterize each quadrant as follows:

- **Top-Right (Strong, Advancing)**: A sector in the upper right quadrant is more concentrated in the region than average and also is becoming more concentrated over time due to above-average growth rates. These degree types are standouts that distinguish the regional economy and are typically doing better every year. They represent immediate opportunities for employers in related fields (a “build on your strengths” strategy), with many college graduates available.
- **Bottom-Right (Weak, Emerging)**: The lower right quadrant contains degree types that are not yet as concentrated in the region as they are at the national level, but they are becoming more concentrated over time. If they continue this trend, they will eventually move across the horizontal axis into the upper right-hand quadrant (You can imagine a counter-clockwise swirl as emerging sectors become strong and then lose their strength as the economy shifts into another stage of the business cycle for the industry). Degree types in the lower-right quadrant can also be called “emerging” sectors, having the potential to contribute more to the region’s economic base in the mid-term and long-term.
- **Top-Left (Strong, Declining)**: The upper left quadrant contains degree types that are more concentrated in the region than average, but whose concentration is declining due to below average or negative growth rates. If a mid-size or large sector is in this quadrant, this is an important warning that the region is losing a major part of its traditional educational output.
- **Bottom-Left (Weak, Declining)**: Finally, the lower left quadrant contains degree types that are less concentrated regionally than nationally and are also declining in employment. Degree types here may represent warning signs that a region needs to build stronger education programs in these sectors in order to support and attract related businesses.

Associate's Degree Trends

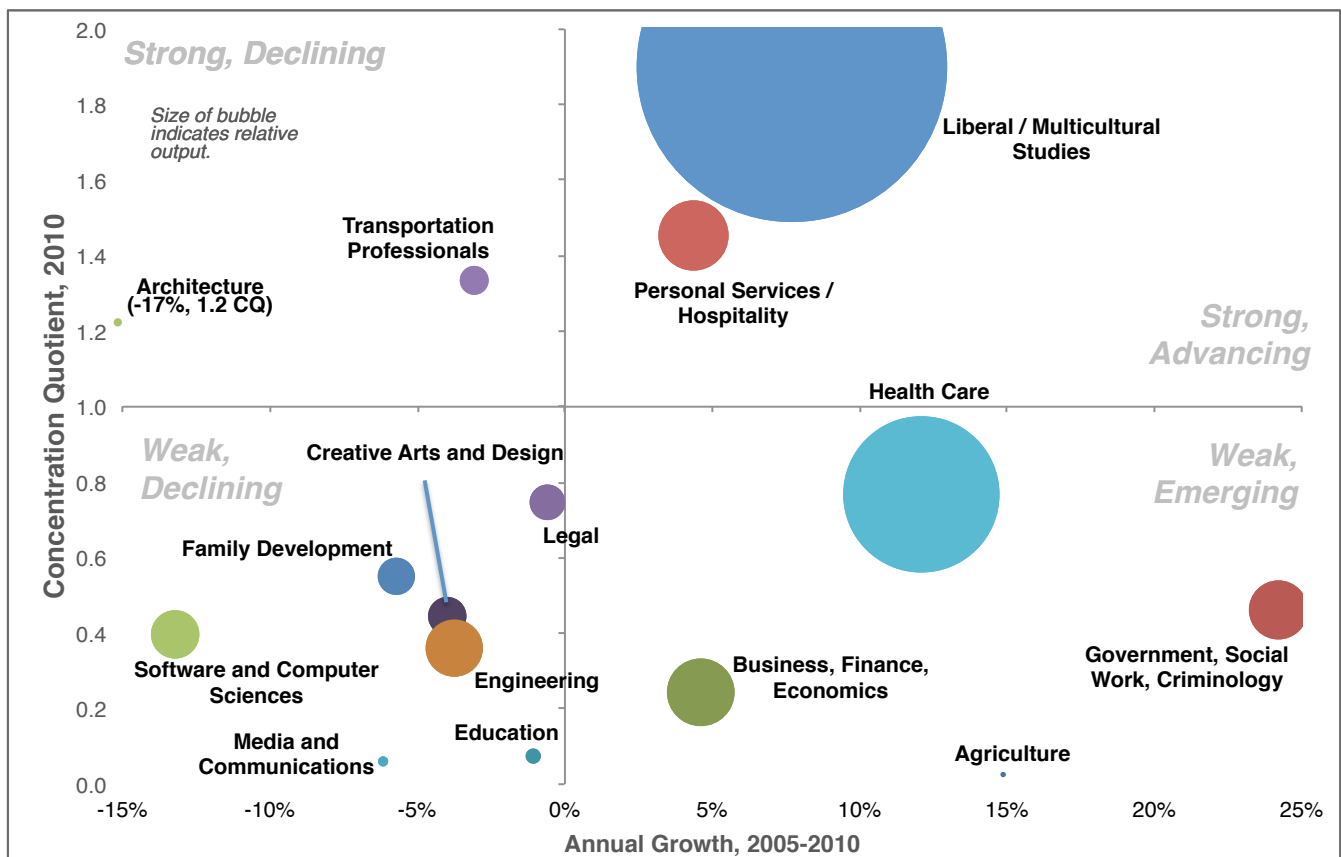
The chart below shows trends in Associate's degrees conferred in Miami-Dade County. We immediately see that Liberal/Multicultural Studies programs produced the most Associate's degrees, 7,500 in 2010. Health Care produced 1,900 degrees. Personal Services / Hospitality (which includes Culinary) programs are a distant third, with 385 degrees in 2010, and Business, Finance, & Economics produced 357 degrees.

Government, Social Work, & Criminology is the fastest growing degree group on a percentage basis (24% growth per year on average between 2005 and 2010), but Liberal/Multicultural Studies showed the largest net increase, where 900 more students received degrees in 2010 than in 2005. Health Care increased degree output by 750 students, for an annual growth rate of 12% since 2005.

The Concentration Quotient (CQ) for each degree group is shown on the vertical axis, which shows the relative concentration versus the US (the per capita concentration of graduates in Miami-Dade County versus the per capita value for the US). A CQ of 1.9 for Liberal/Multicultural Studies degrees indicates that there are 90% more graduates in this degree area per capita (of all graduates) in the County than the US average. Personal Services / Hospitality and Transportation Professionals both exhibit above-average concentration quotients.

It is important to note that CQ is a relative measure, and a high CQ in one group will force other groups to have

Associate's Degree Clusters: Miami-Dade County



Source: Avalanche Consulting using data from US Dept. of Education.

lower CQs. Having a CQ below 1 simply indicates a weaker/lower concentration relative to the stronger/denser clusters. This is case for Health Care Associate's degrees: Despite producing 1,900 Associate's degrees, Health Care has a below-average 0.8 CQ in part due to the large output of Liberal/Multicultural degrees. Some of the students who finish Liberal/Multicultural programs plan to continue their education and get Bachelor's degrees.

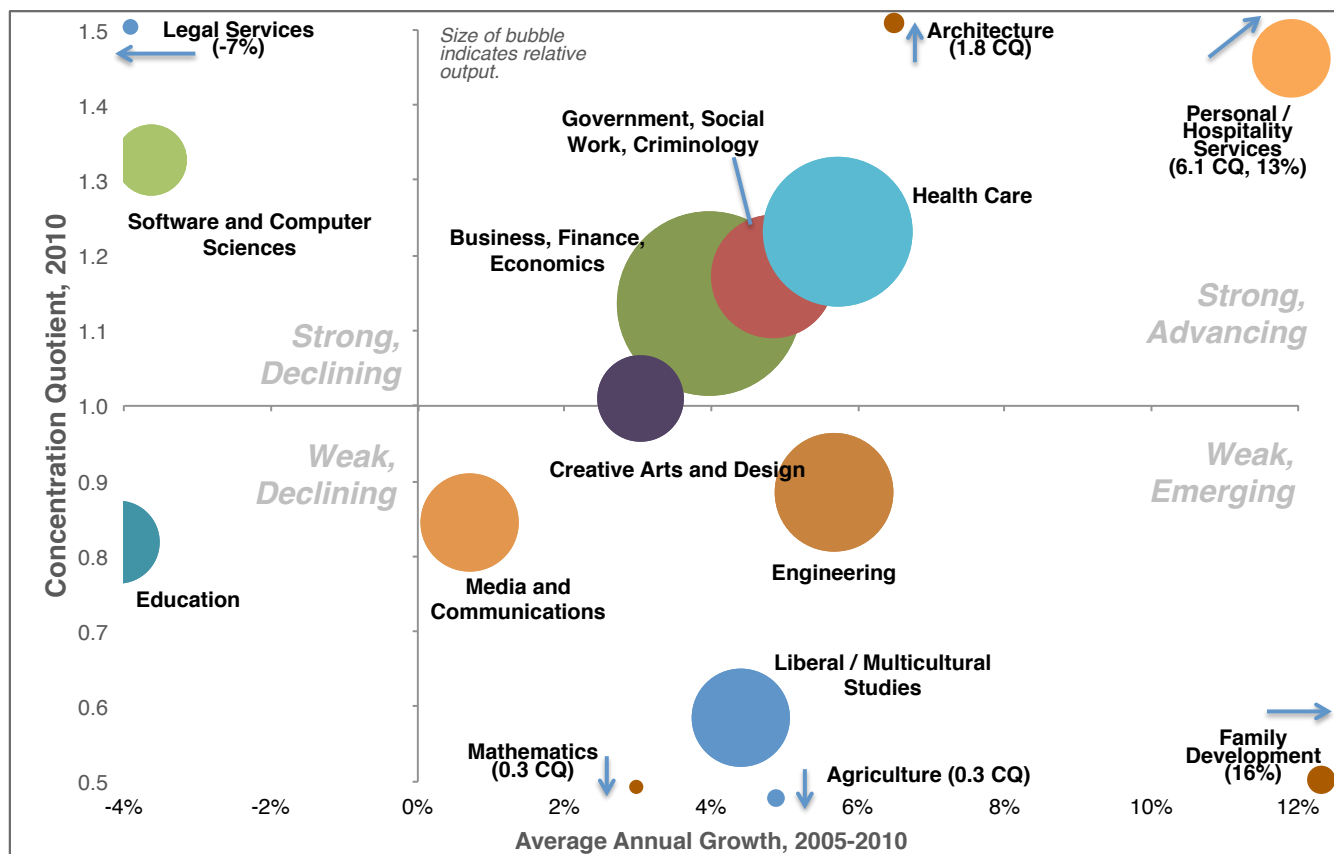
Bachelor's Degrees

As shown in the chart below, several degree programs that had low relative concentrations (low CQ) for Associate's degrees now have high concentrations for Bachelor's degrees: Health Care; Government, Social Work & Criminology; Business, Finance & Economics; and Software & Computer Sciences. Business programs produce the most graduates (3,300 in 2010), followed by Health Care (2,200), Government (1,500), and Engineering (1400).

Liberal/Multicultural Studies programs, which produce the largest number of Associates degrees in the County, now produces just 930 Bachelor's graduates and has a concentration quotient of just 0.6. It would appear that students who get their Associate's and then get their Bachelor's are choosing careers in more specialized areas.

Personal / Hospitality Services programs produce 560 Bachelor's graduates which represents a very high degree of concentration in the County. This is due primarily to FIU's large Hospitality Administration/Management

Bachelor's Degree Clusters: Miami-Dade County



program that produced nearly 400 Bachelor's graduates in 2010.

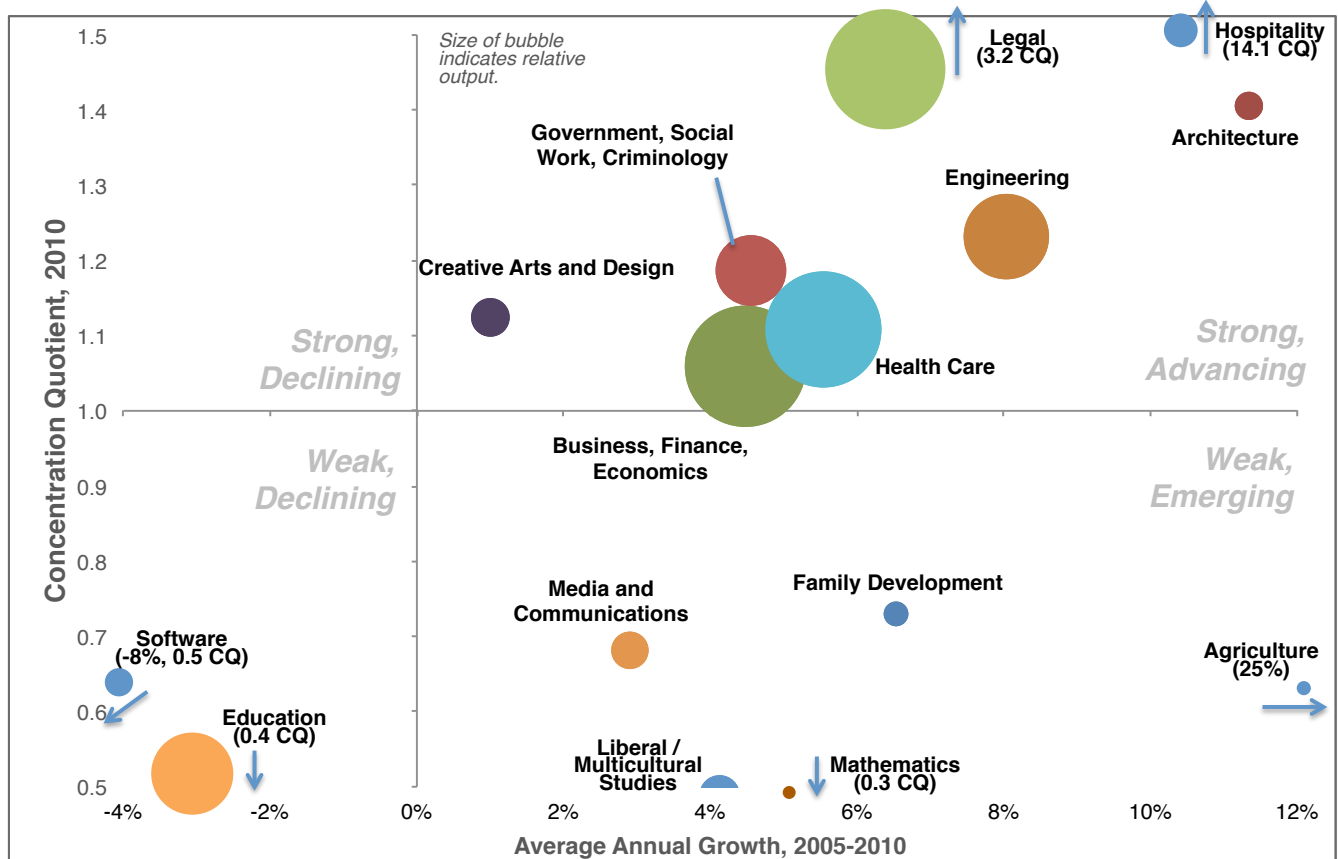
Growth trends are an indication of where students' interests lie or where they expect jobs to be when they graduate. Growth may also be an indication of where institutions' priorities (and/or funding) are going. In the case of Miami-Dade County, Family/Consumer Sciences is the fastest growing degree area (17% annual growth on average over 2005-2010). Hospitality is also high growth as mentioned before, and Architecture is high growth (10% per year) but produces a much smaller number of graduates. Business programs produced largest net increase in students: 350 more students graduated in Business in 2010 than in 2005.

Some Bachelor's degree areas are under-represented in the County: Education, Engineering (which includes Science majors), and Media & Communications. A positive sign for Miami-Dade County is the high concentration of Software & Computer Science degrees in the County, which should support the growth of an emerging software sector locally, but graduate output is falling 4% per year. Minimal graduates get Bachelor's in two other target industries: Agriculture (69 graduates in 2010) and Transportation (7 graduates).

Master's /Ph.D. / Professional Degrees (Master's+)

Examining Master's+ degrees in the region further underscores the fact that as Miami-Dade students achieve higher level degrees, they increasingly choose greater specialization. Hospitality, Legal, and Engineering/Science degrees exhibit high levels of concentration (high CQs) at the Master's level or above. Government, Health Care, and

Masters/Ph.D./Professional Degree Clusters: Miami-Dade County



Source: Avalanche Consulting using data from US Dept. of Education.

Business, and (now) Creative Arts & Design show above-average concentrations. Furthermore, these degree programs are also growing at very high rates, between 4% and 12% per year – a very positive sign for the availability of a growing, highly skilled workforce in the County.

Software & Computer Sciences graduates at the Master's level or higher are falling quickly (8% per year), a trend also seen at the Bachelor's level. Education degrees are also declining on average. There are no Master's graduates in Transportation and just 31 students graduated with a Master's in Agriculture.

Growth Trends vs. the US

How do growth trends in the County compare with the US? In the table below, we show US growth data for the three degree levels examined above: Associate's, Bachelor's, and Master's or Higher (Ph.D., Professional).

Several contrasts are seen. Examining programs with a large number of graduates in Miami-Dade County:

- Business programs are growing faster at the Associate's and Bachelor's levels, but slower at the Master's+ (Master's, Ph.D., and Professional) level.
- Engineering/Science programs are shrinking at the Associate's level, but growing faster than the US at the Bachelor's and Master's+ levels.
- Education programs are shrinking at all levels in Miami-Dade County, in contrast to US growth at the

College Graduate Output by Major Degree Group and Level

Miami-Dade County

Major Degree Group	Degrees, 2010			Compounded Annual % Growth, '05-'10					
				Associate's		Bachelor's		Master's or Higher	
	Assoc	Bach	Mast+	Miami-Dade	US	Miami-Dade	US	Miami-Dade	US
Agriculture	2	69	31	↑ 14.9%	↓ 1.6%	↑ 4.6%	↑ 2.6%	↑ 25.4%	↑ 1.1%
Architecture	9	140	77	↓ -17.1%	↓ 1.4%	↑ 6.7%	↑ 1.8%	↑ 11.3%	↑ 5.3%
Business, Finance, & Economics	357	3,267	1,418	↑ 4.6%	↑ 4.2%	↑ 4.0%	↑ 2.9%	↑ 4.5%	↑ 5.0%
Creative Arts & Design	115	720	144	↓ -4.0%	↓ 2.8%	↑ 3.0%	↑ 2.5%	↑ 1.0%	↑ 3.3%
Education	18	660	650	↓ -1.1%	↑ 4.0%	↓ -4.1%	↓ 0.8%	↓ -3.3%	↑ 2.3%
Engineering	256	1,352	702	↓ -3.8%	↑ 1.5%	↑ 5.7%	↑ 4.0%	↑ 8.0%	↑ 3.7%
Family Development	108	242	59	↓ -5.7%	↑ 3.5%	↑ 15.8%	↑ 5.0%	↑ 6.5%	↑ 6.4%
Government, Social Work, Crimi	272	1,464	481	↑ 24.2%	↑ 8.6%	↑ 4.8%	↑ 2.9%	↑ 4.6%	↑ 4.7%
Health Care	1,906	2,153	1,299	↑ 12.1%	↑ 8.1%	↑ 5.7%	↑ 6.2%	↑ 5.5%	↑ 6.4%
Legal	99	47	1,180	↓ -0.6%	↑ 0.3%	↓ -7.1%	↑ 3.5%	↑ 7.1%	↑ 1.3%
Mathematics	0	38	16		↑ 5.4%	↑ 2.9%	↑ 2.5%	↑ 5.9%	↑ 5.2%
Mechanics and Machine Repair	144	0	0	↑ 95.8%	↑ 3.3%		↓ 0.5%		↑ 13.0%
Media and Communications	8	926	135	↓ -6.2%	↑ 5.2%	↑ 0.7%	↑ 1.5%	↑ 2.9%	↑ 2.8%
Liberal / Multicultural Studies	7,519	926	158	↑ 7.7%	↑ 3.5%	↑ 4.4%	↑ 2.5%	↑ 4.1%	↑ 3.3%
Personal Services / Hospitality	385	564	83	↑ 4.4%	↑ 0.0%	↑ 13.3%	↑ 9.2%	↑ 10.2%	↑ 6.8%
Software & Computer Sciences	183	487	92	↓ -13.2%	↓ 2.9%	↓ -3.6%	↓ 7.1%	↓ -8.4%	↓ 2.1%
Transportation Professionals	65	7	0	↓ -3.1%	↑ 5.4%	↓ -6.9%	↑ 1.4%		↑ 9.7%
GRAND TOTAL	11,446	13,062	6,525	↑ 7.0%	↑ 4.0%	↑ 3.8%	↑ 2.7%	↑ 4.3%	↑ 3.8%

Source: Avalanche Consulting using data from the US Dept of Education

Associate's and Master's+ levels.

- Government, Social Work, and Criminology programs are experiencing extremely high growth at the Associate's level, growing faster at the Bachelor's level, and on par with US growth at the Master's+ level.
- Health Care programs are growing much faster at the Associate's level, but slightly lagging at the Bachelor's and Master's+ level.
- Legal programs are shrinking locally at the Associate's and Bachelor's level, but growing much faster than the US at the Master's+ level.

Of the other programs of particular relevance to Miami-Dade County's target industries:

- Architecture programs are growing much faster at both the Bachelor's and Master's+ levels.
- Creative Arts programs are shrinking at the Associate's level, growing faster at the Bachelor's level, and slightly lagging at the Master's+ level.
- Personal Services / Hospitality programs (which includes Culinary) are growing much faster at all degree levels.
- Software & Computer Science programs are shrinking much faster at the Associate's level (-13% annual growth vs -3% for the US), shrinking at a slower rate at the Bachelor's level (-4% vs. -7% for the US), and shrinking much faster at the Master's+ level (-8% vs. -2% for the US).
- Transportation programs are shrinking at the Associate's and Bachelor's level in contrast to US growth, and Master's+ programs have no graduates in 2010.

Overall, Miami-Dade County graduate output is growing much faster at the Associate's level, moderately faster at the Bachelor's level, and slightly faster at the Master's+ level. The County is losing ground to the US in Education, Health, Media & Communications, Software, and Transportation Professionals, which could affect target industry growth in the future. Only one degree area showed a negative decline for the US at all three levels – Software & Computer Sciences – which has caused a shortage of programmers across the US just as Web applications are creating tremendous demand for computer professionals.

Digging deeper into each of these degree areas provides greater insight to the numbers, but would result in very large tables. Data is also available by institution. To satisfy the need for additional detail without overwhelming the reader, we provide data for a more segmented grouping of the degrees. Each of the groups above is broken into subgroups (typically less than six). For degree areas that are of high importance to Miami-Dade's target industries, we provide these detailed groups in an Appendix of this report. Trend data is provided for every year from 2005 to 2010 and a growth rate shows if output is growing or falling over the five-year period on average. We provide separate aggregations for Bachelor's or higher degree output and for below Bachelor's degree.

Understanding degree trends is an important part of connecting the education and workforce development missions to economic development. Knowing that students are getting trained in areas with long-term career

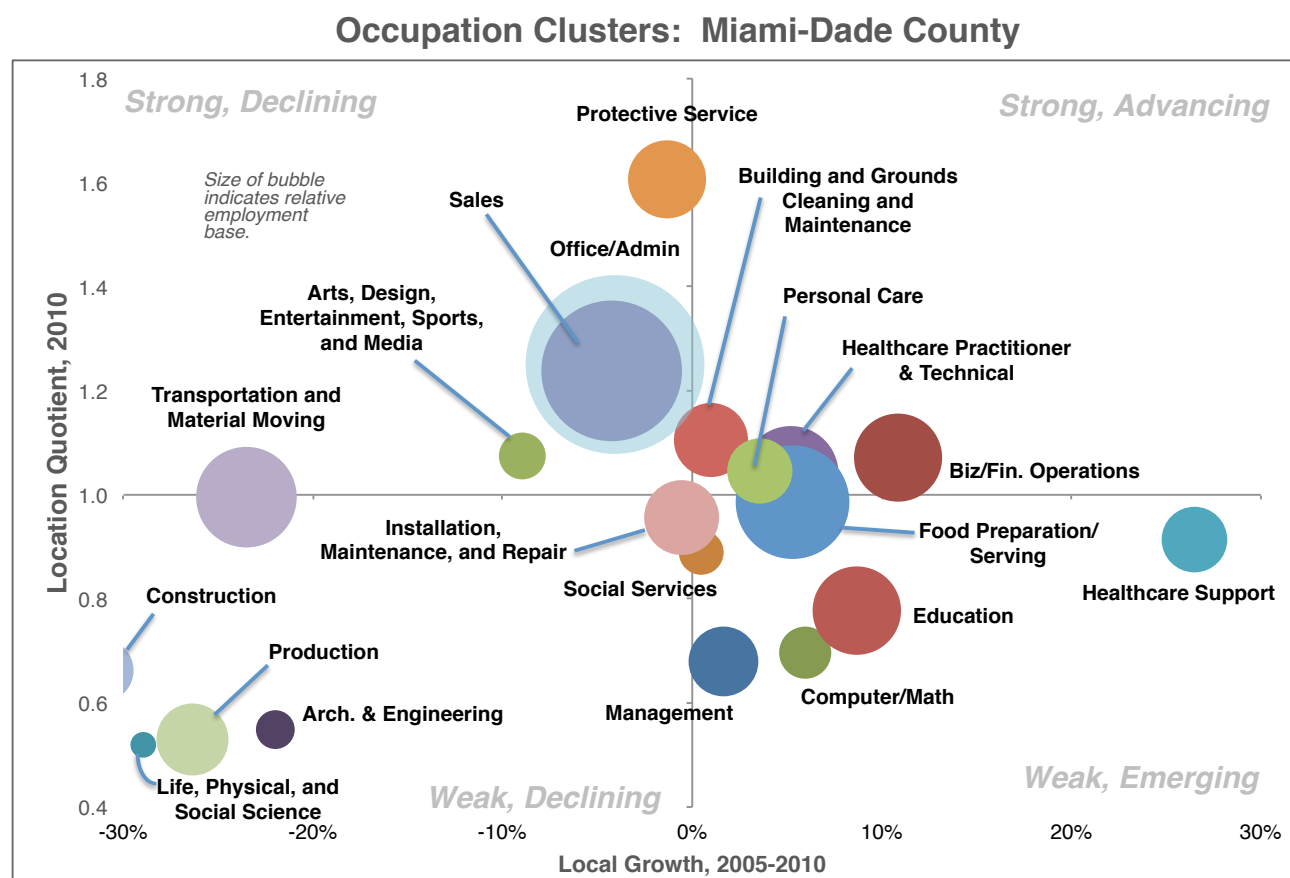
potential, job demand and stability, and a living wage are all strategic factors and decisions that affect long-term growth trends of the individual and community. In the following pages, we explore demand for occupations and contrast whether job creation trends are aligned with graduate output trends.

Note: All of the underlying data on degree completions was delivered to organizations on the Steering Committee in spreadsheets. This detailed data provides trends at the specific program level, in addition to the group aggregations.

OCCUPATIONAL DEMAND

Are students pursuing degrees in areas that match long-term job demand and Miami-Dade County's target industries? This question is straightforward but difficult to answer. Typically the conversation in education and workforce development is focused on skills rather than specific occupations. Matching a college degree to a specific occupation can prove difficult. Some broad degrees in Liberal Arts could serve any number of occupations, such as Education or Business, for example. Some of the more technical degrees are easier to link to occupations (e.g., Mechanical Engineering degrees with Industrial Engineering Occupations).

The first step of this analysis is to examine the current composition of Miami-Dade County's entire employment base in terms of occupation clusters. In the bubble chart below, we see that some groups (which aggregate 10-50 specific occupations) are high-growth: Health care Support, Business/Financial Operations, Education, Food Preparation, Computer, and Health care Practitioners/Technicians. With the exception of Computer, these occupation clusters have location quotients near 1.0, an indication that their per capita concentration in the County is comparable to the US average.



Source: Avalanche Consulting using data from US BLS.
 Note: 2005 data for Education is not available; 2004 data was used

However, a handful of occupation clusters are highly concentrated in the County: Protective Service (with a 1.6 LQ), Office/Admin (1.3), and Sales (1.2). Arts-oriented occupations and maintenance occupations are also above-average.

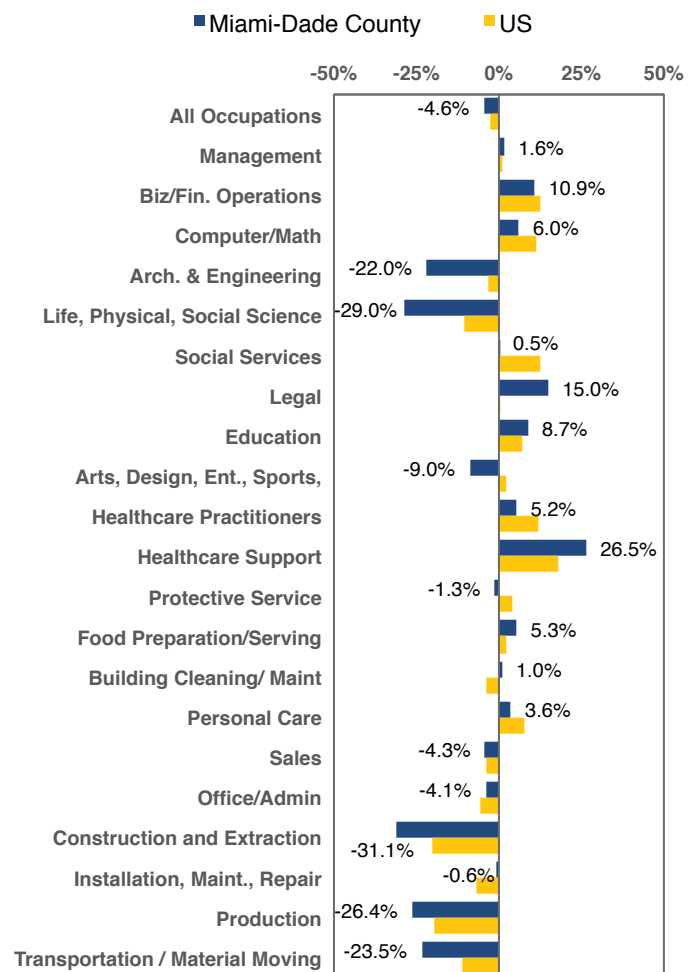
Below-average per capita concentrations are lowest in Life Sciences, Architecture & Engineering, Construction, Management, Computer, and Education.

The high concentration of Sales and Office/Administration clusters can likely be attributed to the presence of the large retail and tourism industry, multinational headquarters, and local government operations. Transportation-related occupations have an average concentration, but experienced sizeable job losses – both in terms of percentage growth and net jobs. Production (manufacturing-related) occupations, Life Sciences, and Architecture & Engineering occupations also experienced negative growth rates. These occupation clusters experienced job losses at the US level, but at a smaller rate.

Looking more closely at the US comparison, several occupation clusters grew faster or substantially faster than the US: Health care support (27% local versus 18% for the US), Legal (15% versus 0%), Education (8% versus 7%), and Food Preparation (5% versus 2%). These growth rates are even more significant considering that Miami-Dade County lost jobs over the time period at a rate nearly twice that of the US.

Of the occupation clusters that suffered job losses, only Arts-related, Life Sciences, and Architecture & Engineering exhibited a large contrast to US trends.

Growth by Occupation Cluster, 2005-2010

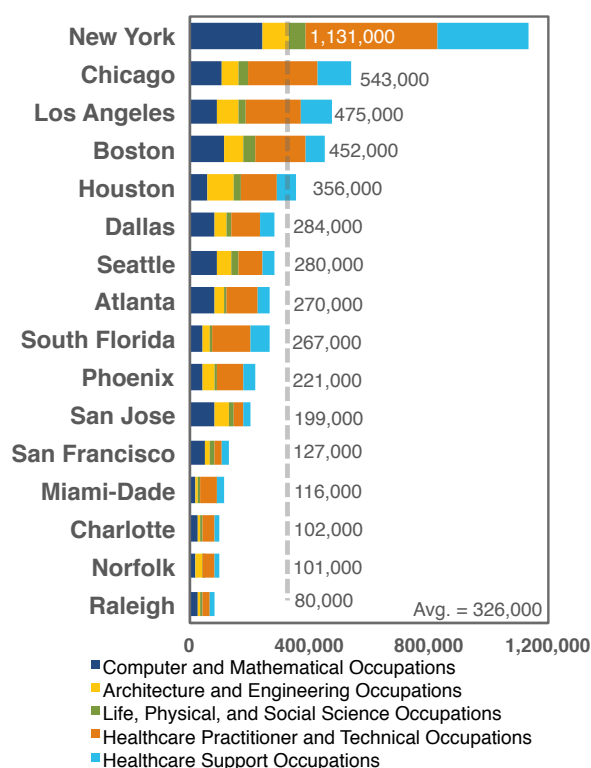


Source: Avalanche Consulting based on data from the U.S. Bureau of Labor Statistics

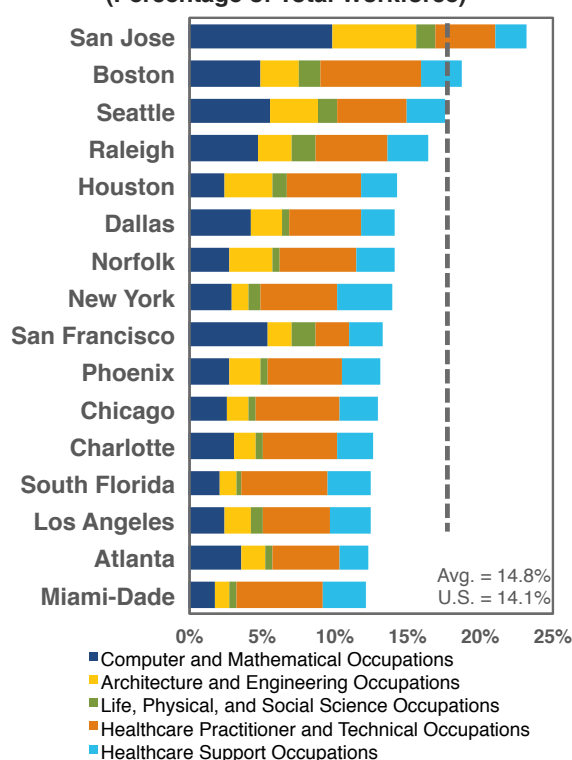
How does Miami-Dade's technical workforce fare? Science and engineering workers are highly sought-after by a variety of industries as well as the communities that seek to build their technology industry economy.

The charts below show two views of the "Science & Engineering" workforce in Miami-Dade County compared to the basket of benchmark regions examined in the previous *Competitive Assessment* report. In the first chart, we see that Miami-Dade County has 116,000 Science & Technology workers, and that most of those workers are in Health Care. As a share of all workers, the County falls to the bottom of the list. Clearly, the strong orientation of the County toward tourism, retail, construction, and trade all influence this low percentage (12% of all jobs).

Science and Technology Workers, 2010



Science and Technology Workers, 2010
(Percentage of Total Workforce)



Source: Avalanche Consulting based on data from the U.S. Bureau of Labor Statistics

THE FUTURE OF SUPPLY AND DEMAND FOR WORKERS

How is demand for occupations expected to change in the future? Is the growth in occupation clusters going to change significantly from recent trends? Forecasting during a recession can be problematic, but looking out over the next 10 years can provide a rough view of where demand for occupations is going. For this analysis, we utilized the forecasts from EMSI, a private-sector data provider. EMSI provides jobs forecasts for individual industries as well as occupations through 2020.

Contrasting College Degree Output with Job Demand for Target Occupations

We examined data for Miami-Dade County for the target occupations identified in the previous section. These occupations were selected as targets because they were forecasted to have high rates of growth in the target industries, are highly specialized to that industry, or simply have to hire a large number of workers each year.

In the Appendix of this report, we provide detailed data on each of the target occupations: The 2010-2020 growth rate for the occupation and how many new jobs openings will occur each year (which accounts for turnover, retirement, and replacement rates). Arrows indicate if demand for the occupation is high or moderate growth.

Using this data, we draw contrasts with the output of college graduates. While college graduates are not the only source for workers (people relocating into the County could provide more workers), they are a significant source and one that can be affected through the *One Community One Goal Strategy*. Ideally, a community would enjoy a steady stream of college graduates with degrees that match with occupations that are projected to grow.

As stated before, some degrees don't match well directly to an occupation (e.g. a History degree), and some occupations don't have a corresponding degree (e.g. Purchasing). However, putting the two lists of degree groups and occupational demand together provides insight on whether the output of graduates in one degree area is strikingly higher or lower than job creation, or if the growth trends are going in different directions.

We observe the following for Miami-Dade County:

- Marketing and Public Relations occupations will experience high growth rates, but graduate output in Marketing (Business) has been flat. Graduate output in Advertising and Public Relations has been growing sufficiently.
- Purchasing, Billing, and Human Resources occupations are expected to experience above average growth rates, but the output of graduates is falling for two-year (or less) Accounting degrees and Human Resources Bachelor's degrees (significantly). Accounting degrees at the Bachelor's level or higher have been growing.
- The demand for business and financial analysts is expected to see very high growth. The output of general business, finance, and management students is high and growing (nearly 5,000 Bachelor's students each year). Of these, finance-related degrees are enjoying the highest growth, but

management degrees are experiencing only modest growth. Job trends are different, with higher growth in management than financial occupations.

- Software occupations are expected to see above-average growth, but Software & Computer Sciences degree output has experienced significant declines in Miami-Dade County. Furthermore, software is one area where graduate output does not far exceed net new demand (which is a problem, recognizing that Software graduates are heavily recruited by companies across the US and many would have to leave Miami-Dade to find employment).
- Biomedical engineers and medical scientists are expected to experience modest to high increases in job demand, but job openings are relatively few per year (16 on average). In contrast, nearly 705 bio/medical students graduated with a Bachelor's degree and 271 students graduated with a Master's or higher. The seeming oversupply in the biomedical engineering and medical science fields is due primarily to the oversupply of biology baccalaureate graduates. Emphasis should be placed on training biomedical engineers and bioscientists with the skill-sets to specifically meet workforce needs.
- Multimedia designers and technicians (graphic, fashion, sound, film) have a mixed job demand forecast, with film-related occupations expected to grow slightly while fashion designers decline. Creative design degrees are growing significantly but with nearly 400 graduates each year at the Bachelors+ level, output might exceed demand (200 net new jobs each year in multimedia occupations). Because creative design occupations encompass a mixed array of technical skills (graphic/digital media, broadcast, entertainment, sound, film, television, and fashion), they are hard to classify and job forecasts are difficult. Jobs in film and entertainment-related occupations are expected to grow as new industries are expected to migrate to South Florida from New York and California, including cruise entertainment employment. Workforce demands will range from the certificate to the Associates to the Baccalaureate degree levels.
- Nursing occupations are expected to see high rates of growth, but at a slower pace than seen over the last decade. About 1,700 new job openings each year are forecasted for nurses. Nursing graduate output has been growing at a high 8-10% rate per year recently. Over 2,000 nurses graduated in 2010 at the Associates level or below, and another 900 nursing Bachelor's or higher degrees are given. While the current status of nursing graduate production is addressing the current nursing position need, there is strong indication that within the next 5 years the need for nurses will accelerate due to retirement and the needs of the aging population. The October 2010 Institute of Medicine Report states that by 2015, 80% of all nurses should be baccalaureate prepared. While there is still a place for associate degree nurses, many hospitals are becoming magnet hospitals and 80% of nurses in magnet hospitals must be baccalaureate prepared. All seven Baptist hospitals have magnet status as do Miami Children's and Mercy hospitals.
- Some Medical Equipment Technicians are expected to see above-average rates of growth (surgical technicians, vet technicians, and medical IT technologists, for example), but others are forecasted to see flat to negative growth (see the tables in the Appendix). Overall, about 600 job openings are expected each year for medical equipment technicians. Within the County, 1,200 medical technicians graduated in 2010 (95% of which with an Associate's), and the trend is heading downward significantly.

It is important to note that the above conclusions are entirely dependent on the forecast for job creation in each occupation group. We use data forecasts from the nationally recognized firm EMSI, which are basically trendlines. However, economic development is fundamentally about shifting a trend upward, i.e. growing an industry faster than past trends would indicate. Boosting growth in a target industry, such as Life Sciences, through purposeful interventions such as business parks and incubators will boost the demand curve (and forecast) for biotechnology workers.

In conclusion, the data points to several imbalances in the workforce supply-demand situation in Miami-Dade County. Modest undersupply exists in Marketing and Accounting graduates. Sizeable undersupply exists in Computer Sciences / Software graduates. Oversupply issues may currently exist for some students graduating in biomedical engineering, biology, nursing, and creative design, mostly due to the significant increase in students seeking these degrees in recent years. However, new demands, new industries, and increased growth in existing industries may require redesigned or new specialties/programs that are more in line with the workforce needs. Therefore, educational institutions should place emphasis on direct employability skills and work closely with employers. Such workforce/education linkages should ensure that graduates remain in the area and should enable Miami-Dade County to attract and retain new business.

SECTION 3: TARGET INDUSTRY, EDUCATION, AND TRAINING PROFILES

ABOUT THIS SECTION

Success in attracting, retaining and growing target industry firms in Miami-Dade rests upon a variety of factors, many addressed in the *Competitive Assessment* report. The availability of a skilled and prepared workforce is another key factor further examined here. The immediate presence of a workforce with particular industry-specific skills is one measure of the community's readiness to support employers in the target industry. As the community contemplates attracting and nurturing new employers in new industries, it is also important that they have confidence that Miami-Dade County is a place where a continuous flow of skilled workers will be available, and where there is an institutional infrastructure capable of addressing skills and knowledge needs as they evolve and change.

Education and training providers in Miami-Dade County offer programs that address the needs of the target industries at a variety of levels. The following sections include the following:

- An overview of the industries and skills categories generally associated with those industries
- An overview of the education and training programs available that address those skills needs
- Initial impressions of how the collection of education and training opportunities can be augmented and enhanced to further develop the talent base for employers in the respective industries

NOTE: Each institution and provider categorizes and describes the offerings in its own unique manner. This inventory attempts to group similar offerings into consistent categories related to skills and occupational areas. Differences in programs and institutions render complete alignment and clean grouping not possible. Offerings are catalogued inconsistently across institutions and providers, and from time to time even within a single institution's website and course catalog. Interviews with program staff revealed some available offerings that are not promoted or made readily visible through standard public information. The consulting team regrets any omissions or offerings that have been overlooked and encourage the readers to report any additional offerings so they can be added to the inventory.

This inventory examines the availability of programs aligned with the skills needs of the target industries. The consulting team did not evaluate the overall quality of any particular program or institution or acceptance of any certification or degree.

AVIATION

The **Aviation** industry includes the airport and aircraft services sector (those who work for aviation and airline companies), as well as the aircraft and component manufacturing and assembly sector (those who work to develop and produce aircrafts and aircraft components). Workers in airport and aircraft services include pilots, avionics technicians, aircraft maintenance workers, air cargo agents, airline administrators, and gate agents. Those in the aircraft and component manufacturing and assembly sector include aerospace engineers, materials science engineers, laboratory technicians, assemblers, welders, mechanical and electrical technicians, quality control technicians and other support staff for aerospace research and development. In addition, Miami-Dade County has one of the largest flight simulation sectors in the world.

Generally, workers in the airport and aircraft services sector require specific licensing and training for their particular jobs. However, this training and education is mainly at the certificate and associates degree level. In many cases certifications require training and specific workplace learning requirements. In the aircraft and component manufacturing and assembly sector, many of the jobs – especially in younger operations – require advanced degrees and training beginning at the bachelor’s level and in some cases progresses all the way to the doctoral level. The vast majority of workers in this industry work in or near airports or airfields. However, much of the aircraft and component manufacturing work takes place in laboratories, research settings, and manufacturing facilities. Specific engineering capabilities held by Designated Engineering Representatives (DER) as managed by aircraft certification offices are also required in some aircraft maintenance and repair operations.

Opportunities for aviation industry growth in Miami-Dade County include all of the basic aircraft pilot and maintenance and aerospace research needs with particular emphasis on the following:

Airport and Aircraft Services Sector

- Maintenance, Repair, and Operations
- Aircraft Parts
- Flight Simulation and Training

Aircraft and Component Manufacturing and Assembly Sector

- Composite Parts Manufacturing
- Aircraft Assembly and Manufacturing

Learning Opportunities

Miami-Dade County currently has education and training opportunities in this industry from the high school level all the way through advanced degree programs. The bulk of learning opportunities are focused on pilot training and aircraft maintenance as Miami-Dade County is home to three airfields including international, general aviation and regional passenger and cargo facilities supporting the tourism, trade/logistics and international business activity in the Miami area. Because manufacturing in Miami is not as widespread there are fewer offerings in the aircraft and component manufacturing and assembly sector.

High School

Currently there are five high schools offering Aviation and Aerospace career programming operated by Miami Dade Public Schools that provide training and preparation for students for entry and further education in this field. George T. Baker Aviation School – a public vocational training school – offers high school level and adult training and aviation certification programs. It is the only school in the US to offer National Center for Aerospace & Transportation Technologies (NCATT) accredited hours to high school students.

The STEM academies would be appropriate to support the aerospace industry. However, only one such academy currently focuses on aviation at the moment. Aviation and related programs are offered at the following:

- Alonzo and Tracy Mourning Senior High School (NASA Academy)
- Hialeah Senior High School (Aviation-Business, Aviation-Flight)
- George T. Baker Aviation School (aerospace technology, electronics, avionics and aircraft maintenance)

The George T. Baker Aviation School – a public vocational training school – offers high school level and adult training and aviation certification programs. It is the only school in the US to offer National Center for Aerospace & Transportation Technologies (NCATT) accredited hours to high school students.

Academies of Engineering are located at:

- Coral Reef Senior High School
- Miami Coral Park Senior High School
- North Miami Senior High School
- Booker T. Washington Senior High School
- Miami Central Senior High School
- Hialeah Gardens Senior High School
- Hialeah Senior High School
- Maritime and Science Technology Academy
- Miami Sunset Senior High School
- Miami Lakes Educational Center
- Robert Morgan Educational Center
- South Dade Senior High School (Materials & Processing Technology)

The George T. Baker Aviation School also offers adult programming in the areas of electronics, avionics and aircraft maintenance.

Post-Secondary Programs

There are a variety of private and public institutions that provide education and training in this industry. Some of these programs are focused on aircraft operations and airline administration, while others are more geared towards aerospace research and innovation.

The following are higher education offerings related to Aviation in Miami-Dade County.

Supporting Programs	Florida International University	Miami Dade College	Florida Memorial University	University of Miami
Airline Management		C, A	B	
Pilot Training		C, A	B	
Air Traffic Control		C, A	B	
Aircraft Maintenance		A		
Agent Training		C		
Transportation Security Administration		C, A (pending), B		
Aerospace Engineering	B			B
Materials Science Engineering	M,P			
Industrial Engineering		A		B,M

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

In addition to the main college and university programs, there are many providers – colleges and technical centers as well as private and for-profit training centers – who offer programs that prepare workers for pilot training, aircraft maintenance, air traffic control, and administrative roles within aviation organizations. They include:

	Pilot Training	Aircraft Maintenance	Flight Simulator
424 Aviation	C		C
Academics of Flight International	C		
ADF Airways	C		
Airline Training Academy	C		
Alliance Aviation	C		
Avia Aero Services	C		
CAE Airbus Training Center	C	C	C
Dean International Flight Training	C		
Executive Flight Training, Inc.	C		
Falcon Flight School	C		
M-DCPS/Baker Aviation		C	
Miami Flight Schools	C		C
Miami Gliders	C		
Miami Fly	C		
Pan Am International Flight Academy	C	C	C
Pelican Flight Training	C		
Platinum Training Aviation	C		
Silver Express Flight Training Academy	C		C
Wayman Aviation	C		C

C=Certificate

Further Learning and Teaching Opportunities

There is a preponderance of pilot training offerings in Miami-Dade County related to all sizes and types of aircraft. This large supply of training opportunities has proven to be a strong asset for Miami as many individuals come to the Miami area to be trained or to have training updated or improved.

While there are extensive offerings in pilot training and aircraft maintenance, there are far fewer programs available in other areas of this industry. Some programs exist in higher level research and aerospace engineering fields, but these offerings are not widespread and some universities have no offerings targeted to this industry at all. There are also no programs focused on composite technologies in Miami. The opportunity exists to increase the number and breadth of research and development

related programs to help improve the stature of Miami in this industry. DER level engineering remains a need not yet addressed by institutions in Miami Dade.

CREATIVE DESIGN

Miami's popular image is one of high fashion and a desirable lifestyle. Miami is characterized by cultural, racial, and linguistic diversity. This makes it a welcoming place for all, including those involved in creative pursuits. Multi-lingual capabilities and relationships with Latin America provide Miami with the capability to produce cultural exports for both the domestic and international markets. Visitors to Miami also enjoy the creative and design elements. A year-round calendar of cultural events, art festivals, performances, and exhibitions are a tourist draw.

The **Creative Design** industry is diverse, encompassing a variety of disciplines, and competencies that characterize different parts of the "arts" community as well as other business sectors that require creative talent. The industry includes fashion design and marketing, film and television production (both independent and studio-based), architecture and interior design, advertising, industrial design, fine and performing arts, management of arts organizations, and arts education.

Creative Design firms' success is built upon creative and artistic capabilities and associated business and technical capabilities. While certificate and degree programs in creative disciplines are available, intangible factors of "talent" and "appeal" can be equal or greater drivers of success than degrees or certificates. These abilities are difficult to define much less teach. "Hard" skills such as use of enabling technology are more easily taught than how to enhance commercial appeal of artistic products. Business and marketing skills as applied uniquely to the different types of arts organizations can also represent significant value added to the industry and must be among the capabilities targeted by the education and training providers.

Learning Opportunities

Currently, Miami-Dade County's high schools, community college system, and four year institutions provide a wide variety of educational opportunities to prepare students and workers for entry-level through advanced positions in this industry.

High School

In an effort to prepare students for careers and jobs in this industry, Miami Dade Public Schools operates seven academies in film and entertainment, and 25 high schools offer programming and career support in communication arts and digital media, entertainment, design, and architecture and construction. Students receive contextual training and education in this industry and are connected to internship opportunities and other preparation for entry-level jobs.

The Film and Entertainment Academies are located at:

- | | |
|---|--|
| • Design and Architecture Senior High School (Entertainment Technology) | • Robert Morgan Educational Center (Television Production) |
| • Miami Edison Edu-Plex (Television and Film Production) | • Ronald Regan/Doral Senior High (Television Production) |

- Miami Lakes Educational Center (Television Production)
- North Miami Beach Senior High School (3D Animation)
- South Miami Senior High (Television Production)
- William H. Turner Technical (Entertainment Technology, Television Production)

The Communication Arts and Digital Media Academies are located at:

- Design & Architecture Senior High School (Visual Communication)
- Dr. Michael M. Krop Senior High School (Commercial Art, Digital Media)
- Hialeah Senior High School (Communication Arts and Digital Media)
- Miami Beach Senior High School (Communication and Digital Media)
- Miami Edison Senior High School (Digital Art, Graphic Art, Broadcast)
- Miami Lakes Educational Center (Commercial Art Technology, Web Design Technology)
- Miami Northwestern Senior High School (Art)
- North Miami Beach Senior High (3D Animation)
- North Miami Senior High School (New Media Technology)
- Robert Morgan Educational Center (Graphic Animation, Commercial Art Technology, 3D Animation)
- South Miami Senior High School (Art, Digital Art)
- South Dade Senior High School (Web Design Services)
- William H. Turner Technical Center (Digital Design, Multimedia Web Design)

The Design Academies are located at:

- Coral Gables High School (Design Services)
- Design & Architecture Senior High (Interior Design, Fashion Design, Industrial Design)
- Dr. Michael M. Krop Senior High School (Commercial Art, Digital Design)
- Hialeah Senior High School (Fashion Marketing)
- John A. Ferguson Senior High School (Design & Architecture)
- Miami Palmetto Senior High School (Drafting and Design)

The Architecture and Construction Academies are located at:

- Booker T. Washington Senior High School (Engineering)
- Coral Reef Senior High School (Engineering)
- Design & Architecture Senior High School (Architecture, Industrial Design)
- Hialeah Gardens Senior High School (Engineering)

- Hialeah Senior High School
(Engineering, Construction)
- John A. Ferguson Senior High School
(Design & Architecture)
- Miami Coral Park Senior High School
(Engineering)
- Maritime and Science Technology
Academy (Engineering)
- Miami Central Senior High School
(Engineering)
- Miami Lakes Educational Center
(Engineering, Drafting Technology)
- Miami Jackson Senior High School
(Architecture)
- Miami Palmetto Senior High School
- Miami Sunset Senior High School
(Engineering)
- North Miami Senior High School
(Engineering)
- South Dade Senior High School
(Landscape Design Technology)
- Robert Morgan Educational Center
(Engineering)
- South Miami Senior High School
(Architecture and Construction)
- William H. Turner Technical Center
(Architectural Drafting, Building
Construction Technology)

Adult programming in support of the Creative Design sector within the Miami Dade Public School system can be found at:

- D.A. Dorsey Education Center (Landscape Management, Digital Design)
- The English Center (Web Programming, New Media)
- Hialeah Technology Center (Architectural Drafting)
- Lindsey Hopkins Education Center (Commercial Art, Fashion Design)
- Miami Lakes Education Center (Television Production)
- Robert Morgan Education Center (Commercial Art Technology, 3-D Animation Technology)

Higher education programs supporting the Creative Design industry are illustrated in the following table:

Supporting Programs	Barry University	Florida International University	Miami Dade College	St. Thomas University	University of Miami	AI Miami International University	S Florida Institute of Technology	ITT Technical Institute	Center for Cinematography, Art and Television
Film, TV Production	C, B		C, A, B	C, B, M	B, M	C, B, M			C,A
Graphic Design	B		C, A		B		C	A	
Photography	B, M		A, B*		B				
Web Design			C, A	C		C, B			
Audio Production			A		B, M	B			C
Arts Management	B		A	M	B, M				
Architecture		B, M	C, A, B (pending)		B, M				
Landscape Architecture		B, M	C, A						
Interior Design		B, M	C, A						
Industrial Design			C, A		B, M, P				
Computer Aided Design			C						
Civil Engineering		B, M, P	A	C	B			A	
Performing Arts	B	B, M	A,B*		B, M, P				
Event Management		C	C						
Advertising	B	B			B	B			

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

*Offered by the University of Florida through the MDC-UF New World School of the Arts

Non Degree Programs and Classes

Florida International University has the International Media Center that helps promote media research and education in Latin America and elsewhere. The Division of External Programs at FIU College of Engineering and Computing offers several extension programs in civil engineering and related areas of creative design.

Further Learning and Teaching Opportunities

Some disciplines within the Creative Design category are underrepresented among the education and training offerings, including landscape architecture/ design at the bachelor and associate level and exhibit design. While some arts management specializations are available (performing arts management and theater management), only one broad arts management major is available at the Master's level at St. Thomas University. Bachelor's and certificate programs in arts and non-profit management would offer more accessible learning opportunities.

Presumably all of the existing programs include attention to grant writing and fundraising, but some certificate and stand-alone offerings for working professionals to develop fundraising skills would be useful as well. Given the individualized, freelance nature of much of the work in this industry, additional short-term offerings for creative professionals could include marketing, developing creative industry cooperatives, volunteer management, and arts finance.

In the design category, there is increased recognition of the need to integrate the technical and aesthetic components. All providers must strive to make the latest hardware and software tools available to learners at all levels. Interdisciplinary planning and other faculty-level collaboration occur throughout Miami Dade College and are especially so in the schools of Engineering, Architecture, and Entertainment and Design Technology. Such integration is recommended between technical and design faculty at all institutions. More student-level cross-learning between the design and engineering programs at the Career Academy, Associate, Bachelor and graduate levels will enable the emerging workforce to add value beyond their own technical or creative capabilities. Digital Media instruction can further integrate both arts and communications programming.

The rapid advancement of computer-based design and modeling tool technologies has made it difficult for more mature creative workers to advance in the field. Those who have not continually acquired new technology skills can apply their experience to more client-facing work in sales and project management. Short-term training opportunities in emerging design and modeling technologies can help them remain competitive. Design-specific sales and relationship management programs can also help them move into new positions within their firms.

FIU's College of Engineering and Computing Technology offers a unique one-year Master's program in Engineering Management, integrating engineering, business and law disciplines. Graduates are able to manage enterprise systems including those in engineering and related firms.

HOSPITALITY & TOURISM

The **Hospitality & Tourism** industry includes both workers in occupations that support hotel, restaurant, and lodging operations as well as workers in travel and tourism businesses. Workers in the hotel, restaurant, and lodging operations include chefs, pastry chefs, restaurant managers, hotel managers, hotel concierges, hotel staff, hotel and restaurant event planners, and various other support functions for these businesses such as back office support and finance roles. Those workers who work in the travel and tourism segment include travel agents, conference and event planners, tour operators, cruise ship workers, cruise ship operators, wedding planners, conference and customer service representatives, and other roles that support tourism and travel professionals. Workers in each of these areas work in traditional settings such as hotels, restaurants, conference venues, cruise ships, and local attractions.

The Hospitality & Tourism industry has been one that has traditionally had a mix of credentialed and non-credentialed workers. Certain positions in restaurants, such as chefs and pastry chefs, require explicit training and credentialing. Large volumes of service workers require only basic on-the-job training. Many of the positions in travel and tourism have not generally required a specific degree; however, advancement within the industry increasingly requires specific certificate or Bachelor's-level education. There are a number of specialized areas in this industry - such as wine and beverage management, room management, and event management - that now require or prefer certificate or advanced education levels.

Opportunities for hospitality and tourism business development in Miami-Dade County include all of the hotel, restaurant, conference, and cruise line needs with particular emphasis on the following:

- Cruise line attraction and development
- Destination retail
- International traveler attraction
- Conference destination attraction
- Tourism Software
- Tourism Information Technology development

Learning Opportunities

Currently, Miami-Dade County's high schools, community college system, and four year institutions provide a wide variety of educational opportunities to prepare students and workers for entry-level through advanced positions in this industry.

High School

In an effort to prepare students for careers and jobs in this industry, Miami Dade Public Schools operate 24 high school academies focused on culinary arts, food services, hospitality and tourism. Students receive contextual training and education for this industry and are connected to internship opportunities and other preparation for entry-level jobs.

The Hospitality and Tourism Academies are located at:

- Alonzo and Tracy Mourning Senior High
- American Senior High School
- Miami Beach Senior High School
- Miami Norland Senior High School

- Barbara Goleman Senior High
- Hialeah Gardens Senior High School
- Homestead Senior High School
- John A. Ferguson Senior High School
- Miami Springs Senior High School
- Miami Sunset Senior High School
- Robert Morgan Educational Center

The Culinary Arts, Food Services, and Production Academies are located at:

- Booker T. Washington Senior High School
- COPE Center North
- Coral Gables Senior High School
- Dr. Michael M. Krop Senior High School
- Hialeah Gardens Senior High School
- Hialeah Senior High School
- Homestead Senior High School
- John A. Ferguson Senior High School
- Maritime and Science Technology Academy
- Miami Edison Edu-Plex
- Miami Central Senior High School
- Miami Coral Park Senior High School
- Miami Lakes Educational Center
- Miami Northwest Senior High School
- Miami Senior High School
- Miami Southridge Senior High School
- North Miami Beach Senior High School
- Robert Morgan Educational Center
- Ronald W. Reagan/Doral Senior High School
- South Dade Senior High School
- South Miami Senior High School

Adult programming in Commercial Food and Culinary Arts in support of the Hospitality & Tourism sector within the Miami Dade Public School system can be found at:

- Lindsey Hopkins Technical Education Center
- Miami Lakes Education Center (Culinary)
- Robert Morgan Education Center
- South Dade Adult Center

Post-Secondary Programs

Miami Dade College, Florida International University, Johnson and Wales University, and M-DCPS Postsecondary Technical Institutions also provide an array of certificate and degree programs that support this industry. There are also a number of public and private colleges and universities that provide higher level training and education in this industry in the form of Bachelor's and Associate's degree programs. Culinary arts, hospitality management, and joint tourism and hospitality management programs are the dominant offerings and provide greater preparation for entry into leadership and management roles within this industry.

The main opportunity for advanced education in this industry is through Florida International University's Chaplin School of Hospitality and Tourism Management (CSHTM). There are current plans underway at Chaplin to develop curriculum focused on Medical and Sports Tourism. These programs will be developed for both the Undergraduate and Master's level. Programs also exist in Asia and Europe through Chaplin which provide opportunities to develop relationships and competencies in hosting international visitors. CSHTM is in the process of internationalizing all courses to more deliberately address the particular needs associated with hosting international visitors. CSHTM is also working to form a hospitality information technology resource

center and data repository to support hospitality development, investment and asset management. Both Master's level and Ph.D. level programs exist in hospitality management and international business.

Non Degree Programs and Classes

Miami Dade College also offers online and continuing education classes that are not explicitly tied to a degree or certificate. These classes include Event Management and Design, Wedding and Event Planning, Starting Your Own Small Business, and Entrepreneurship: Start-Up Business Owner Management. Florida International University houses the Institute for Hospitality and Tourism Education and Research which helps promote and advance research in this industry.

The following table illustrates higher education programs related to the Hospitality & Tourism industry.

Supporting Programs	Florida International University	Florida Memorial University	Florida National College	Johnson and Wales University	Miami Dade College	M-DCPS Technical Institutions	St. Thomas University	DeVry university	New Professions Technical Institute
Culinary Management, Operations	C			B	C, A, B (pending)	C			
Event Management and Meeting Planning	C			B	C				
Tourism Marketing	C								
Hospitality Administration, Management	C, B, M, P	B	A	B	C, A		B	B	C
Travel/Tourism Management	C			B	C, A		B		
Hotel/Lodging Management, Operations	C			B	C				
Culinary Arts				B	C	C			
Customer Service Tech					C				
Travel Agent					C				

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

Further Learning and Teaching Opportunities

Miami-Dade County's educational institutions provide numerous programs in hospitality broadly for all levels of learners, from the MDC/CVB Hospitality Institute to the more unusual master and doctoral-level learning opportunities. Of particular note is the Miami Dade College School of Culinary Arts with a variety of industry-related areas training as well as TUYO, a full-fledged and innovative restaurant overseen by an internationally renowned chef. The area's massive tourism and hospitality industry offers countless opportunities for

experiential learning and internships. While each program to some degree addresses skills and knowledge related to Miami's international visitors, continued attention to cultural competence and international practices and standards will enable students to serve new visitor markets and adjust to variations in the mix of international visitors.

The Medical Tourism niche continues to increase in importance, and Florida International University's work with the Medical Tourism Association (MTA) lays the groundwork for more robust learning opportunities in this area. Development of a Medical Tourism certificate will provide students and FIU and at the other institutions an access point for entry into this niche and an opportunity for specialists in both the hospitality and health care sectors to promote these specific skill sets. Expansion beyond the certificate into degree programming can further demonstrate Miami Dade County's commitment to expertise in this field.

The County can also benefit by expanding and specifying learning opportunities related to Information Technology applications specific to the Hospitality and Tourism sector, including hospitality business applications, mobile computing, revenue management, forecasting and data mining.

Miami-Dade County currently does not have extensive educational or training opportunities in some of the target niches in this industry. While some coursework exists in tourism software and information technology, there appears to be no dedicated programs for this niche. Certain niches within the broader industry, such as high income international visitors, would be difficult to impact through focused coursework or instructional strategies. The large numbers of entry-level, non-credentialed workers within this industry represent a pool of talent that could be repurposed and nurtured to support other industries. For example, service workers within hotel and tourism companies are likely to possess basic customer service capabilities, cultural awareness, and are often multi-lingual. These competencies are critical to success of the international banking/finance industry as well as portions of the health care industry. These entry-level hospitality positions can serve as a foundation for career development in the hospitality, health care, and finance/banking target industries.

INFORMATION TECHNOLOGY

The **Information Technology (IT)** industry includes those who support computer and communications infrastructure such as network and systems administrators, computer support and repair technicians, IT security specialists, hardware and software managers, and those who support, deploy and develop computer applications including computer programmers, project managers, database designers, and developers of applications for mobile devices. IT professionals work in IT firms but predominantly support IT applications and infrastructure for more traditional firms – all of whom to some degree rely on information and communications technology to conduct basic operations, marketing, internal and external communication, financial transactions, human resource management, purchasing, compliance, etc. as well as functions specific to each industry such as airline reservation systems, construction project management systems, designing and modeling programs, medical devices and controls, health care patient records, and documentation for pharmaceutical clinical and pre-clinical trials.

The IT industry (including IT functions within other industries) has relied on traditional degrees and certificates to measure and verify skill attainment along with a myriad of non-academic certifications. Many such certifications are specific to particular products and particular hardware and software vendors. A large cohort of training providers in Miami-Dade County has grown up around the short-term, non-academic certification marketplace. As products evolve, however, entry-level certified Information Technology professionals can be challenged to adapt to new versions of products and new products from different vendors they are not familiar with. Those possessing vendor-neutral training and certification, including academic credentials, are more likely to make these transitions smoothly as their knowledge focuses on the discipline (such as Systems or Networking) as opposed to the product (such as Microsoft or Cisco). At the same time, it is common for those with a Bachelor's degree to seek additional training at the community college or commercial training provider in order to more effectively apply their knowledge to actual equipment and systems found in the business world.

Opportunities for IT-related business development in Miami-Dade County include all of the basic business infrastructure and application development needs with particular emphasis on the following:

- High reliability, high security data centers
- Digital infrastructure for film and television production
- Medical records management
- Bioinformatics
- Mobile applications for the financial services industry
- GIS and Geospatial applications
- Logistics IT
- Technical Support
- Application development and support for the travel/tourism industry

Learning Opportunities

Currently, Miami-Dade County's high schools, community college system, and four year institutions provide a wide variety of educational opportunities to prepare students and workers for entry-level through advanced positions in this industry.

High School

In an effort to prepare students for careers and jobs in this industry, Miami Dade Public Schools operate information technology programs at 31 high school locations. Students receive contextual training and education for this industry and are connected to internship opportunities and other preparation for entry-level jobs.

The Information Technology Academies are located at:

- Alonzo and Tracy Mourning Senior High School
- American Senior High School
- Barbara Goleman Senior High School
- Booker T. Washington Senior High School
- COPE Center North
- Coral Gables Senior High School
- Felix Varela Senior High School
- G. Holmes Braddock Senior High School
- Hialeah Gardens Senior High School
- Hialeah Senior High School
- Homestead Senior High School
- John A. Ferguson Senior High School
- Miami Beach Senior High School
- Miami Carol City Senior High School
- Miami Central Senior High School (Computer Technology)
- Miami Coral Park Senior High School
- Miami Jackson Senior High School
- Miami Lakes Educational Center (Electronic Technology, Computer Systems Technology, Programming with Robotics and Gaming)
- Miami Norland Senior High School
- Miami Northwestern Senior High School
- Miami Palmetto Senior High School
- Miami Senior High School
- Miami Southridge Senior High School
- Miami Springs Senior High School
- Miami Sunset Senior High School
- North Miami Senior High School
- North Miami Beach Senior High School
- Robert Morgan Educational Center (Computer Electronics Technology)
- Ronald W. Reagan/Doral Senior High School
- South Dade Senior High School (IT, Electronic Business Enterprise)
- South Miami Senior High School
- Southwest Miami Senior High School
- Westland Hialeah Senior High School
- William H. Turner Technical

A variety of computing and information technology programs can be found at the following Adult Education centers within the Miami Dade Public School system:

- D.A. Dorsey Education Center (Business Technology, PC Support)
- The English Center (Computer Technology, Networking, PC Support)
- Lindsey Hopkins Technical Education Center (Computer Systems)
- Miami Lakes Education Center (Computer Systems)
- Robert Morgan Education Center (Computer Systems)

Post Secondary Programs

Offerings in support of this industry are common among public and private institutions. In many cases skills related to the sub-specializations (such as database or security) are contained within the larger Computer Science and Information Systems degree programs. Some of the IT programs offer tracks or specializations in different sectors of the industry. As well, numerous commercial training providers provide certification-based training programs.

The following table illustrates higher education degree programs in Information Technology available in Miami-Dade County.

Supporting Degree Programs	Barry University	Florida International University	Miami Dade College	St. Thomas University	Florida Memorial University	University of Miami	M-DCPS Technical Institutions
Computer Science*	C, B	B, M, P	A	B	B	B, M, P	
Programming	C, B	C	C, A			B	C
Database	B	C	C, A			B	
Project Management		M	C				
Security	B	C	C, A				
Networking	B	C, M	C, A			B	C
Computer Support		C	C, A				C
Web Development	B		C, A			C	C
Mobile Communications			C, A (pending)			B	
Systems Administration	B	B, M	C, A		B	C, B	
Information Systems	B	B	C, A	B	B		C

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

*includes programming, database, networking, security, internet services, systems and project management

In addition to the main college and university programs, there are many providers – colleges as well as training centers – that offer programs that prepare workers for IT roles. Many of the providers are authorized to provide training under the Workforce Investment Act and deliver training to students coming through the public workforce system. They include:

	Computer Science	Programming	Computer Support	Project Management	Networking	Security	Web Development	Mobile Applications	Computer and Information Systems	Database
Florida Career College			C		C, A	C			B	
ITT Technical Institute		B			B	A	B	A	A, B	
New Horizons		C	C	C	C	C	C	C	C	
The Academy		C		C		C			C	
ATI Career Training Center			C		C					
Atlantis University			C		C				A, B, M	
DeVry University			B		A	A, M	B		B, M	B
Azure University	A		C			C				
College of Business and Technology			C			A				
Fastrain	A		C				C		C	
Keiser Career College						A				
New Horizons Computer Learning Center		C	C	C	C	C	C	C	C	C
New Professions Technical Institute						C				
Sullivan-Cogliano Training Centers		C				C	C			
Total International Career Institute										
Technical Career Institute			C			C	C		C	

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

Non Degree Programs and Classes

There are a number of research and innovation centers that have been created to foster growth in the IT industry. Florida International University has the Center for Advanced Technology and Education, the Applied Research Center, the Center for Innovative Information Systems Engineering, and the Telecommunications and

Information Technology Institute. These centers all focus on different aspects and applications of IT development. FIU's College of Engineering and Computing, Division of External Programs offers several certificates in IT. St. Thomas University and Florida International University are also partners in a joint Engineering Program that allows students to focus on computer engineering and electrical engineering. Miami Dade College's Emerging Technology Center of the Americas (ETCOTA) provides Information Technology and Telecommunications education and training programming, including both certification and degree programs.

Further Learning and Teaching Opportunities

Education and training providers in Miami-Dade County offer a wide array of options related to both infrastructure and application development in the IT industry. The large number of providers offering non-credit certification programs indicates both a broad set of entry-level opportunities in basic IT functions as well as a sizable learner community. Individuals who seek or have already earned entry-level certifications represent a strong base from which to develop more advanced skills and more advanced professionals.

While the primary IT functions are addressed through the existing collection of education and training providers, IT applications related to the niche sectors are not as readily identified. Short-term courses and certificates addressing IT applications for the hospitality industry, for example, could facilitate more efficient linkage to opportunities in that industry. Some logistics programs elsewhere in the nation include a special focus on logistics technology and IT applications for the logistics industry. Software and application development coursework and fieldwork that deliberately focus on these and other target industries would further develop a talent base that is positioned to support these priority areas.

GIS mapping and its interface with traditional application development is linked to both logistics and mobile application development, yet are underrepresented among the available offerings. Miami Dade College's emerging Associate's Degree in Mobile Application Development will fill some of this need, though further learning opportunities are appropriate for both the Bachelor's level as well as the certificate level. FIU offers training and coursework through the NSF Industry-University Cooperative Research Center for Advanced Knowledge Enablement (CAKE) and its geospatial data center. The Center supports GIS applications in several target industries. Academic majors related to Geospatial Information Systems are not available in Miami Dade County at this time but could be developed to support this niche area.

Health care IT, medical records management, and bioinformatics are also expected to be growth areas for which more specially trained workers at the certificate, Associate's, Bachelor's, and post-graduate levels will be appropriate.

While most high school and college students will not become information technology professionals, virtually all who expect to obtain living wage jobs will need some facility with information technology applications and tools for communication and collaboration. All students must gain access to and become comfortable with these tools in the context of all traditional and other vocational subject areas.

INTERNATIONAL BANKING & FINANCE

Miami's reputation as an international destination is not confined to tourism. Miami's location, business infrastructure, and multi-cultural and multi-lingual landscape make it an accessible and appropriate place for the **International Banking & Finance** industry to conduct operations and cross-national transactions. Air transportation and cultural connections make it comfortable to do business in Miami. Relative to markets and currencies in South and Central America, Miami offers individuals in those markets a safer place to keep and invest their money. While labor and real estate costs have moved back-office and lower-skill operations outside of Miami, wealth management, brokerage, trade financing and other activities remain strong.

Not only are traditional international and global banks a target for Miami's future, but also the development of venture capital and other investment firms. These businesses and the capital they bring with them provide a great opportunity for Miami's growth in the future. Opportunities in this field include traditional banking, venture and small cap investment, and other finance-related businesses.

A qualified workforce for the industry includes professionals in financial services, regulatory affairs, sales, and management. As well, it is critical for the industry to have access to skilled information technology professionals with an emphasis on data security, database design and management, and software engineering/programming. All of these individuals will be far more valuable if they can apply their skills in multi-lingual and multi-cultural contexts as well.

Learning Opportunities

Miami-Dade County currently has a wide variety of educational and training opportunities in this industry from the high school level all the way through advanced degree programs.

High School

Business and finance programs are located at twenty-five Miami Dade High Schools, including:

- Barbara Goleman Senior High School (Finance)
- Booker T. Washington Senior High (Finance, Entrepreneurship)
- Coral Gables Senior High School (Business Management)
- COPE Center North (Business)
- Coral Reef Senior High School (Business and Finance)
- G. Holmes Braddock Senior High School (Business)
- Hialeah Gardens Senior High School (Finance, Entrepreneurship)
- Hialeah Senior High School (Entrepreneurship)
- Hialeah-Miami Lakes Senior High School
- Miami Jackson Senior High School (International Business and Finance)
- Miami Lakes Education Center (Entrepreneurship, International Business and Marketing, Financial Services)
- Miami Plametto Senior High School (Entrepreneurship)
- Miami Senior High School (Business)
- Miami Southridge Senior High School (Business)
- Miami Sunset Senior High School (Finance)
- Southwest Miami Senior High School (Banking and Finance)
- North Miami Senior High School (Finance)

- (Business, Entrepreneurship)
- John A. Ferguson Senior High School (International Business and Finance)
- Miami Carol City Senior High School (Business)
- Miami Coral Park Senior High School (Small Business and Entrepreneurship)
- Miami Edison Senior High School (International Studies, Entrepreneurship, Finance)
- North Miami Beach Senior High School (Business)
- Robert Morgan Educational Center (Business)
- South Dade Senior High School (Professional Services, Finance, Business)
- Westland Hialeah Senior High School (International Business and Finance)
- William H. Turner Technical (Finance, Entrepreneurship)

These Career Academies address financial services technology, accounting, financial operations, and financial planning. Additional emphasis on **international trade** (a strand within the Business/Management cluster) will enhance students' understanding of the industry and pursuit of further education related to international banking, as will the legal studies strand within the law, public safety, corrections and security career academy cluster.

Certificate Programs

There are a variety of private and public institutions that provide education and training in this industry. A great many of these non-degree programs address basic finance and banking skills for the local consumer market. Only a few offerings at the certificate level specifically address the international aspect of this work (Miami Dade College's Program of International Marketing and International Business Specialist/Operations). The large number of general offerings indicates meaningful interest in financial services work and a critical mass of individuals gathering foundational experience. Their interest and experiential learning is a solid foundation upon which learning related to international transactions, marketing, sales, and regulatory affairs can be built to develop the workforce to fulfill higher level needs.

Post Secondary Programs

There are many opportunities in Miami for more advanced training and education in the international banking and finance industry. Business administration with a focus on international business, along with more general programs in finance, business, accounting, and international trade are just some of the training programs provided.

The following table illustrates the higher education degree offerings related to International Banking & Finance in Miami-Dade County.

	Barry University	Florida International University	Kellogg School of Management	Miami Dade College	St. Thomas University	University of Miami
Supporting Degree Programs						
International Business	B, M	B, M, P	M	C, A, B*	B, M	B, M, P
International Marketing		M		C, A		
Intl Business Operations				C, A		
Intl Bank Management		B, M		C, A		M
Intl. Trade Marketing				C		
Anti Money Laundering		C		C		
International Real Estate		M	M			
Import/Export Management		C		C		
Global Entrepreneurship				C, A	M	

C= Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

*BAS in Supervision and Management

In addition to the institutions listed above, Atlantis University – an international institution headquartered in Miami – also offers unaccredited Bachelor and Masters programs in International Business.

More general business, banking, entrepreneurship, and business-related offerings without an international focus are abundant among the education and training providers. Accounting, finance, marketing, management programs are available at each of the colleges. Masters in Business Administration programs are available at Barry University, Florida International University, University of Miami, St. Thomas University, Carlos Albizu University, Atlantis University and ITT Tech. The business and related programs support the international business and finance industry, as well as each of the other industries targeted.

Miami Dade College provides some classes in finance and accounting not associated with degree programs that also support this industry. There are also a number of institutes and initiatives in Miami that focus on global and international trade. Some of these include:

- Miami Dade College's Latin American and Caribbean Institute
- Miami Dade College's Carrie P. Meek Entrepreneurial Education Center
- St. Thomas University Institute for Global Entrepreneurship
- Florida International University Latin American and Caribbean Center
- Florida International University Center for International Business Education and Research
- Florida International University Eugenio Pino and Family Global Entrepreneurship Center
- Florida International University Florida-Caribbean Institute
- Florida International University Florida-Mexico Institute
- University of Miami Center for Hemispheric Policy

Further Learning and Teaching Opportunities

The institutions in Miami currently offer a wide variety of programs, degrees, and certificates in traditional finance and accounting at all levels. There are a large number of programs that focus on the international business and trade industries. While some programming exists to support venture capital and other investment vehicles, there is room for increased training and education in this field especially as pertains to investing internationally and in emerging markets. There are very few offerings geared towards mobile banking and other innovations in banking and trade. Also, while trade and maritime business is an area of focus in Miami, there is little education or training that is specifically focused on maritime trade, regulations and business.

While Miami is home to many bi-lingual individuals, many informants reported that the Spanish used casually is not of professional caliber for conducting business and financial transactions. For those aspiring to attain positions in the international banking and business industry, language courses aimed specifically at conducting business in Spanish and languages of other emerging markets will help to make those individuals more competitive.

As many of the target positions in this target industry are advanced positions, a significant part of the workforce solution will be attraction of skilled workers from outside of the area to meet short-term needs. However, there are several institutions and training providers offering programming to support entry-level banking, accounting, finance and associated IT roles. This active market for finance and business-related learning indicates a learner population that is interested and motivated enough to pursue instruction in this area. This population could benefit from development of career ladders from the baseline business and finance roles to greater understanding of application of those and other skills to support international banking and finance organizations. There appears to be a space for bridge programs to address academic and communication skills, networking and career awareness, and regulatory concerns in order to help these individuals move into higher level occupations. Miami's large population of hospitality workers – many of whom have developed multi-cultural competence and customer service skills in their hospitality roles – also offers a potential pool of individuals who could utilize a similar bridge into the international banking industry.

LIFE SCIENCES & HEALTH CARE

The **Life Sciences & Health Care** industry includes workers who provide direct medical services in the health care field as well as those who work in medical and biomedical research areas. Health care and direct medical services workers include nurses, nurse practitioners, phlebotomists, doctor assistants, radiographers, EMTs, X-ray technicians, surgical technologists, anesthesiologists, doctors, and a long list of other specialized workers in the medical field. Workers in this area generally have explicit training requirements and credentials that are clearly spelled out for their jobs. Many of these positions require only certificate level credentials; however, to advance in this field an Associate's degree, Bachelor's degree, or other high-level educational attainment is required. Many of the entry-level workers in this industry utilize community colleges and private providers to gain entry, further advancement, and training. Most of the workers in this area work in traditional settings such as hospitals, private medical offices, clinics, and other outlets for medical services.

Workers in the medical and biomedical research positions include biologists, chemists, laboratory managers, clinical biologists, biomedical scientists, biomedical engineers, neuroscientists, microbiologists, pharmacologists, engineers, and researchers in the medical and biomedical field. These workers are largely located in the intermediate and advanced levels of employment in this industry, though entry-level workers can be found in larger laboratory research operations, shipping and receiving, equipment maintenance, product/process development, and quality assurance functions. Many of these workers work in the research departments of universities and medical schools or in private research institutions. Miami-Dade County is home to research in this field at a number of public and private institutions. The education requirements for these workers generally begin at the Associate's level and are concentrated at the Bachelor's and advanced degree levels.

Opportunities for life sciences and health care development in Miami-Dade County include all of the basic health care provider and research needs with particular emphasis on the following:

- Bioinformatics
- Biologics
- Medical Records Management
- Critical Care
- Diagnostics
- Genomics
- Medical Device innovation
- Technical Customer Support
- Back Office Support
- Agricultural Bioscience
- Biomedical
- Pharmaceutical
- Health Information Technology

Learning Opportunities

Miami-Dade County currently has a wide variety of educational and training opportunities in this industry from the high school level all the way through advanced degree programs. Not surprisingly, the preponderance of learning opportunities are focused on health care delivery as total economic activity and job/career awareness for these positions is far greater than the more esoteric and mysterious opportunities in the research, manufacturing, and business segments of the pharmaceutical, medical device and diagnostics sub-sectors.

High School

Currently there are 27 high school Academies of Health Science and Medicine operated by Miami-Dade County Public Schools that provide training and preparation for students for entry and further education in the medical and life sciences fields. All of these academies are aimed at health care services and delivery.

The STEM academies would be appropriate to support the life sciences industry. However, they do not appear to focus on this industry at the moment in terms of what they teach and which careers they promote.

Academies of Health Science and Medicine are located at:

- American Senior High School
- Barbara Coleman Senior High School (Pre-Med)
- Booker T. Washington Senior High School (Health Science)
- COPE Center North (Health Science)
- Coral Gables Senior High School (Health Science)
- Coral Reef Senior High School (Medicine)
- Dorothy M. Wallace COPE Center (Health)
- Felix Varela Senior High School (Health Science, Veterinary)
- Hialeah Gardens Senior High School (Health Science)
- Hialeah Senior High School (Health Science)
- Hialeah-Miami Lakes Senior High School (Health Science)
- John A. Ferguson Senior High School (Medical Skills/Biomedical)
- Medical and Science Technology at Homestead (Biomedical Science, Pharmaceutical, Physical Therapy)
- Miami Carol City Senior High School (Health Science)
- Miami Central Senior High School (Health Science)
- Miami Edison Senior High School (Health and Public Affairs)
- Miami Jackson Senior High School (Health Science)
- Miami Lakes Educational Center (Intro. To Practical Nursing, EMT, Dental Aide, Nursing Assistant, Pharmacy Aide, Medical Assisting)
- Miami Northwestern Senior High School (Health Science)
- Miami Palmetto Senior High School (Health Science)
- Miami Senior High School (Health Science)
- Miami Southridge Senior High School (Health Science)
- North Miami Beach Senior High School (Biomedical/Environmental)
- North Miami Senior High School (First Responder)
- Robert Morgan Educational Center (Dental Aide, Medical Assisting, Nursing Assistant, Practical Nursing, Physical Therapy, Sports Medicine, Veterinary)
- South Dade Senior High School (Sports Medicine, Nursing Assistant, Medical Assisting, EMT)
- Terra Environmental Research Institute (Biomedical Research)
- Westland Hialeah Senior High School (Health Science)
- William H. Turner Technical (Health Science, Veterinary)

While there are many offerings available through the Career Academies that address health sciences, **specializations focus predominantly on health care delivery**. Some competencies and awareness that are critical to the life sciences/biotech industry can also be found within the STEM Career Academy, though there appears to be only three academies– Terra Environmental Research Institute, MAST at Homestead and John A. Ferguson Senior High School– focused specifically on the research, clinical trials, and production skill needs of life sciences firms. High Schools offering Veterinary programs can also align skills in that discipline to support pre-clinical research for the pharmaceutical and life science sectors.

A variety of health programs can be found at the following Adult Education centers within the Miami Dade Public School system:

- D.A. Dorsey Education Center (Medical Coding, Pharmacy, Patient Care)
- Hialeah Technology Center (Nursing and Allied Health)
- Lindsey Hopkins Technical Education Center (Practical Nursing, Patient Care Technician, medical Coder/Biller, Dental Assistant, Surgical Technology)
- Miami Lakes Education Center (Dental/Medical Assistant, Nursing, Pharmacy)
- Robert Morgan Education Center (Nursing, Medical Assistant, Dental)
- South Dade Adult Center (Medical Assistant, Patient Care, Pharmacy)

Post-Secondary Programs

There are a variety of private and public institutions that provide education and training in this industry. Some of these programs are focused on health care and direct medical services, while others are more geared towards research and innovation. There are also many opportunities in Miami-Dade County for more advanced training and education in the life sciences industry. The two main areas of focus for the industry are health care delivery and medical and scientific research/biotechnology.

The following table illustrates higher education offerings related to the Life Sciences & Health Care industry in Miami-Dade County.

	Barry University	Florida International University	Miami Dade College	St. Thomas University	Florida Memorial University	University of Miami	M-DCPS Technical Institutions
Supporting Programs							
Health care Delivery							
MD		MD				MD	
Nursing	B,M,P	B,M,P	C, A, B	C,B	B	C,B,M,P	C
Pharmacy Technician			C				C
Medical Assisting			C (B pending)				C
Medical Technology	C		A				
Massage Therapy			C				
Emergency Medicine	C		C,A				
Physical Therapy		P	A			M,P	
Radiography			A		B		
Anesthesiology	M						
Podiatric Medicine	M, P						
Occupational Therapy	M	M	A				
Physician Assistant	M		A, B				
Respiratory Therapy			A				
Cardiovascular Perfusion	B						
Health Administration	C, B, M	C,B,M	A	B		B, M, M/MD	
Health IT		M	C, A				
Sonography			A				
Nuclear Medicine			C, A				
Clinical Laboratory			A				
Phlebotomy			A				C
Dentistry			A				
Billing and Coding Management	C		A				C

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

In addition to the main college and university programs, there are many providers –colleges as well as training centers – who offer programs that prepare workers for patient care, clinical, medical para-professional and administrative roles within health care organizations. Many of the providers are authorized to provide training under the Workforce Investment Act and deliver training to students coming through the public workforce system. They include:

	Nursing	Medical Assistant	Emergency	Therapy (Resp, Occ, Phys)	Radiology	Health Admin	Pharmacy	Health IT	Medical Billing and Coding
ATI Career Training Center		C							
Azure College	C	A	C, A	C, A	C, A				
College of Business and Technology	C, B	C, A						A	C
Compu-Med Vocational Centers	C	C							
Dade Medical College	C, B	A			A				C
DeVry University						B		B	
Everest Institute	C	C					C		C
FastTrain	C	C				A	C		C
Florida Career College		C		A		A	C	B	
Florida Education Institute	C	C				C	C		C
Florida Medical Training Institute	C		C						C
Keiser Career College	C, A	C, A	C				C, A		C
Management Resources Inc	NCLEX review								C
MedVance Institute	C	C			C				C
New Professions Technical Institute	C								C
Professional Training Centers	A	C					C		C
SABER	C, A								
South Florida Institute of Technology		C							
Sullivan and Cogliano Training Centers									C
Technical Career Institute		C	C				C		C

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

Offerings in the research/biotech arena are fewer, and exist almost entirely within the main college and university programs.

	Barry University	DeVry University	Florida International University	Miami Dade College	St. Thomas University	Florida Memorial University	University of Miami
Supporting Programs							
Biotech, Research							
Bioinformatics				C, A			C, M
Biotechnology	M			C, A, B*			C
Biomedical Engineering	M	B	B,M,P	A			B,M,P
Chemistry	B		B,M,P	C, A	B	B	B,M,P
Biology	B,M		B,M,P	A, B	B	B	B,M,P
Biomedical Sciences	C,M						B,M,P
Laboratory Sciences	B,M			A			
Anatomy	M						
Histotechnology	M			A			
Genetics							P

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

*Offered as tracks in MDC's Biological Sciences: biotechnology, biopharmaceutical sciences, and science education

Non Degree Programs and Classes

One of the leading research universities in the region and the nation is the University of Miami. To foster growth and innovation in life sciences, the University of Miami is currently building the UM Life Science and Technology Park. This will bring researchers and businesses together to help move this industry forward. Florida International University has two centers that focus on research in biomedical science: The Center for Advanced Technology and Education and the Institute of Neuroimmune Pharmacology. Both serve as centers of research and innovation in biomedical technology and position Miami-Dade County at the front of research in these areas. St. Thomas University and Florida International University also partner together on a joint Engineering Program that allows students to focus on biomedical engineering, and Miami Dade College biomedical engineering students (and the college credits they have earned) can transfer into the biomedical engineering program at FIU. In addition, Miami Dade College has aligned with the University of Florida who offers the BS in Microbiology and Cell Science at MDC's North Campus science complex. Partnered between and among Miami Dade College, FIU, St. Thomas University, the US Department of Agriculture and the Interamerican University of Puerto Rico have worked to help students access USDA job opportunities in South Florida and nationally.

Further Learning and Teaching Opportunities

There is a preponderance of offerings in Miami-Dade County related to health care delivery and associated business and support services. The sizable health care delivery market in Miami provides the opportunity to capture large datasets that support health care management, medical research, and clinical trials. There will likely be a growing need for individuals skilled in health care information management and computation specific to clinical data. Increasing medical tourism also offers new career paths for those trained in medical specialties and associated patient/customer services. Collaboration between faculty in the medical programs and those in the hospitality programs can assist in the development of Medical Tourism certificate and degree possibilities.

Outside of health care delivery and associated administrative and medical para-professional areas, there are far fewer programs available. Basic entry-level biotechnology programs can be augmented with specific courses or certifications related to medical device research and manufacturing, genomics, agricultural bioscience, regulatory affairs, and quality assurance. Certificate programs in veterinary technology can support pre-clinical research capabilities, though now appear to emphasize care for agricultural and domestic animals.

The large number of individuals participating in education and training for entry-level health care jobs represents a substantial pool of people with both basic capabilities and interest in the health sciences. Both the interest and the foundational awareness and capabilities can be drawn upon to develop a larger cohort of learners for pharmaceutical and medical device sub-sectors. Creation of shorter lab skills certificate programs can serve as an entry point (currently the shortest offering is a one-year program) for those who can move beyond basic clinical positions and for those who may have difficulty gaining access to health care services and delivery programs such as nursing, pharmacy and allied health. There is also a need for more emphasis on “soft” skills to prepare students for success in the workplace.

TRADE & LOGISTICS

One of Miami-Dade County's strongest assets is its location to many trading partners and as a nexus between the United States, Latin America, the Caribbean, Europe and increasingly Asia. Logistics is one of the County's core competencies. Miami-Dade County serves as the initial entry and exit point for a wide variety of goods to and from Central and South America and other countries. Some products arrive by boat while others arrive through the air. Regardless of their origin or final destination, goods are processed and routed through a substantial and complex logistics system in Miami-Dade County. While Miami currently has a strong hold on this business, there is competition from other ports along the East Coast and Gulf Coast. For this industry to prosper and remain competitive, Miami-Dade County must continue to innovate and strengthen its workforce.

The **Logistics** industry includes airline agents, aircraft mechanics, airport operations workers, logistic systems operators, logisticians, warehouse workers, warehouse operators, truck drivers, pilots, importers, exporters, logistic managers, and a wide variety of other workers who help keep goods moving through Miami-Dade County. The variety of companies in this industry includes airlines, airports, airline support companies, transportation companies, warehousing companies, the Port of Miami, and other transportation related companies.

For many of these positions there are basic certifications or educational requirements. The level of education and training has increased as the industry has become more complex. The use of technology and software programs requires training and education in many of these systems. At the entry-level private and public institutions provide many of the credentials and training needed. However, community college, four year degrees, or more advanced programs are required to advance in this field.

Opportunities for logistics-related business development in Miami-Dade County include the basic business infrastructure and transportation-related businesses with particular emphasis on the following:

- Aircraft parts and MRO
- Distribution Centers
- Logistics Information Technology
- Geomapping and GIS
- Perishables
- Professional Services for Trade
- Professional Services for Maritime
- Simulation and Training Services
- Trade Finance
- Value Added Services(Assembly and Kitting)
- Intermodal/air/sea/surface transportation

Learning Opportunities

Currently, Miami-Dade County's high schools, community college system, and four year institutions provide a wide variety of educational opportunities to prepare students and workers for entry-level through advanced positions in this industry.

High School

In an effort to prepare students for careers and jobs in this industry, Miami-Dade County Public Schools operate three high school academies focused on aviation and aerospace. Through these academies, students receive contextual training and education for the aviation and transportation aspects of this industry. Students are connected to internship opportunities and other preparation for entry-level jobs.

The Aviation and Aerospace Academies are located at:

- Hialeah Senior High School (Aviation Business, Aviation Flight)
- George T. Baker Aviation School

Trade and logistics programs can be found at the following Adult Education centers within the Miami Dade Public School system.

- Miami Lakes Education Center (Commercial Vehicle Driving, Heavy Equipment Operations)
- Robert Morgan Education Center (Heavy Vehicle Maintenance)

Post-Secondary Programs

A few public and private institutions provide certificate level training for this industry. There are also a number of public and private colleges and universities that provide greater training and education in this industry in the form of Bachelor's and Associate's degree programs. Most of the offerings are in aviation or airline operations or focused on logistics and supply chain management.

Miami Dade College will soon launch the Institute for Intermodal Transportation, pulling together components of the various transportation elements (air, sea, truck, and rail) into a coherent Associate's degree in the fall of 2012 with the intention to offer a Bachelor's degree soon after. This program will incorporate elements of law, regulations, customs, and transportation systems. They will initially target people already working in non-degree positions within the transportation industry that can increase their skills and eligibility for more and better jobs.

FIU's College of Engineering and Computing offers a one-year Masters program in Engineering Management with a focus on transportation management.

The following table illustrates higher education offerings related to Trade & Logistics in Miami-Dade County.

	Florida International University	Florida Memorial University	Miami Dade College	University of Miami	New Professions Technical Institute
Supporting Degree Programs					
Air Cargo Agent			C		
Airline Management			C		
Airport Management		B	C		
Freight Broker Training			C		
Import/Export Trade			C		
Import/Export Management	C		C		C
Supply Chain Management	C		C		
Aviation Administration		B	A		
Logistics	C, B, M**, P		C (A pending)	C, B	
Aviation Maintenance Management		B	A		
Piloting Technology		B	A		
Certified Flight Instructor			C		
Passenger Service Agent			C		
Air Traffic Control		B			
Transportation Management	M*		(A, B pending)	C	

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

*Engineering Management with a specialization in Transportation Management

** Engineering Management with a specialization in logistics

Non-Degree Programs and Classes

Along with these offerings Miami Dade College also offers online and continuing education classes that are not explicitly tied to a degree or certificate. These classes include Distribution and Logistics Management, Strategic Best Practices of Supply Chain Management, Export Procedures and Documentation, Global Logistics Associate

Certificate Exam Prep, How to Set Up an Import/Export Business, How to Finance Your Import/Export Business, Customs Broker Exam Review, Customs Regulations, Duties and Taxes, Logistics Management, Supply Chain Management, Importing to and Exporting from the United States, and Freight Forwarding: Shipping Practices and Documentation. The University of Miami houses the Center for Advanced Supply Chain Management which focuses on innovation in this industry. Florida International University also has the Lehman Center for Transportation Research, a leader in the field that works to develop safer and more efficient transportation systems and serves as a resource center for the intermodal transportation system in South Florida. FIU's College of Engineering and Computing, Division of External Programs offers several extension programs in transportation.

Further Learning and Teaching Opportunities

Career Academies at the secondary level include a focus on aviation, but other components of the logistics industry are underrepresented. As the logistics industry is somewhat less obvious to young people, additional efforts to increase awareness at the secondary level is warranted. High school students do not know as much about this industry as they do about law, health care, and other more common specialties.

Miami-Dade County does not currently have extensive educational or training opportunities in some of the target niches in this industry. There are very few offerings and no programs specifically focused on geospatial mapping and GIS, freight forwarding, transportation management, and compliance related to transportation and storage of food and agricultural products, chemicals, and other regulated materials. There are also very few offerings specifically focused on maritime trade or logistics operations. Programs in Information Technology applications specific to the Logistics industry exist in other port cities.

CONCLUSION

Miami-Dade County offers abundant education and training opportunities in all six target industries identified in this strategy. Miami-Dade County is also home to large numbers of individuals at all stages of learning and careers who can continue to increase their value through ongoing learning. Across all of the target industries, additional information about the nature of the industries and careers **not specific to particular institutions or programs** can engage learners at a variety of levels and at any number of access points within the educational ecosystem. Promotion and utilization of experiential learning programs can encourage individuals to engage in additional career development and associated learning opportunities.

In several areas the strong base of programs can be augmented to address particular sub-sectors and critical skill areas.

<i>Aviation</i>	<u>Content and Program Development Opportunities</u> <ul style="list-style-type: none"> • Expand programming to include composite technologies and other aviation manufacturing related programs • Add aviation specializations to engineering programs (DER) • Specify niche sectors to guide educational emphasis
<i>Creative Design</i>	<u>Content and Program Development Opportunities</u> <ul style="list-style-type: none"> • Increase availability of short term and degree programs in and across design and entertainment sub-industry areas • Provide cross-training between Engineering and Design programs • Increase technology-based offerings • Reverse negative growth in industrial engineering degrees
<i>Hospitality & Tourism</i>	<u>Content and Program Development Opportunities</u> <ul style="list-style-type: none"> • Enhance short-term training on software applications specific to the industry • Focus on Information technology across industry • Attract entry-level workers to degree programs and accelerate completion through validation of experiential learning
<i>Information Technology</i>	<u>Content and Program Development Opportunities</u> <ul style="list-style-type: none"> • Develop bridge from certificate level to credit/degree programs and more advanced study to increase degree-seekers
<i>International Banking & Finance</i>	<u>Content and Program Development Opportunities</u> <ul style="list-style-type: none"> • Add focus on venture capital and investment • Develop career ladder information and guidance • Increase focus on international business at the secondary level • Develop bridge programs for lower level learners/employees to engage in

	more advanced learning
<i>Life Sciences & Health Care</i>	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Continue to increase programming in biotechnology, genetics, medical device research, agricultural bioscience, quality assurance, laboratory technician and scientists • Partner with Tourism/Hospitality to grow Health Tourism niche sector • Build on entry-level skills of the patient-care workforce to develop research and manufacturing capacity • Further specify niche targets to guide educational emphasis
<i>Trade & Logistics</i>	<p><u>Content and Program Development Opportunities</u></p> <ul style="list-style-type: none"> • Continue to increase programming in geospatial, geographic information Systems (GIS), freight forwarding, transportation management, food/agricultural product storage management, logistics information technology and software, • Further emphasize Logistics at the secondary level

Recommendations for further building the education and learning infrastructure to support economic development in Miami-Dade County will be included in the forthcoming Strategy.

APPENDIX 1: COLLEGE GRADUATE OUTPUT TABLES
































COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Agriculture									
Ag Business									
	Total	1	1	1	2	22	17		76.2%
	< Bach	1	1	1	2	22	17		76.2%
	Pre-Assoc Cert.					21	15		
	Associate's	1	1	1	2	1	2		14.9%
Ag Conservation									
	Total	65	57	68	49	67	100		9.0%
	Bach+	65	57	68	49	67	100		9.0%
	Bachelor's	55	42	49	39	41	69		4.6%
	Post-Bach Cert.				1	2			
	Master's	10	15	19	9	24	31		25.4%
Architecture									
Architecture Design									
	Total	27	25	22	21	33	29		1.4%
	< Bach	23	15	12	13	10	9		-17.1%
	Bach+	4	10	10	8	23	20		38.0%
	Associate's	23	15	12	13	10	9		-17.1%
	Bachelor's				4	10	13		
	Master's	4	10	10	4	13	7		11.8%
Arch. Services (Other)									
	Total	135	170	167	174	188	183		6.3%
	Bach+	135	170	167	174	188	183		6.3%
	Bachelor's	101	127	106	139	130	127		4.7%
	Post-Bach Cert.				1				
	Master's	34	43	61	34	58	56		10.5%
Urban Planning									
	Master's	7	8	8	11	10	14		14.9%
Business, Finance, Economics									
Accounting									
	Total	567	589	635	588	627	669		3.4%
	< Bach	156	155	178	146	143	151		-0.6%
	Bach+	411	434	457	442	484	518		4.7%
	Pre-Assoc Cert.	87	98	99	74	58	55		-8.8%
	Associate's	69	57	79	72	85	96		6.8%
	Bachelor's	321	341	341	318	393	344		1.4%
	Post-Bach Cert.			3	5	0	28		
	Master's	90	93	113	119	91	146		10.2%
Entrepreneurship									
	Total	36	60	60	60	55	60		10.8%
	< Bach	8	13	14	12	9	10		4.6%
	Bach+	28	47	46	48	46	50		12.3%
	Pre-Assoc Cert.	8	13	14	12	9	10		4.6%
	Bachelor's	28	47	46	48	46	50		12.3%







































COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Finance & Economics									
Total		704	747	815	814	908	928		5.7%
< Bach		26	33	17	26	36	36		6.7%
Bach+		678	714	798	788	872	892		5.6%
Pre-Assoc Cert.		15	23	6	18	27	28		13.3%
Associate's		11	10	11	8	9	8		-6.2%
Bachelor's		543	590	642	620	691	719		5.8%
Post-Bach Cert.			1	19	11	2	1		
Master's		133	121	131	142	169	167		4.7%
Post-Mast Cert.			0	1	10	6	0		
PhD		2	2	5	5	4	5		
General Business									
Total		545	576	702	689	705	800		8.0%
< Bach		48	114	90	111	119	78		10.2%
Bach+		497	462	612	578	586	722		7.8%
Pre-Assoc Cert.		35	101	78	96	73	45		5.2%
Associate's		13	13	12	15	46	33		20.5%
Bachelor's		443	421	536	494	526	578		5.5%
Post-Bach Cert.		4	0	2	5	9	17		33.6%
Master's		50	41	72	79	51	127		20.5%
Post-Mast Cert.				2					
Human Resources									
Total		165	156	230	189	200	70		-15.8%
Bach+		165	156	230	189	200	70		-15.8%
Bachelor's		102	86	102	92	105	7		-41.5%
Post-Bach Cert.		18	10	29	3	4	9		-12.9%
Master's		45	60	99	94	91	54		3.7%
Management									
Total		1,993	1,963	2,083	2,139	2,142	2,396		3.8%
< Bach		332	324	466	490	350	350		1.1%
Bach+		1,661	1,639	1,617	1,649	1,792	2,046		4.3%
Pre-Assoc Cert.		167	163	317	285	164	148		-2.4%
Associate's		165	161	149	205	186	202		4.1%
Bachelor's		864	866	848	841	924	1,182		6.5%
Post-Bach Cert.			1	0	0	3	4		
Master's		795	766	764	800	853	852		1.4%
PhD		2	6	5	8	12	8		32.0%
Marketing									
Total		417	414	417	416	393	426		0.4%
< Bach		29	38	45	37	41	39		6.1%
Bach+		388	376	372	379	352	387		-0.1%
Pre-Assoc Cert.		2	3	5	10	21	21		60.0%
Associate's		27	35	40	27	20	18		-7.8%
Bachelor's		388	375	372	379	352	387		-0.1%
Master's		0	1						

COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Creative Arts and Design									
Performing Arts									
	Total	335	320	328	314	293	338		0.2%
	< Bach	27	18	15	25	29	34		4.7%
	Bach+	308	302	313	289	264	304		-0.3%
	Associate's	27	18	15	25	29	34		4.7%
	Bachelor's	234	216	229	215	193	227		-0.6%
	Master's	56	66	68	54	58	53		-1.1%
	Bach+	171	188	174	174	164	162		-1.1%
	< Bach		6	13	6				
	Total	171	194	187	180	164	162		-1.1%
Visual Arts									
	Total	171	194	187	180	164	162		-1.1%
	< Bach		6	13	6				
	Bach+	171	188	174	174	164	162		-1.1%
	Associate's		6	13	6				
	Bachelor's	149	166	156	144	150	147		-0.3%
	Post-Bach Cert.				2	2	5		
	Master's	22	22	18	28	12	10		-14.6%
Visual/Graphic Design & Art									
	Total	413	380	426	408	430	482		3.1%
	< Bach	135	111	100	113	109	84		-9.1%
	Bach+	278	269	326	295	321	398		7.4%
	Pre-Assoc Cert.	3	2	1	3	3	2		-7.8%
	Associate's	114	96	88	107	101	81		-6.6%
	Post-Assoc Cert.	18	13	11	3	5	1		-43.9%
	Bachelor's	237	231	289	266	292	346		7.9%
	Post-Bach Cert.			3					
	Master's	41	38	34	29	29	52		4.9%
Construction									
Construction Management									
	Pre-Assoc Cert.						30		
Electrical/Mechanical & Machine Tools									
	Total	8	3	5	8	23	18		17.6%
	< Bach	8	3	5	8	23	18		17.6%
	Pre-Assoc Cert.	8	3	5	8	23	6		-5.6%
	Post-Assoc Cert.		0	0	0	0	12		
General Construction Trades									
	Pre-Assoc Cert.	40	18	1	1	1	2		-45.1%
Water Services									
	Pre-Assoc Cert.	0			0	5	27		










































































COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Education									
Administration/Leadership									
Total		165	126	148	117	198	139		 -3.4%
<i>Bach+</i>		<i>165</i>	<i>126</i>	<i>148</i>	<i>117</i>	<i>198</i>	<i>139</i>		 -3.4%
Post-Bach Cert.		6	5	10	18	5	1		 -30.1%
Master's		119	69	84	81	117	97		 -4.0%
Post-Mast Cert.		4	10	6	7	14	8		 14.9%
PhD		36	42	48	11	62	33		 -1.7%
Classroom Teaching									
Total		2,011	1,917	1,788	1,968	1,872	1,859		 -1.6%
<i>< Bach</i>		<i>687</i>	<i>569</i>	<i>447</i>	<i>613</i>	<i>717</i>	<i>838</i>		 4.1%
<i>Bach+</i>		<i>1,324</i>	<i>1,348</i>	<i>1,341</i>	<i>1,355</i>	<i>1,155</i>	<i>1,021</i>		 -5.1%
Pre-Assoc Cert.		676	550	437	594	691	829		 4.2%
Associate's		11	19	10	19	26	9		 -3.9%
Bachelor's		810	818	740	742	728	660		 -4.0%
Post-Bach Cert.					2	8	4		
Master's		491	509	582	539	408	335		 -7.4%
Post-Mast Cert.		15	11	13	15		10		 -7.8%
PhD		8	10	6	57	11	12		 8.4%
Evaluation/ Testing									
Total			1	0	2	1	3		
<i>Bach+</i>			<i>1</i>	<i>0</i>	<i>2</i>	<i>1</i>	<i>3</i>		
Master's			1	0	2	1	1		
PhD							2		
General Operations									
Total		102	132	136	152	130	183		 12.4%
<i>< Bach</i>		<i>8</i>	<i>13</i>	<i>20</i>	<i>9</i>	<i>5</i>	<i>36</i>		 35.1%
<i>Bach+</i>		<i>94</i>	<i>119</i>	<i>116</i>	<i>143</i>	<i>125</i>	<i>147</i>		 9.4%
Pre-Assoc Cert.							27		
Associate's		8	13	20	9	5	9		 2.4%
Bachelor's		3	4	10	5	2	0		 -100.0%
Post-Bach Cert.						1	0		
Master's		66	80	76	112	99	98		 8.2%
Post-Mast Cert.		12	18	27	8	5	44		 29.7%
PhD		13	17	3	18	18	5		 -17.4%
Engineering									
Aerospace									
Bachelor's		19	9	12	14	19	25		 5.6%
Bio/Medical									
Total		624	674	647	816	818	985		 9.6%
<i>< Bach</i>		<i>14</i>	<i>3</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>9</i>		 -8.5%
<i>Bach+</i>		<i>610</i>	<i>671</i>	<i>645</i>	<i>814</i>	<i>816</i>	<i>976</i>		 9.9%
Pre-Assoc Cert.		11	0	0	2	0	6		 -11.4%
Associate's		3	3	2	0	2	3		 0.0%
Bachelor's		460	469	494	593	607	705		 8.9%
Master's		124	168	111	183	152	203		 10.4%
PhD		26	34	40	38	57	68		 21.2%

COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Chemical									
	Total	77	107	90	87	112	109		7.2%
	<i>Bach+</i>	77	107	90	87	112	109		7.2%
	<i>Bachelor's</i>	61	76	66	75	84	93		8.8%
	Post-Bach Cert.				1				
	Master's	8	10	9	3	9	4		-12.9%
	PhD	8	21	15	8	19	12		8.4%
Civil, Architectural, Structural									
	Total	195	247	435	525	313	395		15.2%
	<i>< Bach</i>	24	34	219	300	52	80		27.2%
	<i>Bach+</i>	171	213	216	225	261	315		13.0%
	Pre-Assoc Cert.	10	22	201	288	45	52		39.1%
	Associate's	13	11	16	12	7	28		16.6%
	Post-Assoc Cert.	1	1	2			0		-100.0%
	Bachelor's	104	141	147	141	128	165		9.7%
	Post-Bach Cert.						1		
	Master's	61	69	55	75	125	132		16.7%
	PhD	6	3	14	9	8	17		23.2%
Computers and Electronics									
	Total	726	847	869	977	599	616		-3.2%
	<i>< Bach</i>	499	651	587	631	338	414		-3.7%
	<i>Bach+</i>	227	196	282	346	261	202		-2.3%
	Pre-Assoc Cert.	281	446	410	432	79	194		-7.1%
	Associate's	218	205	177	199	259	220		0.2%
	Bachelor's	190	155	195	201	189	136		-6.5%
	Master's	34	30	62	121	64	50		8.0%
	PhD	3	11	25	24	8	16		39.8%
Engineering, General									
	Master's	21	19	27	31	28	23		1.8%
Geology, Nat. Resources, Petroleum, Ocean									
	Total	87	93	80	87	113	109		4.6%
	<i>< Bach</i>	0	1	0	0	0	0		
	<i>Bach+</i>	87	92	80	87	113	109		4.6%
	Associate's	0	1	0	0	0	0		
	Bachelor's	56	53	51	56	64	67		3.7%
	Post-Bach Cert.					5	4		
	Master's	23	26	13	17	21	26		2.5%
	PhD	8	13	16	14	23	12		8.4%
Manufacturing, Industrial, Tech., General									
	Total	265	182	173	146	141	146		-11.2%
	<i>< Bach</i>	73	36				0		-100.0%
	<i>Bach+</i>	192	146	173	146	141	146		-5.3%
	Associate's	73	36				0		-100.0%
	Bachelor's	74	79	62	54	46	56		-5.4%
	Post-Bach Cert.						12		
	Master's	116	66	108	87	92	72		-9.1%
	PhD	2	1	3	5	3	6		24.6%

COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Materials									
	Total	4	4	1	4	10	9		17.6%
	<i>Bach+</i>	4	4	1	4	10	9		17.6%
	Master's	4	4	1	4	7	8		14.9%
	PhD					3	1		
Physics, Mechanical, Nuclear									
	Total	167	208	222	243	344	318		13.7%
	<i>< Bach</i>	73	94	100	112	221	178		19.5%
	<i>Bach+</i>	94	114	122	131	123	140		8.3%
	Pre-Assoc Cert.	70	88	99	111	119	82		3.2%
	Associate's	3	6	1	1	2	5		10.8%
	Post-Assoc Cert.					100	91		
	Bachelor's	62	77	95	90	79	105		11.1%
	Master's	22	26	15	23	28	27		4.2%
	PhD	10	11	12	18	16	8		-4.4%
Family Development									
Family/Consumer Sciences									
	Total	105	98	94	77	125	113		1.5%
	<i>< Bach</i>	105	85	74	39	66	55		-12.1%
	<i>Bach+</i>		13	20	38	59	58		
	Associate's	105	85	74	39	66	55		-12.1%
	Bachelor's		13	20	38	59	58		
Human Development, Phys. Ed., Nutrition									
	Total	229	259	255	300	427	583		20.5%
	<i>< Bach</i>	70	46	42	55	109	340		37.2%
	<i>Bach+</i>	159	213	213	245	318	243		8.9%
	Pre-Assoc Cert.	30	3	0	1	55	287		57.1%
	Associate's	40	43	42	54	54	53		5.8%
	Bachelor's	116	153	155	195	227	184		9.7%
	Master's	42	54	56	46	84	59		7.0%
	Post-Mast Cert.			1		2	0		
	PhD	1	6	1	4	5			-100.0%
Government, Social Work, Criminology									
Criminal Justice									
	Total	655	1,455	1,222	1,091	1,180	1,245		13.7%
	<i>< Bach</i>	269	1,019	790	662	744	781		23.8%
	<i>Bach+</i>	386	436	432	429	436	464		3.7%
	Pre-Assoc Cert.	200	866	566	461	476	514		20.8%
	Associate's	69	153	224	201	268	267		31.1%
	Bachelor's	353	399	411	388	407	421		3.6%
	Post-Bach Cert.	6	1	3	0	1	1		-30.1%
	Master's	27	36	18	41	28	42		9.2%

COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Fire Protection									
	Total	105	161	125	83	104	147		7.0%
	< Bach	105	161	125	83	104	147		7.0%
	Pre-Assoc Cert.	95	154	122	79	103	142		8.4%
	Associate's	10	7	3	4	1	5		-12.9%
Government Mgmt & Security									
	Total	503	567	636	637	781	757		8.5%
	< Bach	16	33	32	21	3	11		-7.2%
	Bach+	487	534	604	616	778	746		8.9%
	Pre-Assoc Cert.	3	15	19	13	3	11		29.7%
	Associate's	13	18	13	8				-100.0%
	Bachelor's	455	496	560	571	711	685		8.5%
	Post-Bach Cert.				2	1	8		
	Master's	21	26	35	34	58	39		13.2%
	PhD	11	12	9	9	8	14		4.9%
Social Work									
	Total	668	699	720	725	719	735		1.9%
	Bach+	668	699	720	725	719	735		1.9%
	Bachelor's	348	375	373	365	329	358		0.6%
	Post-Bach Cert.	9	7	7	6	40	15		10.8%
	Master's	300	308	324	342	335	354		3.4%
	PhD	11	9	16	12	15	8		-6.2%
Health Care									
Admin, Operations, Information									
	Total	1,355	1,294	1,287	1,305	2,105	3,042		17.6%
	< Bach	1,054	1,015	996	974	1,769	2,647		20.2%
	Bach+	301	279	291	331	336	395		5.6%
	Pre-Assoc Cert.	1,036	985	809	863	1,538	2,466		18.9%
	Associate's	18	30	187	111	231	181		58.7%
	Bachelor's	136	111	121	157	177	198		7.8%
	Post-Bach Cert.	5	5	11	12	9	27		40.1%
	Master's	157	155	154	161	149	168		1.4%
	Post-Mast Cert.			3					
	PhD	3	8	2	1	1	2		-7.8%
Aides, Assistants & Therapists									
	Total	2,637	2,842	2,952	3,315	2,945	3,820		7.7%
	< Bach	2,253	2,392	2,566	2,756	2,354	3,158		7.0%
	Bach+	384	450	386	559	591	662		11.5%
	Pre-Assoc Cert.	1,999	2,135	2,286	2,418	2,070	2,886		7.6%
	Associate's	254	257	280	338	284	272		1.4%
	Bachelor's	209	250	196	293	347	349		10.8%
	Post-Bach Cert.				3		0		
	Master's	141	162	150	221	198	231		10.4%
	PhD	34	38	40	42	46	82		19.3%










































































COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Dentistry									
	Total	311	297	409	320	436	456		 8.0%
	< Bach	306	294	405	318	436	456		 8.3%
	Bach+	5	3	4	2				 -100.0%
	Pre-Assoc Cert.	218	249	364	261	393	410		 13.5%
	Associate's	87	42	38	57	43	46		 -12.0%
	Post-Assoc Cert.	1	3	3					 -100.0%
	Bachelor's	5	3	4	2				 -100.0%
Doctors									
	Total	186	211	198	312	230	227		 4.1%
	< Bach	24	14	26	15	16	20		 -3.6%
	Bach+	162	197	172	297	214	207		 5.0%
	Associate's	24	14	26	15	16	20		 -3.6%
	Professional Deg./Pl	162	197	172	297	214	207		 5.0%
Equipment Technicians									
	Total	1,609	2,142	1,725	1,975	1,391	1,160		 -6.3%
	< Bach	1,591	2,125	1,706	1,794	1,364	1,128		 -6.6%
	Bach+	18	17	19	181	27	32		 12.2%
	Pre-Assoc Cert.	1,212	1,393	554	824	739	374		 -21.0%
	Associate's	252	334	410	595	550	638		 20.4%
	Post-Assoc Cert.	127	398	742	375	75	116		 -1.8%
	Bachelor's	18	17	19	181	27	32		 12.2%
Nurses									
	Total	2,040	2,296	2,442	2,413	2,508	3,010		 8.1%
	< Bach	1,423	1,525	1,712	1,644	1,748	2,134		 8.4%
	Bach+	617	771	730	769	760	876		 7.3%
	Pre-Assoc Cert.	1,017	1,076	1,149	1,147	1,204	1,457		 7.5%
	Associate's	406	449	563	479	541	677		 10.8%
	Post-Assoc Cert.				18	3	0		
	Bachelor's	449	576	542	527	507	611		 6.4%
	Post-Bach Cert.					4	1		
	Master's	156	187	179	226	233	227		 7.8%
	Post-Mast Cert.			4	13				
	PhD	12	8	5	3	16	37		 25.3%
Other / Alternative									
	Total	953	1,269	935	831	970	1,020		 1.4%
	< Bach	938	1,248	925	823	952	986		 1.0%
	Bach+	15	21	10	8	18	34		 17.8%
	Pre-Assoc Cert.	888	1,134	844	714	802	928		 0.9%
	Associate's	28	21	50	94	150	58		 15.7%
	Post-Assoc Cert.	22	93	31	15				 -100.0%
	Bachelor's	11	21	10	8	0	18		 10.4%
	Master's	4	0			18	16		 32.0%

COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Psychology									
	Total	1,128	1,206	1,125	1,232	1,171	1,268		2.4%
	< Bach	8	11	10	17	11	22		22.4%
	Bach+	1,120	1,195	1,115	1,215	1,160	1,246		2.2%
	Pre-Assoc Cert.		0	0	5	3	8		
	Associate's	8	11	10	12	8	14		11.8%
	Bachelor's	802	809	806	850	856	945		3.3%
	Post-Bach Cert.			3	1	0	5		
	Master's	217	292	237	275	227	221		0.4%
	Post-Mast Cert.	26	26	23	13	11	15		-10.4%
	PhD	75	68	46	76	66	60		-4.4%
Legal									
Lawyers									
	Bach+	906	1,007	1,051	1,201	1,039	1,227		6.3%
Legal Support									
	Total	105	131	130	82	81	108		0.6%
	< Bach	105	131	130	82	81	108		0.6%
	Pre-Assoc Cert.	3	4	4	2	6	9		24.6%
	Associate's	102	127	126	80	75	99		-0.6%
Mathematics									
General Mathematics									
	Total	26	26	38	28	23	24		-1.6%
	Bach+	26	26	38	28	23	24		-1.6%
	Bachelor's	19	17	30	18	18	17		-2.2%
	Master's	7	7	6	10	2	4		-10.6%
	PhD		2	2		3	3		
Statistics & Computational/Applied Math									
	Total	19	22	22	22	28	30		9.6%
	Bach+	19	22	22	22	28	30		9.6%
	Bachelor's	14	17	15	15	14	21		8.4%
	Master's	5	5	7	7	14	9		12.5%
Media and Communications									
Advertising and Public Relations									
	Total	222	218	244	204	247	275		4.4%
	< Bach	77	86	105	63	80	75		-0.5%
	Bach+	145	132	139	141	167	200		6.6%
	Associate's			0	0	0	0		
	Post-Assoc Cert.	77	86	105	63	80	75		-0.5%
	Bachelor's	143	118	123	117	160	186		5.4%
	Master's	2	14	16	24	7	14		47.6%







































COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
English, Literature, Writing, Speech									
	Total	656	532	578	517	380	338		-12.4%
	< Bach	309	182	201	182	0	3		-60.4%
	Bach+	347	350	377	335	380	335		-0.7%
	Pre-Assoc Cert.	309	182	201	182	0	3		-60.4%
	Bachelor's	301	314	334	302	342	293		-0.5%
	Master's	39	32	35	29	32	33		-3.3%
	PhD	7	4	8	4	6	9		5.2%
Journalism									
	Total	79	88	92	76	108	119		8.5%
	Bach+	79	88	92	76	108	119		8.5%
	Bachelor's	74	80	82	68	94	109		8.1%
	Master's	5	8	10	8	14	10		14.9%
Radio, Television, Technology, Film									
	Total	461	457	425	410	373	411		-2.3%
	< Bach	21	25	26	18	13	8		-17.6%
	Bach+	440	432	399	392	360	403		-1.7%
	Pre-Assoc Cert.	11	8	2	0	1	0		-100.0%
	Associate's	10	17	24	18	12	8		-4.4%
	Bachelor's	376	365	344	330	310	338		-2.1%
	Post-Bach Cert.		2	0	0	1	2		
	Master's	64	65	55	62	49	63		-0.3%
Liberal / Multicultural Studies									
History, Anthropology, General Liberal/Interdiscip									
	Total	215	191	253	215	224	244		2.6%
	Bach+	215	191	253	215	224	244		2.6%
	Bachelor's	183	164	215	157	184	197		1.5%
	Post-Bach Cert.			1	3	7	6		
	Master's	29	23	33	46	27	36		4.4%
	PhD	3	4	4	9	6	5		10.8%
Linguistics and Literature									
	Total	5,677	5,681	5,531	6,195	6,620	8,141		7.5%
	< Bach	5,190	5,162	5,087	5,630	6,090	7,519		7.7%
	Bach+	487	519	444	565	530	622		5.0%
	Associate's	5,190	5,162	5,087	5,630	6,090	7,519		7.7%
	Bachelor's	438	472	397	510	495	573		5.5%
	Post-Bach Cert.						1		
	Master's	44	38	37	49	34	43		-0.5%
	PhD	5	9	10	6	1	5		0.0%
Minority and Gender Studies									
	Total	18	34	34	33	24	31		11.5%
	Bach+	18	34	34	33	24	31		11.5%
	Bachelor's	16	32	34	27	16	27		11.0%
	Post-Bach Cert.				4	5	1		
	Master's	2	2		2	3	3		8.4%



































COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Philosophy, Logic, & Ethics									
	Total	70	61	64	59	74	69		-0.3%
	<i>Bach+</i>	<i>70</i>	<i>61</i>	<i>64</i>	<i>59</i>	<i>74</i>	<i>69</i>		<i>-0.3%</i>
	Bachelor's	58	54	51	53	60	62		1.3%
	Post-Bach Cert.	9	3	6	5	8	6		-7.8%
	Master's	1	2	6		4	0		-100.0%
	PhD	2	2	1	1	2	1		-12.9%
Religion									
	Total	86	93	92	101	89	118		6.5%
	<i>< Bach</i>			<i>1</i>	<i>0</i>	<i>2</i>	<i>0</i>		
	<i>Bach+</i>	<i>86</i>	<i>93</i>	<i>91</i>	<i>101</i>	<i>87</i>	<i>118</i>		<i>6.5%</i>
	Pre-Assoc Cert.			1	0	2	0		
	Bachelor's	52	58	54	62	65	67		5.2%
	Post-Bach Cert.	4	3	2	2	2	1		-24.2%
	Master's	27	28	30	37	20	43		9.8%
	Professional Deg.	3	4	5		0			-100.0%
	PhD						7		
Mechanics and Machine Repair									
Auto/Aero Repairs									
	Total	198	197	186	211	215	339		11.4%
	<i>< Bach</i>	<i>198</i>	<i>197</i>	<i>186</i>	<i>211</i>	<i>215</i>	<i>339</i>		<i>11.4%</i>
	Pre-Assoc Cert.	195	172	174	197	208	310		9.7%
	Post-Assoc Cert.	3	25	12	14	7	29		57.4%
Environmental, HVAC, Solar									
	Total	60	164	301	501	617	1,062		77.7%
	<i>< Bach</i>	<i>60</i>	<i>164</i>	<i>301</i>	<i>501</i>	<i>617</i>	<i>1,062</i>		<i>77.7%</i>
	Pre-Assoc Cert.	57	159	299	496	507	887		73.1%
	Associate's	3	5	2	5	3	78		91.9%
	Post-Assoc Cert.					107	97		
General Repairs									
	Total	40	53	195	294	429	756		80.0%
	<i>< Bach</i>	<i>35</i>	<i>48</i>	<i>195</i>	<i>294</i>	<i>429</i>	<i>756</i>		<i>84.9%</i>
	<i>Bach+</i>	<i>5</i>	<i>5</i>	<i>0</i>					<i>-100.0%</i>
	Pre-Assoc Cert.	33	48	195	294	421	690		83.7%
	Associate's	2			0	8	66		101.2%
	Post-Assoc Cert.		0		0	0	0		
	Bachelor's	5	5	0					-100.0%
Personal Services / Hospitality									
Cosmetology									
	Total	2,181	2,073	1,980	2,039	1,862	2,439		2.3%
	<i>< Bach</i>	<i>2,181</i>	<i>2,073</i>	<i>1,980</i>	<i>2,039</i>	<i>1,862</i>	<i>2,439</i>		<i>2.3%</i>
	Pre-Assoc Cert.	2,160	2,057	1,958	2,013	1,852	2,422		2.3%
	Associate's	21	16	22	26	10	17		-4.1%





































COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Culinary									
	Total	245	253	261	259	344	411		10.9%
	< Bach	230	237	243	241	308	368		9.9%
	Bach+	15	16	18	18	36	43		23.4%
	Pre-Assoc Cert.	26	25	26	34	47	75		23.6%
	Associate's	204	212	217	207	261	293		7.5%
	Bachelor's	15	16	18	18	36	43		23.4%
Funeral Services									
	Total	26	25	19	26	26	15		-10.4%
	< Bach	26	25	19	26	26	15		-10.4%
	Pre-Assoc Cert.	2	2						-100.0%
	Associate's	24	23	19	26	26	15		-9.0%
Hospitality									
	Total	400	424	438	453	569	668		10.8%
	< Bach	62	55	74	68	95	64		0.6%
	Bach+	338	369	364	385	474	604		12.3%
	Pre-Assoc Cert.	0	0	5	6	2	4		
	Associate's	62	55	69	62	93	60		-0.7%
	Bachelor's	287	310	308	318	393	521		12.7%
	Post-Bach Cert.			2	1	2	2		
	Master's	51	59	54	66	79	81		9.7%
Software and Computer Sciences									
Data processing, general IT, word processing									
	Total	787	729	662	539	529	505		-8.5%
	< Bach	260	222	190	173	118	139		-11.8%
	Bach+	527	507	472	366	411	366		-7.0%
	Pre-Assoc Cert.	142	135	122	103	50	80		-10.8%
	Associate's	115	87	68	70	68	59		-12.5%
	Post-Assoc Cert.	3							-100.0%
	Bachelor's	485	425	393	286	314	304		-8.9%
	Post-Bach Cert.				1	0	0		
	Master's	42	82	79	79	96	62		8.1%
	PhD					1	0		
Database technology									
	Total	128	96	77	143	108	88		-7.2%
	< Bach	128	96	77	143	108	88		-7.2%
	Pre-Assoc Cert.	122	95	75	141	107	88		-6.3%
	Associate's	6	1	2	2	1			-100.0%
Networking technologies									
	Total	75	58	50	51	119	221		24.1%
	< Bach	75	58	50	51	119	221		24.1%
	Pre-Assoc Cert.	10	7	1	0	68	136		68.5%
	Associate's	65	51	49	51	51	85		5.5%























COLLEGE GRADUATE OUTPUT

Miami-Dade County

Degrees Conferred

2005-2010

Annual % Growth

Degree Groups	Level	2005	2006	2007	2008	2009	2010	Trend	Average
Software Programming									
	Total	380	238	218	237	197	174		-14.5%
	< Bach	180	99	101	94	90	71		-17.0%
	Bach+	200	139	117	143	107	103		-12.4%
	Pre-Assoc Cert.	86	34	70	79	77	63		-6.0%
	Associate's	94	65	31	15	13	8		-38.9%
	Bachelor's	99	108	78	107	73	73		-5.9%
	Master's	96	25	33	28	29	25		-23.6%
	PhD	5	6	6	8	5	5		0.0%
Web Design / Graphics / Infomatics									
	Total	197	162	132	151	137	208		1.1%
	< Bach	195	160	128	115	109	98		-12.9%
	Bach+	2	2	4	36	28	110		122.9%
	Pre-Assoc Cert.	103	101	77	73	65	67		-8.2%
	Associate's	92	59	51	42	44	31		-19.6%
	Bachelor's	2	2	4	36	28	110		122.9%
Transportation Professionals									
Air Transportation									
	Total	116	118	135	190	71	76		-8.1%
	< Bach	106	104	131	181	69	69		-8.2%
	Bach+	10	14	4	9	2	7		-6.9%
	Pre-Assoc Cert.	30	25	23	84	4	4		-33.2%
	Associate's	76	79	108	97	65	65		-3.1%
	Bachelor's	10	14	4	9	2	7		-6.9%
Ground Transportation									
	Pre-Assoc Cert.	154	126	139	186	144	134		-2.7%
Transportation Mgmt/Other									
	Pre-Assoc Cert.	19	19	16	13				-100.0%

Source: Avalanche Consulting using data from the IPEDS database, US Department of Education

Note: Annual average growth rate is a compounded rate.

APPENDIX 2: CAREER FOCUSED HIGH SCHOOL PROGRAMS

**Career Focused
High School Programs**

Programs Related to the Target Industries

Alonzo and Tracy Mourning Senior High School
 American Senior High School
 Barbara Goleman Senior High
 Booker T. Washington Senior High School
 COPE Center North
 Coral Gables Senior High School
 Coral Reef Senior High School
 Design and Architecture Senior High School
 Dorothy M. Wallace COPE Center
 Dr. Michael M. Krop Senior High School
 Felix Varela Senior High School
 G. Holmes Braddock Senior High School
 George T Baker Aviation School
 Hialeah Gardens Senior High School
 Hialeah Senior High School
 Hialeah-Miami Lakes Senior High
 Homestead Senior High School
 John A. Ferguson Senior High School
 Maritime and Science Technology Academy
 Miami Beach Senior High School
 Miami Carol City Senior High
 Miami Central Senior High School
 Miami Coral Park Senior High School
 Miami Edison Senior High School
 Miami Jackson Senior High School
 Miami Lakes Educational Center
 Miami Norland Senior High School
 Miami Northwestern Senior High School
 Miami Palmetto Senior High School
 Miami Senior High School
 Miami Southridge Senior High
 Miami Springs Senior High School
 Miami Sunset Senior High School
 North Miami Beach Senior High
 North Miami Senior High School
 Robert Morgan Educational Center
 Ronald W. Reagan/Doral Senior High School
 South Dade Senior High School
 South Miami Senior High School
 Southwest Miami Senior High School
 Terra Environment Research Institute
 Westland Hialeah Senior High School
 William H. Turner Technical
 Medical & Science Tech. Academy @ Homestead

	Aviation	Engineering	Film & Entertainment	Communication Arts & Digital Media	Design	Architecture & Construction	Engineering	Hospitality & Tourism	Culinary Arts	Information Technology	Finance & Business	Entrepreneurship	Health Science & Medicine	Trade & Logistics
Alonzo and Tracy Mourning Senior High School	◆						◆	◆						
American Senior High School							◆	◆				◆		
Barbara Goleman Senior High							◆	◆	◆		◆	◆		
Booker T. Washington Senior High School		◆				◆		◆	◆	◆	◆	◆		
COPE Center North								◆	◆	◆		◆		
Coral Gables Senior High School				◆				◆	◆	◆		◆		
Coral Reef Senior High School		◆				◆				◆		◆		
Design and Architecture Senior High School			◆	◆	◆	◆								
Dorothy M. Wallace COPE Center												◆		
Dr. Michael M. Krop Senior High School			◆	◆				◆						
Felix Varela Senior High School									◆			◆		
G. Holmes Braddock Senior High School									◆	◆				
George T Baker Aviation School	◆													◆
Hialeah Gardens Senior High School		◆				◆	◆	◆	◆	◆		◆		
Hialeah Senior High School	◆	◆		◆	◆	◆		◆	◆	◆	◆	◆	◆	◆
Hialeah-Miami Lakes Senior High										◆	◆	◆		
Homestead Senior High School							◆	◆	◆					
John A. Ferguson Senior High School				◆	◆		◆	◆	◆	◆		◆		
Maritime and Science Technology Academy		◆				◆		◆						
Miami Beach Senior High School				◆			◆		◆					
Miami Carol City Senior High									◆	◆		◆		
Miami Central Senior High School		◆				◆		◆	◆			◆		
Miami Coral Park Senior High School		◆				◆		◆	◆	◆	◆			
Miami Edison Senior High School			◆	◆				◆		◆	◆	◆		
Miami Jackson Senior High School					◆				◆	◆		◆		
Miami Lakes Educational Center		◆		◆		◆		◆	◆	◆	◆	◆		
Miami Norland Senior High School							◆		◆					
Miami Northwestern Senior High School				◆				◆	◆			◆		
Miami Palmetto Senior High School				◆	◆				◆		◆	◆		
Miami Senior High School								◆	◆	◆		◆		
Miami Southridge Senior High								◆	◆	◆		◆		
Miami Springs Senior High School							◆		◆					
Miami Sunset Senior High School		◆				◆	◆		◆	◆				
North Miami Beach Senior High			◆	◆				◆	◆	◆		◆		
North Miami Senior High School		◆		◆		◆			◆	◆		◆		
Robert Morgan Educational Center		◆	◆	◆		◆	◆	◆	◆	◆		◆		
Ronald W. Reagan/Doral Senior High School			◆					◆	◆					
South Dade Senior High School		◆		◆		◆		◆	◆	◆		◆		
South Miami Senior High School			◆	◆		◆		◆	◆					
Southwest Miami Senior High School									◆	◆				
Terra Environment Research Institute												◆		
Westland Hialeah Senior High School									◆	◆		◆		
William H. Turner Technical			◆	◆		◆			◆	◆	◆	◆		
Medical & Science Tech. Academy @ Homestead												◆		

Aviation
 Hospitality & Tourism
 International Banking
 Creative Design
 Information Technology
 Life Science & Health Care

APPENDIX 3:

EMPLOYMENT FORECAST FOR MIAMI-DADE TARGET OCCUPATIONS

Employment Demand for Target Sector-Related Occupations

Miami-Dade County

Miami-Dade County							Ann. Rate	Annual Job Openings	
Occupations	Employment			Annual % Growth		of Replace- ment	New & Replaced		
	2002	2010	2020		'02-'10		'10-'20	'02-'10	'10-'20
Economy-wide									
00-0000: Total Occupations	1,004,821	986,554	1,089,158	📉-0.2%	📈1.0%	2.3%	20,541	32,670	
			US Comparison:	-0.1%	0.9%				
Operations Managers									
22-287	22,287	20,527	21,889	📉-1.0%	📈0.7%	2.4%	320	633	
11-1021: General and operations managers	8,348	7,368	7,487	📉-1.5%	📈0.2%	2.9%	119	225	
43-1011: First-line supervisors/managers of office and adminis	10,871	10,484	11,639	📉-0.4%	📈1.1%	2.3%	197	352	
53-1011: Aircraft cargo handling supervisors	66	49	48	📉-3.2%	📉-0.2%	1.8%	-1	1	
53-1021: First-line supervisors/managers of helpers, laborers, i	1,274	1,145	1,248	📉-1.3%	📈0.9%	1.7%	6	30	
53-1031: First-line supervisors/managers of transportation anc	1,728	1,481	1,467	📉-1.8%	📉-0.1%	1.7%	-1	24	
Sales & Marketing Managers									
11-2011: Advertising and promotions managers	318	217	209	📉-4.0%	📉-0.4%	2.4%	-5	4	
11-2021: Marketing managers	733	682	793	📉-0.9%	📈1.6%	2.2%	9	26	
11-2022: Sales managers	2,275	2,233	2,705	📉-0.2%	📈2.1%	2.2%	44	95	
Public Relations									
11-2031: Public relations managers	2,296	2,134	2,565	📉-0.9%	📈2.0%	2.4%	34	94	
27-3031: Public relations specialists	223	202	220	📉-1.2%	📈0.9%	2.3%	3	7	
Purchasing, Billing, & Accounting									
13-1023: Purchasing agents, except wholesale, retail, and farm	1,852	1,786	2,064	📉-0.4%	📈1.6%	2.6%	40	75	
43-3011: Bill and account collectors	3,475	3,288	3,869	📉-0.7%	📈1.8%	1.9%	42	120	
43-3021: Billing and posting clerks and machine operators	3,238	3,310	3,660	📈0.3%	📈1.1%	1.6%	62	89	
43-3031: Bookkeeping, accounting, and auditing clerks	15,257	14,450	15,919	📉-0.7%	📈1.0%	1.2%	82	321	
13-2010: Accountants and auditors	10,877	11,079	12,633	📈0.2%	📈1.4%	1.1%	145	277	
Compliance									
13-1041: Compliance officers, except agriculture, construction	3,640	4,710	5,929	📈3.7%	📈2.6%	1.1%	173	172	
Human Resources									
11-3041: Compensation and benefits managers	226	227	255	📈0.1%	📈1.2%	2.1%	5	8	
11-3042: Training and development managers	89	87	100	📉-0.3%	📈1.5%	2.1%	2	3	
11-3049: All other human resources managers	236	232	257	📉-0.2%	📈1.1%	2.1%	5	7	
13-1071: Employment, recruitment, and placement specialists	1,483	1,169	1,423	📉-2.6%	📈2.2%	2.6%	-1	56	
13-1072: Compensation, benefits, and job analysis specialists	455	484	612	📈0.8%	📈2.6%	2.6%	15	25	
13-1073: Training and development specialists	1,062	1,124	1,390	📈0.7%	📈2.4%	2.6%	35	56	
13-1079: Human resources, training, and labor relations specia	1,350	1,437	1,828	📈0.8%	📈2.7%	2.6%	46	77	
Customer Service & Sales Agents									
41-3021: Insurance sales agents	3,978	3,855	4,670	📉-0.4%	📈2.1%	2.3%	77	171	
41-3031: Securities, commodities, and financial services sales a	2,838	2,977	3,614	📈0.6%	📈2.1%	3.1%	104	155	
41-3099: Sales representatives, services, all other	11,127	9,362	10,506	📉-2.0%	📈1.2%	2.5%	55	347	
43-4051: Customer service representatives	20,199	18,822	21,946	📉-0.9%	📈1.7%	3.1%	464	905	
Mgmt, Ops, & Research Analysts									
13-1111: Management analysts	3,704	4,177	5,583	📈1.6%	📈3.4%	1.7%	123	212	
13-1199: Business operation specialists, all other	8,997	9,005	9,935	📈0.0%	📈1.0%	2.2%	201	293	
15-2031: Operations research analysts	889	913	1,111	📈0.3%	📈2.2%	2.9%	29	46	
19-3021: Market research analysts	870	912	1,188	📈0.6%	📈3.0%	2.7%	29	52	
Financial Analysts & Examiners									
11-3031: Financial managers	2,557	2,451	2,691	📉-0.5%	📈1.0%	1.8%	33	68	
13-2051: Financial analysts	917	1,001	1,246	📈1.1%	📈2.4%	1.8%	27	43	
13-2061: Financial examiners	97	128	177	📈4.0%	📈3.8%	1.8%	6	7	
Legal Assistants									
23-2011: Paralegals and legal assistants	3,288	3,582	4,368	📈1.1%	📈2.2%	1.1%	74	119	

Employment Demand for Target Sector-Related Occupations

Miami-Dade County

Occupations	Employment			Annual % Growth		Ann. Rate of Replacement	Annual Job Openings	
	2002	2010	2020	'02-'10	'10-'20		New & Replaced	'02-'10
Logisticians								
13-1081: Logisticians	313	350	424	↑ 1.5%	↑ 2.1%	2.2%	12	15
Software Managers, Engineers & Programmers	6,313	5,492	6,097	↓ -1.6%	↑ 1.1%	1.4%	-11	137
11-3021: Computer and information systems managers	919	854	970	↔ -0.9%	↑ 1.4%	1.6%	7	25
15-1011: Computer and information scientists, research	105	105	118	↔ 0.0%	↑ 1.2%	2.1%	2	4
15-1021: Computer programmers	2,841	2,178	2,010	↓ -2.9%	↔ -0.8%	1.9%	-29	24
15-1031: Computer software engineers, applications	1,369	1,366	1,757	↔ 0.0%	↑ 2.9%	0.8%	11	51
15-1032: Computer software engineers, systems software	1,079	989	1,242	↓ -1.0%	↑ 2.6%	0.8%	-2	34
Database Administrators								
15-1061: Database administrators	398	373	434	↔ -0.8%	↑ 1.6%	1.7%	4	12
Network Analysts (incl. Security)	10,877	10,303	12,165	↔ -0.7%	↑ 1.8%	2.2%	169	412
15-1041: Computer support specialists	3,968	3,525	3,734	↓ -1.4%	↔ 0.6%	2.8%	54	118
15-1051: Computer systems analysts	2,244	2,110	2,462	↔ -0.7%	↑ 1.7%	2.2%	32	81
15-1071: Network and computer systems administrators	2,195	2,037	2,362	↔ -0.9%	↑ 1.6%	1.7%	17	66
15-1081: Network systems and data communications analysts	2,007	2,149	3,098	↔ 0.9%	↑ 4.4%	1.8%	54	134
15-1099: All other computer specialists	463	482	509	↔ 0.5%	↔ 0.6%	2.2%	12	13
Multimedia, Fashion, Art & Industrial Designers	3,732	2,694	2,957	↓ -3.5%	↔ 1.0%	3.0%	-19	107
27-1011: Art directors	224	133	137	↓ -5.1%	↔ 0.3%	2.2%	-6	3
27-1014: Multi-media artists and animators	216	140	150	↓ -4.4%	↔ 0.7%	2.2%	-5	4
27-1021: Commercial and industrial designers	62	51	60	↓ -2.2%	↑ 1.8%	3.1%	1	2
27-1022: Fashion designers	89	67	60	↓ -3.1%	↓ -1.0%	3.1%	0	1
27-1024: Graphic designers	3,067	2,237	2,477	↓ -3.4%	↑ 1.1%	3.1%	-10	93
27-1027: Set and exhibit designers	74	66	73	↓ -1.4%	↑ 1.1%	3.0%	1	3
Multimedia Equipment Technicians	3,252	2,529	2,922	↓ -2.8%	↑ 1.6%	2.6%	-4	106
27-4011: Audio and video equipment technicians	557	480	525	↓ -1.7%	↔ 0.9%	3.0%	7	19
27-4012: Broadcast technicians	820	594	714	↓ -3.4%	↑ 2.0%	3.0%	-4	30
27-4014: Sound engineering technicians	358	209	213	↓ -5.2%	↔ 0.2%	3.0%	-8	7
27-4021: Photographers	671	640	792	↔ -0.6%	↑ 2.4%	2.0%	10	28
27-4031: Camera operators, television, video, and motion picture	339	259	313	↓ -2.9%	↑ 2.1%	2.5%	-2	12
27-4032: Film and video editors	398	250	262	↓ -4.6%	↔ 0.5%	2.5%	-9	7
27-4099: All other media and communication equipment work	109	97	103	↓ -1.4%	↔ 0.6%	2.5%	1	3
Aerospace Engineers & Technicians	380	332	317	↓ -1.6%	↔ -0.5%	2.4%	3	6
17-2010: Aerospace engineers	337	299	286	↓ -1.4%	↔ -0.4%	2.2%	3	5
17-3021: Aerospace engineering, operations technicians	43	33	31	↓ -2.9%	↔ -0.6%	3.5%	0	1
Agricultural/Food Engineers & Technicians	51	51	58	↔ 0.0%	↑ 1.4%	3.0%	2	2
17-2021: Agricultural Engineers	21	22	25	↔ 0.6%	↑ 1.4%	2.2%	1	1
19-4011: Agricultural and food science technicians	30	29	33	↔ -0.4%	↑ 1.4%	3.5%	1	1
Industrial Engineers & Technicians	1,166	1,070	1,311	↓ -1.0%	↑ 2.3%	2.4%	16	50
17-2112: Industrial engineers	842	805	1,012	↔ -0.5%	↑ 2.6%	2.6%	17	41
17-3026: Industrial engineering technicians	324	265	299	↓ -2.3%	↑ 1.3%	1.9%	-1	8
Biomedical Engineers & Technicians	345	365	426	↔ 0.7%	↑ 1.7%	2.4%	11	15
17-2031: Biomedical engineers	63	87	128	↑ 4.8%	↑ 4.7%	2.1%	4	6
19-4021: Biological technicians	93	100	106	↔ 0.9%	↔ 0.6%	3.5%	4	4
19-4031: Chemical technicians	189	178	192	↔ -0.7%	↔ 0.8%	2.0%	2	5
Medical Scientists								
19-1042: Medical scientists, except epidemiologists	153	184	234	↑ 2.5%	↑ 2.7%	2.0%	7	9

Employment Demand for Target Sector-Related Occupations

Miami-Dade County

Miami-Dade County							Ann. Rate	Annual Job Openings	
Occupations	Employment			Annual % Growth		of Replace- ment	New & Replaced		
	2002	2010	2020		'02-'10		'10-'20	'02-'10	'10-'20
Nurses, Aides & Therapists	35,902	46,388	54,983	↑ 3.7%	↑ 1.9%	1.6%	1,897	1,607	
29-1111: Registered nurses	17,019	21,160	24,298	↑ 3.0%	↑ 1.5%	1.7%	815	683	
29-1122: Occupational therapists	588	759	898	↑ 3.6%	↑ 1.8%	1.8%	32	28	
29-1123: Physical therapists	1,410	1,950	2,379	↑ 4.8%	↑ 2.2%	1.2%	85	66	
29-1124: Radiation therapists	33	41	47	↑ 3.0%	↑ 1.5%	1.8%	2	1	
29-1125: Recreational therapists	107	127	137	↑ 2.3%	↗ 0.8%	3.5%	6	5	
29-1126: Respiratory therapists	798	964	1,080	↑ 2.6%	↑ 1.2%	1.8%	35	29	
29-2061: Licensed practical and licensed vocational nurses	3,669	4,568	5,325	↑ 3.1%	↑ 1.7%	3.1%	227	219	
31-1011: Home health aides	2,886	5,006	7,169	↑ 9.2%	↑ 4.3%	1.0%	294	266	
31-1012: Nursing aides, orderlies, and attendants	8,162	10,172	11,680	↑ 3.1%	↑ 1.5%	1.0%	332	252	
31-1013: Psychiatric aides	73	76	72	↗ 0.5%	↘ -0.5%	1.0%	1	0	
31-2011: Occupational therapist assistants	43	58	69	↑ 4.4%	↑ 1.9%	1.5%	3	2	
31-2012: Occupational therapist aides	27	36	42	↑ 4.2%	↑ 1.7%	1.4%	2	1	
31-2021: Physical therapist assistants	335	458	557	↑ 4.6%	↑ 2.2%	1.4%	20	17	
31-2022: Physical therapist aides	752	1,013	1,230	↑ 4.3%	↑ 2.1%	1.5%	44	36	
Physician Assistants & Pharmacists	2,283	2,645	3,222	↑ 2.0%	↑ 2.2%	2.1%	94	114	
29-1051: Pharmacists	1,891	2,132	2,559	↑ 1.6%	↑ 2.0%	2.2%	72	90	
29-1071: Physician assistants	392	513	663	↑ 3.9%	↑ 2.9%	1.8%	22	24	
Medical Laboratory Technicians	2,166	2,397	2,332	↑ 1.3%	↘ -0.3%	1.9%	70	39	
29-2011: Medical and clinical laboratory technologists	1,325	1,459	1,396	↑ 1.3%	↘ -0.4%	1.9%	42	21	
29-2012: Medical and clinical laboratory technicians	841	938	936	↑ 1.4%	↘ 0.0%	1.9%	28	18	
Medical Equipment Technologists & Assistants	16,219	18,608	21,166	↑ 1.8%	↑ 1.4%	1.7%	582	578	
29-2031: Cardiovascular technologists and technicians	748	921	1,046	↑ 2.9%	↑ 1.4%	1.5%	33	26	
29-2032: Diagnostic medical sonographers	732	840	891	↑ 1.8%	↗ 0.6%	1.5%	24	17	
29-2033: Nuclear medicine technologists	393	449	471	↑ 1.8%	↗ 0.5%	1.5%	13	9	
29-2034: Radiologic technologists and technicians	1,582	1,817	1,909	↑ 1.9%	↗ 0.5%	1.4%	52	35	
29-2041: Emergency medical technicians and paramedics	1,123	956	838	↘ -1.9%	↘ -1.2%	2.0%	2	8	
29-2051: Dietetic technicians	149	173	186	↑ 2.0%	↗ 0.8%	2.5%	7	6	
29-2052: Pharmacy technicians	2,021	2,426	3,142	↑ 2.5%	↑ 3.0%	2.5%	102	133	
29-2053: Psychiatric technicians	638	670	629	↗ 0.6%	↘ -0.6%	2.5%	20	13	
29-2054: Respiratory therapy technicians	293	309	282	↗ 0.7%	↘ -0.9%	2.5%	9	5	
29-2055: Surgical technologists	722	901	1,045	↑ 3.1%	↑ 1.6%	2.5%	41	37	
29-2056: Veterinary technologists and technicians	286	349	419	↑ 2.8%	↑ 2.0%	2.5%	15	16	
29-2071: Medical records and health information technicians	1,155	1,368	1,538	↑ 2.3%	↑ 1.2%	2.0%	50	45	
29-2099: Healthcare technologists and technicians, all other	535	660	729	↑ 2.9%	↑ 1.0%	2.0%	27	20	
31-9092: Medical assistants	4,162	5,176	6,433	↑ 3.0%	↑ 2.4%	1.1%	173	183	
31-9093: Medical equipment preparers	759	873	905	↑ 1.9%	↗ 0.4%	1.1%	23	13	
51-9081: Dental laboratory technicians	273	180	157	↘ -4.3%	↘ -1.3%	1.9%	-6	1	
51-9082: Medical appliance technicians	177	128	118	↘ -3.5%	↘ -0.8%	1.9%	-3	1	
51-9083: Ophthalmic laboratory technicians	471	412	428	↘ -1.6%	↗ 0.4%	1.9%	2	10	
Culinary	15,707	17,575	18,773	↑ 1.5%	↗ 0.7%	2.0%	550	476	
35-1011: Chefs and head cooks	1,033	1,107	1,110	↗ 0.9%	↗ 0.0%	1.0%	19	11	
35-1012: First-line supervisors/managers of food preparation & serving workers	4,292	4,744	5,095	↑ 1.3%	↗ 0.7%	1.0%	97	80	
35-2011: Cooks, fast food	1,950	2,150	2,281	↑ 1.3%	↗ 0.6%	2.6%	75	68	
35-2012: Cooks, institution and cafeteria	1,703	1,862	1,984	↑ 1.2%	↗ 0.7%	2.6%	63	60	
35-2013: Cooks, private household	13	11	10	↘ -1.9%	↘ -0.9%	2.7%	0	0	
35-2014: Cooks, restaurant	6,042	6,966	7,505	↑ 1.9%	↗ 0.8%	2.6%	270	232	
35-2015: Cooks, short order	560	603	629	↗ 1.0%	↗ 0.4%	2.6%	20	18	
35-2019: Cooks, all other	114	132	159	↑ 2.0%	↑ 2.0%	2.6%	5	6	
Surveillance & Security Officers	18,862	20,939	28,368	↑ 1.4%	↑ 3.5%	2.1%	648	1,174	
33-9031: Gaming surveillance officers and gaming investigator	32	31	35	↘ -0.4%	↑ 1.3%	2.0%	1	1	
33-9032: Security guards	18,830	20,908	28,333	↑ 1.4%	↑ 3.6%	2.1%	647	1,173	

Employment Demand for Target Sector-Related Occupations

Miami-Dade County

Miami-Dade County							Ann. Rate of Replace- ment	Annual Job Openings	
Occupations	Employment			Annual % Growth		New & Replaced			
	2002	2010	2020		'02-'10	'10-'20	'02-'10	'10-'20	
Truck & Transport Drivers	19,152	16,637	19,209	-1.6%	1.5%	1.8%	37	562	
53-3032: Truck drivers, heavy and tractor-trailer	11,039	9,293	11,107	-2.0%	2.0%	1.8%	-21	348	
53-3033: Truck drivers, light or delivery services	7,620	6,959	7,712	-1.1%	1.1%	1.8%	54	200	
53-6099: All other related transportation workers	493	385	390	-2.7%	0.1%	3.6%	4	14	
Assemblers & Welders	10,973	7,376	7,522	-4.1%	0.2%	2.2%	-214	175	
51-2010: Aircraft structure, surfaces, rigging, and systems asse	479	351	285	-3.3%	-1.9%	1.7%	-8	-1	
51-2020: Electrical, electronics, and electromechanical assembl	1,242	912	893	-3.3%	-0.2%	1.9%	-18	15	
51-2090: Miscellaneous assemblers and fabricators	7,575	4,849	5,077	-4.5%	0.5%	1.9%	-197	115	
51-4120: Welding, soldering, and brazing workers	1,677	1,264	1,267	-3.1%	0.0%	3.6%	9	46	
Industrial Cargo Equip. Operators & Handlers	20,931	16,094	16,518	-2.9%	0.3%	3.2%	58	551	
53-7051: Industrial truck and tractor operators	4,543	3,713	4,117	-2.3%	1.1%	3.0%	32	151	
53-7062: Laborers and freight, stock, and material movers, har	16,266	12,296	12,333	-3.1%	0.0%	3.2%	27	399	
53-7121: Tank car, truck, and ship loaders	122	85	68	-3.8%	-2.0%	2.9%	-1	1	
Machinery & Equipment Maintenance/Repair	14,319	13,487	14,972	-0.7%	1.1%	1.8%	154	385	
49-9041: Industrial machinery mechanics	1,004	954	1,180	-0.6%	2.4%	1.4%	8	36	
49-9042: Maintenance and repair workers, general	9,973	9,879	11,126	-0.1%	1.3%	1.5%	142	277	
49-9043: Maintenance workers, machinery	434	398	478	-1.0%	2.0%	1.5%	2	14	
49-9062: Medical equipment repairers	144	170	222	2.3%	3.1%	2.9%	7	10	
49-3010: Aircraft mechanics and service technicians	2,764	2,086	1,966	-3.1%	-0.6%	2.9%	-5	48	

Source: Avalanche Consulting using data from EMSI

APPENDIX 4: SURVEY RESULTS

This report shares the results of the *One Community One Goal* resident and business survey. Between July and September 2011, 4,133 people shared their views on the Miami-Dade economy through this survey. The survey was offered in English, Spanish and Creole languages to maximize access for all area residents. When the survey was closed, Spanish and Creole responses were translated into English then aggregated.

At the conclusion of the survey, business managers and owners were offered an opportunity to complete a second set of questions on topics specifically related to the business climate. 866 out of 4,133 participants completed the business portion of the survey.

The survey results influenced the SWOT analysis in the *Competitive Assessment* report, and will affect the selection of target industries and ultimately the priorities of the *One Community One Goal Targeted Industry Strategic Plan*.

Survey Promotion

One Community One Goal must reflect the perspective of the entire community in order to fulfill its promise and move the economy forward. It was critical that the public survey be accessible to every resident of Miami-Dade County, to reach far beyond the traditional cast of leaders involved in economic development on a daily basis. To accomplish this, the survey was made available in three languages and promoted through a wide variety of channels.

With over 4,100 responses, the *One Community One Goal* survey was the most successful survey in the history of The Beacon Council. The overwhelming response to the survey is attributed to the high level of engagement and commitment of all of the community wide partners to expand the outreach with continued disbursement to each organizations' members, contact lists and databases. In addition to sending the survey out to The Beacon Council's members and the OCOG Steering Committee organizations' members, and as just a few examples, the following organizations repeatedly stepped up efforts throughout the process.

- Miami-Dade County sent the survey out to their employees via their online newsletter
- Greater Miami Chamber of Commerce transmitted the survey in many of their *Newsbreak* communications
- Greater Miami Convention and Visitors Bureau sent the survey out repeatedly in their *What's Happening* communications
- North Dade Regional Chamber of Commerce utilized their online newsletter, *Chamber Chat*
- Coral Gables Chamber of Commerce sent the survey out to their members
- Coalition of Chambers sent the information to all of their member organizations
- Florida International Bankers Association sent the survey out to their members
- World Trade Center Miami transmitted the survey to their members and to their trade database
- Sant La Haitian Neighborhood Center sent the survey to their contacts
- Catalyst Miami, formerly Human Services Coalition, sent the survey out to their contacts
- Miami-Dade Broadband Coalition sent the survey out to their members

- Miami-Dade County Department of Cultural Affairs sent the survey to all of their contacts
- Miami Dade College, University of Miami and Florida International University transmitted the survey to their contacts and alumni
- *The Miami Herald* included a link on their website promoting the survey to readers
- *Miami Today* distributed survey information to their subscribers

Findings: All Respondents

One of the discoveries in the process is that no matter the diversity of the survey respondents, they share many similar ideas and values related to Miami-Dade's future. The consulting team found answers to be almost identical across both new and established residents; English, Spanish and Creole speaking residents; and younger and older residents. In this sense, Miami-Dade truly is "One Community."

- The survey asked residents to rate how well Miami-Dade County satisfied their needs across 29 different variables related to education, the economy, infrastructure and quality of life. Colleges and universities, climate, image as a visitor destination, entertainment/recreation, and arts/culture topped the rankings, receiving scores ranging between 3.63 and 3.9 on a scale of 1 (very dissatisfied) to 5 (very satisfied). Government leadership (1.98), job growth (2.03), and mass transit (2.08) received the lowest rankings. It is interesting to point out that, with the exception of colleges and universities, a majority of topics that received the highest scores are factors that Miami-Dade is blessed with because of its geographic location. The issues that received the lowest scores are topics that are in a sense man-made and could be improved upon with vision, leadership, collaboration and resources.
- Respondents were asked to choose three industry sectors that are the most desirable economic development targets. Hospitality, tourism, and health care emerged on the top of the list. Also ranking close to the top are film/entertainment, life sciences, and IT/telecom/software. Petrochemical, automotive and security/defense received the lowest percentage of votes.
- In addition to selecting target industries, residents were asked to describe the most desirable types of business operations for Miami-Dade. Among the choices (manufacturing/assembly, sales, warehousing/distribution, R&D, and headquarters), headquarters and R&D operations ranked the highest. Both the target industry and business operations questions scores show that Miami-Dade County residents are interested in clean businesses that complement the area's lifestyle and, for the most part, employ higher-wage, well-educated, creative professionals.
- The survey asked respondents to rate Miami-Dade County's top three strengths out of a list of 16 variables. Geographic location, the diversity of residents, and international presence received the highest percentage of votes. Government leadership, economy, and job opportunities received the lowest percentage of "strength" votes. Similar to the earlier "satisfaction" question, the topics scoring the lowest are issues that can be changed.
- The following question listed the same set of variables and asked respondents to rate the County's top three weaknesses. Government leadership, cost of living, transportation infrastructure and job opportunities (tie), received the highest percentage of votes.
- Overall, Miami-Dade County residents agree that economic development success depends on a balance of growing and retaining Miami-Dade companies (37.8%), recruiting new companies to Miami-Dade (35.7%), and starting new entrepreneurial companies locally (27.4%).

- Respondents graded Miami-Dade County's economic performance over the past five years a "C-." Less than 1% graded it an "A." 43.8% gave it a "D" or "F" average.

Findings – Business Respondents

866 out of 4,133 participants completed the second portion of the survey that contained questions for business owners and managers. Highlights from those responses include:

- Businesses are fairly confident about the future. In the next five years, 40% of business managers expect their company to increase employment in Miami-Dade County. 29% state that they will maintain employment and 18% are uncertain. The outlook is slightly brighter for firms with 250+ employees. Business managers expect to either increase employment in Miami-Dade (41%), maintain employment in Miami-Dade (24%), or increase employment at another location outside of Miami-Dade (18%).
- The survey asked business managers to share insights about the local workforce. First, they were asked to predict the relative ease of recruiting qualified employees in the next five years. 18% believe that it will be easier to fill vacancies and 39% predict that it will be as easy / difficult as it has been in the past five years. As with the expansion-related question, there is a fair amount of uncertainty – 23% state that they "do not know" at this time.

Several survey questions sought insight about skills needed by area employers. Only 17.5% of business respondents stated that having staff speaking other languages in addition to English is not important to their business. In addition to English, Spanish (38.6%), Portuguese (7.1%) and Creole (6.3%) ranked top the languages most needed by Miami-Dade County businesses.

Business managers and owners shared insight about the specific skills sets that are most in-demand. In response to the question "Miami-Dade County needs to increase education and training of individuals with what skill sets?," Information technology received the highest percentage of respondents by small and mid-sized companies as well as those with more than 250 employees. Soft skills also ranked highly – English language, reading, writing, communication, and customer service – among companies with fewer than 250 employees. Along with IT skills, businesses with more than 250 employees ranked finance/business, science/engineering/math, communication, and professional services among the top five.

- To complete the survey, business managers shared their opinions on Miami-Dade as a business location. First, they were asked why companies should choose to locate in Miami-Dade County. Geographic location (40.0%) and the diverse/international population (29.5%) were the clear winners. Lowest on the rating were business friendly regulatory climate (2.2%), existing industry/supplier base (2.2%), and skilled workforce (2.9%).

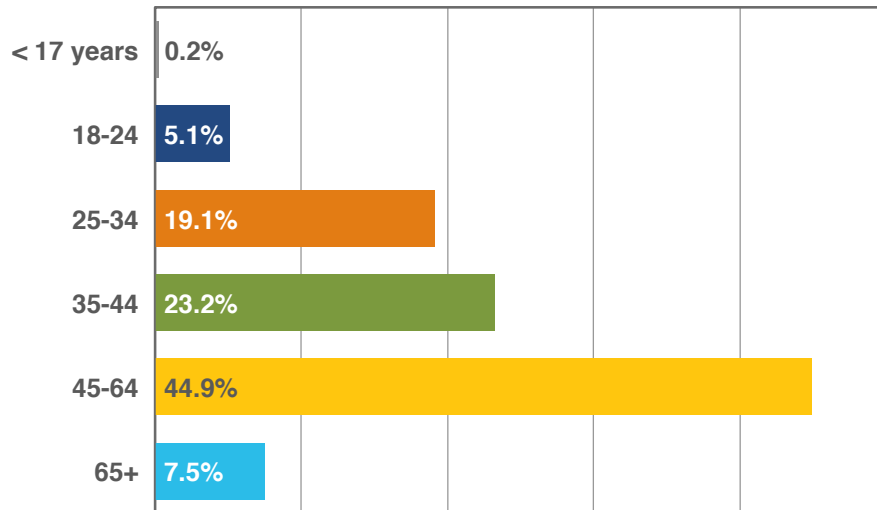
Second, business managers were given an opportunity to provide ideas on specific things area leaders can do to make Miami-Dade County a better location for their business. More than 500 respondents wrote-in answers to this question. The consulting team read the responses and aggregated them according to subject matters. Improvements to the business climate (lower taxes, fees and insurance costs, for example, as well as improving regulations and permitting processes) received the highest percentage of responses (18.5%). Improvements to governance (12.8%) and continuing to address corruption (12.0%) were also top on business managers' minds.

The remainder of this appendix provides charts for each survey question.

PART 1: RESIDENT RESPONSES

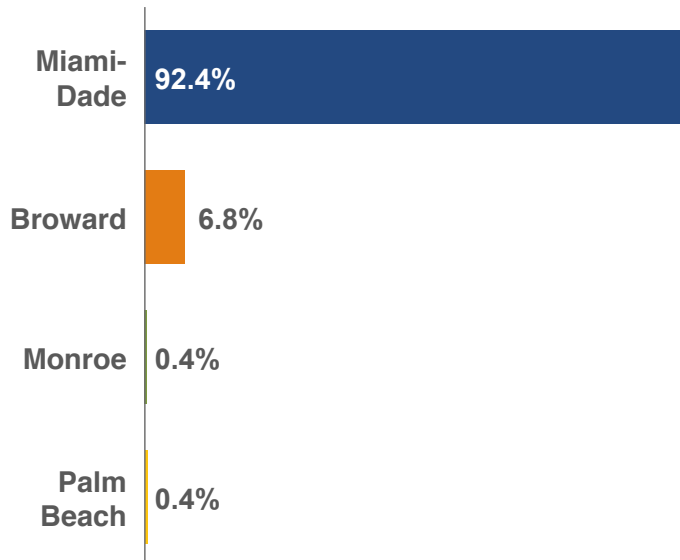
Survey Demographics

What is your age range?

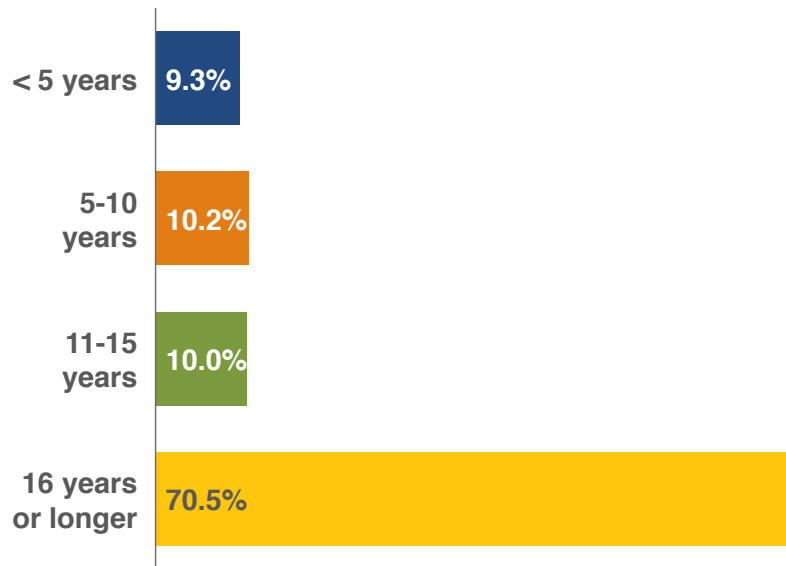


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In what county do you live?



How long have you lived in your county?

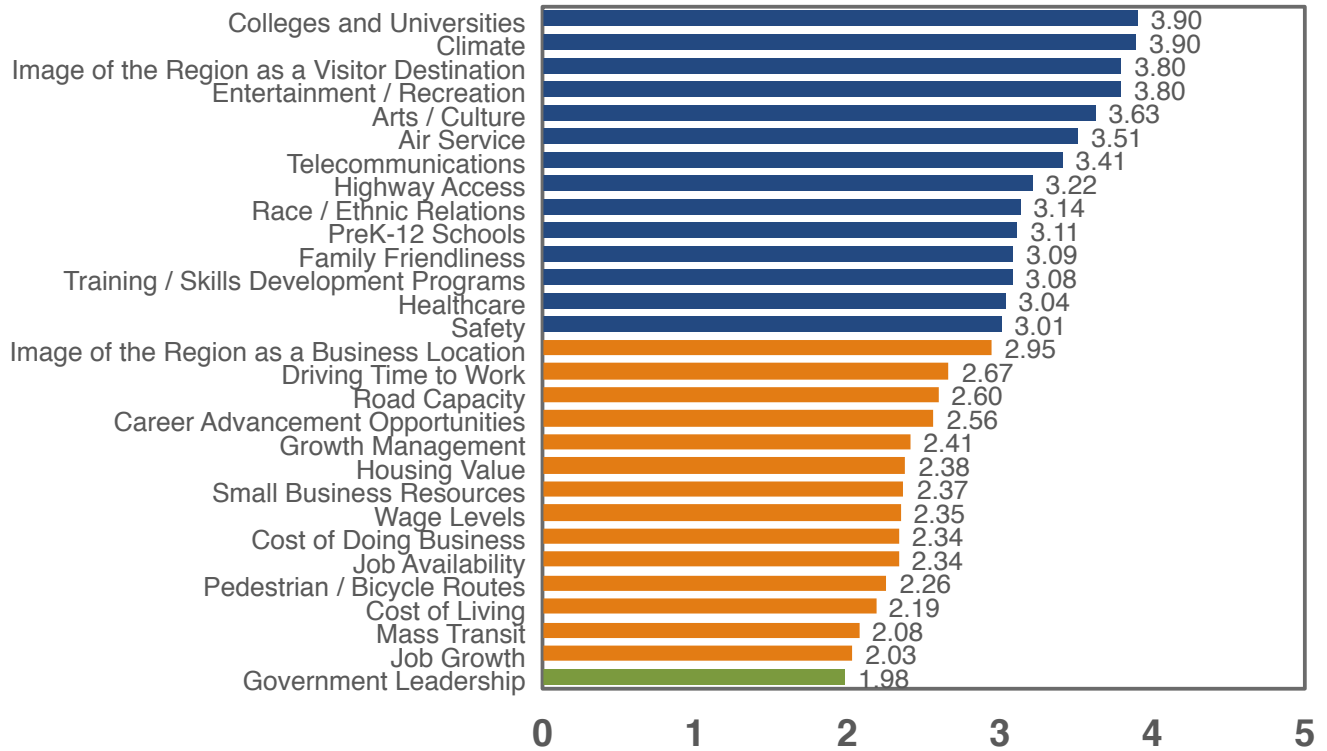


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Satisfaction with Miami-Dade

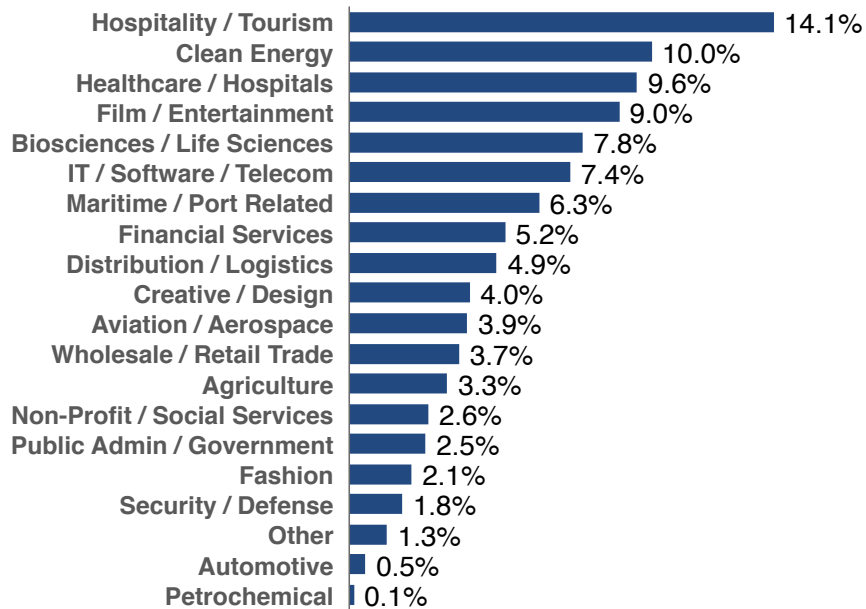
How well does Miami-Dade satisfy your needs in the following areas?

(1 = very dissatisfied, 5 = very satisfied – Chart shows average score.)

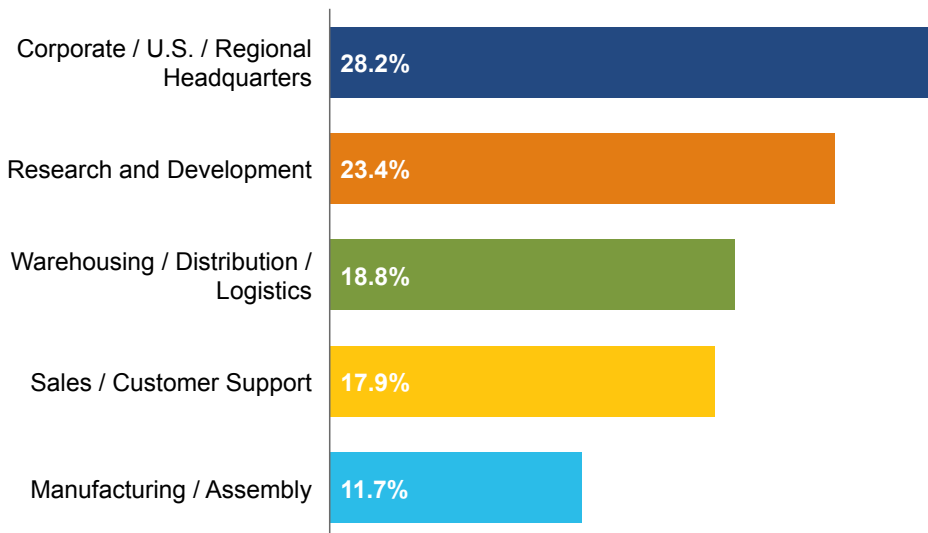


Desired Target Industries

What three industry sectors are the most desirable targets for Miami-Dade's future economic development?

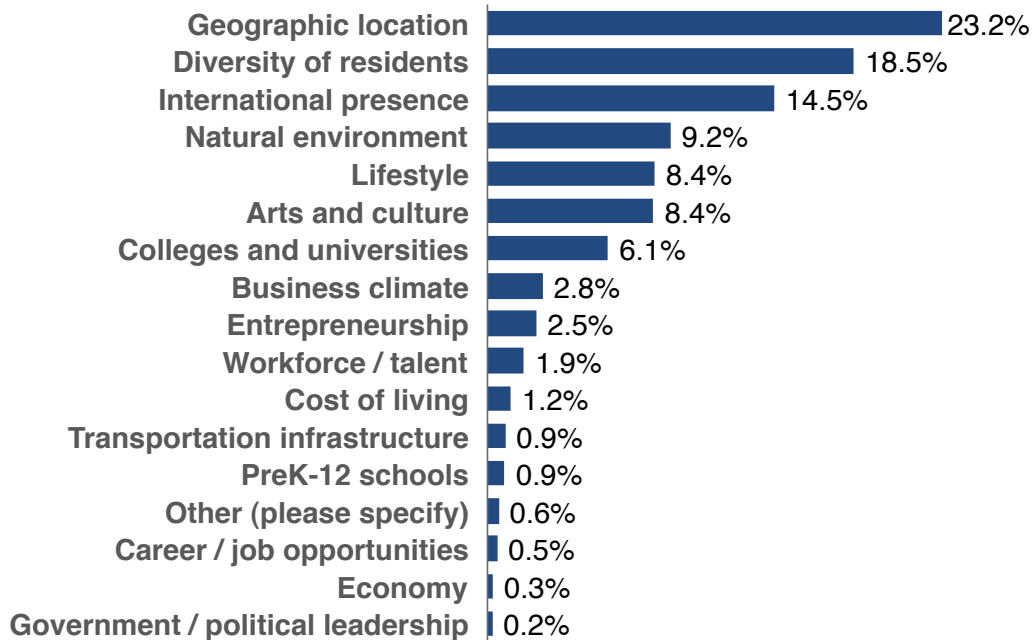


What types of business operations are the most desirable for Miami-Dade County?

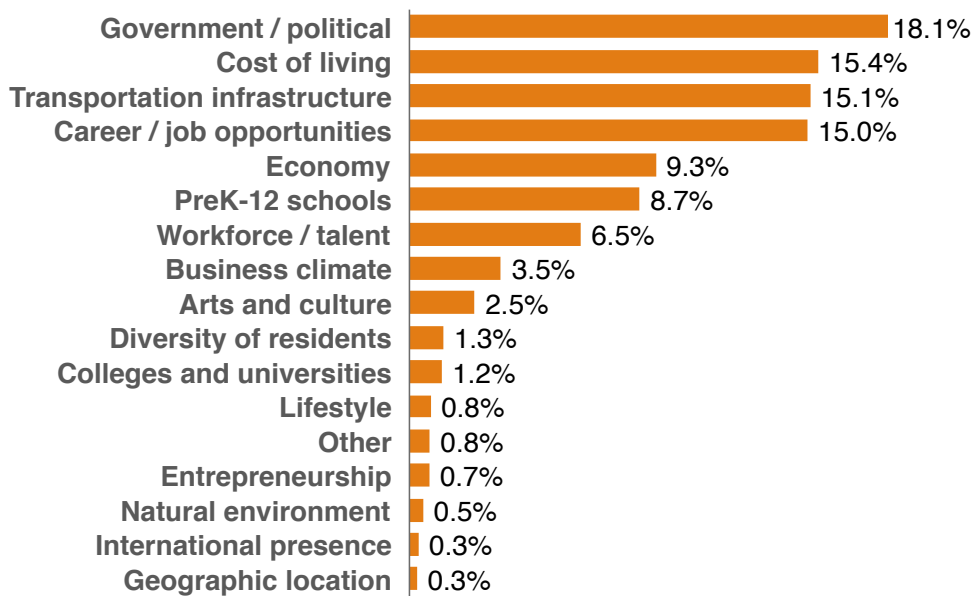


Strengths and Challenges

What are Miami-Dade's top three strengths?

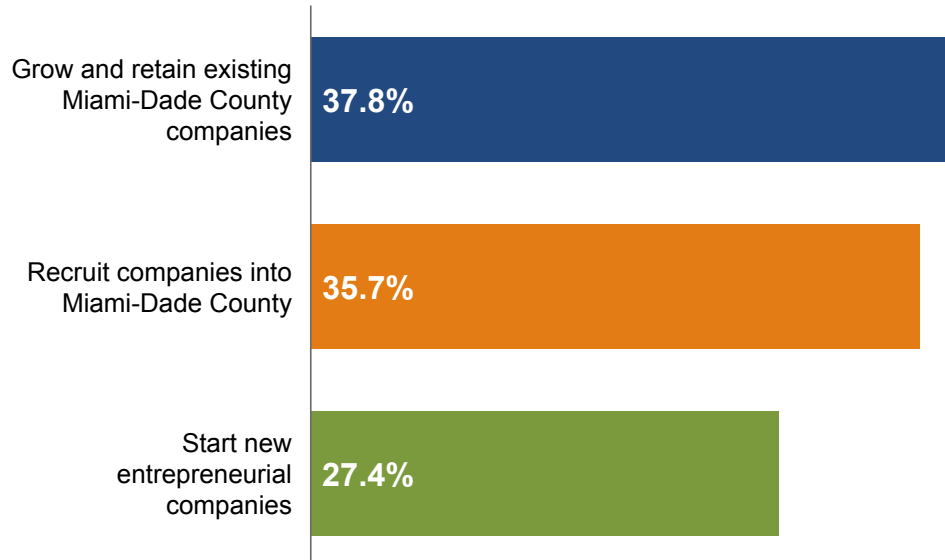


What are Miami-Dade's top three weaknesses?

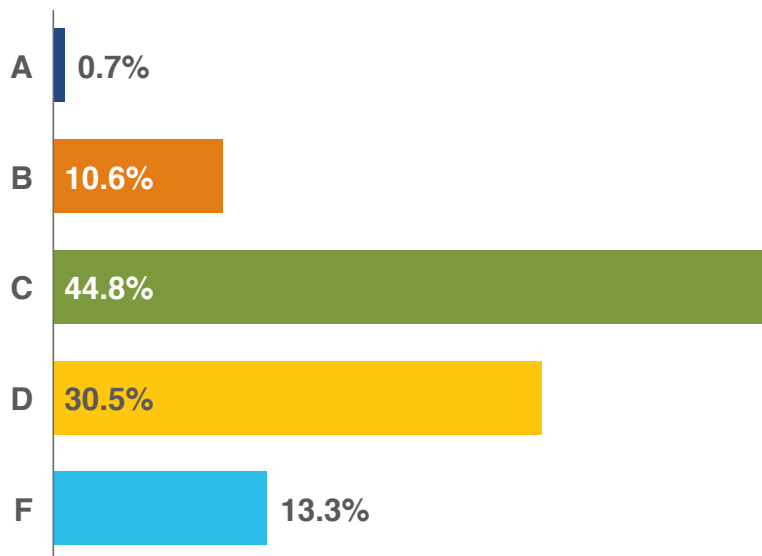


Economic Development

What mix of activities will ensure the highest level of economic development success for Miami-Dade?



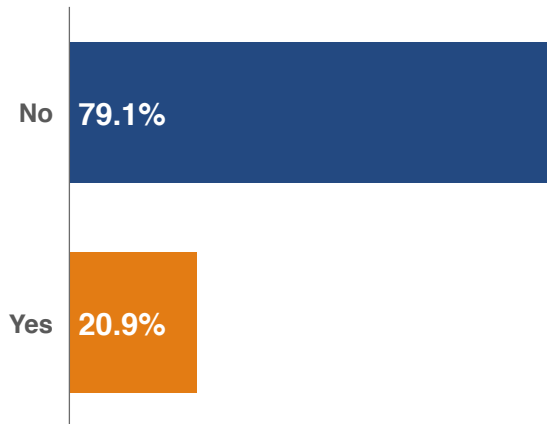
How would you grade Miami-Dade's economic performance over the past five years?



PART 2: BUSINESS MANAGER AND OWNER RESPONSES

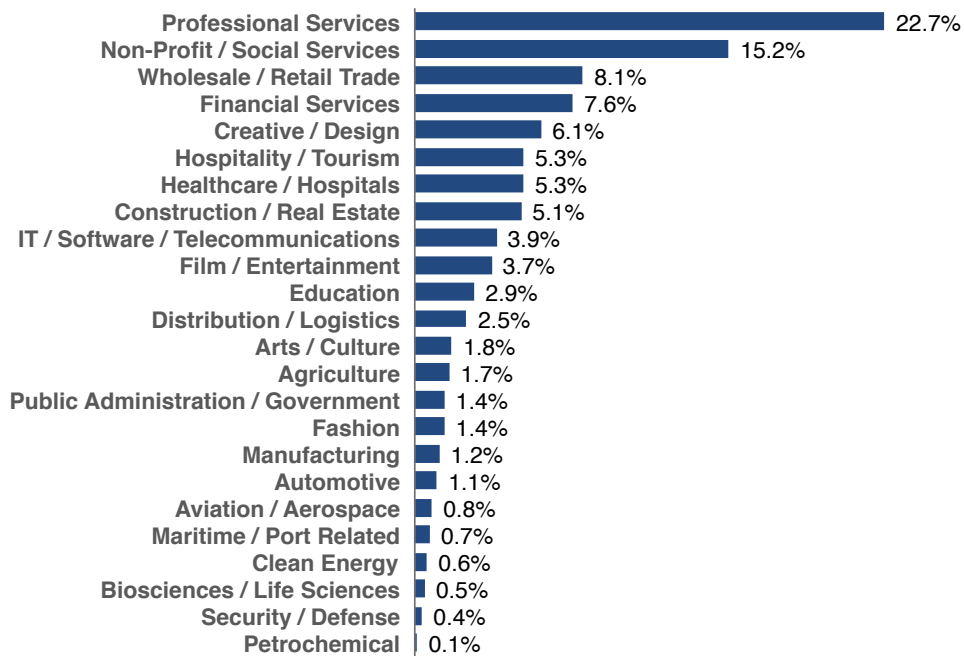
About the Respondents

Do you own or manage a business in Miami-Dade County?

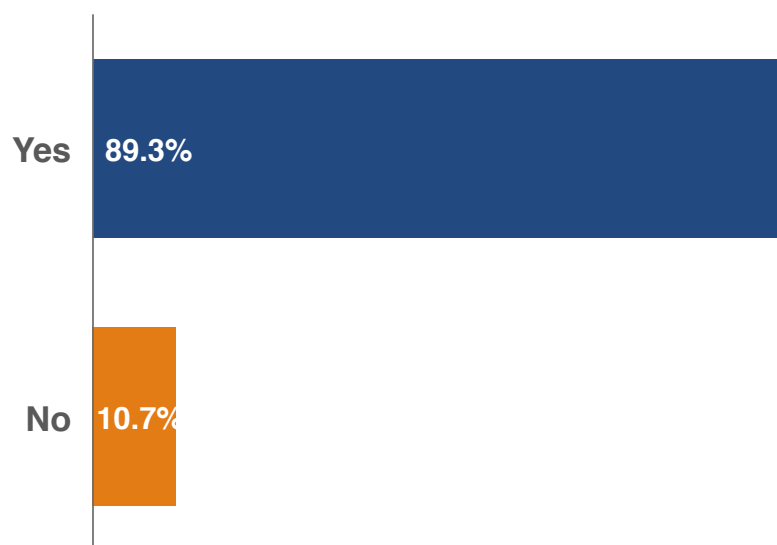


The following charts represent answers from business managers and owners only.

My business is in the following industry...



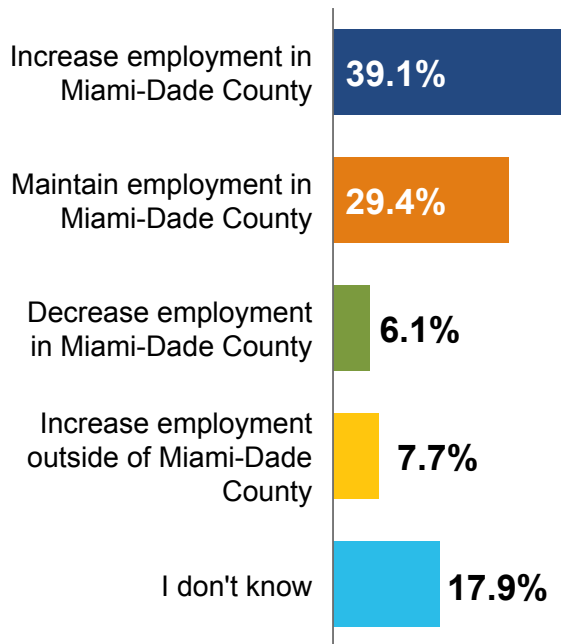
My business is headquartered in Miami-Dade...



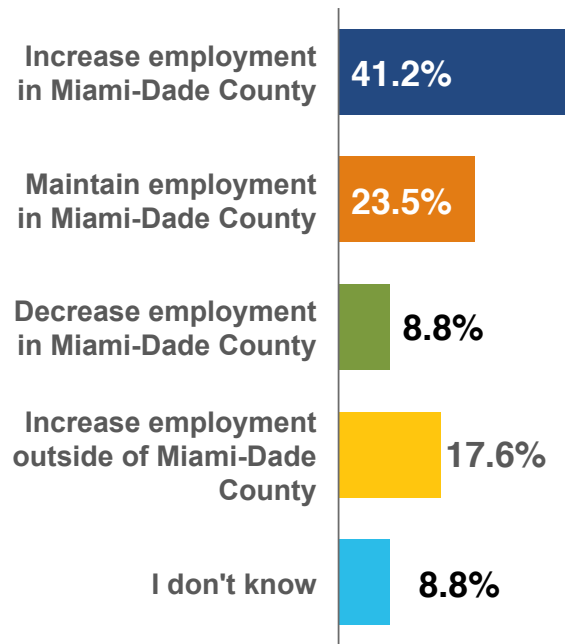
Business Growth Expectations

In the next five years, my business expects to:

All Companies

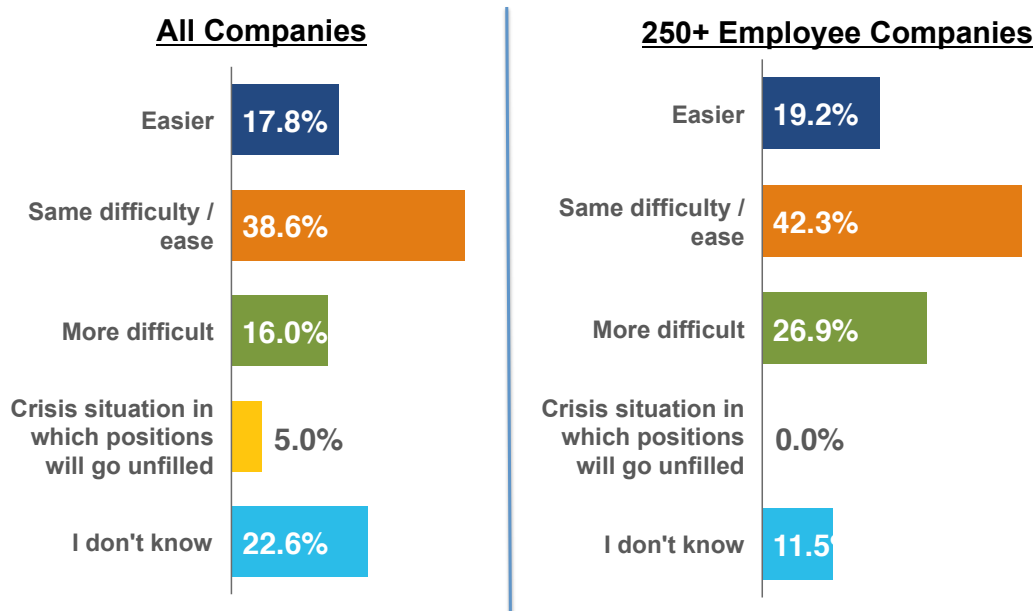


250+ Employee Companies

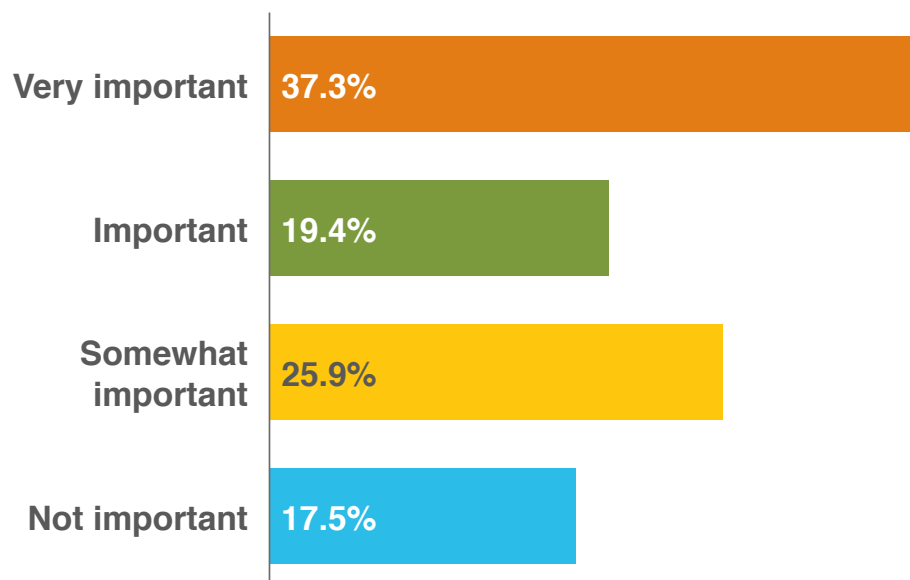


Workforce Development and Skills Needs

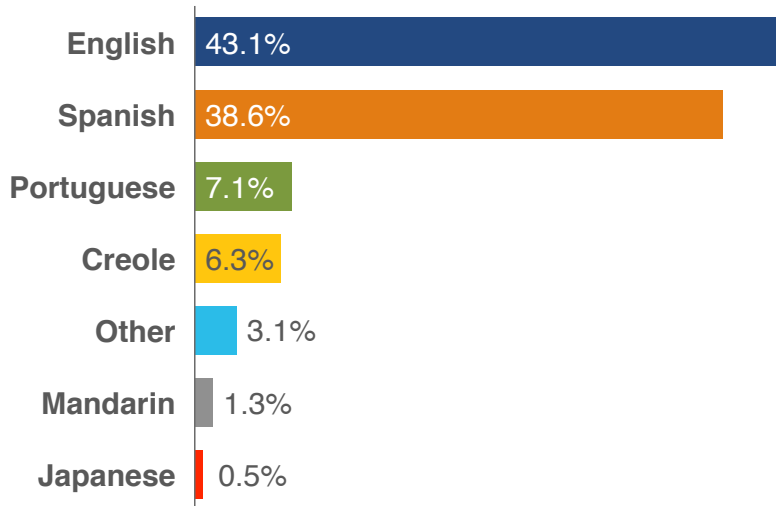
Compared to the past five years, I predict that my company's ability to fill job vacancies in the next five years will be:



For your business, how important is having staff speaking other languages in addition to English?



What languages does your company need in conducting daily business?



To better serve your business, Miami-Dade County needs to increase education and training of individuals with the following skill sets: (Open ended question, aggregated top responses)

All Companies

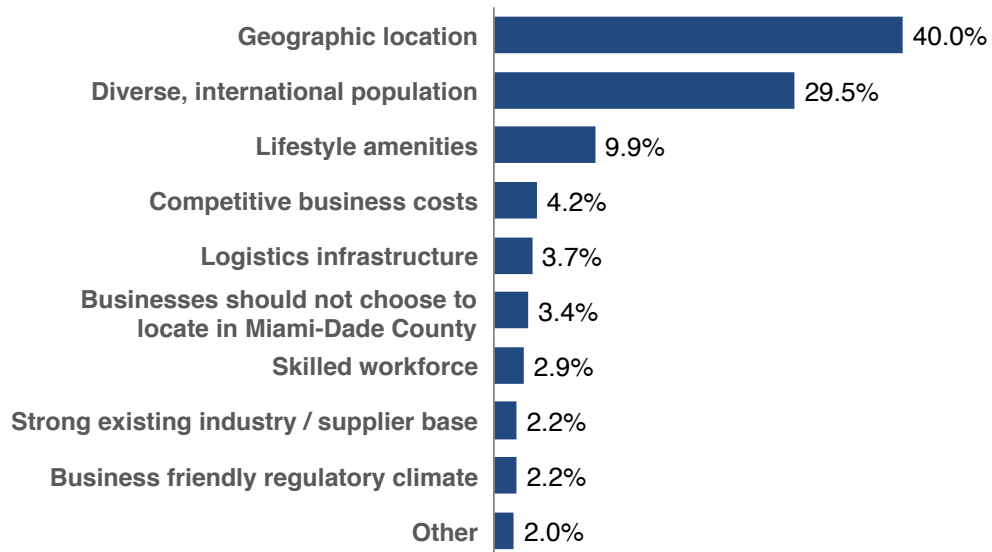


250+ Employee Companies



Why Miami-Dade

Why should companies choose to locate in Miami-Dade County?



What's Needed

What one specific thing can Miami-Dade area leaders do to make this a better place for your business?
(Open-ended question with topics aggregated)

