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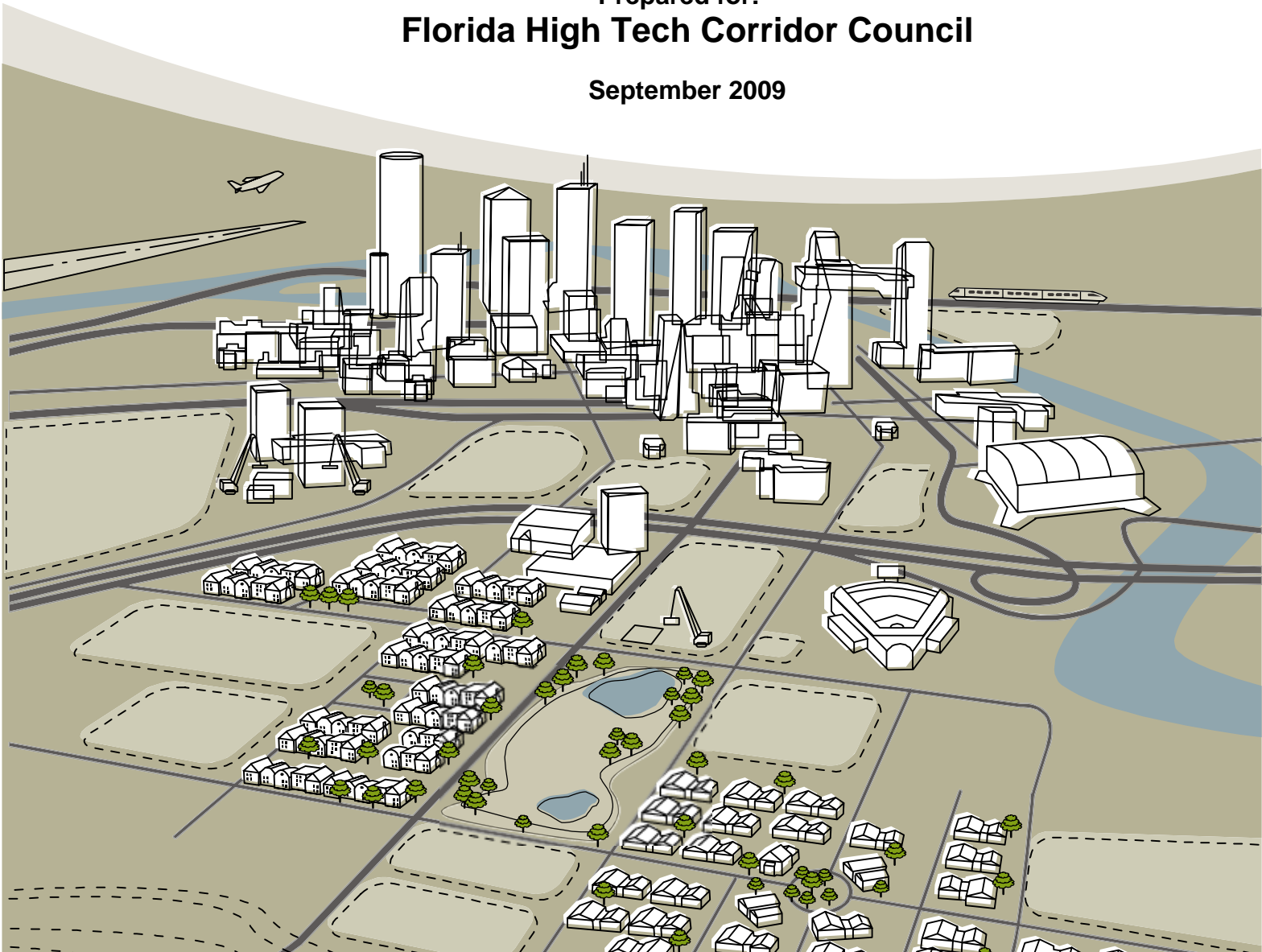
UNIVERSITY OF CENTRAL FLORIDA
BUSINESS INCUBATION PROGRAM

Regional Economic and Community Benefits

Prepared for:

Florida High Tech Corridor Council

September 2009



STRATEGISTS ■ ECONOMISTS ■ PLANNERS ■ ADVISORS

INTRODUCTION

In early 2009, Real Estate Research Consultants, Inc. (RERC) was retained by the Florida High Tech Corridor Council (FHTCC) to analyze the economic impacts, estimate the major fiscal revenues, and identify other community benefits generated by current client companies and graduate companies of the UCF Business Incubator Program. The UCF program has been recognized for the past few years as one of the most effective and well-operated incubation systems in the nation, and its results in the areas of job creation, new business development, and facilitation of research-based commercialization are unquestionably noteworthy. At the same time, the concept of new business incubation as an economic development approach – especially for high technology companies – has been gaining a lot of credence nationally with communities that encourage business/education/government collaborations and partnerships.

A recently announced study conducted for the U.S. Department of Commerce Economic Development Administration (EDA) found business incubators to be the most cost-effective investment governments can make in terms of job creation¹. Business incubators provide communities with significantly greater results at less cost than any other type of infrastructure project. The EDA report further notes that incubators provide up to 20 times more jobs than typical community infrastructure projects at a fraction of the cost. Among the EDA's key findings:

- ✓ *“EDA’s strategic focus on innovation and entrepreneurship makes sense...investments in business incubators generate significantly greater impacts in the communities in which they are made than do other project types...”²*
- ✓ For every \$10,000 of federal investment, business incubators produced 46.3 to 69.4 new jobs at a cost of only \$144 to \$216 per job.
- ✓ By comparison, federal investment of \$10,000 in roads and transportation projects produced 4.4 to 7.8 jobs at a cost of \$1,291 to \$2,293 per job.
- ✓ A \$10,000 investment in community infrastructure produced 1.5 to 3.4 jobs at a cost of \$2,920 to \$6,872 per job.
- ✓ The same \$10,000 federal investment in business incubators produced between nine and ten times as many jobs as roads and bridges and almost twenty times as many jobs as investments in community infrastructure at a small fraction of the cost per job.

Despite the potential for substantial employment creation, business incubators have traditionally been some of the least publicly funded economic development projects. The focus on job creation could generate cause for increased public funding for this form of economic development. Public funding available for incubator programs, however, may reasonably increase. For example, the UCF incubation program has recently partnered or is discussing potential partnership opportunities with local governments to establish additional incubator facilities in Lake, Seminole, Brevard and Osceola Counties. Even with seven incubators currently operating in more than 80,000 square feet, local government funding in central Florida is still less than \$900,000 annually.

According to the National Business Incubation Association (NBIA), the UCF incubation program received the *Incubator of the Year Award* in 2004 and consistently ranks as one of the leading incubation programs in the nation as it has proven its ability to facilitate the growth and

¹ Grant Thornton LLP & ASR Analytics LLC. (2008). “Construction Grants Program Impact Assessment Report.” Prepared for the U.S. Department of Commerce Economic Development Administration.

² *ibid*

development of start-up companies in Central Florida. Once enrolled in the incubation program, these start-up companies undergo an extensive mentoring and monitoring process under the guidance of the program's staff and its plethora of resources. Upon graduation, these companies typically comprise seven to fifteen employees and earn between \$1,000,000 and \$3,000,000 in annual revenue. The guidance provided while in the UCF incubator prepare these firms well to secure grants and follow-on funding to develop technologies further. One firm alone has garnered more than \$18 million in SBIR/STTR grants since 2001.

The nature of the incubation process not only promotes business development and job creation for companies within the incubation program, this process generates a significant downstream impact on the local economy in the form of increased sales, service jobs and jobs in related industries.

The following analysis focuses on the economic impacts and community benefits of the UCF Business Incubation program on the Central Florida economy. In addition to exploring the potential increases in jobs, economic output and earnings, the analysis also summarizes the potential tax revenues collected by Orange and Seminole County governments from the employees and client and graduate companies.



“A primary objective of the UCF incubation program is to enable clients to work smarter, faster and more cost effectively – three key indicators of running a successful and lasting business.”

BOTTOM-LINE OF THE ANALYSIS

Between 1999 and early 2009, the UCF Business Incubation program facilitated the growth and development of at least 100 new high-tech companies in the Central Florida region. A total of 34 companies have graduated from the incubation program and 80 percent of these graduate companies remain located in Central Florida. At the time of this analysis, the incubation program was comprised of 70 client companies.

New employment opportunities and business operations created by client and graduate companies generate significant multiplier effects which benefit the community, the region and the state. These effects are largely described as the “*downstream*” returns created as the result of job growth and the commercial application of intellectual property developed by these companies. Further, the addition of planned and proposed incubator facilities, such as those proposed in Lake, Seminole, and Osceola Counties, should increase these downstream returns to the region.

“Business incubators provide communities with significantly greater results at less cost than any other type of infrastructure project.”

There are various means to portray the economic impacts and other community benefits of an operation of an incubation program. Numerous studies of such impacts exist in scholarly literature, many prepared by academics at

some of the nation's most prestigious universities and "think-tanks." Some studies measure total economic activity as determined through econometric models such as RIMS II; others might calculate the return on public investment by comparing fiscal benefits to public dollars invested in a program. Yet others measure the downstream value of the commercial application of intellectual property cultivated in an incubator system. The results derived from these studies are variously presented as "multiplier effects," "return-on-investment (ROI)," or "community benefits."

This analysis primarily traces job growth and its related economic and fiscal benefits through the RIMS II input/output model developed by the United States Bureau of Economic Analysis (BEA), showcasing the importance of UCF's efforts in promoting the development of small businesses and the resulting impact on regional economic development. A second analysis comparing public investment with fiscal returns to local government was also completed. The key findings of these analyses are summarized below:

- In total, the incubator program is responsible for facilitating the creation of over 1,600 jobs in the region (based upon the multiplier assumptions embodied within RIMS II).
 - These 1,653 jobs are responsible for more than \$70,012,000 in earnings and nearly \$200,000,000 in total economic output annually.
- Current client companies comprise approximately 340 employees. Using RIMS II multipliers, these employees generate the need for an additional 313 jobs in the community. (These figures do not include additional impacts created by employees that operate the incubators, which could increase this impact by two-three percent.)
- The 492 employees within the 27 graduate companies remaining in Central Florida create a need for an additional 508 jobs in the community. Selected surveys reveal that these firms are more mature than client companies, thus their salary and economic impacts are generally greater than the average.
- In effect, for each job created within the incubator or by a graduate company, another job is created in the Central Florida community.
- Business and job growth also generate increased revenues for impacted local governments. For 2009, the incubation program will generate at least \$4.5 million in public revenues within Orange and Seminole counties, representing a return of \$5.25 for every \$1.00 invested by local governments.
- Over 20 years for both Orange and Seminole Counties, the current output of the incubation program could generate almost \$60,000,000 in ad valorem revenue and more than \$8,000,000 in sales tax revenues. Additionally, almost \$43,000,000 could be generated for the public school systems in Orange and Seminole Counties.
- Employees of the client and graduate companies located in Orange County as well as their related spin-off employment will generate nearly \$1,750,000 in ad valorem revenue for the County in 2009.
 - These businesses and employees will also generate at least \$190,000 in sales tax revenue for the County in 2009.

- *In Seminole County*, client and graduate employees as well as their spin-off employees residing within the county will generate nearly \$630,000 in ad valorem revenue and an additional \$115,000 in sales tax revenue for the County *in 2009*.
- *Orange and Seminole County Schools* also benefit, collecting \$1,250,000 and \$460,000, respectively, in property tax revenue *in 2009*.
- The UCF Business Incubator program ranks as one of the leading incubation programs in the nation. In 2004 it received the *Incubator of the Year Award* from the NBIA.
- A recent report conducted for the EDA determined business incubator programs to be *the most cost-effective public investments* in terms of job creation, twenty times more effective than investments in community infrastructure.
- Approximately *20 to 25 start-up companies enroll* in the UCF incubation program each year. Less than five client companies drop out the program each year (either voluntarily or they fail to continue meeting the requirements of the program).
- On average, clients remain in the incubator between one-and-one-half to three years before they are considered “ready” to graduate.
- In a normal economic climate, eight to ten companies graduate from the incubator program each year.
- According to surveys of graduate companies, at least *55 grants totaling more than \$33 million in SBIR/STTR* funding have been awarded to client and graduate companies of the UCF incubators. An *additional \$50 million* or more have come from other federal and state grants that support on-going technology development.
- A *“typical” incubator* has significant positive impact on the community. A 10,000 SF facility located in Orange County with seven companies and 28 employees would generate at least \$102,000 of annual public benefits and create one new job for each employee working within the incubator.
- These estimates are inherently conservative because they inadequately address many related activities that also have current and future societal value even if that value is difficult to define at this time.

OVERVIEW OF UCF INCUBATOR PROGRAM

Business incubation systems are programs, services and facilities designed to support entrepreneurial start-ups and emerging businesses within specific business sectors. Incubation systems may offer subsidized facilities space, management, contacts, business development services and other support services intended to assist local economic development efforts and foster the commercialization of academic and creative research.

According to the National Business Incubator Association (NBIA), companies that participate in a university sponsored incubation program enjoy a graduation rate of approximately 70 to 80

percent, and 87 percent of all businesses that successfully complete the incubation program are still in business five years after graduation. UCF's program meets or exceeds these standards.

NBIA research has shown that, in general, for every two jobs directly created in an incubator an additional job is indirectly created within the community. UCF's program also exceeds this impact, creating one "spin-off" job for every job created within its incubators. Furthermore, approximately 85 percent of the successful incubator graduates choose to locate their company within the local community after graduation. Fiscally, incubators also represent sound community investment as these companies and their employees generate substantial tax benefits to local governments.

Beginning in 1999, the University of Central Florida partnered with local communities, the FHTCC and the EDA to create the UCF business and technology incubation program. The UCF incubation program directly administers five incubators over six facilities throughout Central Florida. The Seminole Business Technology Incubation Center in Sanford is also affiliated with UCF. Additionally, the UCF Office of Research and Commercialization has recently confirmed contracts in Lake, Osceola, and Seminole Counties to establish additional incubator facilities in these areas.

The mission of the UCF incubation program is to "provide early stage companies with the enabling tools, training and infrastructure to create financially stable high growth enterprises." Prospective entrepreneurs are required to go through a multi-stage application process for enrollment into the UCF incubation program. In addition to being required to have nine to twelve months of capital resources on hand, these prospective clients must demonstrate the validity and importance of their ideas and their willingness to learn and follow the incubation guidelines. Once accepted into the program, these clients receive extensive mentoring and advising related to operating a successful business. These services provided by the program may include, but are not limited to, various marketing, financial and legal services. A primary objective of the UCF incubation program is to enable clients to work smarter, faster and more cost effectively – three key indicators of running a successful and lasting business.

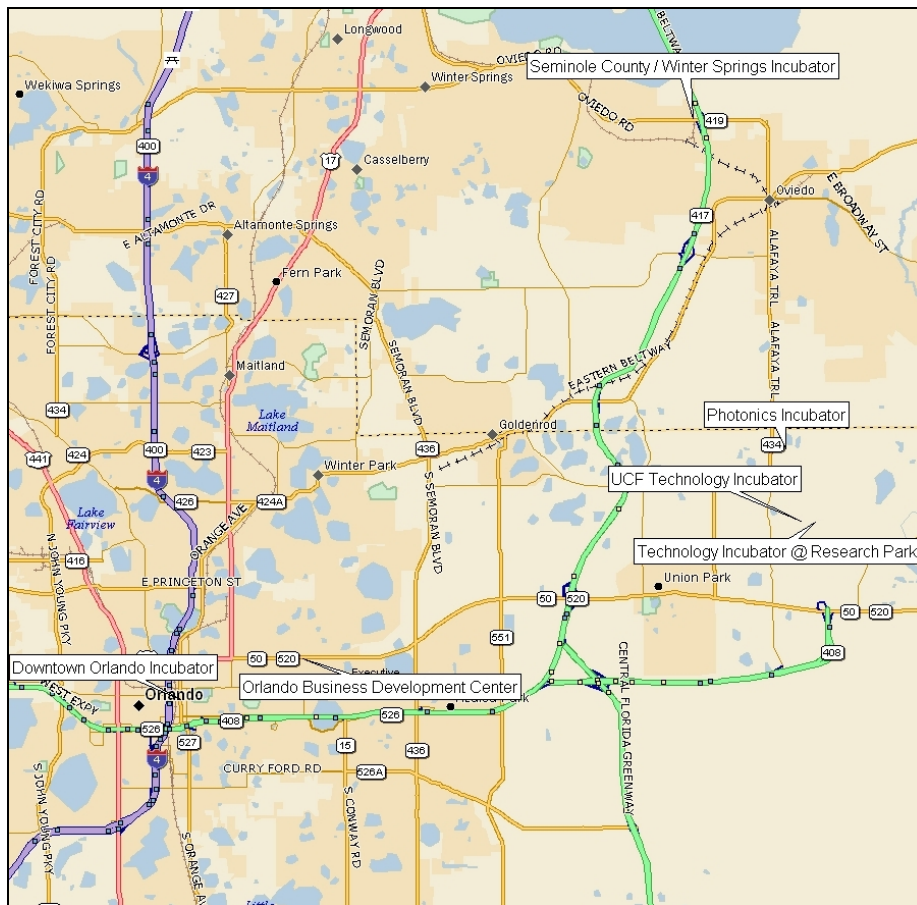
Since its inception, the UCF incubation program has serviced and housed approximately 125 emerging companies, including approximately 70 current clients. To date, over 30 companies have successfully graduated the incubation program. More than 80 percent of the graduate companies have elected to remain in central Florida to conduct business. On average, approximately 20 to 25 companies are expected to enroll in the program over the next several years. Plans to expand the program into other locations, such as Leesburg and St. Cloud, would substantially increase new enrollment.

Because of the intensity and requirements of the program, not all companies enrolled are able to graduate. On average in a typical economic climate, less than five companies drop out per year. Those clients able to stick to the program typically remain in the incubator for a period of approximately one-and-one-half to three years. As reported by UCF, an average client will graduate with approximately seven to fifteen employees and earns between \$1,000,000 and \$3,000,000 in annual revenue.

The UCF incubation program's facilities total more than 80,000 square feet of space throughout Central Florida. Figure 1 illustrates the location of each incubator; brief descriptions follow.



Figure 1: Map of incubator locations within the UCF incubator system



A brief summary of each existing incubator facility follows:

University of Central Florida Technology Incubator (UCFTI)

The UCFTI was the original UCF incubation facility established in 1999. UCFTI consists of two facilities located within the UCF research park, an approximately 7,000 square foot facility on Research Parkway and a 40,000 square foot facility on Progress Drive. As of 2007, 23 companies have graduated from the UCFTI program and created more than 800 jobs. The UCFTI typically accommodates high technology oriented business requiring 1,000 to 7,000 square feet for 10-20 person operations. The UCFTI is a partnership between UCF, Orange County, the FHTCC and Metro Orlando Economic Development Commission.

Photonics Incubator

The UCF Photonics incubator is located on the UCF campus at the Center for Research and Education in Optics and Lasers (CREOL) facility. The incubator facility, which opened in 2005, includes approximately 21,000 square feet of space. The partially occupied space currently hosts four client companies, with one company slated for graduation. The mission of the photonics incubator is to foster commercialization of the research and development underway at CREOL. The photonics incubator is a partnership between UCF, the City of Orlando, the FHTCC and the EDA

Orlando Business Development Center/District 2 Incubator

Located near the Orlando Executive Airport on Colonial Drive, the Orlando Business Development Center (OBDC) is a partnership between the UCF, the City of Orlando and the Florida High Tech Corridor Council. The Business Development Center is focused primarily on servicing non high tech start ups. Phase one of the program includes 2,000 feet of office space which is currently fully leased to three incubator clients. Phase two, scheduled to open in 2009, includes an additional 4,000 feet of office space. The OBDC offers an entrepreneurship development program, business enhancement classes and onsite coaches and mentors.

UCF Incubator – Seminole County/Winter Springs

Opened in the summer of 2008, the Seminole County/Winter Springs incubator possesses approximately 10,000 square feet of space within the Vistawilla Office Center building on State Road 434 near the intersection of State Road 417. The incubation facility is predominantly leased to incubation clients and includes flex office space, conference rooms and shared reception rooms and office equipment. The incubator is a partnership between UCF, Seminole County, the City of Winter Springs and the FHTCC.

Downtown Orlando Incubator

The Downtown Orlando incubation facility is located on North Orange Avenue and offers approximately 4,000 square feet of office/incubation space to technology and high growth companies that can benefit from a downtown location.

Seminole Business Technology Incubation Center (SBTIC)

The SBTIC is a partnership between Seminole County, Seminole Community College and UCF. Though not directly administered by the UCF incubation program, SBTIC clients have available all business development services offered by UFCIP. The facility, which opened in Sanford in late 2000, possesses 10,500 square feet of incubator space currently serving 11 general technology incubator clients. While this facility is affiliated with UCF, it is not under direct administration of UCF and therefore not included in the following impact analysis.

ECONOMIC IMPACT MULTIPLIER ANALYSIS (RIMS II)

The typical economic model assumes that a portion of dollars are retained locally, are then spent in subsequent activities, and eventually leak into adjacent areas or economies. The

broader and more integrated the economy, the more these dollars are retained internally, but even in those advanced settings, leakage approaches 100 percent over time. The relative magnitude of job creation – in this case technology-driven jobs – directly affects the impact, benefits or downstream results that will be generated.

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Such impact, benefits, or downstream results as generally described here are calculated using the concept of a *multiplier*. Technically, this multiplier is the relationship between jobs and successive economic activity, defined specifically in this case to mean initial job creation and the subsequent spending, jobs and benefits stemming from the creation of the initial jobs. This sequence of interconnected relationships speaks to the direct effects which, in turn, cause indirect and induced effects.

There are three basic multipliers of particular relevance in estimating the economic impact in the region resulting from UCF’s incubators. These are the annual output, employment and earnings multipliers. Simplistically, *output* represents an annual estimate of the imputed sales and production value of the incubator and the additional (i.e. indirect and induced) sales created as a result of the incubator. The *employment* multiplier represents the total jobs created as the result of the employment within the incubator. The *earnings* multiplier measures the change in personal and property income generated annually as the result of each new income dollar earned. The indirect and induced impact stemming from these activities are reflected in the sales value of all other services or materials bought and sold in conjunction to support the incubator client and graduate companies. These indirect and induced activities also have their own output, employment and earnings effects.

The analysis described here applies the multipliers developed by the United States Bureau of Economic Analysis (BEA) as part of the Regional Input/Output System II (RIMS II). The multipliers produced using RIMS II are available for almost 500 industry segments, requiring some judgments in selecting among the benefiting classifications. Employing the appropriate multipliers based on each incubator’s particular industry type (i.e. technology, engineering, medical, etc.) allow for the analysis of estimated employment, earnings and economic output generated by the incubator system. Conceptually, these multipliers capture the direct effect of an expansion in final demand of employment plus all of the indirect and induced effects in response to the changes in outputs of the households and industries within the region brought about by the purchases made by employees and companies from other industries.

In very simple terms, as the UCF incubator client and graduate companies generate revenue, they, along with their employees, purchase both goods and services from other industries locally. All new expenditures or receipts will generate multiplier effects. What may vary is the effect across segments of industry.

Using these kinds of relationships, this study evaluates the value of the clients within the UCF incubator system in terms of:

- economic and revenue benefits of new and existing businesses
- permanent and temporary job creation
- earnings or income received
- economic and revenue impacts of a business on a local community

- supplier impacts of businesses on related local industries (banking, construction, retail)
- the value of economic development (downstream discovery)

For this analysis, RERC worked with the Office of Research and Commercialization at UCF to acquire information relating to specific characteristics of each client and graduate company. Employment figures for each client and graduate company are the primary source of data incorporated in the multiplier analysis. With regard to graduate companies, some employment figures were not available due to the graduate company being acquired by a larger local organization or the graduate company is now operating out of an employee’s residence. It should be noted that any impact from these acquisitions is above and beyond the impact presented within this analysis.

There are approximately 832 employees within both client and graduate companies which have remained in the Central Florida region. These employees represent the focus for calculating the direct impact on the regional economy from the existence of these companies. The indirect impact results from the businesses in affected industries spending their earnings and gross receipts in the local economy. The spending by households of employees within these affected industries reflects the induced impact on the regional economy.

For this analysis, multipliers were selected to match the industries associated with graduate companies and those companies currently enrolled within the incubator program. These specific multipliers are applied to the total employees. Table 1 illustrates the total economic impact, which accounts for the direct, indirect and induced effects on the regional economy from companies associated with the incubator system, using the RIMS II methodology. The impact estimates presented in Table 1 reflect the regional economic impact of **one year**.

As previously discussed, the direct, indirect and induced effects on the regional economy are likely to understate the actual economic impact on the region from the incubation program. Companies acquired by larger firms or institutions, or are working out of a residence are not explicitly factored within the multiplier analysis.

Table 1: Annual Economic Impact on Central Florida Region from UCF Incubator Program

	Clients	Graduates	Total
Direct Effect Impact ¹			
Output	\$ 39,512,000	\$ 54,708,000	\$ 94,220,000
Employment (jobs)	340	492	832
Earnings	\$ 18,390,000	\$ 31,079,000	\$ 49,469,000
New Impact ²			
Output	\$ 40,703,000	\$ 56,382,000	\$ 97,085,000
Employment (jobs)	313	508	821
Earnings	\$ 10,996,000	\$ 9,547,000	\$ 20,543,000
Total Impact ³			
Output	\$ 80,216,000	\$ 111,090,000	\$ 191,306,000
Employment (jobs)	653	1,000	1,653
Earnings	\$ 29,386,000	\$ 40,626,000	\$ 70,012,000

¹ Impact on Central Florida directly from client and graduate companies ² Impact net of client and graduate companies

³ Total impact on Central Florida from client and graduate companies as well as spinoff companies

ANALYSIS OF SELECT FISCAL REVENUES

The basic assumptions and form of this analysis were derived conversations with staff from the UCF incubator system and the FHTCC as well as RERC's knowledge and experience with modeling fiscal benefits flowing to the affected jurisdictions. The items of major importance to local government include ad valorem revenues and sales tax revenues generated by the businesses and employees associated with the incubator system and its graduates.

Some assumptions applied in the methodology associated with calculating the estimated fiscal benefits may not be realized, and some categories of benefits might not be counted; the ultimate difference in the results could be materially different. That said, the output provided is reasonable in the context of the information now available to RERC.

All of the incubator facilities are located within either Orange or Seminole counties and these are therefore the jurisdictions on which this analysis focuses. Based on information obtained from the Office of Research and Commercialization, a large percentage of client and graduate employees reside within the same county as their employer. There are, however, circumstances when an employee of an Orange County company resides in Seminole County and vice versa. Assumed ratios are applied to the total employees working in each incubator facility to more accurately reflect the flow of property and sales tax revenues to each county and its incorporated jurisdictions.

Estimated Employee Impacts

Real Property Taxes. The ownership of housing comprises the single largest investment of most employees, and the resulting taxes are significant when 1,600 or more households are considered. RERC estimated the maximum housing price an average employee could afford based on each employee spending approximately 30 percent of disposable income on housing to generate the taxable values associated with the residences of all employees. Taxable values are inflated annually at two percent throughout the analysis to reflect relatively conservative property appreciation. Millage rates for 2008 were obtained from the property appraiser's office within each county to calculate the ad valorem taxes generated by the current client and graduate employees for Orange and Seminole Counties. Because some employees also reside within incorporated areas (Orlando, Winter Park, Oviedo, Winter Springs, Altamonte Springs, Sanford, etc.) an estimate of municipal millage rates was also included in this analysis where appropriate. In summary, RERC estimates that employees of the client and graduate companies that reside within Orange and Seminole counties pay a total of at least \$2.1 million annually in real property taxes on their places of residence. In addition to general levies, these employees also pay approximately \$1.5 million annually for school taxes. Other special district levies or assessments which might be paid were not considered for this analysis, but they are not expected to be significant, nor would these enterprises be contributing toward supporting the incubator system.

State and Local Sales Taxes. In addition to ad valorem taxes for each county, employees of the client and graduate companies would be paying sales taxes that accrue to the State of Florida and local governments based upon normal household expenditures for goods and services. Sales tax revenues reflect the expenditures by employees on taxable products. Conservative multipliers were applied to evaluate the amount of sales actually spent within each County for taxable goods. Table 2 summarizes these revenues for the state and the revenues distributed to both Orange and Seminole counties and their constituent municipalities as generated by all

local residents employed within a client or graduate company, as well as spin-off employees presented in Table 1.

Table 2 summarizes the estimated ad valorem and sales tax revenues received within Orange and Seminole counties, as well as property taxes received by the public school systems from the employees of client and graduate companies, respectively. This chart also demonstrates how these revenues will grow over the next twenty years considering only modest growth of the incubator program impacts as they existed in early 2009.

Table 2: Fiscal revenues received by Orange & Seminole Counties from employees, 20 years

Year	1	5	10	15	20	Total
Orange County						
Property Tax						
Orange County	\$ 1,553,000	\$1,707,000	\$1,917,000	\$2,148,000	\$2,404,000	\$39,068,000
Orange County Schools	\$ 1,101,000	\$1,210,000	\$1,359,000	\$1,523,000	\$1,705,000	\$27,702,000
Sales Tax						
State of Florida	\$ 1,584,000	\$1,714,000	\$1,892,000	\$2,089,000	\$2,307,000	\$38,473,000
Orange County Distribution	\$ 140,000	\$ 151,000	\$ 167,000	\$ 184,000	\$ 203,000	\$ 3,391,000
Seminole County						
Property Tax						
Seminole County	\$ 566,000	\$ 622,000	\$ 699,000	\$ 784,000	\$ 878,000	\$14,257,000
Seminole County Schools	\$ 414,000	\$ 455,000	\$ 512,000	\$ 574,000	\$ 642,000	\$10,428,000
Sales Tax						
State of Florida	\$ 568,000	\$ 615,000	\$ 679,000	\$ 750,000	\$ 828,000	\$13,804,000
Seminole County Distribution	\$ 50,000	\$ 54,000	\$ 60,000	\$ 66,000	\$ 73,000	\$ 1,217,000
Total - Orange & Seminole Counties						
Property Tax						
Counties	\$ 2,119,000	\$2,329,000	\$2,616,000	\$2,932,000	\$3,282,000	\$53,325,000
County Schools	\$ 1,515,000	\$1,665,000	\$1,871,000	\$2,097,000	\$2,347,000	\$38,130,000
Sales Tax						
State of Florida	\$ 2,152,000	\$2,329,000	\$2,571,000	\$2,839,000	\$3,135,000	\$52,277,000
County Distributions	\$ 190,000	\$ 205,000	\$ 227,000	\$ 250,000	\$ 276,000	\$ 4,608,000

SOURCE: Real Estate Research Consultants

Estimated Business Impacts

Potential business impacts on local fiscal revenues are comprised primarily of real property ad valorem taxes – assessed on facilities; tangible personal property ad valorem taxes – assessed on business equipment and fixtures; and sales taxes – collected from business sales and expenditures for rent, supplies, and certain services. Without detailed corporate accounting records or familiarity with companies’ occupancy, these calculations can only be generally estimated based on assumed standards.

Real and Personal Property Taxes. Real property tax receipts are driven by the value of the underlying land and the value of the structure(s) on the land. Real property values were assigned to each incubator facility and surrounding land based on information obtained from the Orange and Seminole County Property Appraiser offices. Occupancy estimates were derived from surveys for each of the graduate companies located within Orange and Seminole counties. Taxable values are inflated annually at two percent throughout the analysis to reflect relatively conservative property appreciation. Millage rates for 2008 were obtained from the property

appraiser’s office within each county to calculate the ad valorem taxes generated by the current client and graduate companies for Orange and Seminole Counties.

The figures represented in Table 3 reflect conservative revenue estimates. Although potentially substantial, Table 3 does not account for tangible personal property (TPP) tax revenues collected from clients, graduates and spin-off companies. Based upon selected surveys completed by RERC for other fiscal impact studies, a “rule-of-thumb” for estimating TPP assessments within commercial office and light industrial buildings is roughly ten percent (10%) of total valuation is attributable to TPP; all levies are applied to these assessments, including school taxes. Thus, RERC has assumed that TPP revenues derived from the incubator client and graduate companies would add approximately \$54,000 annually to the revenues summarized in Table 3.

Table 3: Real Property tax revenues generated within Orange & Seminole Counties from the client and graduate companies and their respective facilities, 20 years

Year	1	5	10	15	20	Total
Orange County Ad Valorem	\$ 218,000	\$ 236,000	\$ 260,000	\$ 287,000	\$ 317,000	\$5,290,000
Orange County Schools	\$ 154,000	\$ 167,000	\$ 185,000	\$ 204,000	\$ 225,000	\$3,752,000
Seminole County Ad Valorem	\$ 66,000	\$ 71,000	\$ 79,000	\$ 87,000	\$ 96,000	\$1,602,000
Seminole County Schools	\$ 48,000	\$ 52,000	\$ 58,000	\$ 64,000	\$ 70,000	\$1,171,000
Total Real Property Ad Valorem Taxes						
Orange & Seminole Counties	\$ 284,000	\$ 307,000	\$ 339,000	\$ 374,000	\$ 413,000	\$6,892,000
Orange & Seminole Schools	\$ 203,000	\$ 219,000	\$ 242,000	\$ 267,000	\$ 295,000	\$4,923,000

SOURCE: Real Estate Research Consultants

State and Local Sales Taxes. As noted earlier, it is extremely difficult to assess accurately the amount of sales taxes generated by businesses, which do not have “typical” expenditure patterns similar to resident households. However, it is obvious that more than 100 companies operating within the central Florida region are paying rent, buying supplies, and selling products, some of which are taxable. The results of the RIMS II input/output analysis completed for this assignment indicate that the regional gross output of the UCF incubator client and graduate companies totals currently about \$191,300,000 annually. For illustrative purposes, if one assumes only twenty percent (20%) of this figure represented taxable sales, it would equate to approximately \$38.3 million annually. A total of roughly \$2.5 million in sales taxes would be generated annually, of which about \$225,000 would flow to Orange and Seminole counties each year.

RETURN ON PUBLIC INVESTMENT

Another common measure of the effectiveness of investments in economic development is a calculation of “*return-on-investment*” which compares the level of local public investment to the amount of estimated local fiscal benefits measured in terms of tax revenues. Aside from the operational funding provided by UCF and revenues generated from operations such as rent, the incubator program has been subsidized by annual contributions from Orange County, City of Orlando, and the FHTCC since 2002 and by Seminole County since 2007. In all, about \$3,550,000 has been committed to the program from these four sources.

The following table summarizes the history of public funding by source.

Table 4: Summary of Public Funding Sources, UCF Incubator System, 2002-2009

Year	Orange County	Seminole County	City of Orlando	Hi Tech Council	Combined Total	Cumulative Total
2002	\$100,000		\$100,000	\$50,000	\$250,000	\$250,000
2003	\$100,000		\$100,000	\$50,000	\$250,000	\$500,000
2004	\$100,000		\$100,000	\$50,000	\$250,000	\$750,000
2005	\$100,000		\$100,000	\$50,000	\$250,000	\$1,000,000
2006	\$100,000		\$100,000	\$50,000	\$250,000	\$1,250,000
2007	\$100,000	\$300,000	\$100,000	\$50,000	\$550,000	\$1,800,000
2008	\$125,000	\$300,000	\$400,000	\$50,000	\$875,000	\$2,675,000
2009	\$125,000	\$300,000	\$400,000	\$50,000	\$875,000	\$3,550,000
Total	\$850,000	\$900,000	\$1,400,000	\$400,000	\$3,550,000	

SOURCE: UCF Office of Research and Commercialization

In the preceding pages, RERC has summarized the various impacts and fiscal benefits that have been derived from the UCF incubators and their graduate companies, including primarily ad valorem property taxes and sales taxes resulting from on-going activities of businesses and employees. Table 5 summarizes these estimates of revenues.

Table 5: Local Public Revenues derived from the UCF Incubator System, 2009 Estimate

<u>Source of Tax Revenues</u>	<u>Revenue per Year</u>
2009 Estimate	
<u>Real Property Taxes - Employees</u>	
Orange & Seminole Counties	\$2,119,000
Orange & Seminole Schools	<u>\$1,515,000</u>
Sub-total	\$3,634,000
<u>Real Property Taxes - Businesses</u>	
Orange & Seminole Counties	\$284,000
Orange & Seminole Schools	<u>\$203,000</u>
Sub-total	\$487,000
<u>Personal Property - Businesses</u>	
Orange & Seminole Counties	\$30,000
Orange & Seminole Schools	<u>\$24,000</u>
Sub-total	\$54,000
<u>Local Sales Taxes</u>	
Employee	\$190,000
Businesses	<u>\$225,000</u>
Sub-total	\$415,000
Total All Sources - Annual	\$4,590,000

SOURCE: Real Estate Research Consultants

It can be seen by comparing the public funding with the estimated public revenues that a very positive relationship exists. For 2009, public revenues equal 5.25 times the level of public funding. In other words, every \$1.00 invested by the local governments (and FHTCC) participating in the UCF incubator program is returning at least \$5.25 in local government revenues in the form of property taxes and sales taxes. Once again, RERC wants to emphasize that these estimates are believed to be conservatively calculated using only documented data and reasonable generalizations where specific data is not readily available. Because of the high technology orientation of most of the client and graduate companies, it is possible that the RIMS II model employed and the standard ratios applied may understate the relative impacts of these emerging industry leaders and their entrepreneurial owners and managers.

Table 6: UCF Incubator Program Return on Public Investment, 2009 Estimate

Real Property Taxes	\$2,403,000
School Taxes	\$1,718,000
Personal Property Taxes	\$54,000
Sales taxes	<u>\$415,000</u>
Total Tax Revenues	\$4,590,000
Public Investment	\$875,000

Return on Public Investment \$5.25 for each \$1.00 Invested

SOURCE: Real Estate Research Consultants

OTHER BENEFITS

The positive economic impact of the UCF incubator system is undeniable given the figures presented in the preceding pages. At the same time, the incubation system has less tangible benefits on the business community and on Central Florida's image and reputation as a good place to start and nurture a new and innovative enterprise. Numerous organizations and industry publications have lauded Orlando's collaboration between business, education, and government partners, and the UCF incubator system is usually a key illustration of such local collaboration.

While economic impact models include generalized inputs and outputs of activity, some specific features of business success may go unheralded. One such illustration is the success of incubator clients and graduate companies in the pursuit of state, federal, and institutional grant funding. The UCF system has estimated that at least \$86,000,000 of government grants have been awarded to its clients and graduates since 2001. It is estimated that 55 of these grants were Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) grants totaling \$33 million for commercial application of innovative technologies initially nurtured in the UCF technology incubators. One graduate company alone has received \$18,000,000 in such grants over eight years. The company founder attributes this successful pursuit of grants largely to his association with the UCF system from start-up to maturation. This type of success adds to the community's ability to incubate and nurture new and innovative economic engines and their commensurate impacts.

CONCLUSIONS

The UCF incubation program administered by the UCF Office of Research and Commercialization is capable of generating substantial benefits to potential entrepreneurs as well as the Central Florida community. With its primary objective of enabling start-up businesses to work faster, smarter and more economically efficient, the incubation program has graduated 34 businesses since 2002 and currently administers over 70 clients. Of these 34 graduate companies, several have been acquired by larger companies around the country, and at least one of these has expanded to include thousands of employees. Approximately 80 percent of all graduate companies have remained in Central Florida and 18 percent have either moved out of Florida or the United States.

“...current client and graduate companies which have remained in Central Florida are estimated to create a demand for 821 additional jobs in the community, totaling over 1,600 jobs created by the existence of the incubator program.”

Prior to opening the incubation facility in Winter Springs, approximately eight to ten clients enrolled in the system each year. With the expansion to Winter Springs, the incubator program has doubled its annual enrollment. Enrollment will undoubtedly increase as incubator facilities expand into the Lake and Osceola Counties and add a new facility in Sanford.

From the viewpoint of their economic impact on the region, client and graduate businesses contribute more to the local economy than simply the additional employees within their companies. These employees generate spending, which in turn, generates demand for more jobs and more spending. As presented in Table 1, current client and graduate companies which have remained in Central Florida are estimated to create a demand for 821 additional jobs in the community, now totaling over 1,600 jobs created by the existence of the incubator program. This equates to an employment multiplier of roughly 1.0, meaning each job within a client or graduate company creates demand for approximately one job in the region. As noted in the report, each \$1.00 of public funding has generated \$5.25 of corresponding fiscal benefit.

The success of UCF's incubation program, combined with the continued success of its graduate companies, has already generated significant revenues for local governments. While there are additional revenue sources for the local governments, this analysis focuses on the main revenue sources benefiting local government – property and sales taxes. Much of the fiscal revenue results from the employees of the client and graduate companies as well as the spin-off employment presented in Table 1.

Conservative multipliers were applied to determine the appropriate distribution of expenditures. For example, 30 percent of the total disposable income is assumed to pay for housing. These distributions provide the opportunity to estimate housing values and property taxes. The distribution of disposable income also enabled RERC to estimate the taxable sales of retail goods and services and the resulting sales taxes. General ratios were applied to the results of the RIMS II model enabling RERC to calculate approximate taxable sales for the businesses studied. A similar approach was employed to estimate tangible personal property taxes paid by client and graduate companies.

Tables 2 and 3 illustrate the estimated fiscal revenue generated for incorporated and unincorporated areas of Orange and Seminole counties, as well as the public school system within each county. On average, the employee spending results in approximately \$140,000 of

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sales tax revenue distributed to the Orange County governments per year, or roughly \$3.4 million over a 20-year period. Also within Orange County, approximately \$1,750,000 of ad valorem taxes may be collected per year from employees and client and graduate companies, totaling more than \$44,000,000 over 20 years.

Currently only one incubator directly administered by UCF is located outside Orange County. Consequently, Seminole County tax revenues are also a focus of this analysis. Employees living in Seminole County are estimated to generate nearly \$50,000 per year, or \$1,200,000 over 20 years, in sales tax revenue. These employees as well as the client and graduate businesses in Seminole County may generate an additional \$630,000 per year, or more than \$15,000,000 over 20 years, in ad valorem tax revenue for the Seminole County governments.

Orange County and Seminole County Public Schools will also collect substantial tax revenues from these companies and employees. The companies and their employees within Orange County may generate \$1,250,000 per year, or \$31,000,000 over 20 years, in property taxes for the school system. Seminole County schools may receive \$460,000 per year, or almost \$12,000,000 over 20 years, in property taxes.

Table 7 illustrates, on average, the economic and fiscal implications resulting from a *typical* incubator facility located in Orange County. This example assumes a total facility size of approximately 10,000 SF. Within the facility, seven client companies operate employing 28 employees. Assuming this facility targets technology driven start-up companies, the average salary is approximately \$54,000. Table 7 summarizes the economic and fiscal effects associated with the facility's property, client employment and the calculated spin-off employment in the region. The total annual return of public revenues would be at least \$102,000 per year.

Not shown in Table 7 is the future impact of the facility once these clients graduate. Within one to three years, these clients will graduate producing opportunities for new entrepreneurs to start their company in the incubator program. New clients translate into new employees within the community, which translates into new spending, and ultimately, increased tax revenue for Orange County.

Table 7: Example of the impact from a *typical* 10,000 SF incubator facility on the local community

Economic Impact		Property & Sales Tax Revenues Collected	
		Average Annual	Total - 20 Years
Direct Effect Impact ¹		From Employees (Direct & Spinoff)	
Output	\$3,353,000	Property Tax	
Employment (jobs)	28	Orange County	
Earnings	\$1,628,000	\$ 31,000	\$ 790,000
		Orange County Schools	
		\$ 51,000	\$ 1,273,000
New Impact ²		Sales Tax	
Output	\$3,455,000	State of Florida	
Employment (jobs)	29	\$ 73,000	\$ 1,770,000
Earnings	\$ 862,000	Orange County Distribution	
		\$ 6,000	\$ 156,000
Total Impact ³		From Incubator Property	
Output	\$6,808,000	Taxable Value	
Employment (jobs)	57	\$1,195,000	
Earnings	\$2,490,000	Ad Valorem	
		Orange County	
		\$ 5,000	\$ 293,000
		Orange County Schools	
		\$ 9,000	\$ 208,000

SOURCE: Real Estate Research Consultants

¹ Impact on Central Florida directly from client and graduate Businesses

² Impact net of client and graduate companies

³ Total impact on Central Florida from client and graduate Businesses as well as spinoff businesses

Winter Springs Incubator Facility



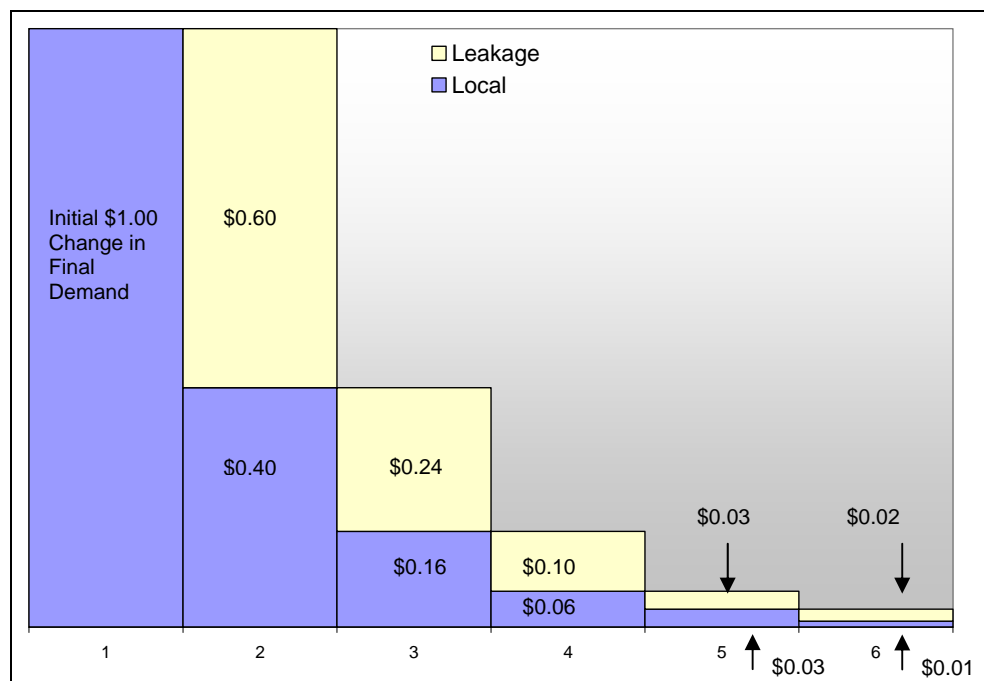
TECHNICAL APPENDIX

ECONOMIC IMPACT MULTIPLIER ANALYSIS EXPLAINED

The typical economic model assumes that a portion of dollars are retained locally, are then spent in subsequent activities, and eventually leak into adjacent areas or economies. The broader and more integrated the economy, the more these dollars are retained internally, but even in those advanced settings, leakage approaches 100 percent over time. The relative magnitude of job creation – in this case technology-driven jobs – directly affects the impact, benefits or downstream results that will be generated.

Such impact, benefits or downstream results as generally described here are calculated using the concept of a *multiplier*. Technically, this multiplier is the relationship between jobs and successive economic activity, defined specifically in this case to mean initial job creation and the subsequent spending, jobs and benefits stemming from the creation of the initial jobs. This sequence of interconnected relationships speaks to the direct effects which, in turn, cause indirect and induced effects. The example shown in the figure below illustrates the theory of the multiplier effect on \$1.00 spent locally given a typical multiplier value.

Example of the multiplier process and theory



In the example presented, for every \$1.00 of spending that enters the region because of the incubation program, 40 cents is retained and spent within the region (for supplies or other needs). This respending may include payments to manufacturers within the region for materials

³ Coughlin, C. & Mandelbaum, T. (1991). "A Consumer's Guide to Regional Economic Multipliers", Review, Federal Reserve Bank of St. Louis. January: 19-32

and equipment as well as for services such as legal and janitorial services. The remaining 60 cents of the original dollar is considered leakage and therefore is spent outside the regional economy.

In the second round of respending (column 3), 16 cents of the 40 cents is retained and spent within the region while 24 cents is leakage. This process continues until any additional spending within the region is considered negligible. The change in total business activity in response to the initial dollar spent would be \$1.66. Effectively, the multiplier of 1.66 indicates that for each dollar of sales, \$0.66 of additional business activity is generated in this example.

There are three basic multipliers of particular relevance in estimating the economic impact in the region resulting from UCF's incubators. These are the output, employment and earnings multipliers. Simplistically, *output* represents the imputed sales and production value of the incubator and the additional (i.e. indirect and induced) sales created as a result of the incubator. The *employment* multiplier represents the total jobs created as the result of the employment within the incubator. The *earnings* multiplier measures the change in personal and property income generated as the result of each new income dollar earned. The indirect and induced impact stemming from these activities are reflected in the sales value of all other services or materials bought and sold in conjunction to support the incubator client and graduate companies. These indirect and induced activities also have their own output, employment and earnings effects.

Using these kinds of relationships, this study evaluates the value of the clients within the UCF incubator system in terms of:

- economic and revenue benefits of new and existing businesses
- permanent and temporary job creation
- earnings or income received
- economic and revenue impacts of a business on a local community
- supplier impacts of businesses on related local industries (banking, construction, retail)
- the value of economic development (downstream discovery)

The effective evaluation of the potential economic impact associated with the implementation of various public- and private-sector projects and programs at the regional level is a requirement of successful planning for these projects and programs. As such, the analysis of economic impact should take into consideration the inter-industry relationships within the region as these inter-industry relationships largely determine how regional economies are likely to respond to project and program changes. Although a number of tools or methods are available for calculating such multiplier dependent relationships, this analysis employed an input and output (I/O) model. I/O models examine both the backward and forward flow of products and dollars between and among industry segments, sales by industries or suppliers to the clients and graduate companies, and the use of labor and capital in basic production. These models tend to be very detailed and incorporate algorithms for multiple employment codes and categories as defined by Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS).

The analysis described here applies the multipliers developed by the United States Bureau of Economic Analysis (BEA) as part of the Regional Input/Output System II (RIMS II). The multipliers produced using RIMS II are available for almost 500 industry segments, requiring

some judgments in selecting among the benefiting classifications. Employing the appropriate multipliers based on each incubator's particular industry type (i.e. technology, engineering, medical, etc.) allow for the analysis of estimated employment, earnings and economic output generated by the incubator system.

The algorithms involved allow one to examine the direct, indirect and induced impact of each industry stemming from the spending or receipt of an initial dollar. RIMS II allows for the use of five types of multipliers. These include final demand multipliers for output, earnings and employment and direct-effect multipliers for earnings and employment.

Based on recent research reviewed and the availability of data, final demand multipliers were used for this analysis. As mentioned above, final demand multipliers capture the direct, indirect and induced effects of a change in final demand sales, earnings or employment within a given industry. Conceptually, these multipliers capture the direct effect of an expansion in final demand of employment plus all of the indirect and induced effects in response to the changes in outputs of the households and industries within the region brought about by the purchases made by employees and companies from other industries.

In very simple terms, as these companies generate revenue, they, along with their employees, purchase both goods and services from other industries locally. All new expenditures or receipts will generate multiplier effects. What may vary is the effect across segments of industry. Those industries which receive dollars in kind or cash then themselves initiate purchase of inputs stimulating yet another round of purchases. These subsequent rounds are usually spoken of as the second and third round of spending which are maximized in more mature economies where there are opportunities to acquire a greater share of inputs. Eventually, the spending drifts away or leaks from the local economic setting.

There are cautions to be observed in measuring these relationships. While the analysis applied conservative controls, there are some interpretative considerations. Multipliers used in I/O models are based on proportional assumptions where outputs occur in tandem with production. At this gross level of analysis, it is necessarily understood that a doubling of outputs will require that inputs supporting this production will also double. In this case, further research effort is assumed to be accompanied by corresponding requirements for increased inputs. Consequently, it has to be assumed that there are occasional overstatements of effects embedded in the modeling process even if these overestimates are uniform across comparative models.

General observations:

- There is no "universal" multiplier. The appropriate figures differ for each sector and activity and location
- Multipliers usually range between 1 and 3
- Employment multipliers are generally larger than income or output multipliers
- The region involved is specifically the Orlando MSA
- The greater the interaction between industries in an area, the more local supplier and consumer spending will occur and the greater the impact

For this analysis, RERC worked with the Office of Research and Commercialization at UCF to acquire information relating to specific characteristics of each client and graduate company.

Employment figures for each client and graduate company are the primary source of data incorporated in the multiplier analysis. With regard to graduate companies, some employment figures were not available due to the graduate company being acquired by a larger local organization or the graduate company is now operating out of an employee’s residence. It should be noted that any impact from these acquisitions is above and beyond the impact presented within this analysis.

There are approximately 832 employees within both client and graduate companies which have remained in the Central Florida region. These employees represent the focus for calculating the direct impact on the regional economy from the existence of these companies. The indirect impact results from the businesses in affected industries spending their earnings and gross receipts in the local economy. The spending by households of employees within these affected industries reflects the induced impact on the regional economy.

For this analysis, multipliers were selected to match the industries associated with graduate companies and those companies currently enrolled within the incubator program. These specific multipliers are applied to the total employees. The table below illustrates the total economic impact, which accounts for the direct, indirect and induced effects on the regional economy from companies associated with the incubator system, using the RIMS II methodology. The impact estimates presented in the table reflect the regional economic impact of **one year**.

As previously discussed, the direct, indirect and induced effects on the regional economy are likely to understate the actual economic impact on the region from the incubation program. Companies acquired by larger firms or institutions, or are working out of a residence are not explicitly factored within the multiplier analysis.

Annual Economic Impact on Central Florida Region from UCF Incubator Program

	Clients	Graduates	Total
Direct Effect Impact ¹			
Output	\$ 39,512,000	\$ 54,708,000	\$ 94,220,000
Employment (jobs)	340	492	832
Earnings	\$ 18,390,000	\$ 31,079,000	\$ 49,469,000
New Impact ²			
Output	\$ 40,703,000	\$ 56,382,000	\$ 97,085,000
Employment (jobs)	313	508	821
Earnings	\$ 10,996,000	\$ 9,547,000	\$ 20,543,000
Total Impact ³			
Output	\$ 80,216,000	\$ 111,090,000	\$ 191,306,000
Employment (jobs)	653	1,000	1,653
Earnings	\$ 29,386,000	\$ 40,626,000	\$ 70,012,000

¹ Impact on Central Florida directly from client and graduate companies

² Impact net of client and graduate companies

³ Total impact on Central Florida from client and graduate companies as well as spinoff companies