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Research and Improvement

PUBLIC POSTSECONDARY CENTERS AND INSTITUTES

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TABLE OF CONTENTS

Executive Summary	i
I. Analysis Of Literature And Peer Institutions	1
Review of the Literature	
Other States and Agencies Analyses and Accountability Reviews	
Peer Institution Reviews	
Chapter Summary	
II. Florida’s Public Postsecondary Centers and Institutes	13
Overview	
Research and Development in Florida	
University Centers and Institutes in Florida	
C&I Collaborations With Community Colleges	
How Are Centers and Institutes Established?	
Evaluation of Centers and Institutes	
Type 1 Centers and Institutes	
Type 1, 2, 3 C&Is at Florida’s Public Universities	
Type 2 Centers and Institutes	
Type 3 Centers and Institutes	
Chapter Summary	
III. Summary of Data From Survey of Centers and Institutes in Florida’s Public Universities	34
Introduction	
Survey Approach	
Survey Instrument	
Responses to the Survey Instrument	
Data on Centers and Institutes (C&Is)	
Benefits to State of Florida Generated by Centers/Institutes	
Findings and Conclusions of the Survey	
IV. Economic Impact of Centers and Institutes in Florida’s Public Universities	53
Introduction	
The REMI Model	
Methodology	
Model Assumptions	
Results of the REMI Analysis	
Benefits Cost Analysis	
Chapter Summary	
V. Conclusions and Recommendations	61

APPENDICES

A Public Postsecondary Centers & Institutes FY 2000-01	
B State Governing Boards Contacted	
C Peer Institutions	
D Chancellor’s Memorandum	
E Centers and Institutes Profiles	
F Survey of Centers and Institutes	
G Beta Test Sites	
H Technical Appendix – Economic Impact of Centers and Institutes in Florida’s Public Universities	

EXECUTIVE SUMMARY

Background

In Section 1008.51 (4) (j) F.S., the 2001 Florida Legislature provided the following charge to the Council: *By January 1, 2003, and on a 3-year cycle thereafter, review and make recommendations to the Legislature regarding the activities of research centers and institutes supported with state funds to assess the return on the state's investment in research conducted by public postsecondary education institutions in coordination with the Leadership Board for Applied Research and Public Service, created pursuant to s. 1004.58 F.S.*

To meet the Legislative directive for this review, staff conducted a detailed analysis of Florida's 512 public postsecondary centers and institutes (See Appendix A). Because there is currently no statutory definition of what constitutes a university center or institute, the Council focused this study on the Type 1, 2, and 3 centers and institutes (C&Is) located at 10 of Florida's 11 public universities (New College of Florida, established in July 2001 was not included). Other operating entities within the State University System (SUS) that contained the term center or institute in their titles, for example the Florida Mental Health Institute (FMHI) and the Institute of Food and Agricultural Sciences (IFAS), were not included in the acronym "C&I", nor were they included in the Council's analyses, findings and recommendations (See Chapter 2 for a detailed discussion).

The Council's analysis was based on a multifaceted research design that included: a nationwide review of the literature pertaining to C&Is; an in-depth analysis of C&I organization and activities at 14 SUS peer institutions; an analysis of state-level policies regarding C&I establishment, funding and evaluation in 13 high growth states; the results of an electronic survey submitted to the State's C&Is; an economic analysis/return on investment assessment based on C&I expenditures for FY 2000-01; a review of C&I annual reports for FY 2000-01; site visits to ten of the 11 state universities; an analysis of institutional data regarding C&I expenditures and performance; and, a review of other related data provided by the Department of Education's Division of Colleges and Universities. The results of these analyses are found in chapters one through four and in the appendices. Conclusions and recommendations are also provided. The Council acknowledges and appreciates the assistance and cooperation of the staff of the Leadership Board for Applied Research and Public Service throughout this study process.

Principal Findings

- The tangible and intangible benefits of C&Is are substantially greater than the State of Florida investment cost.
- The Return on the State's Investment (ROI_{REMI} for Types 1, 2 and 3 C&Is) is calculated to be 217%.
- For every \$17,829 spent by the State of Florida on C&Is, one job is created; in addition, the external funds generated by these C&Is will generate an additional 6,955 jobs statewide.
- Given the State's FY 2000-01 investment, C&I expenditures resulted in an additional \$18 million in tax revenues.

- For every dollar of State support spent on C&Is personal income will increase by \$1.96.
- C&I faculty taught over 3,000 courses, both undergraduate and graduate, during FY 2000-01, thereby directly and substantially contributing to the teaching mission of Florida's public universities.
- A relatively large number of students (4,275) work or volunteer with Florida's public C&Is. Almost two-thirds of their time is spent conducting research with C&I faculty, teaching or in public service activities.

Background

Central to the Council's review of centers and institutes was the deceptively simple task of defining the nature of and explaining the role of university C&Is. Although centers and institutes are integral components of the modern university's tripartite mission of instruction, research and public service, they defy easy definition and standard classification. While C&Is are generally considered research entities (hence the Legislature's directive to assess the return on the state's investment in research conducted by C&Is) they also engage in a substantial amount of instruction and public service activities. According to the results of the Council's statewide survey, approximately 50 percent of all C&I effort in FY 2000-01 was devoted to research activities. Approximately 30 percent of C&I effort was spent on teaching students and other instructional activities, while about 20 percent of overall C&I effort was devoted to service to the community and professional organizations.

The survey results revealed that C&Is address a variety of issues and concerns and produce a plethora of both tangible (scientific discoveries and technological advancements) and intangible (basic knowledge and intellectual advancement) products and services that are vital to the state's economy and well-being. However, despite their broad common mission and similar organizational structure, centers and institutes are so diverse as to make simple comparisons extremely difficult if not meaningless. Nonetheless, the Council determined that universities can and should establish accountability measures and standards (based on commonly accepted performance-based outcomes) for assessing C&I productivity, relevance to State of Florida objectives, and cost effectiveness.

The Council addressed the task of analyzing the state's return on investment in C&I activity in part by measuring the economic impact of C&Is on Florida's economy. The results of that analysis (see Chapter 4 for a detailed discussion of the REMI, 2000 econometric model) revealed that C&Is perform a significant role in the state's economy and that the economic benefits of C&Is were substantially greater than the state of Florida investment (expenditures) in FY 2000-01. By leveraging the state of Florida's monetary investment (\$88 million) C&Is generated an additional \$212 million in external expenditures. The economic benefits of all C&I expenditures extend to job creation, generation of GRP (gross regional product), and personal income and state taxes. The ROI (return on investment) for all type of C&Is was calculated to be 217 percent (REMI forecasts economic effects over multiple-year time frames). It is important to note that the ROI analysis used by the Council included only the direct, pecuniary/financial benefits or returns generated for the state (income, employment, taxes) as a result of the monetary investment that the state makes in C&Is and excludes "returns" to the state that are not financial benefits. These so-called intangible (non-quantitative) benefits include those

associated with the teaching, research and public service activities of C&Is. Such values or benefits are significant outcomes that nonetheless are much harder to assess or quantify.

After analyzing C&I operations, funding and evaluation in other states and after conducting site visits to select C&Is at all ten state universities, the Council determined that in general, Florida universities exercise considerably less institutional oversight, review and analysis of C&Is than their peer institutions. At the same time, the State of Florida appears to require much more oversight of its university C&Is than is currently required by other state governing boards or legislative bodies. That State oversight is primarily in the form of the annual reports submitted by all C&Is to the Department of Education's Division of College and Universities (DCU). While the reports contain basic fiscal and directory information and provide some descriptive detail of C&I activities, they do not contain or require core evaluative elements that can be compared or analyzed over time. In short, the reports are not routinely used by the universities or by the DCU to evaluate, fund, continue, or disband C&Is. The Council determined that in their current form, C&I annual reports were ineffectual and unnecessarily burdensome to both the universities and to DCU staff. At the same time, the Council determined that Florida's universities have allowed C&Is to proliferate within many departments and colleges to the degree that many provosts and vice presidents for research were unaware of the number of C&Is operating on their campuses. Consequently, the Council determined that SUS institutions should provide for more rigorous, systematic and performance based internal evaluations for the majority of their C&Is. State level review (by the Council of Academic Vice Presidents) should be limited to those C&Is that meet established criteria that coincide with historical legislative directive and/or intent. Finally, the Council found that the existing taxonomy of centers has become progressively less meaningful or descriptive of C&I mission, activities or funding and should be replaced by functional categories that more accurately reflect C&I organization, mission and scope.

Summary of Findings and Recommendations

Based on these and other findings, the Council determined that C&Is are cost-effective and productive settings for scientific discovery, technological innovation, policy development, teaching and instruction, and public outreach activities. While addressing many of the State's most fundamental and high priority concerns, C&Is provide a myriad of academically and professionally related opportunities for both undergraduate and graduate students. The economic benefits of C&Is extend broadly throughout the state to job creation and the generation of substantial amounts of GRP, personal income, state taxes, and other direct financial benefits. Because they are purposefully designed to be more flexible and entrepreneurial than academic departments, C&Is respond quickly to issues and problems from a variety of stakeholders throughout the state and nation. Concomitantly, their semi-autonomous position within the larger university means that some C&Is operate outside of the stricter accountability oversight that applies to other academic units which receive greater and more systematic institutional review and evaluation. To improve C&I accountability, maximize state resources, and bring greater visibility to C&I activities and resources, the Council makes the following recommendations:

Recommendations:

1. *Chancellors Memorandum: CM-C-07.00-01/99 should be abolished. The current categorization (Type 1, 2, 3) for State University Centers and Institutes should be discontinued and replaced with the following functional categories: State of Florida Centers and Institutes; and University Centers and Institutes. This should be implemented in conjunction with the following actions:*
 - A. *The Council of Academic Vice-Presidents (CAVP) should convene and review all currently classified Type 1 C&Is to determine if those entities are: 1) Achieving, or are making progress toward achieving, their statewide mission; 2) Have established working relationships with two or more SUS universities; and, 3) Are successful in leveraging (as established by the CAVP) external funding support. Former Type 1 C&Is that meet these criteria should be reclassified as State of Florida Centers and Institutes. The Legislature should provide adequate funding for those entities to meet the statewide missions for which they were created.*
 - B. *The CAVP should recommend for approval by the Chancellor of the Division of Colleges and Universities, well-defined policies for establishing, designating, evaluating, and disbanding State of Florida Centers and Institutes. The CAVP should establish a review cycle that will allow each State of Florida Center or Institute to be evaluated every 3 years using a formal professional process to determine if they should continue their status or be reclassified as a University Center or Institute. The evaluation process and specific evaluative criteria used by the CAVP should consist of commonly accepted professional standards and performance-based outcomes. Various examples of evaluative standards and outcomes are contained in the body of this study. Staff of the Division of Colleges and Universities (DCU) should assist the CAVP in this endeavor.*
 - C. *All existing Type 2 and 3 Centers and Institutes in the State University System should be re-classified as University Centers and Institutes. Each university should develop and publish clearly defined policies for the establishment, evaluation and discontinuance of University Centers and Institutes. The evaluation process and specific evaluative criteria used by the universities should consist of commonly accepted professional standards and performance-based outcomes. Various examples of such standards and outcomes are provided in the body of this study. All University Centers and Institutes should receive a formal professional evaluation at least once every five years to determine if they should continue as a University Center or Institute, be classified as inactive, or be discontinued.*

2. *All State of Florida and University C&Is should maintain an up-to-date website that includes minimum directory and fiscal information, the date of the most recent C&I evaluation, and a link to where the results of that evaluation may be requested and obtained. Each university should maintain an up-to-date informational/directory web site on its C&Is with links to the individual C&I web sites.*

3. *University Centers and Institutes should no longer be required to submit an annual report to the Division of Colleges and Universities. Using a procedure developed by the DCU, each university should provide basic descriptive and contact information to the DCU for all of its State of Florida Centers and Institutes and for all of its University Centers and Institutes by October 1 of each year. The nature of the basic descriptive and contact information should be determined by the DCU. Such information should include but not be limited to the following:*
 - *Name of the Center or Institute*
 - *Name of the Director*
 - *Contact information, including telephone number, fax number, mailing address, and e-mail address of director*
 - *The approved mission of the Center or Institute*
 - *The total funds expended, by funding source (SUS appropriated, Contracts and Grants, Private, Other, and Auxiliary/ Fees) by the C&I during the previous three fiscal years*
 - *Date of Last Evaluation (a link should be available for requesting and obtaining the results of the most recent C&I evaluation).*

The DCU should maintain this data in its statewide database and on its website.

4. *The DCU should provide the basic descriptive and contact information on all Centers and Institutes to the Leadership Board for Applied Research and Public Service (LBARPS). The LBARPS should process and display that information on its ExpertNet Website. The ExpertNet Website should be linked directly to the website of each State of Florida Center and Institute and active University Center and Institute. The director of each C&I may augment this basic information with additional data on faculty expertise and accomplishments through the ExpertNet website. The LBARPS should increase its efforts to make information and data about C&I activities and faculty available to policy makers and government entities throughout Florida. This Website should provide information on how interested parties can request access to the latest formal evaluation of any center or institute.*

I. ANALYSIS OF LITERATURE AND PEER INSTITUTIONS

Review of the Literature

As a preliminary step in the development of this study, staff conducted computer-based and manual searches of existing assessments of centers and institutes (C&Is) nationwide. In addition, staff interviewed key personnel at governing boards for state universities and at peer universities around the country to develop a sense of how C&Is are generally organized and managed. The results of these inquiries are included below.

Centers/Institutes and the Mission of the University

The tripartite mission of the modern university is instruction, research, and public service. Faculty carry out these activities as part of an academic department and/or in affiliation with a postsecondary center or institute. Despite differences in organization, mission and structure, most C&Is nationwide are regarded as research units. The following are basic concepts and models of university-based research used throughout this study.

Research

Within its diverse parameters, academic research is considered to be either basic or applied. Although they are closely interrelated, basic and applied research have distinct goals, procedures, and outcomes. Basic research is the foundation of new knowledge. It is long-term scientific inquiry that leads to new knowledge, theories, and even unexpected benefits in a variety of fields. Unlike basic research, applied research is distinguished by its focus on the application of existing knowledge to solving practical problems. In general, applied research produces outcomes or products that are of more immediate use to society.

Research and development (R&D) is another way of describing the continuum of basic research, applied research, and product development. The importance of universities to the nation's R&D enterprise has increased substantially in recent decades. For example, inflation-adjusted academic R&D spending rose by 240 percent between 1972 and 2000, from \$8.3 to \$28.1 billion. The academic sector performs just under 50 percent of basic research, continuing to be the largest performer of basic research in the United States. (National Science Foundation, June 2002).

University centers and institutes are important organizational vehicles for conducting the basic and applied research that result in scientific discovery and technological development. C&Is attract faculty members and research funding from local, state, federal, international, and private sector sponsors. Universities depend on individual faculty and the pooled faculty talent found in C&Is to compete for external and internal research dollars. The federal government is the largest source of external (contract and grant) funding nationwide.

Federal financing of academic R&D grew by 180 percent from 1972-2000, while academic R&D funds from non-federal sources (including business and industry) increased by almost 350 percent during that same time period. Funds from academic institutions themselves constitute the second largest source of academic R&D funding. Institutional R&D funds have been increasing since the early 1970s, except for a brief downturn in the early 1990s.

Overall, institutional funding as a share of overall funding has risen from 12 percent in 1972 to 20 percent in 2000 (National Science Foundation, June 2002).

Although C&Is are now integral parts of the university, they are not easily defined. There are no standard definitions that embrace the thousands of C&Is nationwide, nor are there common categories used to classify them. Terms used in universities around the country to denote C&Is include laboratories, consortia, units, groups, stations, and observatories. Throughout academia, however, “centers” and “institutes” are by far the most common descriptors used for units of academic research. The operational definition of what constitutes a C&I can also be confusing. As one vice-provost for research at a major research university has noted, “There are centers that include programs, programs that include institutes, and institutes that have centers. Centers, usually, are organized under centralized university governance.... report to a university vice-president or the university provost.... [and] usually span two or more colleges. Laboratories generally are centered and governed within a college or a center. Most often, laboratories provide facilities and administration for large interdisciplinary research units within a college.” (Cornell University, 2002).

A Historical Perspective on Centers and Institutes

Federal expenditures for university research increased dramatically following World War II as the nation turned more and more to universities to address new scientific and technological inquiries during the 1950s and 1960s. The rise of research centers and institutes directly parallels the large increase in federal funding for university research. Often, C&Is were grafted on to existing academic structures in varying degrees of independence from the university enterprise. By the early 1970s, the number of C&Is nationwide had burgeoned to some five thousand, with most of them established after World War II (Ikenberry et al., 1972). In the three decades since then, that number has increased significantly.

Economic Development

Coupled with the rapid rise in externally funded research was the growing recognition by government agencies and private companies that universities could be used to address a variety of problems. As more and more people came to realize that intellectual capital could become as valuable as economic capital through the patenting and marketing of research ideas spawned in universities, they turned increasingly to university C&Is for help. Many universities have C&Is that are considered engines of economic growth for their communities and surrounding regions.

Today, it is almost axiomatic that, in addition to the many other contributions they make to society, universities are critical to the new global economic order. Many believe that universities can impact their state economies in a number of ways even if an industrial/technological infrastructure is not well developed (Tornatzky et al., 1998; Gottlieb, 2001). However, there is widespread disagreement about the extent of and ways in which universities can contribute to economic development. Some argue that the most important way universities can contribute to regional economies is by producing highly skilled graduates, rather than by commercializing their technology while working directly with industry.

A number of recent studies have attempted to quantify the impact of university research on industrial innovation and performance. One study estimated that \$33 billion of U.S. economic activity and 280,000 jobs were attributable to academic licensing of technology (Association of University Technology Managers, 1999). A number of later studies (Grossman et al., 2001) corroborated the relationship between academic research and industrial performance. There are however, still great disparities among institutions in performance, and, at least during the 1990's, less than 50 percent of universities realized enough royalty revenue to cover the costs of running their technology transfer office (DeVol, 1999). Nonetheless, the entrepreneurial nature of many C&Is places them in a unique position to quickly respond to the needs of business and industry.

Organizational Models

Two research models are commonplace in most modern research universities: the department-based model and the center-based model. In the former, faculty members of an academic department serve as principal investigators on individual or collaborative research projects. No extra administrative structure is necessary, and faculty members can avail themselves of existing departmental resources for administrative support, such as maintaining budgets and handling personnel issues. However, competition for scarce departmental resources may stifle the research ambitions of some faculty members, particularly junior faculty. Nevertheless, around the country, independent faculty members working within their departments still conduct most university research.

Brand suggests three common organizational models by which C&Is can relate to academic departments. First, they may be housed within the department as internal units, controlled by the department head. Second, they may involve several different but related departments, with one usually taking the lead for administrative purposes. Faculty members' allegiance remains with their resident department, as do all questions of promotion, tenure, and salary. The third arrangement is the freestanding C&I that is administered independently of academic departments (Brand, in Chapter 12, Haden et al., 1992).

Ikenberry and Friedman suggest a taxonomy of three different types of administrative structures for centers and institutes: 1) The "standard" center or institute, which is characterized by permanent staff, permanently allocated space, stable funding, and in which staff members identify primarily with the center or institute, rather than some academic department; 2) The "adaptive" center or institute, which is characterized by a small professional staff, little permanent space and equipment, and unstable long-term funding. Adaptive centers and institutes rely more on faculty "borrowed" from other academic departments than do standard centers and institutes. The adaptive center or institute typifies research programs that are funded on a continuous basis from contacts and grants, causing a state of perpetual funding instability, and 3) The "shadow" center or institute, which is characterized by little or no permanent staff, no budget, and no permanent office space. It may have a part-time director who also has other administrative or teaching duties at the university. Shadow centers and institutes may remain dormant for long periods of time but may still be useful as latent vehicles for reassembling project teams (Ikenberry et al., 1972).

These categories are largely based upon the types of funding available and demonstrate different degrees of flexibility from an administrative standpoint. Long-term interdisciplinary research is much more likely to succeed under the auspices of a stable standard research center, whereas adaptive research centers may be more appropriate for a smaller entrepreneurial faculty group. However, C&Is from all three categories may be highly productive and contribute to the university's core missions of teaching, research, and public service.

How are centers and institutes evaluated nationwide?

Nationally, the array of evaluation sponsors and methods involved with university centers and institutes is as broad and diverse as their organizational structures. For many university systems and institutions, the simplest and most basic evaluation is the decision by internal funders (such as a board of regents or university administration) or external funders (such as government agencies, non-profit or for-profit organizations) to fund or not to fund a C&I. This decision is made during the initial application for funding, during the course of a project/program, or at the time of application for refunding.

Internal evaluators may include university faculty, department heads, deans, and university administrators, such as the vice-president for research or the provost. External evaluators may include professional accrediting associations or other academically oriented groups. Because of the esoteric nature of some of the work done, most C&I directors strongly prefer that internal or external evaluators be academic peers or have related professional experience that will enable them to understand their work.

C&Is are seldom evaluated more often than annually or less often than every five years. Evaluation methods vary and may involve quantitative and qualitative criteria and formal and informal procedures. As part of the literature search, staff reviewed numerous surveys, articles, and reports pertaining to the evaluation of C&Is conducted during the 1980s and 1990s; several of these articles are summarized below.

One notable evaluation effort involved the National Science Foundation's program to encourage university-industry research centers (UIRCs). NSF's efforts spawned a set of Engineering Research Centers (ERCs) that have been evaluated in several research investigations. One study (Cohen, et al., 1994) estimated that of the \$4.12 billion in total budgeted ERC expenditures, more than half (\$2.53 billion) was devoted to R&D. That year more than 12,000 faculty, 22,000 doctoral level researchers, and 17,000 graduate students were involved with university-industry research centers.

Findings showed a number of significant positive outcomes between NSF-sponsored university ERCs and the private sector, with nearly 90 percent of industry sponsors stating that their firm had received positive benefits from ERC participation. A recent NSF study yielded positive results, such as supervisors rating ERC-trained employees higher than their peers on six performance dimensions. Graduates themselves viewed their ERC experience as very positive in a number of ways directly related to post-graduation employment. Although limited to a small number (26) of specialized academic centers throughout the United States, this study provides solid evidence of the potential benefits of centers and institutes to students, a fact cited most frequently by engineering graduates who said that their ERC experience had the most impact (of all their academic experiences)

on their careers (National Science Foundation, December 1997).

The New York legislature conducted a study of its direct investment in nine publicly-funded university Centers for Advanced Technology (CATs). The CAT centers were established to promote partnerships among government, industry, and academic research institutions. Each center is funded up to \$1 million with state money, matched initially by industry contributions. An independent review of the state's return on its \$61 million direct investment estimated that it had received between \$190 million and \$360 million in near-term benefits and between \$400 million and \$1 billion of incremental economic activity resulting from the multiplier effects from the state's initial investment. The evaluation provided recommendations for continuing and, in one case, discontinuing the operations of CATs. (Bitting et al., 1994).

In 1992, researchers at Temple University conducted a survey of fast-growing research universities to determine how important centers are to their sponsored research programs. Results showed that research centers were important to 82 percent of the fastest-growing research universities. Most centers (over 80 percent) were associated with engineering, the physical sciences, and medicine and tended to be interdisciplinary in nature. The authors concluded that these large centers at fast-growing universities tended to complement and enhance the academic role of departments, with about half of the centers saying they were closely integrated and another 30 percent saying they were fairly closely integrated. While the authors caution that these findings are based on a small sample, they provide evidence that in the right institutional setting, C&Is can enhance the research mission of academic departments and encourage interdisciplinary cooperation (Stahler et al., 1994).

In 1997, these same researchers at Temple University conducted a larger survey of a national sample of university-based research centers that receive industrial support. The study revealed that staff at the university-based industrial research centers (UIRCs) covered by this survey spent approximately an equal amount of effort on basic and applied research; 86 percent of the centers were also involved with providing education and training activities and provided substantial financial support to graduate students. Technology transfer activities occurred at two-thirds of the centers. Center directors revealed that a lack of funds and especially ear-marked funds (from state and university) are impediments to securing external awards. While centers generated significant overhead funds to the universities, much of the same funds were funneled back to maintain the centers (Tash et al., February 1997).

Other States and Agencies Analyses and Accountability Reviews

As part of this study, staff submitted an information inquiry to the coordinating and governing boards of higher education in selected states. Of the 13 states contacted by staff (see Appendix B) only two, Texas and Virginia, had conducted comprehensive assessments of the research programs at their academic institutes and centers. Two other states, Maryland and New York, reported some type of statewide oversight and accountability. Most of the state governing boards reported that individual universities had either conducted internal reviews of research activities, including centers and institutes, or that no separate study of C&Is had been conducted at their major research institutions. As in most university systems, C&Is are included as part of institutional accreditation site visits or in specific programmatic reviews. In general, those states, university systems, or

institutions that conducted analyses or reviews focused on C&Is that have a specific legislative appropriation, generated substantial external funding, and/or related to technology, commercialization, and economic growth.

The Texas Higher Education Coordinating Board monitors the research in the state's 23 public universities by annually collecting data on research expenditures and by conducting legislatively mandated reviews of selected university-based centers and institutes. In order to provide consistency from institution to institution, the Coordinating Board established definitions, similar to those used by the National Science Foundation, for all aspects of the research enterprise, in all disciplines. Based upon these definitions, and using a standardized report format, the state's public universities submit data on annual research expenditures to the Coordinating Board. Expenditures, rather than awards, are thought to be better indicators of research activity. Because of the many differences that exist among the universities, the reports are considered to be general indicators of expenditures, rather than definitive audit statements. The Coordinating Board then reports on the expenditure data to the legislature.

The Texas legislature also instructs the Coordinating Board to conduct biennial reviews and evaluations of all separately budgeted research programs (C&Is) in all institutions of higher education. Separately budgeted C&Is represent only a small number of the hundreds of C&Is in the Texas system. After reviewing the standardized evaluation forms for each of the research programs selected by the Legislative Budget Board, evaluation teams may be sent to do on-site evaluations. These evaluations focus on the C&Is intrinsic merit, research performance, potential contribution to the development of knowledge and instruction, and potential contribution to economic development.

The Coordinating Board sends the evaluations to the Legislative Budget Board with recommendations for future funding. It should be noted, however, that the large majority of centers and institutes in Texas that are funded from a combination of institutional, state, federal, and industry funds receive no formal state-level evaluation.

The 1992 Virginia Legislature directed the State Council of Higher Education for Virginia to review special purpose university research centers. The need for such a review stemmed from a legislative concern over the proliferation of these centers and confusion over an appropriate funding policy. A total of 30-40 centers were identified. The process included self-studies, reviews, and recommendations by the boards of trustees. The analysis focused on the mission of each center, the appropriateness of the funding sources to the nature of the services provided, and the merits and value to the Commonwealth of the programs and service provided by the center. Recommendations included a continuation of state funds, a cessation of state funds, and a recommendation for additional reviews. The process has not been repeated.

The Maryland Higher Education Council monitors research activity through the state's performance budgeting model and funding operating guidelines. Institutions that are or have research institutes are measured on research activity, ability to acquire grants, the number of research projects, and research activity per faculty member. Funding guidelines include a performance measurement component that includes research activity. The state does not have a formal process for analyzing or measuring the impact of research or benefits accruing to the state. It relies on publications of the institutions or institutes

performing the research.

New York has over 200 public and private colleges and universities but has no state oversight or review of projects or C&Is. As in most states, that process is left to the individual institutions. However, the New York State Office of Science, Technology and Academic Research (NYSTAR), a legislative agency, provides competitive state funds to applied university research projects or centers based on their potential for commercialization and economic development. State funding is based on the anticipated impact of the research, additional funding sources, project interim milestones, and on the basis of peer review. NYSTAR measures the return on the state's investment in university research in terms of a return on investment (ROI) formula whereby the state's investment (funds invested over the time period) are measured against the long-term outcomes (increased employment, sales, cost savings, and capital improvements, etc.) created by research products. In conjunction with the economic impact results, NYSTAR employs a number of analyses using a commonly accepted economic input-output model, Regional Economic Models, Inc. (REMI). In addition, research centers submit quarterly narrative reports describing their research activities and progress. Research funding varies by program, while state funds are matched by outside sources. The state funds a Technology Transfer Incentive Program to accelerate the commercialization of new technologies by partnering colleges, universities, and industry, and to strengthen technology transfer infrastructure throughout the state's academic research institutions. These funds are matched 1:1 with other grant funds.

Several articles based upon interviews with university researchers, funding agencies, and administrators revealed that the issue of assessing the quality and relevance of university research continues to be a thorny and controversial issue. In general, there is concern that existing quantitative indicators (the number of dollars generated by research and the number of research publications) should not be used as the only measure of research quality. Among the supplementary evaluation criteria mentioned include the potential for the development of knowledge and new discoveries, the development of economic growth, the capabilities of the investigators, prizes and honors awarded for research, collaborative efforts with other C&Is, requests for center assistance in problem solving, the potential for technology transfer, and further grant leveraging. In one in-depth study, faculty and administrators noted the close relationship between graduate education, research, and scholarly activity and suggested quality indicators based upon the progress of graduate students. Indeed, the number and role of students both graduate and undergraduate in research activities, particularly at centers and institutes, is a primary evaluation criterion noted in the literature.

Hundreds of federal, state, and local agencies, international groups and other non-profits, and private companies provide external funding to research projects located at C&Is. These agencies use a variety of procedures for evaluating the merit of research proposals and for determining the outcomes of funded projects. The National Science Foundation (NSF), which funds research and education in science and engineering, has acknowledged the inherent problems with developing a limited set of annual performance measures for diverse and long-term research programs. The NSF has recently revamped its process for reviewing research proposals and evaluating established projects. The NSF uses expert peer review committees to evaluate: 1) intellectual merit and quality of the proposed activity; and, 2) the broader impacts of the proposed activity. In short, each proposal is

judged by its “technical merit, creativity, educational impact, and its potential benefit to society.”

The federal government is the largest funding source for academic research. The Government Performance and Results Act (GPRA) enacted in 1993, focused agency and oversight attention on the performance and results of government activities by requiring that all federal agencies measure and report on the results of their activities annually. Agencies are required to develop a strategic plan that sets goals and objectives that translate the goals of the strategic plan into annual targets, and an annual performance report that demonstrates whether the targets are met. The Committee on Science, Engineering, and Public Policy (COSEPUP) reviewed the existing methodologies for evaluating federal research programs and in 1999 issued a set of recommendations for evaluating basic and applied research programs that included: measuring progress toward practical outcomes; assessing relevance of research to program mission; ensuring adequate human resources, i.e., education and training; and, providing for coordination among agencies that are involved in similar fields of research.

The lack of consensus on how research centers and institutes should be managed and evaluated is reflected in the findings on the national review of peer universities.

Peer Institution Reviews

In order to gain additional understanding of the nature of centers and institutes at institutions nationwide, staff chose 14 of the peer institutions identified by Florida’s public universities (see Appendix C for complete list) as part of the Council’s 2001 study on Faculty Productivity and interviewed each vice-president for research (or designee) about the structure, operations and evaluations of institutional centers and institutes and other research units. In addition, staff collected all available information concerning the activities of those C&Is from the institutional websites and other data sources. Because of the number and variety of centers and institutes at the University of California at Berkeley and the existence of established policies and procedures for C&I operations and evaluation at that institution, staff included that institution in the analysis.

A review of the policy and procedures for establishing, funding, and reviewing the outcomes of centers and institutes at the above institutions revealed more disparities than commonalities. The very concept of what a center or institute is, how it should be established and funded, to whom centers should report, and how C&I outputs and activities should be evaluated varied from institution to institution. As might be expected, the larger institutions not only had more C&Is but in general had established policies regarding center formation and evaluation. However, the definition of what constitutes a C&I affects every aspect of the organization, structure, and funding of research entities at the 14 institutions. Unlike Florida, virtually none of the universities are required to send an annual performance report for all of their institution’s C&Is to a state governing board or legislative body. At the same time, there appears to be considerably more institutional oversight, review, and analysis of C&Is at the peer institutions than currently exists at Florida’s public universities.

Only three of the 14 universities had some C&Is that were established by the state

legislature (University of Albany, University of Houston, and the University of California) while three universities (Arizona State, University of Houston and University of Illinois at Chicago) require certain C&Is to be formally approved by either the state legislature or the state governing board. A majority of the institutions (10) have established policies governing the creation, purpose, and evaluation of C&Is. More than half of the universities (9) conduct an institutional-wide review of C&Is, most of those in addition to a departmental or college wide review, while three institutions have some C&Is that are reviewed by either the state legislature or governing board. Only two of the institutions do not require a formal departmental or college-level review of the institution's C&Is. The criteria for reviewing C&Is vary according to the policies established by each university. While all of the C&Is conduct research, five of the fourteen universities report that their C&Is provide instruction while four report that their centers and institutes engage in public service of some nature. All universities report that their C&Is are engaged in economic development and technology transfer projects and activities.

Funding for C&I activities is as complex across universities nationwide as they are in Florida. Six institutions have some C&Is that receive a direct appropriation from the state legislature and two from the state governing board. Nine of the 14 institutions have C&Is that are funded through state appropriations to the university. C&Is at all of the institutions also expend dollars from contracts and grants and private sources. According to the vice-presidents for research at several of the larger institutions, centers and institutes are expected to become largely self-sufficient after initial funding from the state.

Staff selected the following five universities that have established procedures and policies for all aspects of center creation, review and funding that might be applicable to Florida's public centers and institutes, and germane to the Council's directive to recommend a review process for public postsecondary C&Is:

Arizona State University: ASU has 27 research service centers, most of which are interdisciplinary. After receiving a departmental and institutional review and recommendation, all C&Is must be approved by the Board of Regents before they begin functioning. Once the Arizona BOR approves a C&I, the university determines its operation, evaluation and continuation. Most of ASU's C&Is are affiliated with colleges, with only two "organizational units" tied directly to the central university administration. All C&Is (with the exception of two organizational units that report directly to the provost) report to their respective dean. Every five years, each C&I is evaluated in a formal "organizational unit performance review" by committees composed of faculty members. These committees set the criteria for the evaluations. The recommendations are sent to the deans, to the provost for research, and to the Board of Regents. If a state-supported C&I is not accomplishing what it was intended to do, it may be terminated upon recommendation by the provost. If federal or other non-state funding agencies are willing to continue their support, however, it is highly unlikely that a C&I will be terminated. The individual deans collect information such as annual expenditures, projected expenses, and activities annually for their own purposes. These data are reported by the C&I directors to the deans but are not necessarily used in the evaluations. Some C&Is play a direct role in the economic development of the state or the Phoenix region. Formal partnerships with business and industry are called consortia and are normally developed and maintained by the individual C&Is. These partnerships are most common in C&Is that focus on science and engineering.

The University of Houston: UH have 45 approved centers and institutes; 27 are interdisciplinary and receive the largest amount of funding from a variety of state and external sources. Of those 27 C&Is, eight receive a special line item appropriation from the legislature and are evaluated biennially by the Texas Coordinating Board. The board then presents the evaluation results and recommendations to the Legislative Budget Board. The majority of UH's centers (as is true with other Texas postsecondary institutions) are not subject to an external review. All UH C&Is do receive a stringent internal review every four years by the university-wide Research Council Subcommittee on Centers and Institutes. The council is comprised of faculty who report their findings and recommendations to the vice-president for research. The university has developed policies and procedures for the creation and operation of all research centers and institutes "that receive direct financial or other support, including space, from the University of Houston." A proposal to establish a new center must be approved by the department chair and/or dean and the vice-president for research after receiving an advisory recommendation from the Research Council. The proposal must contain evidence of why the creation of a center is necessary to carry out the proposed research activities and/or projects. In other words, why the goals and objectives of the faculty cannot be carried out within the parameters of an academic department. C&Is at UH must receive external funding before they are eligible for state (institutional) dollars. The general assumption is that C&Is will become self-sufficient, but some C&Is receive state funds in order to attract large matching federal or private dollars.

The State University of New York at Albany (SUNY): SUNY Albany has 52 centers, institutes, and specialized laboratories. An institute is defined as a research unit organized around a broad subject area that is normally interdisciplinary. Normally, the breadth of research projects and programs transcends department, school, college, or even campus boundaries, and application of research to meet societal needs is part of an institute's mission. A center is analogous to an institute but is more limited in scope. Centers are often a research unit within an institute. A specialized laboratory is a facility organized around a specific research need, one that involves or serves more than an individual faculty member's research.

The university has very detailed and specific policies and procedures for establishing, operating, and reviewing organized research units. The units are described as "entrepreneurial by design." Organized research units are further classified according to their governance structure, specifically, to whom they report for evaluation and fiscal oversight. The defining criteria for newly formed, organized research units is that they add value to the university's research environment, advance the university's strategic goals, and provide for collaborative or interdisciplinary ventures. SUNY Albany provides specific examples of "desirable features of an organized research unit" and examples of evaluative criteria as part of the policies and procedures for establishing a new unit. Each research unit must provide a brief annual report to the relevant university officer with oversight responsibility for that unit. The reports are available to the university-wide Council on Research. The Council is responsible for reviewing research activities and for the allocation of research funds within the university. Examples of evaluative criteria for research units are: evidence of the quality of the research program; the leveraged return on the university's investment; successful fostering of collaborative relations, and contribution to the education and training of university students and postdoctoral fellows.

In addition to the annual reports, each organized research unit periodically (e.g., every three to five years) conducts an examination of its organization, activities, and research achievements working toward programmatic self-improvement. This report involves self-study coupled with an internal or external review, or a compilation of outside reviews by the funding sponsor. This concise report is submitted to the Council on Research and the vice-president for research who may choose to place a unit under a period of probationary review if one or more of the criteria noted above are not satisfied. Termination may also be a result of the review process.

As is true at most of the institutions staff reviewed, SUNY Albany expects external funding to provide the largest part of support for research units. There is some direct funding from the legislature for those C&Is that are legislatively mandated. The university actively solicits legislatively mandated centers. The provision of institutional support is term-based predicated on reviews and evaluations.

Ohio State University: OSU has 42 centers and institutes. Five of the C&Is are large interdisciplinary entities with statewide missions that report directly to the Office of the Vice-president for Research. These centers are funded with a combination of state “Research Challenge Funds” that are funneled through the Ohio Board of Regents and distributed by the vice-president for research. The other 37 C&Is report directly to their deans although they may receive services from the Office of Research. Faculty associated with C&Is generally provides some instruction and public service along with research activities.

All OSU C&Is must submit annual reports, including a strategic plan with specific programmatic and financial goals included to the relevant oversight office. All C&Is that report to or receive management service from the Office of Research are reviewed on a regular basis and will be subsequently continued or terminated depending on the quality of the programs and the attainment of quantitative goals. In some instances, OSU provides institutional “central funding” for the start-up of new interdisciplinary centers and for matching funds for those C&Is that are successful in attracting external grant funding. A new policy will allow for a percentage of indirect costs generated by faculty involved in interdisciplinary centers to be returned to the center to provide resources to support and maintain the program.

The University of California at Berkley: UC Berkley has two specific types of formally approved Organized Research Units (ORU): Single campus ORUs of which there are 53, and 31 Multi-campus Research Units (MRUs). ORUs are responsible to the chancellor or designee for administration, budget, space, personnel and scholarship. MRUs are responsible to the president and report through a chancellor or chancellor’s designee at the campus hosting the MRU’s administration headquarters.

The university has clear procedures and policies (provided on the web with specific instructions and examples) for the establishment, oversight, administration, staffing and funding of all ORUs. Proposals to create a new ORU may be submitted by any dean with the advice of the appropriate academic senate committee. The chancellor retains final authority, however, for the decision to approve establishment of a new ORU. Proposals to establish a new MRU originate at the campus that will host the administrative

headquarters of the unit. The proposal is submitted to the vice chancellor for research who seeks advice from all appropriate divisional Academic Senate Committees. The vice-president for research recommends the establishment to the provost and president. After presidential approval, the provost informs the chancellors and chair of the Academic Council of the action.

Each ORU must submit an annual report to the university officer to whom it is responsible. The report must follow a specific format that includes qualitative and quantitative data. MRU's submit similar annual reports to the vice-provost for research with copies to the chancellors. An ad hoc review committee reviews each ORU at intervals of five years or less. Reviews typically address specific areas of concern. The review committee is appointed by the chancellor or designee from a slate nominated by the divisional academic senate. The resulting report is reviewed by the appropriate senate committee and a decision concerning continuation of the unit and any needed changes is made by the chancellor upon consideration of the ad hoc and senate committee's recommendations.

A directory of organized research units in the University of California Berkley is maintained and periodically issued by the office of the vice-provost for research. Detailed information about the MRUs is maintained on UC Berkley's website.

Chapter Summary

- The rise of university C&Is directly parallels the large increase in federal funding for university research after World War II.
- University-based Centers and Institutes (C&Is) contribute to the tripartite mission of the modern university: teaching, research, and public service.
- Faculty at C&Is conduct both basic and applied research that result in scientific discovery and technological development.
- Universities are well positioned to make significant contributions to the new global economic order. The entrepreneurial nature of C&Is places them in a unique position to respond to the needs of business and industry.
- Nationwide, the definition, classification, and evaluation of C&Is vary considerably.
- In the broadest sense, C&Is may be classified as standard, adaptive, or shadow organizations, depending on their funding and administrative ties within the university.
- There is no consensus on how C&Is should be evaluated, but the majority of SUS peer institutions nationwide conduct some type of regular, performance-based, internal evaluation at the university level. None send an annual report to a state governing board or legislature body.
- Nationwide, funding agencies agree that both quantitative and qualitative measures for evaluating C&Is should be developed and implemented.

II. FLORIDA'S PUBLIC POSTSECONDARY CENTERS AND INSTITUTES

Overview

Florida's 512 University Centers and Institutes (C&Is) are diverse settings for scientific discovery, technological innovation, policy development, teaching and instruction, and public outreach activities. As collaborative, multidisciplinary research entities, C&Is link faculty and other interested scholars and scientists worldwide. By applying university-based research expertise to the analysis of a variety of societal problems, C&Is often serve as the point of contact between the larger community and the university. Through networking with government and industry, fostering public and private partnerships, and establishing ties with national and international investigators, C&Is are magnets for attracting external dollars to support university research and development projects.

Faculty do not have to participate in a center or institute to conduct research, teaching or public service or to attract external research funding. But C&Is are effective mechanisms for bringing faculty together who share a common interest or expertise in a variety of subjects that relate to a specific problem or set of issues. Because they are typically more flexible and entrepreneurial than traditional academic departments, C&Is respond rapidly to issues and problems across discipline boundaries. As universities undertake an increasingly important role in regional and statewide economic development activities, C&Is will help facilitate the transfer of research, knowledge, and expertise from the laboratory to the marketplace.

Research and Development in Florida

Maintaining a competitive advantage in the 21st century global economy is more than ever dependent on the innovative Research and Development (R&D) activities that emerge from the nation's laboratories, industries and universities. Florida's need to increase its research and development output is evidenced by the state's ranking in several nationwide indicators and report cards. The state got a "C" on the 2001 Development Report Card for the States, published by the Corporation for Enterprise Development, a private non-partisan group based in Washington, D.C. The report ranked and graded states based on the amount of federal, private, and university-sponsored R&D spending.¹ According to the National Science Foundation, Florida ranked 12th in the nation in research and development expenditures among universities and colleges.² The state's universities and colleges expended approximately \$852 million in FY 2000 (\$694 million among public universities), well below neighboring Georgia which generated \$927 million in university R&D expenditures.³ *The Chronicle of Higher Education* ranks Florida 10th among the 12 largest states in university research and development expenditures (all funding sources). The report noted that on a per capita basis, Florida is below the national average for R&D expenditures.⁴ Florida ranks 5th among Southern Regional Education Board (SREB) states

¹ Corporation of Enterprise Development, 2001 *Development Report Card for the States*, "Innovation Assets Table."

² National Science Foundation, "R&D Expenditures at Universities and Colleges, by State, Control and Source of Funds: FY 2000." Table B-29.

³ NSF does not include departmental research at universities in total.

⁴ Chronicle of Higher Education, "2001 Almanac Issue."

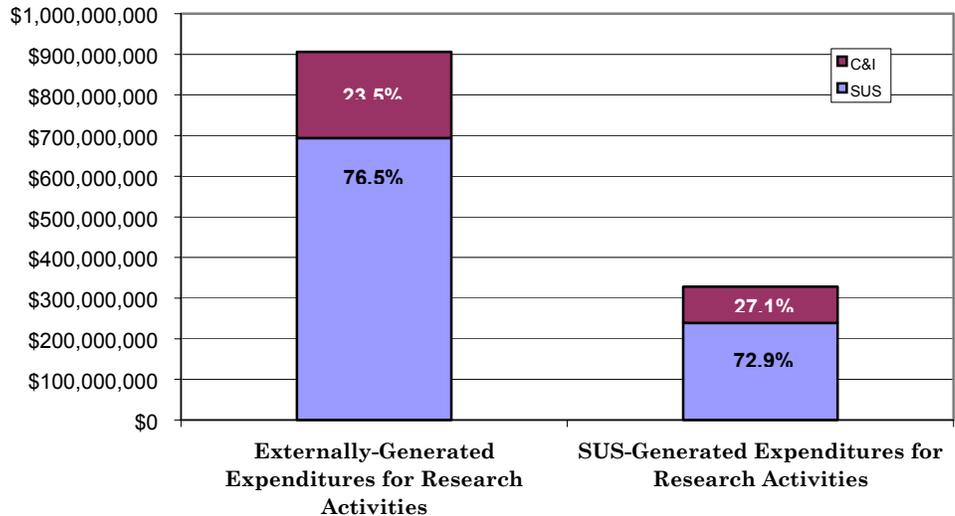
in university R&D spending.⁵ Private industry⁶ sources provided approximately 28 percent of all SUS externally generated awards in 2000-01.

Efforts to develop commercially viable applications for university based research and to create opportunities for collaborative research partnerships between industry and government in Florida received a boost when the 2002 Legislature established the Technology Development Act (TDA) and appropriated \$30 million to create several university-based Centers of Excellence statewide. The nine member Emerging Technology Commission will receive and review center proposals from universities and their partners. By February 1, 2003, the Commission will design and present two to five proposed plans to the Florida Board of Education. By March 15, 2003, the State Board of Education will approve a final plan for the establishment of one to three centers of excellence in the state.

University Centers and Institutes in Florida

While Florida’s university centers and institutes expend millions of dollars on research activities each year, it is independent faculty and non-C&I research projects and programs that generate the majority of SUS research expenditures. For example, in FY 2000-01, C&Is expended approximately 24 percent of total SUS external research expenditures and 27 percent of total SUS appropriated research expenditures. See Figure 1.

Figure 1
C&I Expenditures as part of SUS Research Expenditures 2000-01



Note: 1. Does not include royalty or licensing income handled through Sponsored Research Trust Fund or Research Foundations.
 2. Does not include FMHI, Lee Moffitt Cancer Center, and Phosphate Research Institute.

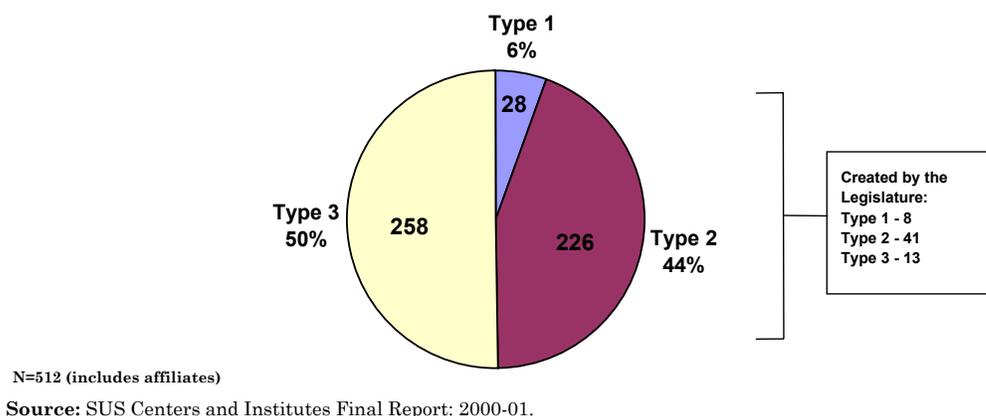
Source: 2000-01 SUS Fact Book, SUS Expenditure Analysis: Universities, SUS Center and Institute Expenditure Analysis, and SUS Special Units Expenditure Analysis.

⁵ SREB Fact Book, 2001, Table 75C
⁶ The SUS Fact Book does not separate private industry and a variety of “other” sources in its award summary totals. See Table 43 SUS Fact Book 2000-01. Expenditure data not reported by funding category.

While C&Is are generally considered research entities, they also engage in instruction and public service activities. According to the only existing state policy regarding university centers and institutes, (see Appendix D, Chancellor’s Memorandum 1/19/99) C&Is are established “for the purpose of coordinating intra-and /or inter-institutional research, service, and training activities that supplement and extend existing departmental instruction, research, and service programs”. See Appendix C. As within the larger university, research, instruction, and public service at C&Is are closely related activities. Research leads to new ideas and discoveries that improves classroom instruction and enhances service activities.

Although most of the state’s 512 C&Is were created by their respective institutions, 62 (12%) were created by the Legislature to address a specific statewide concern. Because there is currently no statutory definition of a university center or institute, the Council focused this study on the Type 1, 2, and 3 centers and institutes located in the 10 state universities (New College of Florida, established in July 2001 was not included in this analysis).

Figure 2
SUS Centers & Institutes by Type, 2000-01



Within the university system there are other operating entities with the term institute or center in their titles, such as the Institute of Food and Agricultural Sciences (IFAS), the University of Florida Health Sciences Centers (UF-HSC), the University of South Florida Health Sciences Center (USFHSC), the Florida Mental Health Institute (FMHI), and the Phosphate Research Institute. These organizations expend millions of dollars in state and external dollars each year. Other research entities such as the Florida High Magnetic Laboratory (FHML) receive state and external funding but are not included in the lexicon of centers and institutes. There are many centers, institutes, laboratories and programs that exist outside the formal Type 1, 2, and 3 center nomenclature. The 2002 Legislature created the Florida Alzheimer’s Center and Research Institute at USF (with a \$5 million appropriation) that does not have a Type 1, 2, or 3 designation. On the other hand, there are currently two Type 1 Centers, The Florida Center for Library Automation (FCLA) and

the University Press of Florida, which are more like infrastructure entities than research centers. The FCLA provides computer services for the daily operations of the SUS libraries. The University Press of Florida is the publishing arm of the SUS. Most centers and institutes, however, conduct research, instruction, and service activities although their structure, size, funding and focus vary considerably. As centers and institutes have proliferated within the SUS over the last few decades, the existing taxonomy has become progressively less meaningful or descriptive of C&I mission, activities, or funding.

Many C&Is are organized to address a broad range of topics and activities across discipline areas. This is particularly true for applied research projects that involve a multidisciplinary approach to problem solving. In many cases, C&Is work not only with their core specialty discipline areas, but also on the margins of other core disciplines in order to address new challenges and opportunities as they emerge. For example, the new and significant federal interest in terrorism and counter-terrorism problems has encouraged some C&Is in Florida and at universities elsewhere to emphasize those discipline areas that address the many needs related to national security. The most common disciplines reported by C&Is in 2000-01 were Health Sciences, Business/Management, Education, Engineering, and Social Science. That year, at least 14 C&Is systemwide were engaged in research and outreach activities related to aging and aging related diseases and issues. It is vitally important that C&Is in both the public and private sectors continue to foster collaborative efforts to address some of the state's most pressing issues and needs.

C&I Collaborations With Community Colleges

While community colleges are not research institutions, many have partnerships with universities through centers and institutes and with other collaborative programs and initiatives. Palm Beach Community College is an active affiliate of The Florida Institute of Government located at Florida State University. The purpose of the Institute is to increase the effectiveness and quality of government in Florida through training, applied research, and technical assistance. Palm Beach Community College, which receives its funding as flow through dollars from the FSU host institute, provides training and technical assistance in surrounding counties. Brevard Community College is a project partner with the Type 1 Solar Energy Center at the University of Central Florida. These two entities are working together to develop an industry-based curriculum in Distributed Energy Systems. Eleven community colleges in Florida partner with SUS institutions to administer eleven Florida Linkage Institutes. These institutes were developed to promote stronger economic, cultural, and education ties between Florida and strategic foreign countries. Each institute has a private sector and public sector advisory committee. Committee members are selected both by the Florida Department of State and the individual educational institutions. Community colleges have technology transfer centers on their campuses that offer programs in various areas of high tech industry. These centers offer degree/certificate programs and customized training to local employers. Eleven community colleges and two SUS institutions, the University of Central Florida and the University of South Florida, work collaboratively with the Florida High Tech Corridor Council to attract, retain and expand high tech industry and workers along the state's I-4 corridor.

How are Centers and Institutes Established?

No matter how or why they were created, university C&Is must go through an internal (institutional) review, and if they receive a direct state appropriation (Type 1s and 2s) they must also receive approval by the Department of Education's Division of Colleges and Universities (DCU). The level of review at both the institutional and state level varies according to C&I designation. The Council of Academic Vice-Presidents, the Council of Presidents, and the Chancellor of the DCU must approve Type 1 C&Is. Type 2 C&Is are reviewed and approved by DCU staff. Although they do not require state-level review or approval, Type 3s must operate within established DCU guidelines. Universities must approve and report the establishment of Type 3 C&Is to the DCU.

Due to recent changes in the governing structure of the State University System (SUS) and reduction in DCU staff, the process for establishing, approving and operating C&Is will likely change. In fact, DCU staff has recently shifted from "approving" new type 2 C&Is to "recognizing notification" of Centers and Institutes that were established after the dates covered in this study (FY 2000-01). Over 30 new centers and institutes were created within the SUS after June 30, 2001. Four of those were Type 2 Centers. No new Type 1 C&Is have been established since 1998. It should be noted that no other academic unit (branch campuses are the exception) are required to submit a separate, annual accounting report to the DCU.

Funding for Centers and Institutes

Centers and Institutes receive their funding from both internal and external sources. Specifically C&Is receives externally generated dollars through contracts and grants (government and private sponsors) fees and other non-state sources. C&Is receive state revenue generated dollars through specific legislative appropriations and university budget allocations. Type 1, 2, and 3 centers and institutes expended \$301 million on a variety of research, service, and training activities in FY 2000-01, typically in the form of salaries, travel, equipment, sub-contracts and other direct costs.

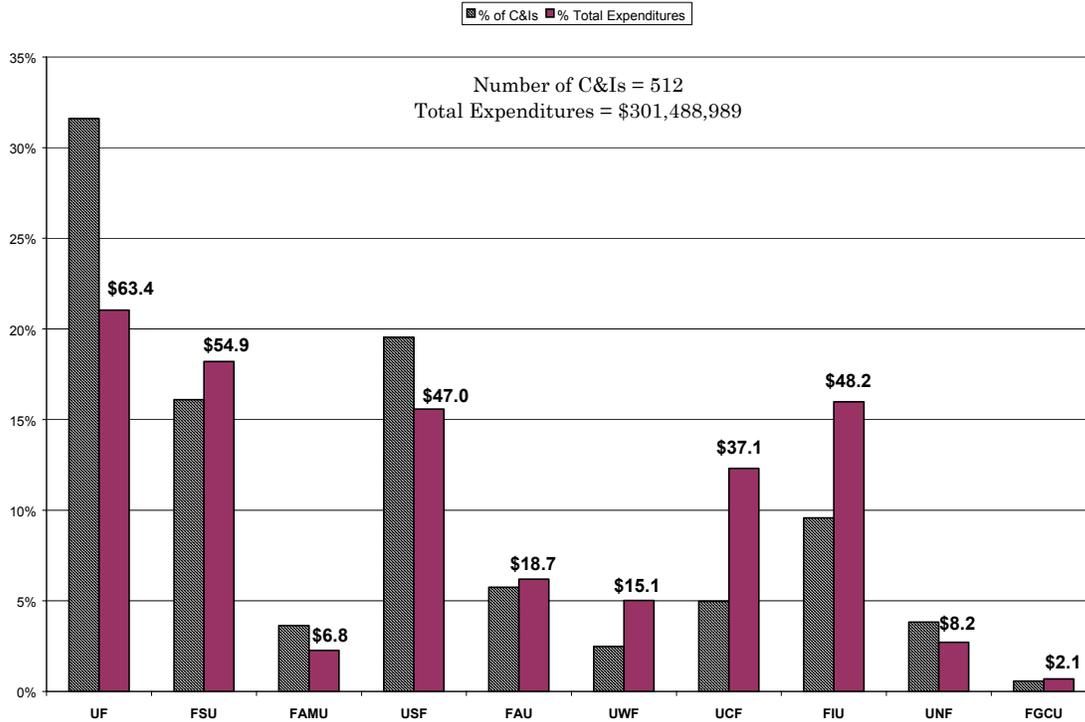
Table 1
Total Center & Institutes Expenditures by Funding/Expenditure Category
2000-01

Type	STATE FUNDS	EXTERNAL FUNDS	EXTERNAL FUNDS	EXTERNAL FUNDS	EXTERNAL FUNDS	TOTAL FUNDS
	SUS	C&G Gov't	C&G Private	Fees/Auxiliary	Other	All
1	\$ 26,029,804 41%	\$ 26,375,476 41%	\$ 5,169,722 8%	\$ 6,102,137 10%	\$ 211,393 <1%	\$ 63,888,532 100%
2	\$ 62,106,979 33%	\$ 98,974,727 52%	\$ 15,938,183 8%	\$ 12,498,981 7%	\$ 2,090,612 1%	\$ 191,609,481 100%
3	\$ 645,645 1%	\$ 32,695,007 71%	\$ 7,075,023 15%	\$ 4,531,297 10%	\$ 1,044,003 2%	\$ 45,990,976 100%
<i>Total</i>	\$ 88,782,428 30%	\$ 158,045,210 52%	\$ 28,182,928 9%	\$ 23,132,415 8%	\$ 3,346,008 1%	\$ 301,488,989 100%

As noted in the above table, SUS appropriated dollars comprised 30 percent of all C&I expenditures. For every state dollar expended on C&I activities in FY 2000-01, C&Is expended \$2.40 in external funding. The ratio of state to external expenditures varies by C&I type and will be discussed in more detail throughout this chapter. The source of external expenditures for C&Is also varies considerably. As is true for the larger university as a whole, the greatest source of C&I external expenditures is the federal government. In 2000-01, approximately 55 percent of C&I external expenditures stemmed from federal funding agencies. The second largest source of external expenditures was state and local government sponsors (25%) while private business and industry contributed nine percent of total external C&I expenditures that year.

Centers and Institutes at the ten state universities vary by number, size, and funding level. For instance, in 2000-01, 68 percent of all SUS Type 1, 2, and 3 centers were located at the University of Florida, the University of South Florida, and Florida State University combined. Only 11 percent of the total number of C&Is were located at the University of West Florida, the University of North Florida, Florida Agricultural and Mechanical University, and Florida Gulf Coast University combined. Total dollars expended by C&Is followed a similar pattern. (See Figure 3).

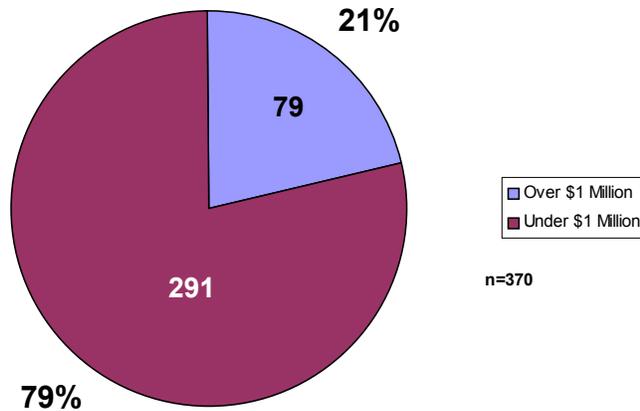
Figure 3
Percent of C&Is and Total Expenditures by Institution, 2000-01



Source: SUS Centers and Institutes Final Report 2000-01 & institutional external expenditure data 2000-01

The majority of the state’s individual C&Is (79%) had total expenditures of less than \$1 (See Figure 4) million in 2000-01. Only seven C&Is in the entire SUS system had combined expenditures of \$7 million or higher. Three of those C&Is were located at UCF where expenditures were concentrated on a smaller number of C&Is than at some of the other research universities.

Figure 4
C&Is with Expenditures Greater Than or Less Than \$1 Million
2000-01*



Source: SUS Centers and Institutes Final Report 2000-01.

*Includes only C&Is that had expenditures in 2000-01.

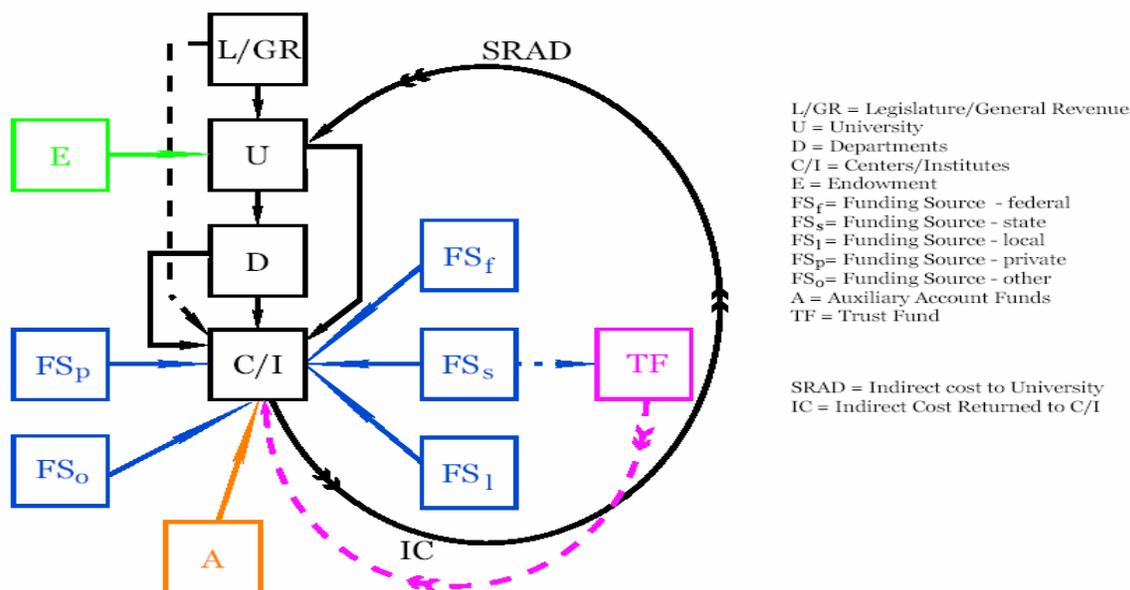
Tracking funding and expenditures for any university program or entity can be a complex task. In many cases, Centers and Institute faculty and staff are part of a university college or department. Consequently, it is very difficult, even with the benefit of annual reports and other expenditure data, to definitively separate all C&I activity or spending from that of an affiliated department or college. For instance, department heads or deans may assign C&I expenditures (much of which is faculty time) to the academic department rather than to the center or institute, thus under reporting C&I activities. Because administrators generally prefer their academic department to reflect more faculty effort and higher expenditures than for affiliated C&Is (so as not to make C&Is a convenient target for budget cuts) underreporting of C&I expenditures is thought to be widespread throughout the system.

Basing an analysis on one year of expenditure data also has its limitations because expenditures (particularly external expenditures) vary from year to year depending on the amount and sources of funding. State generated appropriations also vary from year to year depending on legislative support, institutional priorities, and available resources. While some C&Is (usually Type 1s) may receive a direct legislative appropriation, those funds may be non-recurring. If so, those dollars do not become a part of the university's base funding. Due to the flexibility inherent in local control, the decision to allocate university funds to a C&I is made at the institutional level.

Figure 5 illustrates the complexity of tracking the sources of C&I funding/expenditures. For example, state funds may flow to a C&I as a direct legislative appropriation, through a university allocation, or through a department or college. On the other hand, C&Is expend funds that are generated from a host of external sources including federal, state, and local government agencies as well as private sources. C&Is may expend funds generated by trust funds and endowments as well as a portion of indirect costs. In 2000-01 C&Is expended over \$24 million in overhead costs. Simply stated, overhead is the money that universities charge for using their facilities and faculty. C&Is (as well as other university entities) receive only a percentage of the overhead costs that they generate. Millions of

overhead dollars each year are used to fund a variety of university research activities and positions.

Figure 5
Flows of Funding to University Centers/Institutes



Evaluation of Centers and Institutes

As noted earlier, a center or institute can be established by a university or by the legislature. Regardless of their classification, or how they are established, all C&Is must submit an annual report to the Division of Colleges and Universities that contains basic fiscal and directory information. C&I annual reports are reviewed and approved by the institution's provost before being submitted to the DCU. The purpose of the annual on-line report is to ensure that the activities and budget of the C&Is fit into the overall mission of the university and discipline (or department) with which the center or institute is affiliated. Each center receives directions for completing the budget and directory components of the report. Types 1 and 2 centers must also submit a narrative component (program goals and accomplishments) of the report. While the fiscal and directory sections of the report are uniform, the information required in the narrative section is descriptive and consequently harder to categorize or assess. The narrative may not contain evaluative elements that can be compared or analyzed over time.

Once the C&I final reports are received, DCU staff conduct a brief review to assure that the basic required information is provided. Once a completed report is accepted, the budget information is used to compile the DCU's Centers and Institutes expenditure analysis. While they provide certain information, the annual reports submitted to the DCU do not provide specific data that address evaluation criteria or outcomes. The reports are not routinely used by the universities or the DCU to evaluate, fund, continue or dissolve C&Is. It should be noted that staff does not review a C&I report for compliance with goals,

mission and projected outcomes unless the subcommittee of the Council of Academic Vice-Presidents requests such an evaluation (of a Type 1 center), or if a Type I center requests additional legislative funding. C&Is are subject to internal university reviews and are always part of any outside university or department accreditation review. According to DCU staff, centers and institutes connected with a specific discipline are included in their program reviews. After conducting site visits to SUS institutions as part of this study, council staff determined that this policy has not always been uniformly applied. The only generalization that might be applied to SUS C&Is is that their organization, activities, funding, and review are highly decentralized at the institutional level. In other words, most C&Is are considered to be part of a college or department's mission and do not warrant a separate, systematic review. The possible exception to this rule are Type 1 centers and institutes which, at some universities, report to the vice president for research or provost.

During site visits, staff noted that the provosts and/or vice presidents for research were typically unaware of the exact number of C&Is on their campus. Some were surprised to discover that a number of their C&Is had made no expenditures for the last several years or were deemed to be inactive by their affiliated department even though those C&Is continued to submit an annual report to the DCU. In 2000-01, 145 C&Is reported no expenditures for FY 2000-1. Of that number, 97 (67 percent) of C&Is had had no expenditures for the last two years. While there is no official definition of an "inactive center," and a lack of expenditures for a year or two does not necessarily mean the center is defunct, but it is a good indicator that a C&I is not active. Staff did determine through a variety of sources that 22 of the C&Is reported to the state as active (regardless of expenditures status) were deemed to be inactive by their university, college, or department. Those C&Is were removed from the database used for this report.

The auditor general and the Office of Program Policy Analysis and Government Accountability (OPPAGA) have conducted audits and reviews of SUS operations and activities. While these reviews did not contain specific, internal reviews of the centers and institutes, the 2000 OPPAGA report recommended that the Florida Board of Education and the chancellor of colleges and universities require Type 1 and 2 centers and institutes to develop performance measures that fit their individual missions and that these measures should be published annually and made available to the Legislature.

The Postsecondary Education Planning Commission repeatedly recommended that the SUS identify needs of the state that are critical to improving the quality of life for all Floridians and engage in research activities related to these fields. In its most recent strategic plan (1998-2003), the SUS identified areas of research strength that enhance economic competitiveness and improvement in the quality of life. Those key areas of research in the SUS are: microelectronics; aviation/aerospace; health technology/biotechnology; information technology; materials science; environmental sciences; and agriculture sciences. In April 2002, the Florida Board of Education submitted 30 SUS priority project requests to be included in the FY 2003 federal budget. Several of those requests were projects coordinated by institutional C&Is.

In order to better focus and coordinate the application of university research and public service activities throughout the SUS, the 1998 Legislature created the Leadership Board for Applied Research and Public Service (LBARPS). The Board is responsible for providing strategic direction and planning that supports a coordinated approach to faculty, centers

and institutes for the state. To date, the LBARPS has developed a computerized information system called ExpertNet for disseminating information about university research capabilities to state and local government and the public. In addition the Board created an on-line reporting system for center and institute directors to electronically submit their annual reports to the State. That data is then compiled into various reports for the DCU and the Legislature. As part of its 2001 Justification Review of the SUS, OPPAGA recommended that the LBARPS be involved in the development of accountability measures for SUS research activities.

Since the Council began its study of SUS C&Is, several universities (UF, FIU, UWF, USF, UCF) have begun to reevaluate their policies and procedures for establishing, evaluating, and dissolving centers and institutes. As a general rule, C&Is are receiving closer scrutiny by administrators and deans as part of their overall strategic plans to maximize university resources, effectiveness, and productivity. During site visits to SUS institutions in conjunction with this study, university vice-presidents for research and provosts expressed strong support for their institutions' C&Is but at the same time agreed that more rigorous, systematic, and performance-based accountability reviews of C&Is were needed internally. In general, university VPs and provosts concluded that the majority of C&Is should be reviewed at the college level while those multidisciplinary C&Is with statewide collaborative missions and direct legislative appropriation or significant university allocations should be reviewed at the provost or vice presidential level.

Type 1 Centers and Institutes

According to existing state policy, Type 1 C&Is should have a statewide mission and involve two or more universities. The Council of Academic Vice-Presidents (CAVP), the Council of Presidents, and the Chancellor, have to recommend a new Type 1 C&I before it is submitted for approval to the statewide university governing board and to the Legislature for state funding. Type 1 C&Is may also be specifically established and funded by the Legislature. Of the 18 Type 1 Centers (there are an additional 10 affiliates) seven (39 %) were created by the Legislature to address a specific problem or area of statewide interest or need.

At least one Type 1 Center, the Florida Solar Energy Center at the University of Central Florida (UCF), is referred to in statute as a 'Board of Regents Center' (Section 377.705 (1) (a), F.S.) It is unclear what that terminology meant or means now that there is no longer a Board of Regents. According to DCU staff, there has never been a separate category for "Board of Regents Centers," and that it is quite possible that the designation "Board of Regents" and "Type 1" Centers were considered to be synonymous when the statute was enacted. The newest Type 1 Center was created by the Legislature in 1998. This was the Institute on Urban Policy and Commerce located at Florida A&M University that had combined expenditures of \$1.5 million in 2000-01.

For each Type 1 C&I, a host university is designated to provide administrative and logistical support for systemwide activities. Affiliates of the Type 1 C&I receive funding from the host entity. Each Type 1 C&I has an advisory board that provides guidance to the center director and makes recommendations with respect to the distribution of funds. Type 1 C&Is have separate departmental accounts in the universities' operating budgets but not all Type 1s receive or have ever received a direct line appropriation from the Legislature.

Historically, the CAVP has determined if a C&I should be recommended for an increase in legislative appropriation. However, given the structural changes in the SUS, the CAVP has recommended, beginning with FY 2002-03, that host universities include requests for Type 1 C&Is in their Legislative Budget Requests (LBR). Current exceptions include the FCLA and the University Press of Florida.

While the state's Type 1 C&Is receive and expend funding from a variety of sources including their own institutions, new direct legislative appropriations for Type 1 C&Is have been severely limited in recent years. For example, none of the six Type 1 C&Is recommended by the CAVP for increased legislative appropriations for FY 2000-01 received new funding that year. (Previous year's funding remains in the base.) The FCLA was the only Type 1 center to receive new funding (\$4.8 million). The following year the CAVP recommended increases for two Type 1 institutes that were rejected by the Legislature. The Legislature did appropriate new money for the Urban Policy Institute at FAMU, but the governor vetoed it.

Systemwide the state's 28 Type 1 Centers and Institutes expended a total of \$63,888,532 in FY 2000-01. Forty-one percent of those dollars were from state (SUS appropriated) funds. The majority of expenditures (59%) were generated from external sources such as contracts and grants (government and private), fees, and other miscellaneous sources. The return on investment of SUS appropriated expenditures to externally generated expenditures for Type 1 C&Is was 145 percent. The ratio of state dollars to external spending varied greatly by individual C&I and by SUS institution. For instance, at the University of Florida, the ratio of state dollars to external expenditures for Type 1 C&Is was 0.76. This relatively low ratio may be explained by the fact that UF has five host Type 1 Centers, one of which (FCLA) provides computer services for the entire university system and expended over \$9 million in SUS appropriated funds to support those services in 2000-01.

Because of their statewide mission, Type 1 C&Is generally receive the greatest degree of oversight or evaluation by their own institutions. Some Type 1 center directors are full-time C&I employees and report to the provost or vice president for research rather than to a dean or department chair. Type 1 C&Is provide a multitude of research and service activities to a diverse constituency. The quality of their performance appears to be validated by the continued support of external funding agencies as well as university based financial backing. While consistently endorsing increased funding and support for Type 1 C&Is however, the CAVP has expressed concern in recent years that some of those entities "do not appear to be operating as entities with Statewide missions"...and, that in some cases "there is insufficient evidence of cross-system involvement (e.g., make-up of advisory boards and involvement of personnel from multiple intuitions)." In those instances the CAVP did not recommend an increase in legislative funding. Similarly, requests to create a Type 1 C&I were rejected if the committee did not consider that there was sufficient evidence of statewide cooperation among institutions throughout the system. The CAVP recommended in 2001 that the Type 1 C&Is be re-evaluated on a case-by-case basis. This task has not yet been undertaken due in large measure to the uncertainty surrounding the governance of the universities and the future status or operational structure of Type 1 C&Is.

Type 1, 2, 3 C&Is at Florida's Public Universities

While conducting site visits at the 10 state universities, staff met with university administrators and selected C&I directors and staff. While these visits were not part of an official audit, accreditation, or evaluation, they did provide an opportunity to see first hand how Type 1, 2, and 3 C&Is operate within the larger university. In addition, the visits provided an opportunity to more fully understand the dynamics, benefits, staffing and funding of university C&Is. The following are selected excerpts from the summary of those site visits to Type 1 C&Is (detailed in Appendix E).

The Center for Solid and Hazardous Waste, located at the University of Florida, was created by the Legislature in 1988 as part of the Solid Waste Management and Resource Recovery Act. Its broad mission is to preserve and protect the state's natural resources. The center coordinates research, training, and service activities related to solid and hazardous waste management. According to its survey, 70 percent of center activities in 2000-01 were dedicated to applied research projects. The center's research program is designed to develop and test innovative, low-cost practical and environmentally sound methods and strategies for managing Florida's solid and hazardous wastes; and, to transfer research results to the public and private sectors for practical solutions to Florida's waste management problems.

The Center for Solid and Hazardous Waste is truly representative of the Type 1 Center designation. The center fulfills a statewide mission through its multifaceted activities that involve both state and private universities. To determine the most critical environmental research needs in Florida, the center conducts an annual Research Needs Survey with city and county governments, consultants, state environmental agencies, waste management and recycling companies, various advocacy groups, academic institutions and private citizens. The center compiles the survey responses and consults with the Florida Department of Environmental Protection in developing a statewide research agenda. The Center then issues a Request for Proposals (RFP) to address those identified needs. A committee appointed by the Center's statewide Advisory Board selects the candidate proposals. In 2000-01 the center conducted a variety of additional projects through contract and grant funding set aside for special projects including studies on litter, groundwater contamination, lead wastes and bioreactor landfill moisture management. The Center hosts various conferences related to its mission and publishes handbooks on the proper management of hazardous wastes.

Funding for The Center for Solid and Hazardous Waste reveals the complexities of tracking expenditure sources at a university. The center reports no State appropriated funds, but it does receive \$500,000 a year in the form of a ledger transfer from the Florida Department of Environmental Regulation. Those dollars are generated from the state's tire recycling trust fund and are used to administer the host center and fund center projects. In addition, the Center receives \$25,000 a year in rebate indirect funds from the University of Florida's College of Engineering to defray the costs of renting its off-campus facility. The majority of the center's expenditures however (\$1.3 million in 2000-01) are generated by other external state and federal grants. In addition, the center is eligible for indirect funds generated from projects that go through the contract and grant process.

The center's executive director is a non-tenure earning faculty member who reports to the Dean of the College of Engineering. The executive director submits quarterly progress

reports to the center's advisory board. The center is periodically evaluated by outside funding agencies.

The Florida Policy Exchange Center on Aging, located at the University of South Florida, was established by the Legislature in 1992 to inform policy makers, the media, scholars, and advocates on policies, programs, and services for older adults. The Center collects and analyzes information about long-term care, transportation, health care, employment income security, social services, nutrition, and other areas that significantly affect the daily lives of elderly residents. This information is used to assess current policies and programs and recommend ways to make programs more responsive to the needs and preferences of older adults.

The Center has two main units, the USF Training Academy on Aging and the State Data Center on Aging. The Academy was established to coordinate the university's approach to providing high quality affordable and accessible training to public and private organizations serving elders in the Tampa Bay region. The Center on Aging is dedicated to on-going expert policy and analysis and program evaluation research based on major databases, including Medicare, Medicaid, the National Long-term Care survey, the Longitudinal Study on Aging, and others. The Data Center generates analytical reports on aging-related issues in the area of health care, long-term care, housing, and more. Many of its voluminous databases are available to other university researchers, government entities, and the public.

The Center served as staff for the Legislature's Task Force on the Availability and Affordability of Long Term-Care in 2000-01, and along with colleagues from several SUS institutions informed task force members and the Legislature about the most successful policies and practices in long-term care. As a result of the Task Force activities, legislation was passed to reform long-term care in the state and to ameliorate many of the problems that have been identified by the Task Force.

Center staff has worked collaboratively with other centers and individual faculty from other SUS institutions in several age-related projects. Most recently, the Center provided services and Medicare and Medicaid outcome data to FIU's Center on Aging for its evaluation of the state's Frail Elderly Program. In addition, Center staff has collaborated with SUS researchers on a variety of studies, many of which resulted in publications and training seminars for providers of medical services to the elderly. A Chronic and Long Term Care Research Proposal involving all ten SUS universities in a thirty-six million dollar, five year project to study all phases of health and long-term care in Florida has been developed by the Center and was submitted to Congress in July 2001 as part of the SUS's research priorities.

Although it is a semi-autonomous, multipurpose organization, it would be difficult to name another Type 1 Center in the SUS that is more integrated into the host university's organizational structure or that receives a wider range of institutional support than The Policy Exchange Center. The Center is not housed in an academic department or college (SUS appropriated funds flow through the Office of Academic Affairs and the Director reports directly to the Provost). The director, a tenured faculty member in the College of Health Science's Department of Gerontology, teaches courses in that department, and supervises doctoral students enrolled in the university's Ph.D. in Aging Studies Program.

Type 2 Centers and Institutes

There are 226 Type 2 C&Is located throughout the SUS. According to the Chancellors' Memorandum, a single university establishes Type 2 C&Is although in some instances, additional institutions may participate. While most active Type 2 C&Is were created at the university level, 42 (19%) were established by the Legislature. Not all of those legislatively established C&Is received a specific line item appropriation. The majority of Type 2s receive state appropriated funds through university budget allocations. As with Type 1s, Type 2 C&Is expend externally generated dollars from a variety of sources. In 2000-01, Type 2 Centers expended a total of \$192 million. Approximately one-third of those funds (\$62 million) were SUS appropriated funds. It is important to note that those SUS funds were not allocated to the universities as funds specifically designated to operate C&Is. Those dollars, unlike direct appropriations that are occasionally made to Type 1 and Type 2 C&Is, were part of the lump sum legislative appropriation made to the individual universities for their overall operations. The institutions decided, based on their own mission and priorities, what portion of those funds would be allocated to support C&I activities and staff. The vast majority of Type 2 C&Is are an extension of departmental activities. Approximately 42 percent of Type 2 expenditures in 2000-01 were for faculty salaries.

It is important to note that the majority of faculty affiliated with Type 2 C&Is conduct their research, public service, and instruction activities as part of their overall university assignment, not in addition to it. Simply stated, all faculty members are expected to engage in instruction, research, and public service activities as part of their overall assignment. Faculty must report what percentage of their time is devoted to these activities when they complete their faculty activity reports. While many faculty never conduct research that is affiliated with a center, C&Is are attractive to faculty (and administrators) because they enable researchers from several departments to work collaboratively together, often with external support. Faculty members can "buy out" their time when they are supported with external dollars. For example, Professor A normally teaches three courses in an academic department (70% of faculty assignment) and spends 20 percent of his time on research and 10 percent of his time conducting public service activities. After receiving a research grant from the National Science Foundation, Professor A buys out his time by spending the next two semesters on research paid for by NSF while the department uses the faculty member's state salary to hire an adjunct professor to teach his assigned courses.

Type 2 C&Is are as diverse and hard to categorize as Type 1s because they vary so greatly in size, scope, mission, activities, and funding. Needless to say the "Type 2" designation is an inadequate descriptor, even at the institutional level where it is used primarily to denote the center's eligibility or non-eligibility to receive state appropriated funds. Outside funding agencies make no distinction between C&I categorization when they award contract or grant funds. Type 2 C&Is include the large multidisciplinary, multi-million dollar McKnight Brain Institute at the University of Florida, and the small, more narrowly focused Institute for Judaic Studies and Near Eastern Studies at Florida International University. The following are examples of two diverse Type 2 C&Is located in the SUS that were included in staff site visits.

The University of Central Florida established the *Center for Research and Education in*

Optics and Lasers (CREOL) in 1985. A year later, the Legislature designated CREOL as a Center of Excellence with a mandate to bring together diverse disciplines into a cohesive program. In 1998, CREOL became the research arm of UCF's new School of Optics. Now called the School of Optics/CREOL, the School of Optics grants both MS and Ph.D. degrees in optics, while CREOL conducts cutting-edge research in optics, lasers, and photonics. The faculty members of the School of Optics and CREOL are one-in-the-same, with interrelated but distinct educational and research functions.

The School of Optics/CREOL has become a major resource and partner to 148 optics companies. State and local governments use tax incentive programs to encourage optics-oriented business and industry to locate in the Orlando area. Partnerships with business and industry firms bring financial support and leading-edge technologies to the school. Through the university, companies gain access to expert faculty members and sophisticated and expensive equipment. The mutually beneficial partnership with and support of business and industry is critical to the School of Optics/CREOL and is part of UCF's overall strategic plan to further cooperative and lucrative business and industry partnerships.

Because the School of Optics/CREOL draws faculty from the School of Engineering and the College of Arts and Sciences, it reports organizationally to the Vice President of Research. During 2000-01, CREOL expended over \$10 million. CREOL's return on investment (ROI) of externally generated funds to state funds (220%) is impressive but not unusual for a mature type 2 C&I. What is unusual is the high proportion of expenditures (20.7 %) from private sector sources. The proportion of private sector expenditures for all Type 2 C&Is was 9 percent in FY 2000-01.

During 2000-01, CREOL reported that 25 percent of its activities was devoted to basic research while 35 percent was devoted to applied research activities. A rather high 30 percent of center activities was devoted to instruction. CREOL has a large productive staff that published almost 80 scholarly publications, gave 101 invited presentations and produced four patents/copyrights in FY 2000-01. The center conducted a performance-based self-evaluation that year and was evaluated by a three-member external review board. The significant accomplishments of the School of Optics/CREOL have been based on a strategic plan of recruiting quality faculty and students and focusing scarce research resources. The center is a prime example of how a Type 2 C&I can enhance the teaching, research, and public service goals of a university, while benefiting the local community and state.

The Florida-West Africa Linkage Institute, located at the University of North Florida, is one of eleven "linkage institutes" established by the Legislature in 1991 to assist in the development of stronger economic, cultural, educational, and social ties between Florida and strategic foreign countries. UNF is the "lead" institution for the Florida-West Africa Institute. Florida Agricultural and Mechanical University (FAMU) and Florida Community College at Jacksonville also have programs although FAMU's institute reported no expenditures for the last two years.

Linkage institutes are atypical for Type 2 C&Is even within the loose framework that currently exists statewide. Each linkage institute in the SUS, including UNF's, must be governed by an agreement, and approved by the Florida Department of State. Each institute is co-administered by a university-community college partnership and must have

a private sector and public sector advisory committee. The Department of State requests general revenue funding for the institutes from the Legislature. Consequently, state funds flow to the institutes indirectly from the Department of State. In addition, some institutes receive funding from university budget contacts and grants from private sources.

The Florida-West Africa Linkage Institute at UNF (FLAWI) focuses its efforts to encourage and expand economic, educational, and cultural linkages between Florida and 16 West African partner countries. The institute works with interested chambers of commerce, governmental, and non-governmental organizations to develop existing potential for trade expansion and to further economic development activities in West Africa. The identification of existing and potential trading partners among Florida and West Africa countries has been shared with the business community and West African economic advisors through their embassies in Washington, D.C. In 1996, FLAWI sponsored a Trade and Investment Symposium, which brought together representatives for the commercial and trade sectors of Florida and West Africa, enabling participants to build relationships for future trade and economic development activities.

As one example of this institute's activities, FLAWI is involved in the first phase of a project to improve health care education and delivery in Senegal. The project, "Creating Healthy Communities in Senegal: Linking Education to Community Needs and Values," is a collaborative effort between FLAWI and the government of Senegal's Ministry of Education and Ministry of Health. The objective of the project is to link health care education with local communities in Senegal, particularly in rural areas. FLAWI has worked with the Ministry of Education since 1994 to assist in reforming the country's education system in order to meet the needs of its ten million people. With additional funding from the World Bank, the government of Senegal plans to establish ten regional colleges in rural areas over the next several years using the American community college system as a model. The Senegalese Government appropriated \$1 million to construct the first such facility that opened in early 2002 in Bambay. FLAWI and staff and faculty from Bambay collaborated to design a two-year community health education program. The Duval County Health Department also contributed its expertise to the program.

To promote cultural and education linkages with West Africa, FLAWI provides non-resident tuition waivers to qualified students from its partner countries. Approximately 50 West African students are currently enrolled in Florida colleges and universities. The Institute is planning a study abroad program for students interested in studying African culture. FLAWI conducts ongoing seminars and conferences of West African studies for faculty and students in Florida.

FLAWI has been successful in using state dollars to leverage outside grant support. Most recently the institute received \$100,000 from the United States Agency for International Development to assist in the development of its community health program in Senegal. In 2000-01 the Institute expended a total of \$52,627, 62 percent of which came from external sources. The Institute is well integrated into UNF's academic and cultural structure. FLAWI's director is UNF's Associate Vice President of Academic Affairs, and a professor of International Economics. Faculty from a variety of disciplines participates in the activities and mission of the institute.

Type 3 Centers and Institutes

According to the Chancellor's Memorandum, Type 3 C&Is can be established by a single university and expend only non-appropriated state funds such as contracts and grants, auxiliary fees and other private donations, gifts, etc. Of the 512 active C&Is in 2000-01, 51 percent (258) were type 3s. Type 3 C&Is can be established at an institution without DCU approval; however, the institution must notify the DCU of the establishment of a Type 3 C&I. Such notification must contain some of the same information (staffing, mission, budget data) as is required of Type 1 and 2 C&Is. Type 3 C&Is must submit an annual report containing basic directory (staffing) and budget information, but are not required to submit a narrative summary of C&I goals, activities, and accomplishments. Type 3 C&Is are typically collections of faculty within a single university with an interest in, and the skills for, a particular problem, and who are not affiliated with a single department or college. With very little support they conduct collaborative research, investigate new ideas, and share facilities among faculty.

In 2000-01, Type 3 C&Is expended \$45,990,976 from all funding sources. Despite state policy, five Type 3 C&Is expended a total of \$645,645 of SUS appropriated dollars. In general, a department chair or dean to cover an unexpected project expense not covered by a grant approved those expenditures. Those SUS dollars were dwarfed by the large amount (\$5.8 million) in indirect cost funds that were generated by Type 3 C&Is and were re-directed across their universities to support a variety of university activities.

Type 3 centers and institutes tend to be the smallest of the university C&Is both in terms of expenditures and staff. While there were 32 more Type 3s than type 2s in 2000-01, over 4 times as many faculty were reported associated with Type 2s than Type 3s that year. This discrepancy is likely a reflection of faculty reporting. In other words, faculty affiliated with a type 3 C&I are very often faculty of a department whose research or service effort is reported as part of that department's activities.

Type 3 C&Is do not receive any direct state monetary support (in the form of faculty salaries or administrative service support) and some C&Is have to pay rent to the university for space, electricity and other infrastructure costs. Because type 3 C&Is receive a percentage return on the overhead generated by contracts and grants, they are able to pay for some of the costs associated with using university facilities. Many Type 3 C&Is enjoy a close relationship with their institution and department and are often charged little (or nothing) for office space, equipment, and other costs associated with conducting research activities.

The following are examples of two Type 3 C&Is located in the SUS that were included in staff site visits.

The English Language Institute (ELI) was established in the College of Arts and Sciences at Florida International University to provide English language instruction to all individuals who have chosen English as their medium of communication for academic or professional pursuits, and to promote international and intercultural understanding. The Director has been there almost since the institute's inception.

ELI is a rather unusual Type 3 C&I for several reasons. For example, the center generates

all of its funding from fees, rather than contracts and grants. More importantly, while ELI's mission directly supports FIU's international mission by recruiting and preparing students for successful matriculation at the university, the center receives no subsidy, direct or indirect, from the university. ELI pays all staff salaries, including the full-time director and six instructors (some have been recently let go), room rent, utilities and all expenses. At the same time however, according to Dr. Luis Sanchez, ELI has provided FIU with substantial contributions including a building, three vans, and various subsidies it provides for marketing FIU in an international market. In addition, ELI paid four percent of indirect costs (\$72,123) to the university and seven percent of indirect costs (\$126,215) to the dean of the College of Arts and Sciences.

ELI exists to fill an academic need for English proficiency on the part of the 1,2000 international students who annually enroll for classes. It recruits the students, helps them obtain visas, registers them at ELI, produces the curriculum and learning materials for their instruction, brings them up to acceptable English proficiency, and helps them matriculate into FIU. Other Florida universities meet the need for intensive language instruction of foreign students by organizing department-based English preparatory programs or depend on community college or private schools to provide English as a second language. FIU created ELI as a college-based institute.

Recent, more restrictive immigration polices have had a major impact on ELI's ability to recruit students. It will probably require some financial assistance from the university in temporary funding or in-kind subsidies. This underscores the integrated nature of Type 3 C&Is within their universities. Even the most self-sufficient and productive C&I, such as ELI, is ultimately a functional part of and potential responsibility for its parent university.

The Institute for Fishery Resource Ecology (IFRE) located at Florida State University was created in 1995 as a partnership between Florida State University and the National Marine Fisheries Service to coordinate and facilitate existing research in basic and applied marine science, to stimulate the training of scientists in the discipline of fishery science; and to disseminate research findings to the public and government entities through publications, seminars, and workshops. IFRE serves as a vehicle to combine university and agency expertise to address marine resource issues of the northeastern Gulf of Mexico that affect Florida, the southeastern United States, and the rest of the nation. According to the Institute director, IFRE bridges a gap between basic and applied research in fisheries management and other applied fields.

IFRE is housed in the Department of Biology at FSU where it has a close collaboration with other faculty members who work on the fisheries management projects. The director is a non-tenure-earning faculty researcher. Most of the institute's work is applied research (75%) with some community service (20%) and teaching. The institute's major beneficiaries are the funding agencies who use the applied research and the students who work on the projects and complete internships.

Initially, IFRE was funded by a small university endowment and partial salary support (lasting two years). As with most Type 3 C&Is, IFRE is currently funded by contracts and grants from state and federal agencies. The majority of funds are derived from NOAA's granting agencies, the Florida Department of Environmental Protection, and the National Park Service. While IFRE does not receive SUS appropriated funds directly, the Biology

Department provides the institute with office and laboratory space and some computer system support. The Institute normally funds one graduate student and 8-12 undergraduates per year from its external grants.

The collaborative research efforts of faculty affiliated with IFRE include investigations of juvenile reef-fish recruitment to estuarine habitats, coral restoration, specific work on population recovery of the protected jewfish, evaluating the efficacy of fishing reserves for reef-fish management, and site mapping, site selection, and evaluation of marine reserves in the Gulf of Mexico and the South Atlantic. Faculty have published numerous articles and studies based on their wide-ranging research related to marine fisheries.

IFRE participates in a wide variety of public service activities including its Saturday-at-the-Sea (SATS) middle-school program. Developed in 1985, SATS has provided the opportunity for more than 10,000 middle-school students to spend the day exploring a variety of marine habitats in the northeastern Gulf of Mexico, from oyster bars to sea grass beds, and studying the resident organisms through a combination of field and laboratory exercises. In 1999, the program received the Governor of Florida's Environmental Education Award for its outstanding service to the educational community of North Florida.

IFRE is an example of a Type 3 C&I that is closely affiliated with an academic department through its collaborative relationships in research, service, and instructional activities. The institute receives little institutional financial support beyond its basic infrastructure needs (which is more than some Type 3s receive) so the director has plans to seek greater institutional support, perhaps seeking Type 2 C&I designation in the future.

Chapter Summary

- Florida's 512 University Centers and Institutes (C&Is) are diverse settings for scientific discovery, technological innovations, policy development, and public outreach activities.
- C&Is respond rapidly to issues and problems across discipline boundaries.
- C&Is expend millions of dollars on research related activities each year. C&Is generated approximately 24% of total SUS external research expenditures in FY 2000-01.
- SUS appropriated (state) dollars comprised 30 percent of all C&I expenditures, a return on investment of 217 percent.
- The majority of C&Is (79%) had total expenditures of less than \$1 million in FY 2000-01.
- Regardless of their classification, the great majority of C&Is use some form of state generated resources.
- C&Is generate millions of dollars a year in overhead (indirect) costs. These dollars help to fund a variety of research activities and positions on campus.
- Centers and Institutes vary by number, size, and funding level. For FY 2000-1, 68 percent of all Type 1, 2, and 3 C&Is were located at UF, USF, and FSU combined.
- In many cases, C&Is, specifically C&I faculty, are part of a university college or department.
- C&Is are required to submit an annual report to the DCU. These reports do not provide data that address specific evaluation criteria or outcomes. The reports are not used routinely by the universities or DCU to evaluate, fund, continue or dissolve C&Is.
- Annual reporting to the DCU is ineffective and does not contribute to C&I evaluation.
- C&Is are subject to internal and external evaluations, but in general, there are no systematic, coordinated processes for internal institution-wide C&I evaluation.
- Several universities are developing new policies and procedures for establishing, evaluating, and disbanding C&Is.
- Type 1 C&Is have a statewide mission and are mandated to involve two or more universities. They are the most autonomous of the C&Is and, in general, are more likely to receive internal and external evaluations.

III. SUMMARY OF DATA FROM SURVEY OF CENTERS AND INSTITUTES IN FLORIDA'S PUBLIC UNIVERSITIES

Introduction

After a thorough review of the annual reports submitted by the state's 512 public postsecondary centers and institutes (C&Is) to the Division of Colleges and Universities, staff determined that a survey was needed to gather additional data on C&I activities, staffing, and accomplishments. This was particularly true of the Type 3 centers that are not required to submit the narrative, "descriptive" portion of the C&I annual reports. Although it is but one component of a multifaceted analysis of the state's research centers, the survey results add to our understanding of the diverse nature and complex role of the C&Is within the state university system.

Survey Approach

The survey of centers and institutes in Florida's public universities was conducted during April and May of 2002. It should be noted that response to this survey of Florida's public university C&Is was voluntary. The survey instrument used to collect these data can be found in the Appendix of this report. The survey questions were limited to the following four areas of information.

1. Contact Information (Questions 1, 2, 3);
2. Organizational Information (Questions 4, 5);
3. Center/Institute Staffing Information (Questions 6, 7, 8);
4. Performance and Benefits of Center/Institute Operations Information (Questions 9, 10, 11, 12, 13, 14, 15, 16);

In an effort to maximize return rates, the survey was designed as a short list of "easy to answer questions" that would require a relatively brief period of time to complete. Each question was posed using a single statement or question (e.g., How many students were affiliated with your center/institute from 07/01/00 to 06/30/01 in the following categories?). The survey was administered via the Internet and respondents could access and submit the completed survey form "on-line", thereby encouraging response.

Limitations of Survey Approach

Because the survey was designed to be a short and "easy to answer" instrument, a minimum of text was devoted to the elaboration of each question. To avoid any misunderstanding, two toll-free telephone numbers were provided for respondents who had either technical or substantive concerns with any part of the survey. The question that arose most often among respondents who called for clarification was whether they should report center staff activity as unique to their center. For example, question #6 asked respondents to "Indicate the number of individual faculty and staff that were employed or that worked at your Center/Institute from 07/01/00 to 06/30/01?" Some respondents were unclear as to whether they should include faculty who had their primary employment appointment in an academic department, but who also worked on activities through a C&I. The intention of the survey was to include all faculty who had received compensation from, or who had performed a service for a C&I during fiscal year 2000-2001. This distinction

was made clear to respondents who contacted staff for clarification concerning this question. In Question #9 respondents were asked to determine, “How many publications did faculty of your C&I publish or produce from 07/01/00 to 06/30/01?” Some respondents were not sure if they should include the publications of teaching faculty if those publications had already been listed as departmental publications or publications on the faculty member’s curriculum vitae (CV). Because the intention of the survey was to understand the extent to which faculty in academic departments participated in C&I activities, and published as a result of these center activities, respondents were told to include these publications when responding to this question. In both instances, respondents were assured that there would be no chance for double counting.

Survey Instrument

The initial survey instrument went through a number of early revisions in order to reduce the questions to only those that were applicable to the four areas listed in the previous section (Survey Approach). The final draft survey instrument was reviewed by selected center directors and other university and education administrators in Florida, prior to “beta-testing” the instrument using 16 actual C&I directors. Nine of these 16 directors responded to the request to test/review the survey instrument. Every effort was made to include all pertinent revisions to the final survey instrument prior to distribution to the 512 center/institute directors in Florida’s public universities (see Appendix G for the breakdown by university of which C&Is received the survey instrument).

Use of the Internet

As mentioned previously, the survey was conducted using the Internet, thereby allowing responses to be completed “on-line”. Each C&I director was contacted by e-mail in order to direct them to an Internet address that contained a survey instrument individually addressed to their C&I. To the extent possible, each of the questions on the survey instrument utilized:

- pull down menus with pre-selected choices, values or ranges of values; or
- boxes to insert a numerical value.

The approach taken was to simplify the effort, standardize the responses and shorten the time for completion of the survey instrument. These mechanisms allowed many C&I directors to complete the survey instrument relatively quickly. Question #16 (“Briefly list the benefits of your center/institute to the State of Florida” – limit 75 words.) was the only “open-ended” question on the survey instrument. This question was designed to provide the respondents with an opportunity to add comments about C&I accomplishments.

Responses to the Survey Instrument

We received 269 responses out of the 512 C&Is contacted for the survey (a 52.5% response rate – see Table 2). Table 1 shows the number of responses for each of the survey questions.

Table 1
Response (by Question) to the CEPRI Survey of
C&Is

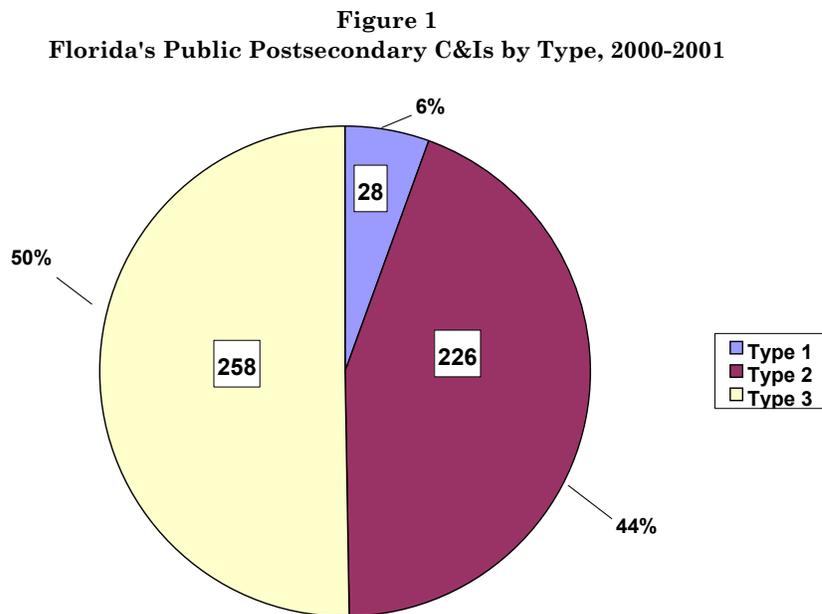
<u>Question #</u>	<u># Responses</u>	<u>Question #</u>	<u># Responses</u>
Question #1:	269	Question #9:	247
Question #2:	269	Question #10:	236
Question #3:	259	Question #11:	240
Question #4:	260	Question #12:	230
Question #5:	253	Question #13:	256
Question #6:	244	Question #14:	256
Question #7:	211	Question #15:	252
Question #8:	226	Question #16:	226

Data on Centers and Institutes (C&Is)

The following sections describe the results of the survey tabulated into arithmetic “counts” or frequencies, percentages, arithmetic means, weighted averages, ranges and other relevant statistical results.

Number of C&Is in Florida’s Public Universities

According to the data obtained from the annual reports submitted by C&Is to the Florida Division of Colleges and Universities for fiscal year 2000-2001, there were 512 C&Is in Florida’s public universities. A breakdown of these C&Is, classified as Type 1, Type 2 or Type 3, is shown in Figure 1.



The 512 C&Is reflected in Figure 1 were used as the list for sending out the CEPRI survey.

Response to the CEPRI Survey

A total of 269 C&Is responded to this voluntary survey. Table 2 shows the response by type of C&I.

Table 2
Response to the CEPRI Survey by Type of C&I
(2000-2001)

Type	Number	Percent of Response	
		All Responses	Rate by Type
1	18	6.7%	64.3%
2	143	53.2%	63.3%
3	108	40.1%	41.9%
Totals:	269	100.0%	52.5%

A number of survey questions were utilized in order to describe C&Is in Florida’s public universities. One of these questions pertained to the age of these C&Is. Question #3 on the survey instrument requested the year that the C&I was officially established within the State University System. Using fiscal year 2000-2001 as a “benchmark”, the following summary data shown in Table 3 depict the average age of the C&Is responding to this question.

Table 3
Average Age (years) of C&Is in Florida’s Public Universities
by Type
(2000-2001)

Type	Number of Respondents	Average Age (years)
1	18	17.39
2	136	14.75
3	105	11.21
Totals:	259	13.54*

* weighted average of all 259 respondents.

From these data, it can be seen that Type 1 C&Is tend to be, on average, slightly older than Type 2 C&Is, and Type 2 C&Is tend to be, on average, older than Type 3 C&Is.

In terms of the primary discipline areas addressed by C&Is, Tables 4, 5 and 6 provide frequencies for each applicable discipline area for Type 1, 2 and 3 C&Is:

Table 4
Breakdown of Primary Discipline Area Addressed by Type 1 C&Is
(2000-2001)

<u>Discipline Area</u>	<u>Number Reporting</u>	<u>Percent of Total</u>
Engineering	2	11.8%
Environmental Sciences	2	11.8%
Life Sciences	1	5.9%
Social Sciences	3	17.6%
Multidisciplinary	7	41.1%
Other	2	11.8%
Total	17	100.0%

Table 5
Breakdown of Primary Discipline Area Addressed by Type 2 C&Is
(2000-2001)

<u>Discipline Area</u>	<u>Number Reporting</u>	<u>Percent of Total</u>
Engineering	14	10.1%
Environmental Sciences	10	7.3%
Life Sciences	12	8.7%
Social Sciences	12	8.7%
Physical Sciences	4	2.9%
Mathematical Sciences	2	1.4%
Computer Sciences	2	1.4%
Agriculture	3	2.2%
Humanities	3	2.2%
Education	16	11.6%
Arts/Music	1	0.7%
Multidisciplinary	39	28.3%
Other	20	14.5%
Total	138	100.0%

Table 6
Breakdown of Primary Discipline Area Addressed by Type 3 C&Is
(2000-2001)

<u>Discipline Area</u>	<u>Number Reporting</u>	<u>Percent of Total</u>
Engineering	6	5.7%
Environmental Sciences	4	3.8%
Life Sciences	11	10.5%
Social Sciences	10	9.5%
Physical Sciences	7	6.7%
Mathematical Sciences	1	0.9%
Computer Sciences	2	1.9%
Agriculture	1	0.9%
Humanities	5	4.8%
Education	6	5.7%
Arts/Music	3	2.9%
Psychology	5	4.8%
Multidisciplinary	21	20.0%
Other	23	21.9%
Total	105	100.0%

We encountered some difficulties when we asked C&Is to identify themselves with specific discipline areas. First, most centers and institutes are truly multidisciplinary in the approach they use to conduct their activities, especially applied research. Applied research is, by its very nature, often multidisciplinary, especially government-sponsored projects. Typically the problems addressed are not purely related to any one academic field, e.g., physics, biology, chemistry, engineering, law or economics, but rather, are focused on specific social problems addressed by the funding agency (e.g., transportation, law enforcement, health care, waste management, etc.). These kinds of problems are typically quite complex; hence, they often require multiple disciplines to address the problem comprehensively.

Secondly, the predetermined discipline areas provided in the survey instrument are often interrelated (e.g., engineering typically involves physical sciences, mathematics, computer science and other disciplines). The result is that these survey results represent a rather general breakdown of the kinds of problems that these centers and institutes address.

As these data show, the Type 2 and Type 3 C&Is clearly encompass a broader variety of discipline areas than do the Type 1 C&Is. This can be attributed to the relatively larger number of Type 2 and Type 3 C&Is and the typically mandated focus of the work of Type 1 C&Is.

An additional way to understand the nature of centers and institutes is to look at the general mix of activities conducted by C&Is. One survey question requested information on the involvement of C&Is in the following broad categories:

- basic research;

- applied research;
- teaching;
- training, instruction, extension activities;
- public service; and
- other activities.

Survey respondents were requested to estimate the percent of total C&I effort allocated to each of these six areas and were “forced” (mechanistically, using a web page device) to sum these percentages to 100%. While it is acknowledged that most C&I directors typically do not “log” organizational effort over the year in these broad categories, most directors have a good sense for this breakdown. Table 7 shows a summary of these breakdowns by type of C&I.

Table 7
Breakdown of Effort (%) for C&Is in Broad Categories
By Type of C&I
(2000-2001)

Activity	Type 1 (n = 16)	Type 2 (n = 136)	Type 3 (n = 101)	Total (n =253)
Basic Research	6.4 %	17.0 %	23.6 %	19.0 %
Applied Research	29.8 %	32.2 %	29.5 %	31.0 %
Teaching	7.0 %	16.7 %	12.0 %	14.1 %
Training/Instruction/Ext.	31.2 %	14.7 %	17.0 %	16.7 %
Public Service	20.1 %	14.2 %	10.1 %	12.9 %
Other	5.5 %	5.2 %	7.8 %	6.3 %
Totals:	100.0 %	100.0 %	100.0 %	100.0 %

(n) = number reporting by type of C&I; The “Total” column represents statewide weighted average totals for all 253 C&Is responding to this question.

These data suggest that overall, and across all types of C&Is, approximately 50% of all C&I effort is devoted to research activities (Basic Research + Applied Research). Although C&Is are generally referred to as research entities, approximately 30% of C&I effort is devoted to teaching students and other instructional activities. About 20% of overall C&I effort is devoted to service to the community and professional organizations (Public Service + Other).

Employees at Centers and Institutes

Other survey questions requested information on the types of employees affiliated with the C&I as well as the number of students involved with C&I activities and the nature of these activities. As noted earlier, the intent of the survey was to “capture” all professional faculty who participate in center projects and activities (even if they have a teaching position within an academic department). Table 8 shows the survey responses statewide for types of employees affiliated with C&Is.

Table 8
Breakdown of Faculty and Staff Affiliated with C&Is in Florida's Public
Universities by Type
(2000-2001)

Type of Employee	Type 1	Type 2	Type 3	Total
FT Tenure Track Faculty	44	379	87	510
PT Tenure Track Faculty	89	192	120	401
FT Non-tenure Track Faculty	105	342	104	551
PT Non-tenure Track Faculty	13	96	31	140
Post-Doctoral Positions	5	210	81	296
Admin/Professional Staff	77	288	133	498
Technical Staff	107	453	125	685
Support Staff*	105	390	90	585
Totals:	545	2,350	771	3,666

* does not include student workers; FT = full-time; PT = part-time

In total, there were 3,666 employees affiliated with the 244 C&Is that responded to this question or an average of 15 employees per unit. It is clear from these data that a relatively large number of part-time and full-time tenure track faculty (911) participate in various projects that are supported through C&Is. Tenure track faculty time (i.e., salary + fringe benefits) supported through center projects may result in salary release funds returned to academic departments that can be used for alternative purposes including classroom instruction.

Student Involvement

Another important aspect of C&I operations is the involvement of students in C&I projects and other related activities. Student involvement in center activities achieves multiple outcomes, including:

1. employment;
2. education enrichment & training; and
3. degree requirements.

Data indicate that some students work at a center or institute as a means of employment while in school. The often flexible work environment, on-campus location, an annual schedule that tracks the academic calendar and competitive hourly wages are attractive to many students. Some students may work at a center or institute as a way to garner valuable professional experience that tends to augment or enrich the academic training received through coursework. Finally, some students need to fulfill a degree requirement for graduation (e.g., Internship, Master's thesis, Major paper or other requirements) and work at a center or institute is a way to facilitate attainment of these goals. Question #7 on the survey instrument requested information on the number of students affiliated with C&I activities. Table 9 provides data on the number of students affiliated with C&Is statewide by type of C&I and in terms of the working status of the students.

Table 9
Number of Students Affiliated with C&Is in Florida's Public Universities by Type
and by Working Status
(2000-2001)

Type	Paid Undergraduate	Paid Graduate	Unpaid Undergraduate	Unpaid Graduate	Other	Total
Type 1	58	100	278	392	2	830
Type 2	980	971	250	215	73	2,489
Type 3	142	329	218	63	204	956
Totals:	1,180	1,400	746	670	279	4,275

In total, there were 4,275 students affiliated with the 211 C&Is that responded to this question, or an average of 20 students per unit. Based on these data, it can be seen that a relatively large number of students are involved with the research, teaching and public service activities of C&Is in Florida's public universities. In addition, over 60% of these students (2,580) are receiving income as a result of these activities. The remainder of these students (1,695) are volunteering their time in order to gain required credit for graduation or to gain professional experience to enrich, or otherwise complement, their academic training. In addition, many C&Is report supervising relatively large numbers of students completing Master's and Ph.D. theses that are completed in conjunction with C&I projects and activities.

In addition to the data on the number of students affiliated with C&Is, information was collected on the nature of the activities conducted by students while they were affiliated with C&Is. Question #8 on the survey instrument requested information on the following types of activities that students were requested to work on in conjunction with C&I projects:

- research activities;
- training activities;
- support staff activities;
- public service activities; or
- other activities.

Table 10 shows a breakdown of student activity by type of C&I.

Table 10
Breakdown (percentage) of Students' Activity at Type 1, 2 and 3 C&Is
(2000-2001)

<u>Activity</u>	<u>Type 1</u>	<u>Type 2</u>	<u>Type 3</u>	<u>Total*</u>
Research	26.2 %	35.6 %	40.6 %	37.0 %
Training	16.7 %	15.9 %	19.6 %	17.4 %
Public Service	23.8 %	12.9 %	9.1 %	12.1 %
Support Staff	28.5 %	30.3 %	25.8 %	28.4 %
Other	4.8 %	5.3 %	4.9 %	5.1 %
Totals:	100.0 %	100.0 %	100.0 %	100.0 %*

* **Total represents statewide weighted average (last column) for all Type 1, Type 2 and Type 3 C&Is.**

The column labeled "Total" (last column) shows weighted average percentages for student activities for all Type 1, Type 2 and Type 3 C&Is. From these data it can be seen that an average of 66.5% of student activities (i.e., Research + Training + Public Service) are professionally oriented. These data also suggest that students involved in C&I activities are engaged in substantive activities that will enhance the quality of the educational training provided by academic departments at their universities.

Publications, Presentations and Other Notable Accomplishments

In order to provide a more comprehensive picture and identify other accomplishments of Florida's public university C&I faculty and staff, information was requested on the following activities:

- number of publications (scholarly and other publications);
- number of invited and other presentations; and/or
- number of other notable accomplishments (e.g., conferences/symposia organized; workshops organized or conducted; professional services to committees and other organizations; public service contributions/activities; artistic performances; patents and copyrights).

Table 11 shows the number of reported publications completed during FY 2000-2001.

Table 11
Number of Publications Reported by C&Is in Florida's Public Universities by
Type
(2000-2001)

Type	Scholarly Publications	Average per Unit	Other Publications	Average per Unit	Total
Type 1	464	(26)	2,424	(135)	2,888
Type 2	2,468	(17)	2,019	(14)	4,487
Type 3	674	(6)	799	(7)	1,473
Totals:	3,606	--	5,242	--	8,848

For the purposes of the survey, scholarly publications were identified as publications in peer-reviewed journals, books, book chapters, and other refereed academic publications. Other publications, while typically prepared in a scholarly manner, include curricular/instructional materials, agency reports, extension publications, abstracts, and conference/symposia proceedings.

These data indicate a substantial productive effort in terms of C&I staff, particularly for Type 1 C&Is. Type 1 units had an average annual number of publications of 26 and 135 for scholarly and other publications, respectively. The data further reveal that faculty at Type 1 centers (N=251) produced an average of 1.8 scholarly publications in FY 2000-2001. This finding of relative productivity may reflect the typical entrepreneurial *modus operandi* of many C&I faculty and staff.

Table 12 shows the number of reported presentations delivered during FY 2000-2001.

Table 12
Number of Professional Presentations Reported by C&Is in Florida's Public
Universities by Type
(2000-2001)

Type	Invited Presentations	Average per Unit	Other Presentations	Average per Unit	Total
Type 1	1,085	(60)	1,929	(107)	3,014
Type 2	2,212	(15)	1,655	(12)	3,867
Type 3	705	(6)	503	(5)	1,208
Totals:	4,002	--	4,087	--	8,089

Again these data suggest a high level of productivity on the part of C&I staff in terms of invited and other professional presentations at conferences, symposia, professional meetings and for other purposes. Type 1 C&Is are particularly productive in terms of these functions. Faculty alone (N=251) made an average of 4.3 presentations during FY 2000-01. Type 2 faculty and professional staff (N= 1507) presented an average of 1.5 invited presentations during FY 2000-01.

Table 13 shows the number of selected other notable activities of these C&Is during 2000-2001.

Table 13
Number of Other Notable Activities Reported by C&Is in Florida's Public Universities by Type (2000-2001)

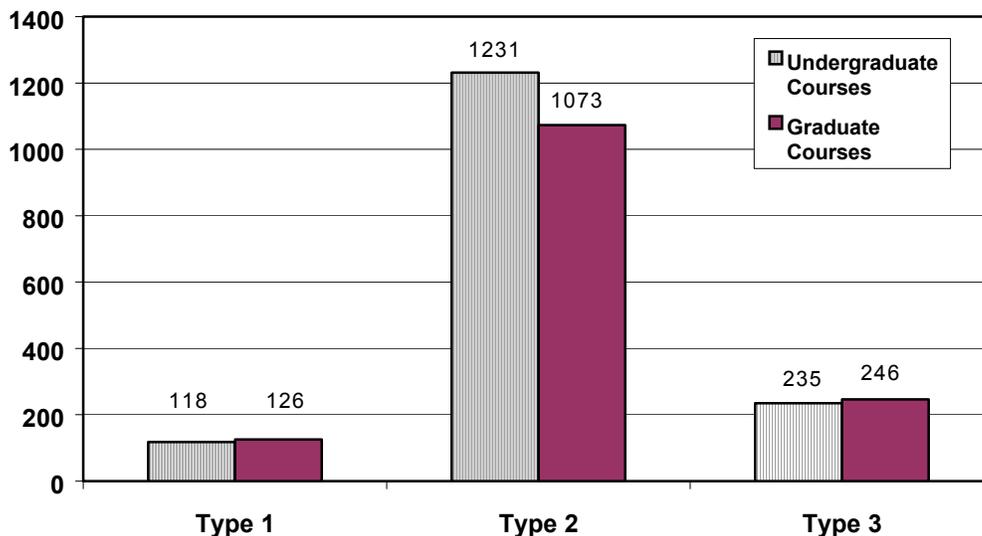
Type	Conf.	Workshops	Pub/Prof Services	Artistic Perform.	Patents+ Copyrights	Other	Total
Type 1	118	3,081	428	7	4	70	3,708
Type 2	506	4,544	2,818	78	103	431	8,480
Type 3	147	403	410	10	20	97	1,087
Totals:	771	8,028	3,656	95	127	598	13,275

These data reported by the C&I directors also suggest a productive effort on the part of C&I faculty and staff in terms of a variety of professional outreach activities. These activities include conferences, workshops, patents and copyrights, public services and artistic performances. For these activities, as well as for publications, presentations and other notable accomplishments, all types of C&Is (including Type 3 C&Is) were found to be highly productive during FY 2000-2001.

Teaching Students and Courses Conducted

An additional measure of C&I productivity, as well as an indication of the contribution of these C&Is to a primary mission of the university (i.e., teaching), is shown by the number of courses taught by C&I faculty. Figure 2 presents data on the number of undergraduate and graduate courses taught by C&I faculty during FY 2000-2001.

Figure 2
Number of Undergraduate and Graduate Courses Taught by Type 1, 2 and 3 C&I Staff



A total of 3,029 courses were reported taught by C&I-affiliated faculty during 2000-2001 by the 230 C&Is responding to this question. It should be noted, however, that the number of courses reported taught by faculty affiliated with a C&I may also be included in departmental activity reports for these C&I-affiliated faculty. The result is that that these data should be interpreted to include all courses taught by C&I-affiliated faculty, both faculty in academic departments and faculty not having an appointment in an academic department. These data do, however, indicate that in addition to the completion of extramurally-funded and state-funded projects, publications, delivering professional presentations and providing public service/outreach services, C&I faculty are also involved with teaching undergraduate and graduate students and supervising, and otherwise contributing to, the completion of Master's theses and Ph.D dissertations.

Self and External C&I Evaluations

Questions # 14 and 15 of the survey instrument requested information on C&I performance based evaluations. Fifty-five percent of respondents (N= 256) to question #14 reported that they had undergone a self-evaluation in fiscal year 2000-2001. Question #15 asked respondents (N=252) if they had undergone an external evaluation of their C&I. An even larger percentage of C&Is reported receiving an external evaluation that year. The options provided in the survey instrument for external evaluations were the following:

- Evaluation by funding agency;
- University-based evaluation; and
- Evaluation by a professional organization.

Table 14 shows the breakdown of external evaluations by kind of evaluation and type of C&I.

Table 14
Number of C&Is Reporting External Evaluations by Type
(2000-2001)

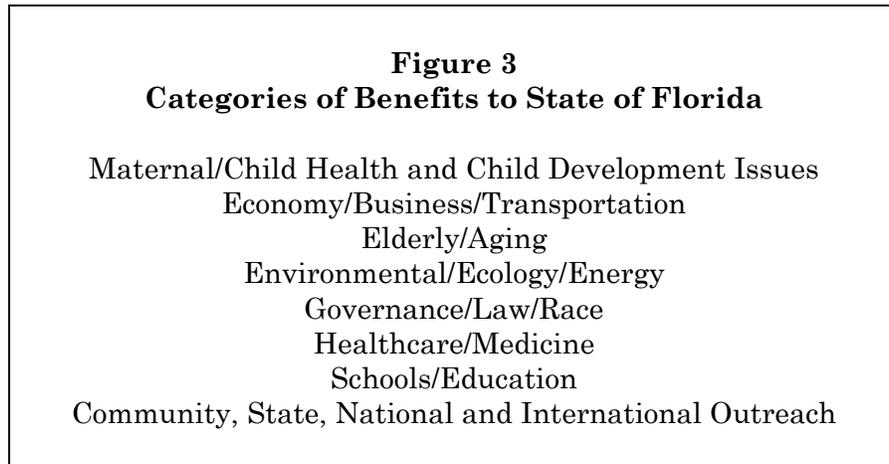
Type	Funding Agency	University Evaluation	Professional Organization	Total
Type 1	11	11	1	23
Type 2	57	71	15	143
Type 3	28	18	7	53
Totals:	96 44%	100 46%	23 11%	219 100%

Further examination of these data reveal that almost half of those C&Is responding included a university-wide review as the external review. Forty-four percent reported receiving a review by their funding agencies and 11 percent reported receiving an evaluation by a professional organization involved with their C&I activities. While many C&Is reported some level of evaluation in 2000-2001, there is no system-wide review of C&I performance in Florida.

Benefits to State of Florida Generated by Centers/Institutes

The final question on the survey instrument requested information from the respondent on the benefits generated by C&Is. This was an “open-ended” question allowing each C&I to identify benefits. The purpose of this question was to provide the reader with an impression of the scope and types of benefits provided by C&Is in Florida’s public universities. While not exhaustive, this information is useful in understanding how these C&Is address some of the more basic needs of the state.

Based on the results of Question #16 on the survey instrument, respondents were provided an opportunity to identify the benefits (both tangible & intangible) generated by their C&I for the State of Florida. In order to organize these 226 responses into both manageable and meaningful information, we divided the responses into eight subcategories. Selected reported benefits have been summarized and listed below the categories. It should be noted that some benefits could be included under more than one category (e.g., benefits related to the elderly/aging and healthcare and medicine). In those instances where it was judged appropriate, a benefit was listed under multiple categories. The resulting assignment of specific benefits is, therefore somewhat arbitrary, but useful nonetheless. Selected responses to Question #16 have been incorporated into the eight categories listed in Figure 3.



Maternal/Child Health/Child Development Issues

provides certification training for child protection workers
research on children with cancer
research on child psychiatry
research on family violence
research and training on children’s healthcare policy
research on the interplay between children, youth and families
research and training on probate and guardianship
research on gender equality, women’s issues & gender diversity
research on the impacts of early childhood intervention mechanisms

Economy/Business/Transportation

provides agricultural training and business management to small farmers
research on manufacturing related businesses and products
development of sophisticated electronic imaging devices
development of new technologies generating economic development & jobs
research on public transportation and alternative transportation, policy and analysis
research and training on agro-forestry issues
research on insurance issues associated with natural and manmade problems
research on supply and demand for housing in Florida
research on Florida's economy and demographics
assistance to and training for Florida entrepreneurs
promotion of technology transfer and commercialization
research on advances in electronic commerce, purchasing and materials supply chain management
research on workers and workplace issues
training students in hospitality and tourism
research on the consequences of transportation in Florida (safety, traffic problems, mobility, air pollution)

Elderly/Aging

research on Alzheimer's disease
research on aging and associated long-term healthcare needs
provision of adult continuing education
research on geriatric dentistry
research on aging and brain repair
technical assistance to the Florida Department of Elder Affairs
general studies on aging for health independence and quality of life

Environmental/Ecology/Energy

research on energy theory, ecological economics and ecological engineering that are the basis for environmental policy
research and training on solid (municipal) and hazardous waste management
research on water resources management
research on sea turtle biology
research on wetlands management and policy formation
research on non-native, intrusive nuisance weeds, plants and other exotics
research on the environmental consequences of building/construction practices
research on the adverse impacts of energy use and alternative, renewable energy sources
research on solar energy and its applications
research on the quantity and quality of fresh water in Florida's natural springs
 research on the environmental impacts from adverse natural phenomena (hurricane, fires, climate change)
research on oceans and systems engineering

Governance/Law/Race

research and training on issues pertaining to governmental responsibility

provides training to Florida's public agency managers
research on public policy issues
research and training on probate and guardianship issues
research on ethnic and racial problems in Florida
provides *pro-bono* legal assistance to a variety of clients
provides technical assistance to state agencies

Healthcare/Medicine

provides HIV education and research
conducts biomedical research, development of diagnostics, drug targets and vaccines
provides technical assistance and training to healthcare professionals in Florida
research on Alzheimer's disease, clinical care for dysphasia, complex swallowing and esophageal disorders, autoimmune diseases, lupus, scleroderma
research on pediatric cancer treatment
research on neural sciences
research on orthopedic specialties
research on microbial pathology
research on gene transfer therapies
research on alcohol and substance abuses
research on geriatric dentistry
research on child healthcare policy formation
research on the impacts of early childhood intervention mechanisms and benefits
research on disease prevention education

Schools/Education

provides curriculum development and technical guidance to K-12 teachers
research on comprehensive school reform mechanisms
provides training on English language education
provides technical assistance to K-12 educators and administrators
provides technical training to students on the use of mathematics for problem solving
research on human-centered computing, artificial intelligence and human:machine interfaces
research on computers and music
provides adult continuing education
research on and provide distance learning and computer-aided instruction
research on university research performance
provides technical training to students in writing and public speaking

Community/State/National/International Outreach

promotes cultural and commercial linkages between Florida and other countries
promotes private sector development in Eastern Europe
promotes international education initiatives
generates funds to support faculty research
provides opportunities for students to perform human rights work around world
provides scholarships and fellowships to graduate students

provides employment opportunities for graduate students
provides scientific training for graduate students
investigates historic archaeology
supports historical preservation
promotes integration of the arts into university and community life
develops new graduate business programs
trains and conducts policy analysis for state agencies to develop anti-terrorism/counter-
terrorism policies and procedures
supports graduate students with center generated external funds

Findings and Conclusions of the Survey

Below are survey findings and conclusions based upon a return of 269 questionnaires (out of 512 sent to center and institute directors - a 52.5% response rate)

On average, C&Is in Florida's public universities are approximately 14 years old.

1. The most common discipline areas addressed by these C&Is include Engineering, Environmental Sciences, Life Sciences, and Social Sciences. Many C&Is indicated that they utilize a "multi-disciplinary" approach for addressing their work.
2. In terms of the breakdown of general activities at these C&Is, about 50% are allocated to research (basic + applied), approximately 30% of their effort is allocated to teaching and instructional activities, and the remainder (about 20%) is allocated to public service and public outreach activities.
3. A substantial number of part-time and full-time tenure track faculty (911) participate in C&I activities.
4. A relatively large number of students (4,275) including a high percentage of interns and unpaid volunteers are affiliated with C&Is in Florida's public universities. Almost two-thirds (66.5%) of their time is spent conducting research with center faculty, teaching or public service activities. Approximately 33.5% is spent conducting support staff and other activities.
5. C&Is are relatively productive in terms of scholarly publications (3,606 during FY 2000-2001) and other types of publications (5,242 during FY 2000-2001).
6. In terms of invited professional presentations, Florida's public university C&I faculty and staff made approximately 4,002 invited presentations, plus an additional 4,087 presentations at conferences, symposia, workshops and other meetings during 2000-2001.
7. C&Is reported other notable accomplishments (e.g., organization of conferences, workshops, public service activities, artistic performances and other accomplishments) amounting to 13,275 activities during FY 2000-2001.
8. C&I faculty taught approximately 3,029 undergraduate and graduate courses during 2000-2001, thereby making direct and significant contributions to the teaching mission of the university.
9. Approximately half of C&Is reported conducting self-evaluations of organizational progress using performance measures. In addition, many centers and institutes also report receiving external evaluations from funding agencies, their host university and from professional organizations.
10. While C&Is are commonly referred to as research organizations, it is clear that faculty and staff affiliated with these C&Is also are teaching and mentoring students, providing public outreach and service and conducting many other important and

notable activities for their host universities, their communities and for the citizens of the state of Florida.

11. Based on the survey responses to survey Question #16 (describe the benefits generated by your center/institute), it is clear that centers and institutes in Florida's public universities are addressing many of the state's most fundamental and high priority problems related to:

- Children's Health and Childhood Development Issues ;
- Maternal and Family Issues;
- Florida's Economy;
- Business Issues in Florida;
- Highways and Transportation Issues;
- Elderly (Aging) Issues;
- Population and Housing Issues;
- Environmental and Energy Issues;
- Governance, Law and Race Issues;
- Healthcare (Medicine) Issues;
- Schools and Educational Issues;
- Community, State, National and International Outreach Issues.

IV. ECONOMIC IMPACT OF CENTERS AND INSTITUTES IN FLORIDA'S PUBLIC UNIVERSITIES

Introduction

This chapter describes the impact of public postsecondary centers and institutes (C&Is) on Florida's economy. It measures the increase in employment and economic output generated by C&I activities across the broader statewide economy. The net economic stimulus from C&Is is estimated by summing C&I external and internal expenditures for FY 2000-01. External expenditures include contracts and grants (government and private sponsors), auxiliary fees/services, and other external sources. Internal expenditures include all state (SUS-appropriated) expenditures. The sum of these dollars represents all C&I expenditures used for salaries, materials and equipment, travel and all other C&I expenditures (see Table 1).

These expenditures were then put into a Florida regional input-output model that includes cross linkages between every sector of the Florida economy. As C&Is expend dollars, further demand for goods and services across other sectors of the Florida economy are generated. The direct C&I spending creates a secondary "multiplier" cycle of spending that further increases income, jobs and total state economic activities referred to as state output. This analysis measures those direct and indirect economic increases flowing from C&Is based on the initial FY 2000-01 expenditure data. This study did not quantify the intangible benefits generated by the presence of C&Is to the local economy, such as teaching and instruction, quality of life enhancements, cultural opportunities, intellectual stimulation (through publications, presentations, public service), and creation of spin-off companies, among others. The intangible benefits of C&Is are discussed in other chapters of this study.

The definition of C&I economic impact is the difference between existing economic activity in Florida and the level of economic activity that would exist in the absence of university C&Is. Since the C&Is already exist, we measured their impact on the state economy by first removing them from the economy. The difference between the economy with C&Is and the economy without C&Is represents the net C&I economic impact. By using the Regional Economic Model, Inc. (REMI, 2000) analysis, we capture and present the positive net economic impacts of C&Is on the state of Florida. Measured economic impacts include increases in:

- 1) Florida Gross Regional Product (or State Output)
- 2) Personal Income (Including Wages)
- 3) Number of Jobs Created

Short-term economic impacts are the net changes in regional output, earnings, and employment that are due to new dollars entering into a region from a given enterprise or economic event. In this study, the enterprise is the state university C&Is, and the region is Florida. The effects of expenditures external to Florida (termed leakages) are not included in the impact estimates.

**Table 1
C&I Expenditures by Funding/Expenditure Category FY 2000-01**

C&I Expenditures	SUS-Appropriated Expenditures	External Expenditures	Total Expenditures
Faculty Salaries	\$50,870,097	\$71,219,373	\$122,089,470
Special Category*	\$7,237,254	\$13,722,391	\$20,959,645
Electrical	\$2,550,269	\$349,814	\$2,900,083
Operating Expenses	\$5,532,500	\$15,152,070	\$20,684,570
Other**	\$4,855,875	\$31,422,080	\$36,277,955
Graduate Salaries	\$3,116,185	\$10,702,919	\$13,819,104
House Staff***	\$5,737	\$571,339	\$577,076
Total	\$88,782,428	\$212,706,561	\$301,488,989

- * Includes libraries and data processing
- ** Includes primarily sub-contracts
- *** Includes salaries and other for UF and USF medical staff and centers

The REMI Model

REMI, 2000 is a widely accepted and used dynamic integrated input-output and econometric model. REMI is used extensively to measure proposed legislative and other program and policy economic impacts across the private and public sectors of the state by the Florida Joint Legislative Management Committee, Division of Economic & Demographic Research, the Florida Department of Labor and other state and local government agencies. In addition, it is the chosen tool to measure these impacts by a number of universities and private research groups that evaluate economic impacts across the state and nation.

The REMI model used for this analysis was specifically developed for the state of Florida, and includes 172 sectors (see Appendix H for a detailed listing of 172 sectors used in REMI analysis). REMI's principal advantage is that it can be used to forecast both direct and indirect economic effects over multiple-year time frames. Other input-output models primarily are used for a single year analysis.

Methodology

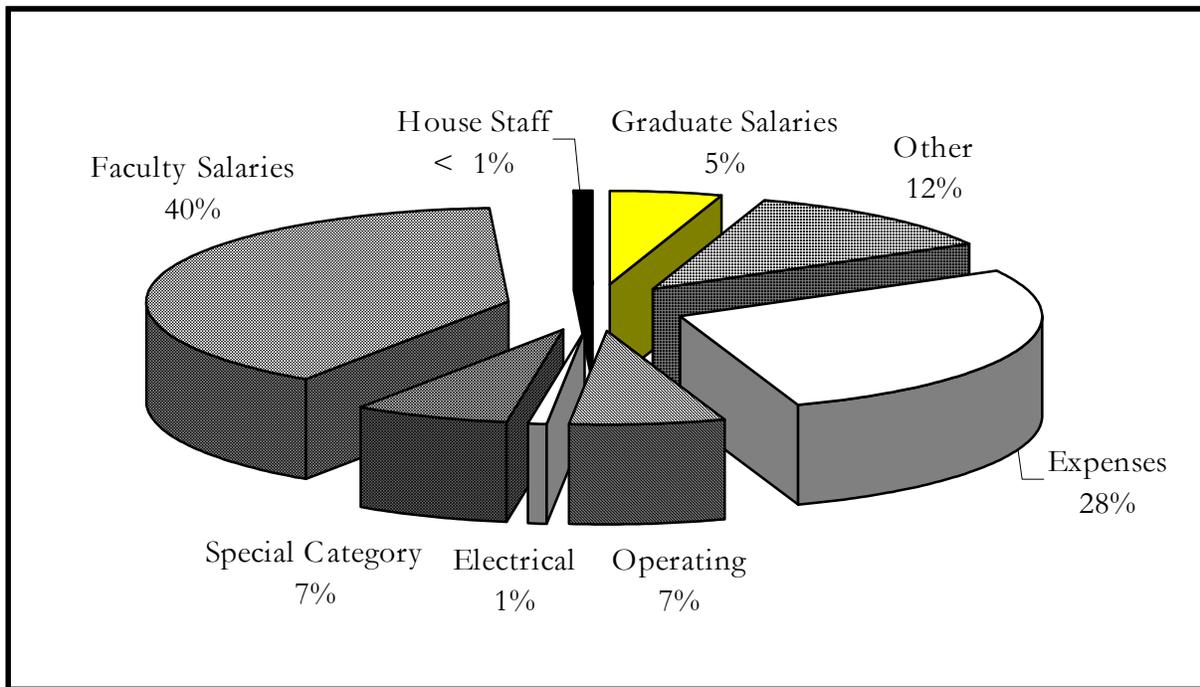
As a part of our modeling strategy, we examined both the revenue and the expenditure approach regarding the impact of C&Is on the Florida economy. The revenue approach allows the REMI model to redistribute the expenditures according to sectors (based on actual historical data). For the expenditure approach, C&Is' actual FY 2000-01 expenditures were used to calculate the economic impact. This approach allowed us to achieve a greater level of detail by capturing the detailed economic impacts of the system

via the specific expenditure path using actual data rather than the estimated paths provided by the REMI model. Thus, the expenditure approach was the selected method for this analysis.

Staff evaluated the economic impact of C&Is across the Florida economy from the expenditure approach perspective. The expenditure approach disaggregates the various C&Is direct expenditures (e.g., salaries, equipment purchases, travel, etc.) by specific economic sector to calculate the economic impacts. The data on FY 2000-01 C&I expenditures were collected from each SUS institution and from the annual C&I expenditure reports submitted to the Division of Colleges and Universities (DCU).

Table 1 presents the C&I expenditures and the breakdowns for FY 2000-01 by funding/expenditure category. Figure 1 provides a percentage breakdown of the budget categories in terms of total expenditures. For the purpose of this analysis, the funding/expenditure categories used were SUS appropriated expenditures and (all) external expenditures.

Figure 1
Percent of C&I Expenditures by Budget Category, FY 2000-01



Model Assumptions

This report provides estimates of only the direct, pecuniary/financial benefits (or “return”) generated for the state (income, employment, taxes) as a result of the “investments” that the state makes in C&Is via SUS-appropriated funds through the Florida Legislature. The “returns” that are estimated using this analysis are exclusively associated with external

contracts, grants and other awards brought into the universities by C&Is during fiscal year 2000-01. This analysis *excludes* “returns” to the state that are not financial benefits (these are known as “*non-pecuniary/non-market*” or “*intangible*” benefits). These intangible benefits include those associated with the teaching, research and public service activities of C&Is. Therefore, the assumptions used to estimate the economic return to the state through its investments in C&Is in this report can be characterized as conservative.

It is important, however, to recognize that the benefits to the state of Florida associated with these C&I intangible benefits (e.g., value of new medications or high tech products produced and commercialized, quality of life enhancements, teaching, research, publications, presentations, public service, and a host of other cultural and amenity values) are significant. The amenity values or benefits to the community by having a research university present (and enhanced by the multi-faceted activities of C&Is) can also be significant.

The model assumptions are:

- 1) The base model assumes a constant rate of growth for the economy;
- 2) The expenditure approach model used actual FY 2000-01 C&I expenditures (by category: salaries, expenses, etc.) for Type 1, 2, 3 C&Is and Type 1, 2 C&Is;
- 3) Total SUS state investment (expenditures) in FY 2000-01 was \$88.8 million;
- 4) This state investment leverages an additional \$212.71 million in additional external contracts and grants, fees and private expenditures yielding a total of \$301.49 million in FY 2000-01 for all expenditures made by C&Is statewide.
- 5) We assumed that, in the absence of C&Is, the SUS investment (\$88.8 million) would be reallocated to other Florida higher educational activities; and;
- 6) REMI results were expressed in terms of impacts on GRP, employment, personal (disposable) income, and state tax revenues.

Results of the REMI Analysis

Staff assumed that in the absence of C&Is, the initial state investment (\$88.8 million) would be reallocated to other higher education activities. As our modeling strategy, we used the university C&Is’ expenditures to calculate the economic impact via specific expenditure paths. Two scenarios were run, the first including Type 1, 2, 3 C&Is, and the second including Type 1 and 2 C&Is, only. The results were expressed in fixed 1992 dollars. To update the results to a FY 2000-01 base year, the dollars were inflated using a REMI-generated Consumer Price Index. Based on the results of the expenditures data input in the REMI model, discounting analysis (using a discount rate of 3%) was used to present the economic impacts from FY 2000-01 to FY 2034-35 (See Appendix H for a description of discounting methodology). The following results present the positive net economic impact of C&Is on the State of Florida economy.

Table 2 summarizes the total economic impact of C&Is on the Florida economy. The table shows the economic impacts (for Type 1, 2, 3 and Type 1, 2 C&Is) on employment, gross regional product (GRP), real disposable income (Wages), and taxes from the C&I external expenditures for FY 2000-01. Gross Regional Product (GRP or state output) is the dollar value of final goods and services produced across the Florida economy over the FY 2000-01 time period.

Table 2
Results of REMI Analyses: Employment, Output (GRP), Disposable Income (Wages) and State Taxes Attributable to C&Is Expenditures

Summary of REMI - Generated Expenditure Approach Results For Types 1, 2 & 3 C & Is (2001-2035)	
Net Present Value of GRP	\$269,416,041
Net Present Value of Taxes	\$18,162,728
Net Present Value of Wages	\$243,924,273
Number of Jobs*	6,955

Summary of REMI - Generated Expenditure Approach Results For Type 1 & 2 C & Is (2001-2035)	
Net Present Value of GRP	\$158,819,204
Net Present Value of Taxes	\$10,706,824
Net Present Value of Wages	\$145,233,082
Number of Jobs*	4,112

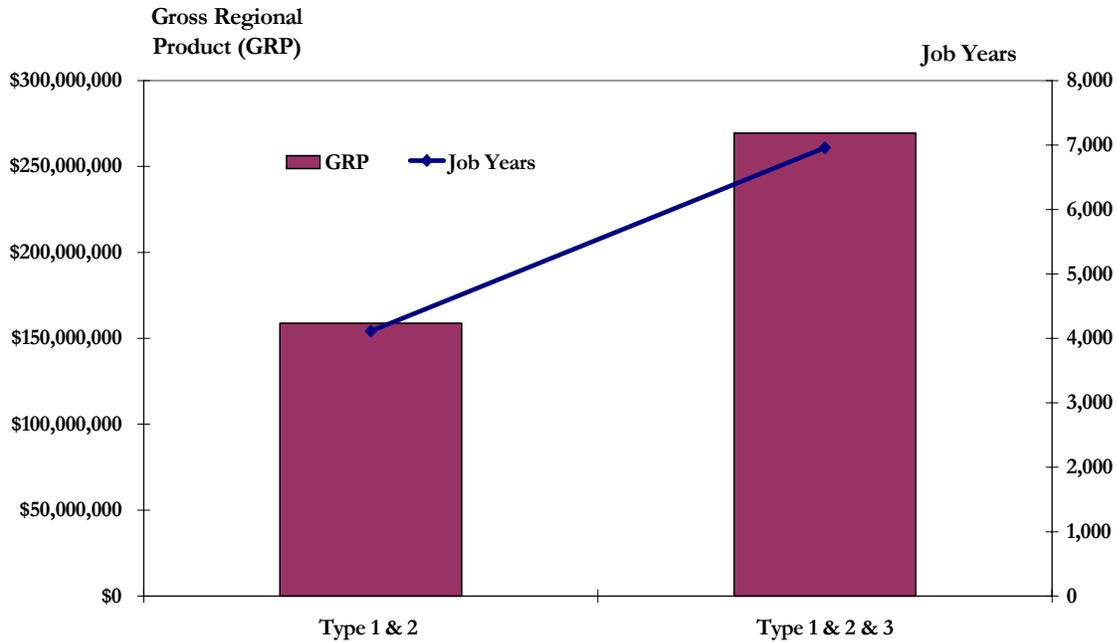
***Note:** REMI output results of for employment are in terms of job years (one job/year)

As also depicted in Figure 2, for Type 1, 2, 3 C&Is, GRP was estimated to increase by \$269 million from C&I expenditures from external funding sources. This C&I-generated rise in state output created considerable direct and indirect increases in employment across the state. Table 2 indicates that 6,955 jobs were created from these spending increases. In turn, this employment increase also generated higher wage and salary earnings. Table 2 illustrates that direct and indirect personal (or disposable) incomes increased by \$244 million from these C&I externally funded research grants and awards.

For Type 1, 2 C&Is, as also shown in Figure 2, GRP was estimated to increase by \$159 million from C&I externally funded spending. This C&I-generated rise in state output created considerable direct and indirect increases in employment across the state. Table 2 indicates that 4,112 jobs were created from these spending increases. In turn, this employment increase also generates higher wage and salary earnings. Table 2 illustrates that direct and indirect personal (or disposable) incomes increased by \$145 million from these C&I externally funded research grants and awards.

Finally, these increases in state output also resulted in higher state tax yields. On average, for each \$1,000 of GRP generated in 2000-01, the Florida Department of Revenue (DOR) estimates that it collected \$67.42 across all taxes (State, Local and Other). Based on the results of the REMI model, and using existing tax coefficients, the impact on tax revenues was calculated. These estimates provide a numerical basis for calculating the potential statewide average taxes generated as a result of SUS C&Is direct and indirect expenditures throughout the Florida economy.

Figure 2
FY 2000-2001 C&I Economic (GRP) and Employment Results



Return on Investment and Benefit/Cost Ratio Calculations: An Explanatory Note

The calculations of the Return on Investment (ROI) and the Benefit/Cost Ratio utilize the same initial numerical data for the numerator and the denominator – however, the B/C ratio is expressed as a ratio of two numbers, while the ROI is most commonly expressed as a percentage by multiplying the ratio by 100. The B/C ratio is an expression most commonly used for economic evaluations (i.e., by economists), while the Return on Investment is more commonly used for financial evaluations (i.e., by business-oriented professionals). However, both are equivalent ways to express the relationship between cost (initial investment) and benefit (or return).

Return on Investment Analysis

The Legislature directed the Council to assess the “return on the state’s investment in research conducted by public postsecondary institutions”. A focus of this assessment is on “research” centers and institutes (C&Is) in Florida’s public universities. A classic text- book approach for calculating return on investment (ROI) involves an arithmetic comparison of the initial investment with the value of the net benefits or returns resulting from that investment.

Annualized Return on Investment Using the Initial FY 2000-01 Expenditure Input Data: A Preliminary Estimate

Using the initial year (FY 2000-01) data as input for calculating a preliminary ROI, staff initially estimated the ROI to be approximately 240%. The C&I ROI calculation utilized all externally funded research expenditures (regardless of source) during FY 2000-01 as the return to the state (\$212,706,561) from its investment (of \$88.8 million). This ROI implies that for each dollar the state invested in C&Is in FY 2000-01, the state realized a return of \$2.40 (using only the total expenditures from external sources that were “leveraged” as a result of the state’s initial investment).

The amenity value that C&Is add to the state – through services such as education, research, public education, and fine arts, among others, makes Florida more attractive to encourage in-migration. In addition, employment opportunities and other economic factors affected by Florida’s C&Is also encourage in-migration. These effects increase population by 1,511 (for 2000-01) in Florida.

Return on Investment Using REMI-Generated Input Data: A More Comprehensive Estimate

The REMI model, however, allows for a more robust estimate of the ROI using discounted data, present valued over a 35-year period. Given the known dynamic nature of the REMI model, the calculated value of the 35-year ROI estimate was less than the FY 2000-01 annualized ROI estimate as was anticipated ($ROI_{REMI} = 217\%$ for Types 1, 2 and 3 C&Is; $ROI_{REMI} = 128\%$ for Types 1 and 2 C&Is). This ROI estimate implies that for each state dollar invested in C&Is (multiplied and discounted over a 35-year period), the state realizes a return of \$2.17.

Benefit Cost Analysis

The “benefits” to the state of Florida from a conservative perspective were defined as the amount leveraged by the state’s investment (i.e., all external expenditures). The “costs” to the state of Florida were defined as the initial state investment (\$88.8m) assumed to be redistributed to alternative higher education spending (i.e., a measure of the opportunity cost). The REMI model calculated the 35-year, multiplied net present value of the opportunity cost of the initial state investment of \$88.8 million to be \$124 million. In summary, if funding for C&Is were reallocated across Florida’s higher education system, the state economy, according to REMI output results (See Table 2), would result in a decline of \$269.4 million (with an overall net decline of \$145 million in GRP and 4,502 in jobs).

- Benefit to the state = \$269.4 million;
- Cost to the state (opportunity cost of \$88.8 million) = \$124 million;
- $B/C_{REMI} = 2.17$ (Type 1, 2 and 3)

Chapter Summary

The results of the economic analysis using the REMI model indicated that C&Is contribute significantly to the Florida economy. The economic benefits extend to job creation; generation of GRP, personal income and state taxes, from the expenditures made by all types of C&Is. The following are the primary contributions that are attributable to C&I expenditures from all funding sources in Florida:

- For every \$17,829 spent by the state of Florida on C&Is, one job is created;
- The external funds generated by these C&Is leverage an additional 6,955 jobs;
- For every dollar of state support spent on C&Is, GRP increases by \$2.17;
- For every dollar of state support spent on C&Is, income increases by \$1.96;
- Given the FY2000-01 state investment, C&Is expenditures results in additional \$18 million in tax revenues;
- The ROI_{REMI} for Types 1, 2 and 3 C&Is is 217%;
- The ROI_{REMI} for Types 1 and 2 C&Is is 128%;
- The B/C_{REMI} for SUS C&Is is 2.17;
- The benefits of SUS Centers and Institutes are substantially greater than the state of Florida investment cost.

V. CENTERS AND INSTITUTES: CONCLUSIONS AND RECOMMENDATIONS

University centers and institutes defy easy classification. The rise of centers and institutes nationwide directly parallels the large increase in federal funding for university research in the 1950s and 1960s. As government agencies and private companies realized that intellectual capital could become as valuable as financial capital through the patenting and marketing of university research, they turned increasingly to C&Is for help. Many C&Is have become laboratories for scientific inquiry and technological development, as well as engines of economic growth for their communities and surrounding regions.

The Council conducted a nationwide review of the literature (studies, reports, surveys, articles, etc.) pertaining to university centers and institutes. In addition, staff conducted in-depth analyses of C&I organization and activities at 14 SUS peer institutions and analyzed the state-level policies regarding C&I establishment, funding and evaluation with 13 state governing boards. In general, the findings revealed that, with some exceptions, the decision to establish, evaluate, and disband centers and institutes is made at the institutional level. The reviews revealed that none of the states or universities contacted required all university C&Is to submit an annual report to a state governing board or legislative body. Only three of the peer universities had some C&Is that were established by the state legislature while three peer universities required certain C&Is to be formally approved by either the state legislature or by the state governing board. Such C&Is were typically large, multi-disciplinary, multi-funded entities with statewide or national missions. The definition, classification, and evaluation of C&Is varied considerably from institution to institution and from state to state, but was typically part of a decentralized process. Nonetheless, the majority of peer institutions included in the review conducted some type of regular, performance-based evaluation of their C&Is at the university level.

In Florida, C&Is are generally considered research entities, but they also engage in instruction and public service activities. Because there is currently no statutory definition of a university center or institute, the Council focused this study on the Type 1, 2 and 3 C&Is located at the 10 state universities (New College of Florida was not included in this analysis). According to the only existing state policy regarding centers and institutes, C&Is are established “for the purpose of coordinating intra-and/or inter-institutional research, service and training activities that supplement and extend existing departmental instruction, research and service programs” (Chancellor’s Memorandum 1/19/99). There are many centers, institutes, laboratories and programs that exist outside the formal Type 1, 2, and 3 center nomenclature. As centers and institutes have proliferated within the SUS over the last few decades, the existing taxonomy has become progressively less meaningful or descriptive of C&I mission, activities, or funding.

C&Is can be established by a university or by the legislature. Regardless of their classification or how they are established, all C&Is must currently submit an annual report to the Division of Colleges and Universities (DCU) that contains basic fiscal and directory information. The purpose of the annual report is to ensure that the activities and budget of the C&Is fit into the overall mission of the university and discipline with which the C&I is affiliated. Type 1 and 2 centers and institutes must also submit a narrative component (program goals and accomplishments) to the DCU. The narrative provides descriptive information, but does not contain evaluative elements that can be compared or analyzed

over time. In short, the annual reports are not used by the universities or the DCU to routinely evaluate, fund, continue, or disband C&Is. The level of interest in, support for, and scrutiny of C&Is throughout the SUS varies by institution. As a result of this study on centers and institutes, several SUS institutions have begun to assess their policies and procedures for establishing, evaluating, and disbanding centers and institutes. As a general rule, university administrators and deans are reviewing the activities of C&Is as part of their institution's strategic plans to maximize university resources, effectiveness and productivity.

The Council's review was based on C&I activities and expenditures in FY 2000-01. During that year, 512 C&Is located at the 10 state universities conducted a variety of research, instruction, and public service activities. As within the larger university, these activities are closely related. Many C&Is are organized to address a broad range of topics and activities across discipline areas and often serve as the point of contact between the larger community and the university.

During FY 2000-01 Florida's public postsecondary C&Is expended a total of \$301,488,989. These funds were generated from a combination of internal and external sources. Thirty percent of all C&I expenditures that year were generated by state funds. Approximately 55 percent of C&I external expenditures originated from federal funding agencies. The second largest source of external expenditures was state and local government sponsors (28%) while private business and industry contributed nine percent of total external C&I expenditures that year. The majority of C&Is (79%) had total expenditures of less than \$1 million in FY 2000-01.

After reviewing the annual C&I reports submitted to the Division of Colleges and Universities, staff determined that a survey was needed to gather additional data/information on C&I organization and activities. Although response to the survey was voluntary, 269 C&Is responded via the internet for a response rate of 52.5 percent. The survey results revealed that in terms of C&I activities, approximately 50 percent of effort was allocated to basic and applied research, approximately 30 percent of effort was allocated to teaching and instructional activities, and the remainder (about 20%) was allocated to public outreach activities. The survey data indicated a productive effort in terms of C&I staff, particularly for Type 1 C&Is. In FY 2000-01, Type 1 units averaged 26 scholarly (books, refereed articles) publications and 135 other publications (e.g., curricular /instructional materials, agency reports, conference proceedings). A total of 3,029 courses were reported taught by C&I affiliated faculty during FY 2000-01. A substantial number of part-time and full-time tenure track faculty (911) participated in C&I activities. A relatively large number of students (4,275) were affiliated with C&Is with almost 2/3 of their time spent conducting research with center faculty, teaching or participating in public service activities. Fifty-five percent of respondents reported that they had undergone a self evaluation in FY 2000-01 while an even larger number of respondents reported some type of external review (university wide, funding agency, professional organization) that year. Survey respondents were provided an opportunity to identify the benefits (both tangible and intangible) generated by the C&I for the State of Florida. Staff incorporated the responses into eight broad categories that revealed the extent to which C&Is are working on issues that are critical to Florida's future and the well-being of its citizens.

To measure the economic impact of C&Is on Florida's economy (the difference between the economy with C&Is and the economy without C&Is) staff used the Regional Economic Model, Inc. (REMI, 2000). REMI is a widely accepted and used dynamic integrated input-output and econometric model. REMI is used extensively to measure proposed legislative and other program and policy economic impacts across the private and public sectors of the state. The results of the REMI analysis revealed that C&Is perform a significant role in the state of Florida economy. Specifically, for every \$17,829 spent by the state of Florida on C&Is, one job is created. The external funds generated by C&Is leverage or generate an additional 6,955 jobs statewide. For every dollar of state support spent on C&Is, GRP increases by \$2.17; for every dollar of state support spent on C&Is, real personal income increases by \$1.96. Given the state's FY-2000-01 investment, C&I expenditures resulted in an additional \$18 million in tax revenues. The REMI model generated a return on investment of 217 percent.

Based on the findings noted above, Council staff determined that Florida's public postsecondary C&Is are cost-effective and productive settings for addressing many of the state's most fundamental and high priority concerns. C&Is are adept at leveraging state dollars into lucrative contract and grant funding that supports the majority of their research, public service, training and instruction activities. For every state dollar spent on C&I activities in FY 2000-01, C&Is expended \$2.40 in external funding. The economic benefits of C&Is extend broadly throughout the state to job creation and the generation of substantial amounts of GRP, personal income and state taxes. Because they are typically more flexible and entrepreneurial than academic departments, C&Is respond more rapidly to issues and problems across discipline boundaries. At the same time, some C&Is are not as well integrated into the "ethos of accountability" that applies to other academic units that receive greater and more systematic institutional review and evaluation. Based on the findings contained in this study, the Council makes the following recommendations designed to maximize the effectiveness of Centers and Institutes while providing for greater review and accountability at the institutional and state level.

Recommendations:

1. ***Chancellors Memorandum: CM-C-07.00-01/99 should be abolished. The current categorization (Type 1, 2, 3) for State University Centers and Institutes should be discontinued and replaced with the following functional categories: State of Florida Centers and Institutes; and University Centers and Institutes. This should occur in conjunction with the following actions:***
 - A. ***The Council of Academic Vice-Presidents (CAVP) should convene and review all currently classified Type 1 C&Is to determine if those entities are: 1) Achieving, or are making progress toward achieving, their statewide mission; 2) Have established working relationships with two or more SUS universities; and, 3) Are successful in leveraging (as established by the CAVP) external funding support. Former Type 1 C&Is that meet these criteria should be reclassified as State of Florida Centers and Institutes. The Legislature should provide adequate funding for those entities to meet the statewide missions for which they were created.***

- B. The CAVP should recommend for approval by the Chancellor of the Division of Colleges and Universities, well-defined policies for establishing, designating, evaluating, and disbanding State of Florida Centers and Institutes. The CAVP should establish a review cycle that will allow each State of Florida Center or Institute to be evaluated every 3 years using a formal professional process to determine if they should continue their status or be reclassified as a University Center or Institute. The evaluation process and specific evaluative criteria used by the CAVP should consist of commonly accepted professional standards and performance-based outcomes. Various examples of evaluative standards and outcomes are contained in the body of this study. Staff of the Division of Colleges and Universities (DCU) should assist the CAVP in this endeavor.*
- C. All existing Type 2 and 3 Centers and Institutes in the State University System should be re-classified as University Centers and Institutes. Each university should develop and publish clearly defined policies for the establishment, evaluation and discontinuance of University Centers and Institutes. The evaluation process and specific evaluative criteria used by the universities should consist of commonly accepted professional standards and performance-based outcomes. Various examples of such standards and outcomes are provided in the body of this study. All University Centers and Institutes should receive a formal professional evaluation at least once every five years to determine if they should continue as a University Center or Institute, be classified as inactive, or be discontinued.*
- 2. All State of Florida and University C&Is should maintain an up-to-date website that includes minimum directory and fiscal information, the date of the most recent C&I evaluation, and a link to where the results of that evaluation may be requested and obtained. Each university should maintain an up-to-date informational/directory web site on its C&Is with links to the individual C&I web sites.*
 - 3. University Centers and Institutes should no longer be required to submit an annual report to the Division of Colleges and Universities. Using a procedure developed by the DCU, each university should provide basic descriptive and contact information to the DCU for all of its State of Florida Centers and Institutes and for all of its University Centers and Institutes by October 1 of each year. The nature of the basic descriptive and contact information should be determined by the DCU. Such information should include but not be limited to the following:*
 - Name of the Center or Institute*
 - Name of the Director*
 - Contact information, including telephone number, fax number, mailing address, and e-mail address of director*
 - The approved mission of the Center or Institute*

- *The total funds expended, by funding source (SUS appropriated, Contracts and Grants, Private, Other, and Auxiliary/ Fees) by the C&I during the previous three fiscal years*
- *Date of Last Evaluation (a link should be available for requesting and obtaining the results of the most recent C&I evaluation)*

The DCU should maintain this data in its statewide database and on its website.

4. *The DCU should provide the basic descriptive and contact information on all Centers and Institutes to the Leadership Board for Applied Research and Public Service (LBARPS). The LBARPS should process and display that information on its ExpertNet Website. The ExpertNet Website should be linked directly to the website of each State of Florida Center and Institute and active University Center and Institute. The director of each C&I may augment this basic information with additional data on faculty expertise and accomplishments through the ExpertNet website. The LBARPS should increase its efforts to make information and data about C&I activities and faculty available to policy makers and government entities throughout Florida. This Website should provide information on how interested parties can request access to the latest formal evaluation of any center or institute.*

APPENDICES

Appendix A
Public Postsecondary Centers and Institutes FY 2000-01

Public Postsecondary Centers and Institutes FY 2000-01

FAMU (n=19)

Type 1

Institute on Urban Policy and Commerce
Small Business Development Center (Affiliate)

Type 2

Black Archives, Research Center and Museum
Center for Community Development and Research
Center for Environmental Equity and Justice
Center for Viticulture Science and Small Farm Development
Center for Water Quality
Environmental Sciences Institute
Florida-West Africa Linkage Institute (Affiliate)
Institute for Building Sciences
Institute for the Study of Interfaces
Institute of Public Health
Learning Development and Evaluation Center
Research Center for the Study of African American Families
Translation and Critical Languages Center

Type 3

Center for Community Education
Cooperative Institute for International Policies Research and Education
Florida A&M Center for Environmental Technology Transfer (FAMCETT)
Multicultural Education Center

FAU (n=30)

Type 1

Florida Center for Environmental Studies
Small Business Development Center (Affiliate)

Type 2

Center for Applied Stochastics Research
Center for Complex Systems and Brain Sciences
Center for Molecular Biology and Biotechnology
Communications Technology Center
Florida Center for Electronic Communication

Florida-Israel Linkage Institute
Institute for Ocean and Systems Engineering
Joint Center for Environmental and Urban Problems
Stuart-James Business Advisory Services Center
The Center for Urban Redevelopment & Empowerment (The CURE)
Women's Studies Center

Type 3

Alloy Research Center
Carl DeSantis Business and Economics Center for the Study and Development of the Motion Picture.
Center for Acoustics and Vibrations
Center for Economic Education
Center for Hydrodynamics and Physical Oceanography
Center for Infrastructure and Constructed Facilities
Center for Marine Materials
Center for Marine Structures and Geotechniques
Center for Services Marketing and Management
Center for VLSI and Systems Integration
Christine E. Lynn Center for Caring
Ernest O. Melby Community Education Center
Florida Institute for Career and Employment Training
Intensive English Institute
Public Procurement Research Center
Robotics Center
South Florida Center for Educational Leaders

FGCU (n=3)

Type 1

Small Business Development Center (Affiliate)

Type 2

Center for Leadership and Innovation
Southwest Florida Interdisciplinary Center on Positive Aging

FIU (n=50)

Type 1

Center for Labor Research and Studies
Institute of Government (Affiliate)

International Hurricane Center

Type 2

Biomedical Engineering Institute

Cardiovascular Engineering Center

Center for Advanced Distributed Systems Engineering

Center for Advanced Technology and Education

Center for Banking and Financial Institutions

Center for Economic Research and Education

Center for the Administration of Justice

Center for the Study of Matter at Extreme Conditions

Center for Transnational and Comparative Studies

Center for Urban Education and Innovation

Center for Youth Development

Center on Aging

Child and Family Psychosocial Research Center

Cuban Research Institute (CRI)

Florida Center for Analytical Electron Microscopy

Hemispheric Center for Environmental Technology

Institute for Judaic Studies and Near Eastern Studies

Institute for Lifelong Learning

Institute for Public Management and Community Services

Institute for Public Policy Opinion Research

International Forensic Research Institute

Jack D. Gordon Institute for Public Policy and Citizenship Studies

Joint Center for Environmental and Urban Problems (affiliate)

Latin American and Caribbean Center

Manufacturing Research Center

National Policy and Resource Center on Nutrition and Aging

Ryder Center for Logistics

Southeast Environmental Research Center (SERC)

Summit of the Americas Center

Telecommunications and Information Technology Institute

Women's Studies Center

Type 3

C & F Professional Development Center

Center for Accounting, Auditing, and Tax Studies

Center for Management Development
English Language Institute
Florida-Caribbean Institute
Florida-Mexico Institute
Future Aerospace Science and Technology Center for Space Cryoelectronics
High Performance Data Research Center
Institute for Hospitality and Tourism Education and Research
Institute for Workforce Competitiveness
Institute on Children and Families at Risk
International Media Center
Jerome Bain Real Estate Institute
Knight Ridder Center for Excellence in Management
Lehman Center for Transportation Research
Life Course and Health Research Center

FSU (n=84)

Type 1

Collins Center for Public Policy
Florida Institute of Government

Type 2

Center for Academic Services and Distance Learning (CASDL)
Center for Biomedical and Toxicological Research and Hazardous Waste Management
Center for Family Services
Center for Marriage and Family Therapy
Center for Music Research
Center for Ocean-Atmospheric Prediction Studies (COAPS)
Center for Performance Technology
Center for Prevention and Early Intervention Policy
Center for Professional Development and Public Service
Center for the Advancement of Human Rights
Center for the Study of Population
Center for the Study of Teaching and Learning
Department of Nuclear Services
DeVoe L. Moore Center for the Study of Critical Issues in Economic Policy and Government
Florida Conflict Resolution Consortium
Florida Government Performance Survey Research Center

Florida Resources and Environmental Analysis Center (FREAC)
Florida State University Family Institute
FSU Sensory Research Institute (SRI)
Geophysical Fluid Dynamics Institute
Gus A. Stavros Center for the Advancement of Free Enterprise and Economic Education
Information Use Management and Policy Institute
Institute for Academic Leadership
Institute for Business Research and Service (IBRS)
Institute for Health and Human Services Research
Institute of Molecular Biophysics
Institute of Science and Public Affairs (ISPA)
Learning Systems Institute
Materials Research and Technology (MARTECH)
Pepper Institute on Aging and Public Policy

Type 3

Antarctic Marine Geology Research Facility
Beaches and Shores Resource Center
Carl DeSantis Center for Executive Management Education
Center for Banking and Financial Institutions
Center for Economic Forecasting and Analysis
Center for Information Systems Research
Center for Insurance Research
Center for Intensive English Studies
Center for Music of the Americas
Center for Personnel and Human Resource Management
Center for Policy Studies in Education
Center for Social Work Practice and Research
Center for Study of Sea Level Changes
Center for the Advancement of Procurement
Center for the Study of Technology in Counseling and Career Development
Center for the Study of Values in College Student Development
Center on Terrorism and Public Health
Claude Pepper Center
Comprehensive School Health Program Training Center
Cooperative Institute for Tropical Meteorology
Florida Center for Public Management

Florida Dispute Resolution Center
Florida Public Affairs Center
Florida State Climate Center
Florida-Costa Rica Linkage Institute
Florida-France Linkage Institute
FSU Center for Health Equity
Institute for Cognitive Sciences
Institute for Family Violence Studies
Institute for Fishery Resource Ecology (IFRE)
Institute for International Cooperative Environmental Research (IICER)
Institute of Motion Picture, Television, and Recording Arts
Institute on Napoleon and the French Revolution
Institute on World War II and the Human Experience
International Center for Advancement of Political Communication
International Center for Hospitality Research and Development
Jim Moran Institute for Global Entrepreneurship
L. L. Schendel Speech and Hearing Clinic
Marketing Institute
Melvene Draheim Hardee Center for Women in Higher Education
Middle East Studies Center
Polar Desert Research Center
Real Estate Research Center
Resource Materials Center
Small Business Institute
Southeast Archaeological Center
Statistical Consulting Center
Terrestrial Waters Institute
The Florida Center for Tobacco Education
Traumatology Institute
Trinity Institute for the Addictions
Winthrop-King Institute for Contemporary French and Francophone Studies

UCF (n=26)

Type 1

Florida Solar Energy Center
Florida Space Institute (FSI)

Small Business Development Center (Affiliate)

Type 2

Advanced Materials Processing and Analysis Center (AMPAC)

Center for Advanced Transportation Systems Simulation (CATSS)

Center for Applied Human Factors in Aviation

Center for Discovery of Drugs and Diagnostics

Center for Economic Education

Center for Research and Education in Optics and Lasers (CREOL)

Dick Pope Senior Institute for Tourism Studies

Dr. Phillips Institute for the Study of American Business Activity

Environmental Systems Engineering Institute

Executive Development Center

Florida Sinkhole Institute

Florida-Canada Linkage Institute

Florida-Eastern Europe Linkage Institute

Institute for Simulation and Training

Institute for Social and Behavioral Sciences

Institute of Statistics

Small Business Institute

Transportation Systems Institute

University of Central Florida Center for Forensic Science

Type 3

Center for Planning, Research, and Development

Hydrogen Research and Applications Center

Institute for Law and Justice in Education

Institute of Exercise Physiology and Wellness

UF (n=165)

Type 1

Florida Center for Library Automation (FCLA)

Florida Center for Solid and Hazardous Waste Management

Florida Sea Grant College Program

Institute for Child Health Policy

University Press of Florida

Type 2

UF Digital Worlds Institute

Brooks Center for Rehabilitation Studies
Bureau of Economic and Business Research
Center for African Studies
Center for Aquatic and Invasive Plants (IFAS)
Center for Condensed Matter Sciences
Center for Cooperative Learning in Health Science Education
Center for Drug Discovery (Health Science Center)
Center for Economic Education
Center for Environmental Education
Center for Environmental Policy
Center for Exercise Science
Center for Gerontological Studies
Center for Governmental Responsibility
Center for Greek Studies
Center for Intelligent Machines and Robotics
Center for International Financial Crimes Studies
Center for Jewish Studies
Center for Latin-American Studies
Center for Molecular Microbiology
Center for Natural Resources (IFAS)
Center for Neurobiological Sciences (Health Science Center)
Center for Research on Women's Health
Center for Smell and Taste
Center for Structural Biology (Health Science Center)
Center for Studies in Criminology and Law
Center for Studies in the Humanities and Social Sciences
Center for the Study of Race and Race Relations
Center for Tropical Agriculture (IFAS)
Center for Wetlands (E&G)
Center for Women's Studies and Gender Research
Claude Denson Pepper Center for Research in Oral Health in Aging (Health Science Center)
Evelyn F. & William L. McKnight Brain Institute of the University of Florida
Gene Therapy Center (Health Science Center)
Institute for Advanced Study of the Communication Processes (IASCP)
Institute for Dispute Resolution
Institute for Fundamental Theory

Institute for Health Policy Research (Health Science Center)
Institute for High Energy Physics and Astrophysics (IHEPA)
Institute for Psychological Study of the Arts
Institute for Science and Health Policy
Institute for Theory and Computation in Molecular and Materials Sciences (QTP)
Institute on Aging (E & G)
Integrated Electronics Center (IEC)
Interdisciplinary Center for Aeronomy and Other Atmospheric Sciences (ICAAS)
Interdisciplinary Center for Biotechnology Research
International Agricultural Trade and Development Center (IFAS)
International Center for Automated Information Research (ICAIR)
International Center for Childhood Cancer Research
Land Use and Environmental Change Institute (LUECI)
Periodontal Disease Research Center (Health Science Center)
Research and Development Center for School Improvement
Shimberg Center for Affordable Housing
Southern Technology Applications Center (STAC)
UF Genetics Institute
UF Marine Laboratory at Seahorse Key
Water Resources Research Center
Whitney Marine Lab
William and Grace Dial Center for Written and Oral Communication
William R. Maples Center for Forensic Medicine (E & G)

Type 3

Archie Carr Center for Sea Turtle Research
Biobehavioral Research Center
Bioglass Research Center (HSC)
Business Ethics Education and Research Center
Center for Accounting Research and Professional Education
Center for Agricultural Law (IFAS)
Center for Alcohol Research
Center for Ambulatory Studies (HSC)
Center for Applied Mathematics
Center for Applied Optimization
Center for Biological Conservation (IFAS)
Center for Biostatistics and Epidemiology

Center for Catalysis
Center for Chemical Physics
Center for Clinical Trials Research
Center for Computer Vision and Visualization
Center for Construction and Environment
Center for Construction Safety and Loss Control
Center for Consumer Research
Center for Dental Biomaterials
Center for Econometrics and Decisions Sciences (CEDS)
Center for Electronic Commerce and Supply Chain Management
Center for Entrepreneurship and Innovation
Center for Environmental and Human Toxicology (HSC)
Center for Film Studies
Center for Immunology and Transplantation (HSC)
Center for International Economic and Business Studies
Center for Macromolecular Science and Engineering
Center for Modern German Studies
Center for Neurobiology of Aging (HSC)
Center for Neuropsychological Studies (HSC)
Center for Nutritional Sciences (IFAS)
Center for Orphaned Autoimmune Disorders (HSC)
Center for Pain Research and Behavioral Health (HSC)
Center for Pediatric Psychology and Family Studies
Center for Public Policy Research
Center for Real Estate Studies
Center for Remote Sensing (IFAS)
Center for Research in Psychophysiology (HSC)
Center for Research on Telehealth and Healthcare Communications
Center for Subtropical Agroforestry
Center for Surface Science and Engineering
Center for the Arts and Public Policy
Center for the Arts in Healthcare Research and Education
Center for the Study of Lithiasis and Pathological Calcification (HSC)
Center for the Study of Southeastern Indians
Center for Tourism Research and Development
Center for Tropical and Subtropical Architecture, Planning and Construction

Center for Veterinary Sports Medicine (HSC)
Center for Vision Research (HSC)
Center for World Arts
Clinical Research Center (HSC)
Craniofacial Center
Database Systems Research and Development Center
Diabetes Research, Education and Treatment Center
DuBow Family Center for Research in Pharmaceutical Care (HSC)
Environmental Management Systems Institute
Fire Testing and Research Center
Florida Bridge Software Institute
Florida Center for Health Promotion
Florida Center for Heterocyclic Compounds
Florida Center for the Study of Children's Literature and Media
Florida Dysphagia Institute
Florida Institute for Research on Elections
Florida Institute for Resources and the Environment
Florida Insurance Research Center
Florida Survey Research Center
Florida-Brazil Linkage Institute
Geoplan Center
Geriatric Education Center (HSC)
Hearing Research Center
Human Resource Research Center
Hypertension Center (HSC)
Innovative Nuclear Space Power and Propulsion Institute
Institute for Early Contact Period Studies
Institute for Higher Education
Institute for Wound Research (HSC)
Institute of Archaeology and Paleoenvironmental Studies
Interdisciplinary Center for Musculoskeletal Training and Research
Legal Technology Institute
Machine Tool Research Center
Major Analytical Instrumentation Center
Mammalian Genetics Center (HSC)
Mineral Resources Research Center

Multidisciplinary Diagnostic and Training Program
Parker E. Mahan Center on Dental Occlusion and Facial Pain (HSC)
Public Utilities Research Center
Rehabilitation Research and Resource Center (HSC)
Research and Education Center for Architectural Preservation (RECAP)
Retailing Education and Research Center
Reubin O'D. Askew Center on Politics and Society
School Service Center
Seniors' Institute for Transportation and Communications (SITComm)
Stewart Mott Davis Center for Community Education
The Juvenile Diabetes Research Foundation Center for Gene Therapy for Prevention of Diabetes
and its Complications
The McGuire Center for Lepidoptera Research
Transition Center
Transportation Research Center
University of Florida College of Dentistry Center of Implant Dentistry
University of Florida Shands Cancer Center (HSC)

UNF (n=20)

Type 1

Center for Entrepreneurial Studies/Small Business Development Center (Affiliate)
Florida Institute of Education
UNF Institute of Government (Affiliate)

Type 2

The Florida Center for Public Policy
Bette Soldwedel Gender Research Center
Center for Aging Research
Center for Drug Prevention Research
Center for Economic Education
Center for Ethics, Public Policy, and the Professions
Center for International Business Studies
Center for International Education
Center for Research and Education in Wholesaling
Center for Studies in Education
Florida-West Africa Linkage Institute
Institute for Management Development and Organizational Quality

Northeast Florida Institute for Science, Mathematics, and Computer Education

Type 3

Center for Membrane Physics

Center for Research and Consulting in Statistics

International Center for Competitive Excellence

Northeast Florida Center for Community Initiatives

USF (n=102)

Type 1

Florida Institute of Oceanography

Florida Policy Exchange Center on Aging

Lawton and Rhea Chiles Center for Healthy Mothers and Babies (Health Science Center)

Small Business Development Center (Affiliate)

Type 2

Center for Action Research on Urban Schools and Effective Leadership

Center for Aging and Brain Repair

Center for Economic Development Research

Center for Entrepreneurship

Center for Mathematical Services

Center for Microelectronics Research

Center for Molecular Design and Recognition

Center for Organizational Effectiveness

Center for Research on Children's Development & Learning

Center for the Study of Children's Futures

Center for Urban Transportation Research

Clean Energy and Vehicle Research Center

David C. Anchin Center for the Advancement of Teaching

Diabetes Center (HSC)

Educational Research Center for Child Development

Florida Center for Community Design and Research

Florida Center for Instructional Technology

Florida Center for Leadership in Public Health Practice (HSC)

Florida Health Information Center (FHIC) (HSC)

Florida-China Linkage Institute (Affiliate)

Florida-France Linkage Institute (Affiliate)

Florida-Japan Linkage Institute

Globalization Research Center
Gus A. Stavros Center for Free Enterprise and Economic Education
Institute for At-Risk Infants, Children and Youth and Their Families
Institute for Biomolecular Science
Institute for Environmental Studies
Institute for Research in Visual Art/Graphicstudio
Institute on Aging
Institute on Banking and Finance
Institute on Black Life
Interdisciplinary Center for Greek Studies
James and Jennifer Harrell Center for the Study of Domestic Violence
National Resource Center for Middle Grades/High School Education
Professional Development Center
Suncoast Area Center for Educational Enhancement (SACEE)
Suncoast Area Teacher Training (SCATT)
USF Center for HIV Education and Research
Water Institute

Type 3

Alcohol and Substance Use Research Institute
Biostatistics and Epidemiology Center for Health Research (Health Science Center)
Cardiac Hormone Center
Center for Africa and the Diaspora
Center for Applied Anthropology
Center for Applied Humanities
Center for Arts and Community
Center for Autism and Related Disabilities
Center for Biological Defense
Center for Brownfield Rehabilitation Assistance
Center for Civilizational Dialogue
Center for Coastal Ocean Mapping (CCOM)
Center for Communications and Signal Processing
Center for Computer Integrated Engineering and Manufacturing
Center for Disaster Management and Humanitarian Assistance (CDMHA)
Center for Economic Policy Analysis
Center for Electron Microscopy
Center for Environmental/Occupational Risk Analysis & Management

Center for Health Outcomes Research
Center for Hospice, Palliative Care and End of Life Studies At the University of South Florida
Center for Infant & Child Development
Center for International Business
Center for Media Research and Service
Center for Modeling Hydrologic and Aquatic Systems
Center for Molecular Delivery
Center for Nearshore Marine Science
Center for Neo-Platonic Studies
Center for Organizational Communication
Center for Positive Health
Center for Research in Behavioral Medicine and Health Psychology
Center for Social and Political Thought
Center for the Study of Child-Writing
Center for the Study of Migrant Education
Center for Urban Ecology
Center for Writers
Ethics Center
Florida Center for Technology in Physical Activity
Florida Toxicological Research Center
Global Change Research Center
High Technology Professional and Technical Communications Center
Institute for Constructive Mathematics
Institute for Information Systems Management
Institute for Instructional Research and Practice and Student Educational Evaluation and Performance
Institute for Interpretive Human Studies
Institute for Marine Remote Sensing (IMaRS)
Institute for Research in Psychiatry (Health Sciences Center)
Institute for School Reform, Integrated Services, and Child Mental Health and Educational Policy
Institute for Systematic Botany
Institute of Human Performance, Decision Making and Cybernetics
Interdisciplinary Center for Hellenic Studies
Joy McCann Culverhouse Center for Swallowing Disorders
National Center for Transit Research (NCTR)
Research and Training Center for Community Wellness
Robert and Diane Roskamp Institute for Research in Alzheimer's Disease and Other Neuropsychiatric

Disorders

School Management Institute

Suncoast Gerontology Center on Health and Longevity (Health Science Center)

Tampa Bay Craniofacial Center

University of South Florida Leadership Center

USF Center for Wireless and Microwave Technology

UWF (n=13)

Type 1

Florida Small Business Development Center Network (FSBDCN)

UWF Small Business Development Center (Affiliate)

Whitman Center for Public Service/Institute of Government (Affiliate)

Type 2

Archaeology Institute

Center for Environmental Diagnostics and Bioremediation (CEDB)

Educational Research and Development Center (ERDC)

Florida-China Linkage Institute

Florida-Japan Linkage Institute (Affiliate)

Haas Center for Business Research and Economic Development (CBRED).

Institute for Human and Machine Cognition (IHMC)

UWF Statistics Center

Type 3

Center for Social Science Research

Center on Aging

Total n = 512

Appendix B
State Governing Boards Contacted

STATE GOVERNING BOARDS CONTACTED

Board of Regents of the University System of Georgia

California Postsecondary Education Commission

Illinois Board of Higher Education

Maryland Higher Education Commission

Massachusetts Board of Higher Education

Michigan Department of Career Development

North Carolina Commission on Higher Education Facilities

New York State Education Department

Ohio Board of Regents

State Council of Higher Education for Virginia

Texas Higher Education Coordinating Board

Washington Higher Education Coordinating Board

Wisconsin Higher Educational Aids Board

Appendix C

Peer Institutions

Peer Institutions

Florida Atlantic University: San Diego University, University of Houston, Virginia Commonwealth University

Florida International University: University of Houston, Arizona State University

Florida State University: Arizona State University, University of Massachusetts, Amherst

University of Central Florida: San Diego University, Virginia Commonwealth University, Georgia State University, State University of New York at Albany, University of West Michigan, University of Alabama Huntsville, University of Illinois-Chicago

University of Florida: University of Illinois Urbana-Champaign, Ohio State University, University of Minnesota

University of South Florida: University of Houston, Virginia Commonwealth University, University of Illinois-Chicago

University of West Florida: University of Alabama Huntsville

Chosen by staff: University of California Berkley

Appendix D
Chancellor's Memorandum

CHANCELLOR'S MEMORANDUM: CM-C-07.00-01/99

TO: Members, Council of Presidents

FROM: Adam W. Herbert

SUBJECT: Institutes/Centers

AUTHORITY: Section 240.209(1), F.S.

Policy/Purpose: Establish policies and procedures for approving, classifying, operating, reviewing, and disbanding institutes/centers in the State University System

Definition. Institutes/Centers are entities proposed by universities, the Legislature, or the Board of Regents (BOR); approved by the Board of Regents and/or the Chancellor or a university president (depending on the type of institute/center); and established by the universities for the purpose of coordinating intra- and/or inter-institutional research, service, and training activities that supplement and extend existing departmental instruction, research, and service programs. In some instances, institutes/centers are established by law, in which case they operate in accordance not only with State University System policies, rules, and procedures, but also with State statute.

Exclusions. There are operating entities with the term "institute" or "center" in their titles that are not included under this definition and are not intended to be covered by this Chancellor's Memorandum (e.g., Institute of Food and Agricultural Sciences [IFAS], University of Florida Health Sciences Center [UF-HSC], University of South Florida Health Sciences Center [USFHSC], the Florida Mental Health Institute [FMHI], and certain university advising, student health, computing, and other centers).

Types. Institutes/Centers are classified into three categories:

1. Type I institutes/centers have Statewide missions, and may be specifically authorized/established and/or funded by the Legislature.
2. Type II institutes/centers are established by a single university; in some instances, additional institutions may participate. Type II institutes/centers expend appropriated State funds as a result of Legislative or university decision, and they may expend "other" funds (i.e., nonappropriated funds, such as contracts and grants, fees, etc.).
3. Type III institutes/centers are established by a single university; in some instances, additional institutions may participate. Type III institutes/centers expend "other" funds *only* (i.e., nonappropriated State funds, such as contracts and grants, fees, etc.).

Application/Approval Process. Each Type I and each Type II institute/center is required to request approval according to the standard format provided in Attachments A and B. The host university will prepare and submit to the Office of Academic Affairs four (4) copies of a proposal. Contingent upon the recommendation of the Vice Chancellor for Academic and Student Affairs, a Type I proposal will be considered by the Council of Academic Vice Presidents for recommendation to the Council of Presidents. The Chancellor shall consider the deliberations of the Council of Presidents in requesting institute/center approval from the Board of Regents and in requesting Legislative funding for the institute/center. Universities may seek to establish Type II institutes/centers by application to the Office of Academic Affairs and approval by the Chancellor or his or her designee. In the event an institute/center is established by law and/or the Legislature appropriates or earmarks

funds for an institute/center, the host university will seek approval to establish the institute/center pursuant to procedures outlined in this Chancellor's Memorandum prior to the expenditure of appropriated funds.

Institutions will develop and maintain written university-specific guidelines for assessing institute/center proposals at the campus level. The Chancellor's designee must approve these guidelines. University presidents may grant authorization for the development of Type III institutes/centers at their respective institutions, provided they operate within these approved guidelines. The host university must submit a statement of intention to establish a Type III institute/center (according to the format provided in Attachment A) to the Office of Academic Affairs prior to the implementation of such a plan.

Type Changes. If the structure of an institute/center changes (e.g., several institutions combine efforts to fulfill a Statewide mission) or the funding source for an institute/center changes to the extent that the type designation needs to be revised, the university must request a type change from the Chancellor or his or her designee.

Operation. For each Type I institute/center, a host university will be designated to serve as a Systemwide facility. This designation will be specified in a written agreement between the host university and the Chancellor, with advice from the Council of Academic Vice Presidents. The host university will provide all administrative and logistical support for the Systemwide facility of a Type I institute/center.

A director of a Type I institute/center will be appointed by the president of the host university, with concurrence of the Chancellor, following a search process which appropriately involves the institutions participating in the institute/center. The director will report to the president of the host university or his or her designee. An advisory board will be appointed for each Type I institute/center, consisting of the following individuals: the presidents or their designees from all participating universities; representatives of appropriate public or private agencies appointed by the Chancellor, upon recommendation of the participating agencies; and the Chancellor's designee. The advisory board will provide guidance to the director, Council of Academic Vice Presidents, Council of Presidents, and/or Chancellor, as circumstances require. Members will be appointed for three-year staggered terms. The advisory board will make recommendations with respect to the distribution of funds. Type I institutes/centers have separate departmental accounts in the universities' operating budgets. Budgetary practices will conform to those of the host university, unless otherwise directed by the Board of Regents. The director is responsible for compiling budgetary recommendations, with advice from the president of the host university and the advisory board. The director will submit any proposed budget increase (Attachment C) to the Office of Academic Affairs by April 15 for review by the Council of Academic Vice Presidents. The Council will determine whether the increase should be considered for inclusion in the next year's Legislative Budget Request by the Board of Regents at its July meeting.

Contracts and grants proposed by a Type I institute/center to outside funding agencies will be processed through the host university. The percentage of overhead funds to be returned to the institute/center will be consistent with that university's policy.

Type I institute/center will reimburse the host university for direct costs of administrative services rendered by the university to the institute/center. Personnel employed by a Type I

institute/center may be employed concurrently by one or more of the participating universities.

Annual Reports. An annual report will be completed for each approved institute/center and forwarded by the president to the Chancellor or his or her designee, no later than September 30 of each year. Type III institutes/centers will provide descriptive and fiscal information as outlined in Attachment D, whereas Type I and Type II institutes/centers will provide the information requested in Attachment D, as well as the information requested in Attachment E. When an institute/center involves more than one university, the host university will submit one report, with separate budget and activity information for each university affiliated with the institute/center.

Review. Each Type I institute/center will be reviewed at the request of the Council of Academic Vice Presidents, the Council of Presidents, or the Chancellor. The review will be undertaken as a cooperative endeavor of the respective staffs of the Chancellor and the presidents of universities participating in the institute/center. The Council of Academic Vice Presidents will play a key role, and external consultants may be utilized in the review process. Issues to be addressed during the review may include the relative need for continuation of the institute/center; possible changes in mission or organizational structure; budgetary reduction or expansion; and/or redesignation of classification. All approved institutes/centers will be reviewed in conjunction with the periodic review of related disciplines.

Disbanding. Type I institutes/centers will be disbanded only upon written notification to the Chancellor and approval by the Board of Regents. When a university disbands a Type II or Type III institute/center, the university will notify the Office of Academic Affairs in writing via the submission of annual reports. In the event that one of these disbanded institutes/centers was established or funded by the Legislature, the university must provide documentation to ensure that Legislative intent has been achieved and that the institute/center is no longer required. Contact: Office of Academic Affairs SUNCOM 278-7702, Local 488-7702
Internet Address: lemonr@borfl.org

Attachments are available on the Division of Colleges and Universities website:
<http://www.fldcu.org>.

Appendix E
Centers and Institutes Profiles

CENTER/INSTITUTE PROFILE

University: Florida Agricultural and Mechanical University

Name of C&I: Institute on Urban Policy and Commerce

Type: 1

Organizational Affiliation: Office of the Provost

Name of Director: Patricia W. McGill, Ph.D.

Mission: The mission of the Institute on Urban Policy and Commerce is to develop comprehensive urban strategies and partnerships to address critical social, economic, and physical issues through applied research and training.

Expenditures 2000-01: SUS \$187,736; External \$1,338,225; Total \$1,525,961

Date of Visit: November 6, 2002

Summary of Notes:

1. In 1998, the Florida Legislature established the Institute on Urban Policy and Commerce (IUPC) as a Type 1 C&I. The Advisory Board is composed of representatives from the community, financial institutions, and planning agencies.
2. During 2000-2001, IUPC spent \$187,736 in SUS funds, \$1,313,225 in contracts and grants funds, and \$25,000 from private donations. The SUS funds went to support the Director, a Coordinator of Administrative Services, and an Office Manager. Eight other IUPC positions are paid from contract and grant funds. As part of the "payback" for generating indirect funds, the university pays half (approximately \$28,000) of the rent on IUPC's current off-campus facility, but provides no other funding or in-kind support.
3. IUPC activities have been primarily funded through external contracts and grants. Currently IUPC has 13 projects that fund outreach staff in Calhoun, Franklin, Gulf, and Liberty counties. In March, 2001, IUPC announced the awarding of \$346,630 to eight community-and faith-based organizations.
4. As part of its Type 1 mission, IUPC was intended to establish regional urban centers in St. Petersburg, Tampa, Jacksonville, Orlando, West Palm Beach, Ft. Lauderdale, Miami, Daytona Beach, and Pensacola. Initial funding of approximately \$200,000 was to be followed by additional recurring SUS funds to operate the IUPC statewide. Although they have been submitted as part of FAMU's annual budget request and have been approved by the legislature, each year they were submitted they have been removed from the budget by the Governor. Two urban regional centers were opened with contract/grant and donated funding. The one in West Palm Beach was closed due to a lack of funds and the one in Tampa is barely holding on.

CENTER/INSTITUTE PROFILE

University: Florida Agricultural and Mechanical University

Name of C&I: Center for Water Quality

Type: 2

Organizational Affiliation: School of Agriculture

Name of Director: Dr. Robert Bradford

Mission: The Center for Water Quality addresses problems related to surface and ground water pollution and develops management practices to reduce pollution of freshwater bodies.

Expenditures 2000-01: SUS \$241,065; External \$424,734; Total \$665,799

Date of Visit: September 26, 2002

Summary of Notes:

1. Dr. Bradford was the Associate Dean and Dean of the School of Agriculture
2. The mandate to serve the state began in 1966; this led to a project and finally to a Center of Excellence, the Center for Water Quality (CWQ).
3. Initially CWQ was a Type 4 center, but it later became a Type 2 C&I.
4. It conducts some C&G projects, such as one with the St. Johns Water Management District to study pollution loads carried by wetlands.
5. CWQ received its first federal support in FY 1997.
6. The CWQ is located in the School of Agriculture. The dean has all faculty members participate in a C&I.
7. Centers are seen as attributes that add prestige and attract faculty, students, and funding.
8. CWQ is a coordinating unit, acting almost like a department.
9. CWQ has a strategic plan that helps focus the capabilities of the faculty and school.
10. CWQ is evaluated at several levels:
 - CWQ is reviewed every five years by its funding agency, the United States Department of Agriculture
 - Natural Resources Conservation Service maintains oversight of university C&Is receiving federal funding
 - The dean reviews all research initiative in the school
 - CWQ has an advisory committee with representatives from all major disciplines that reviews plans and outcomes each year.
11. He agreed that all C&Is should have a Web site containing basic information.
12. C&Is should be evaluated every 5 years but universities should determine the criteria.

CENTER/INSTITUTE PROFILE

University: Florida Agricultural and Mechanical University

Name of C&I: Institute for Public Health

Type: 2

Organizational Affiliation: School of Pharmacy

Name of Director: Dr. Cynthia Harris

Mission: The purpose of the Institute of Public Health is to establish university-based public health centers and provide education at the graduate level by initially offering the Master in Public Health degree (MPH). Special emphasis is placed on the provision of graduate training and development of research areas regarding diseases and health problems that disproportionately affect educationally and economically disadvantaged persons including, without limitations, the human health effects associated with acute and chronic disease, environmental pollution, and violence.

Expenditures 2000-01: SUS \$1,127,548; External \$455,606; Total \$1,583,154

Date of Visit: September 26, 2002

Summary of Notes:

1. The Institute for Public Health (IPH) is an institute that coordinates an academic program.
2. The focus of IPH is on teaching and applied research.
3. It was established in 1995 with a \$100,000 planning grant. IPH began implementation in 1997, held its first graduation in 1999, and became accredited in June, 2000.
4. The legislature has earmarked funds for two budgets, one for IPH and the other for the Masters in Public Health (MPH) program.
5. The goal is to establish a School of Public Health.
6. As a C&I, IPH helps recruit both faculty and staff within the School of Pharmacy.
7. IPH's mission is consistent with FAMU's mission of serving underserved populations.
8. In order to be accredited, IPH had to undergo a rigorous program review by the Council of Education in Public Health.
9. The director, Dr. Harris, agrees that all C&Is should have an information Web site that provides basic information.
10. Evaluation by the university, through the School of Pharmacy, funding agencies, or accrediting agencies would work. Evaluators need specific expertise to evaluate IPH.

CENTER/INSTITUTE PROFILE

University: Florida Agricultural and Mechanical University

Name of C&I: Institute for Building Sciences

Type: 2

Organizational Affiliation: School of Architecture

Name of Director: Thomas D. Pugh

Mission: The three-fold purpose of the Institute for Building Sciences is to: (1) to conduct sponsored research activity funded by government agencies and the private sector in all phases of building design, construction, maintenance and operations; (2) to conduct seminars, workshops, symposia and other continuing education activities on these same topics; and (3) to involve faculty, students, and outside professionals in these activities.

Expenditures 2000-01: SUS \$102,663; External \$229,279; \$331,942

Date of Visit: September 26, 2002

Summary of Notes:

1. The Institute for Building Sciences (IBS) could not be supported by providing continuing education to architects and others involved in building sciences. It is necessary to bring in contracts.
2. IBS does not have an auxiliary account to provide annual contracts. Contracts are limited by E&G and contracts on-hand.
3. Residual funding (unspent funds) on fixed-price contracts is one of the few ways that a C&I like IBS can accumulate funds for economic down periods or for unanticipated expenses.
4. Most equipment, computer-related and infrastructure expenses are paid from residual funds. There are no other funds available to pay for these essential expenditures.
5. C&Is may create a need for a balance between collegiality and competition.
6. C&Is allow universities to "bundle performance," i.e., to put together the talents and accomplishments of several faculty members. This is very important with a C&I's first project.
7. Some disciplines do not have a strong research orientation, especially if they are non- Ph.D. programs.
8. There are economies of scale in establishing a C&I.
9. There should be a Web site(s) with basic information of C&Is. It does not have to be one site.
10. If you show amounts and sources of funding, how would that impact C&Is?
11. The size of a C&I can sometimes overpower a university.

CENTER/INSTITUTE PROFILE

University: Florida Atlantic University

Name of C&I: Small Business Development Center (Affiliate)

Type: 1

Organizational Affiliation: College of Business

Name of Director: Nancy Young

Mission: To impact the small business community with world class quality services that make a measurable contribution to regional growth and prosperity.

Expenditures 2000-01: SUS: \$314,198 External: \$817,565 Total: \$1,13,763

Date of Visit: May 8, 2002

Summary of Notes:

1. The SBDC-FAU is one of seven university affiliates of the State's Florida Small Business Development Center Network. The purpose of the nonprofit network of college and university-based centers is to link the resources of the federal, state and local governments, as well as the private sector, to provide entrepreneurs with one-on-one counseling, management training and information they need to successfully start and operate a small business.
2. The Center was established in 1991 and currently has a staff of 14. The director is a member of the College of Business faculty; the rest of the staff are A&P and OPS positions. Although Dr. Young reports to the Dean of the College of Business, the center is held to strict accountability measures established by the U.S. Small Business Administration.
3. The SBDC-FAU provides free one-on-one confidential business counseling. The staff, and volunteer business analysts provide a plethora of information and assistance to potential and current business owners. In addition the center provides training events in such areas as business plans, marketing, financing, importing and exporting, grant contracting and other topics necessary for business growth.
4. The center uses an assessment instrument developed by the Florida Small Business Development Center Network State Director's Office in Pensacola to measure its progress in implementing goals and objectives. The assessment report (based on a survey to clients) for 2000-01 revealed that 99% of the respondents to the survey rated the performance of the SBDC as excellent or good.
5. According to its FY 2000-01 annual report, the Center guaranteed \$2,335,000 in SBA loans, served 2,073 clients and conducted 289 training programs.

CENTER/INSTITUTE PROFILE

University: Florida Atlantic University

Name of C&I: Women's Studies Center

Type: 2

Organizational Affiliation: Multidisciplinary

Name of Director: Dr. Mary Cameron

Mission: Provides opportunities for learning about the contributions of women and the impact of gender in diverse areas of social, cultural, political and historical life.

Expenditures 2000-01: SUS: \$378,435 External: \$431 Total: \$378,866

Date of Visit: May 8, 2002

Summary of Notes:

1. The multidisciplinary women's center at FAU is one of only six C&Is within the SUS that offers degrees. The center operates more like a traditional academic college or department than a C&I. The center offers a Certificate in Women's Studies at the undergraduate and graduate level as well as a Masters of Arts Degree in Women's Studies. Each of the programs draws its curriculum from faculty affiliated with a variety of departments and six of the University's seven colleges. The director of the center is an Anthropology professor.
2. An important focus of the Center is its outreach program designed to sponsor, cosponsor, or facilitate academic and service-related events. During FY 2000-01, the Center hosted the Southeastern Women's Studies Association Conference and sponsored several guest lectures to FAU's campus.
3. The Center maintains a library and other resources available to women's studies students. A competitive Feminist Scholarship Fund is available to support the work of a "talented" women's studies student. The center is currently organizing a fundraising campaign to expand the scholarship program.
4. The Center appears to enjoy the enthusiastic support of FAU's administration, a situation that is not shared at all of the state universities, even those with older, more established women's studies programs.

CENTER/INSTITUTE PROFILE

University: Florida Atlantic University

Name of C&I: South Florida Center for Educational Leaders

Type: 3

Organizational Affiliation: College of Education

Name of Director: Dr. John Pisapia

Mission: To serve educational leaders who seek improved educational outcomes for their school's students in a trusting, supportive and collegial environment.

Expenditures 2000-01: SUS: \$0.00 External: \$166,584 (all fees) Total: \$166,584

Date of Visit: May 8, 2002

Summary of Notes:

1. The center is a public school/university collaboration. The center works to transfer university research to K-12 practitioners through its Action Research model. Action Research is a process of studying school problems and developing a plan for long-term whole school renewal.
2. The center is currently working with local schools through its Consortium of Schools to collectively study how students should learn, to identify best teaching practices and staff development needs and to develop a plan of action and implementation
3. Center Director John Pisapia is the chair of the Department of Education Leadership. The dean of the College of Education provides Dr. Pisapia with space and utilities to administer the center. The center receives fees from schools in the district that participate in the workshops sponsored by the center.
4. The Center coordinates membership with Harvard's International Network of Principal Centers.
5. This small center is self supporting through fees and services. Education faculty participate in its activities as part of their research and public service assignments.

CENTER/INSTITUTE PROFILE

University: Florida Gulf Coast University

Name of C&I: Institute of Government (affiliate)

Type: 1

Organizational Affiliation: Department of Graduate Studies and Continual Learning

Name of Director: Dr. Joan Hartke

Mission: The Florida Institute of Government is a statewide institute established in 1981 by the Florida Legislature. The mission of the Institute is to increase the effectiveness and quality of government in Florida through training, professional development, and technical assistance programs. There are 12 institutes in the state that are part of the consortium of services to the public sector.

Expenditures 2000-01: This affiliate does not report its own expenditures. Its money flows through the host center. The host center reports external expenditures of \$130,000 for this affiliate institute.

Date of Interview: October 22, 2002

Summary of Notes:

1. The Institute of Government at FGCU has never submitted an annual report to the State – they have only submitted a report to the host Institute of Government at FSU. Although a few of the Institute of Government affiliates reported their own expenditures through an official annual report to the DCU, the FGCU affiliate has never done so.
2. The Institute has two full time staff. Most of the speakers, consultants and faculty used in its programs are contracted. The Institute offers a wide range of professional development training for management, supervisory personnel and support staff in such areas as accounting, public relations, business communications and interpersonal skills.
3. During fiscal year 2001/2002, the IOG presented 272 professional development workshops and directly served more than 6,000 participants. The IOG also facilitated 11 technical assistance projects that ranged from Strategic Planning Retreats to Staffing Studies for the local community.

CENTER/INSTITUTE PROFILE

University: Florida Gulf Coast University

Name of C&I: Interdisciplinary Center for Positive Aging

Type: 2

Organizational Affiliation: College of Health

Director: Dr. Linda Buettner

Mission: To be an epicenter for interdisciplinary programs and projects designed to meet the needs of the growing elderly population in Southwest Florida, including Charlotte, Collier, Glades, Hendry and Lee counties. An overarching emphasis of the Center will be to promote and enhance quality of life throughout an increasing lifespan. The Center will provide interdisciplinary education, training, service and research within the University environment and in varied urban, rural and reservation community environments in Southwest Florida.

Expenditures 2000-01: SUS: \$ 0 External: \$40,000 Total: \$40,000

Date of Interview: October 21, 2002

Summary of Notes:

1. The Center opened in January 2000. It currently has a professional staff of two. The Director, who is a full time faculty member, works part time at the Institute.
2. The Center Director reports to the Dean of the College of Health and to the Director of Research and Sponsored Research.
3. Funding comes through the provost when available. FGCU has not yet begun to distribute overhead to its C&Is.
4. The biggest barrier to the development of the center is that FGCU is not a research institute. This makes it hard to win large grants because of the lack of local resources. For example, there is no biostatistician in the entire university.
5. Two research projects are currently underway to explore the potential of therapeutic recreation interventions (TRIs) as effective coping strategies for two types of distressing behaviors associated with Alzheimer's Disease—agitation and apathy. The interventions include a set of individualized recreation therapy programs for calming agitated individuals and (or) alerting passive individuals with cognitive impairments who exhibit disturbing behaviors. These two studies use an innovative high-tech approach to gather empirical data by recording the subjects' physiological response to the interventions.

CENTER/INSTITUTE PROFILE

University: Florida Gulf Coast University

Name of C&I: Center for Leadership & Innovation

Type: 2

Organizational Affiliation: College of Business

Director: Dr. Douglas Steele

Mission: The Center for Leadership & Innovation was established for the purpose of research, service and instructional activities, which supplement and extend programs offered by Florida Gulf Coast University.

Expenditures 2000-01: SUS: \$98,358 External: \$1,368,713 Total: \$1,467,071

Date of Interview: October 28, 2002

Summary of Notes:

1. The Center reports to the Dean, College of Business. Although the Center is closely associated with the College of Business, it receives no financial support from the College, other than two faculty lines. All other expenses the Center pays through its fees and C&G. Though the Director and one colleague both teach at the College, this teaching is distinct from their Center activities.
2. Center evaluation consists of i) annual university review, ii) end of course survey from their 'customers' i.e. non-degree trainees, and from students, iii) American Association of Colleges and Schools of Business accreditation review every 5 years. This review targets the College of Business in general and includes the Center, which is administratively housed under the College of Business.
3. The Center pays 10% overhead to the university. These are non-Federal projects in which the money is upfront. If the money were not upfront the overhead would be higher. Also, if the Center had federal projects the overhead would be higher. However, with the currently small overhead they are able to completely cover their expenses. They do not seek funding from the state.
4. The Director wishes there were a path for Type 2 centers to become Type 1 centers in order to receive direct state funds. The only important barrier to the Center's operations is low revenue stream, which the Director would like to supplement with state moneys if possible.
5. The Center is supported through private funding, granted programs, entrepreneurial activities and the College of Business. The Center serves to coordinate and support these activities. In addition to the Executive MBA, which is delivered from the Center, non-credit, self-funded, professional development programs also utilize faculty as skills and background warrant.

CENTER/INSTITUTE PROFILE

University: Florida International University

Name of C&I: International Hurricane Center

Type: 1

Organizational Affiliation: Provost

Name of Director: Dr. Steven Leatherman

Mission: Through multidisciplinary and collaborative programs of basic and applied research, the International Hurricane Center (IHC) helps people and communities in Florida, other states, and foreign nations to better understand the hurricane risk, our relative vulnerability to the impact of such events, and the preparedness and mitigation options that may be available for reducing the potential for damage from hurricane impact.

Expenditures 2000-2001: SUS \$638,846; External \$1,369,940; Total \$2,008,786

Date of Visit: September 24, 2002

Summary of Notes:

1. The center was founded with an initial \$500,000 grant and \$2,000,000 endowment from private business and industry. The center has lost some of its E&G funding and is finding it increasingly difficult to attract and keep quality faculty to direct the multidisciplinary basic and applied research of the institute.
2. Contract and grant funding is a must, not an add-on, for the proper operation of the institute.
3. The IHC has just moved into better buildings closer to the National Hurricane Center.
4. Type I centers should be maintained because they help focus research efforts and talent from several universities on one very important topic, in this case, hurricane mitigation.
5. The outreach to other universities by the IHC Type I institute is maintained through workshops every 8 weeks between researchers.
6. Every two years the institute sponsors a 2-day meeting of approximately 50-80 outstanding people in the field.
7. The participants in the Type I institute developed a strategic plan that is used to guide long-term individual efforts in a productive direction.
8. Some standardization of evaluation (every five years) would be acceptable, as long as flexibility to recognize the unique character of each C&I is not lost.

CENTER/INSTITUTE PROFILE

University: Florida International University

Name of C&I: Jack D. Gordon Institute for Public Policy and Citizenship Studies

Type: 2

Organizational Affiliation: College of Arts and Sciences

Name of Director: Dr. Jack Stack

Mission: The mission of the Jack D. Gordon Institute for Public Policy and Citizenship Studies (IPPCS) is to promote the study of public policy and citizenship studies through the Certificate Program in public policy and through non-traditional venues such as the Student Honors Mentor Program, to encourage faculty research and discourse across disciplines on matters of public policy, to assist students in understanding the impact that public policy has on their lives and careers, and to encourage joint university and community efforts to learn about issues of public policy at the local, state, regional, and international levels.

Expenditures 2000-2001: SUS \$263,027; External \$23,000; Total \$286,027

Date of Visit: September 24, 2002

Summary of Notes:

1. The center has only 2 full-time staff.
2. Dr. Jack Stack runs the institute and teaches 3 courses per year.
3. They are under “relentless pressure” to raise money.
4. Grants include graduate students and their tuition in the grants.
5. C&Is should be judged against similar centers.
6. It is extremely difficult to judge what a public policy center does in comparison to a center in the physical sciences.
7. Centers should be evaluated by the accomplishment of their stated goals and objectives and to their contribution to the teaching, research, and service missions of the university.

CENTER/INSTITUTE PROFILE

University: Florida International University

Name of C&I: English Language Institute (ELI)

Type: 3

Organizational Affiliation: College of Arts and Sciences

Name of Director: Dr. Luis Sanchez

Mission: To provide quality English language instruction to all individuals who have chosen English as their medium of communication for academic or professional pursuits, and to promote international and intercultural understanding.

Expenditures 2000-2001: SUS \$00.00; External \$1,803,078; Total \$1,803,078

Date of Visit: September 24, 2002

Summary of Notes: Please see Chapter 2 for a detailed discussion of this C&I.

1. ELI generates all of its funding from fees, rather than contracts or grants. Like most Type 3 C&Is, it receives no direct funding from the SUS. ELI receives no subsidy, whatever, from the university. According to the director, it has contributed significantly to the university in the form of a building and various subsidies it provides for marketing its services and FIU.
2. ELI exists to fill the academic need for English proficiency on the part of international students. Other Florida universities meet the need for intensive language instruction for foreign students by organizing department-based English preparatory programs. FIU has chosen to create ELI as a college-based institute.
3. Recently, more restrictive immigration policies have hurt ELI's ability to recruit students and will probably require some financial assistance, in funding or in-kind, from the university. Even the most self-sufficient C&I is still an integral part of and a potential liability to its parent university.
4. The institute has 6 instructors (some have been laid off).
5. ELI recruits students, helps them get visas, registers them at ELI, produces the curriculum and learning materials for their instruction, and helps them matriculate into FIU.
6. ELI has been completely self-sufficient and has contributed to the university for almost 30 years by providing a flow of international students capable of doing the coursework at FIU paying for a building and leasing another for classes; sending the FIU band and theatre groups on Asian recruiting tours; donating 3 vans to the university; donating equipment and other technology to the university; providing English courses for people from the Miami community; ELI pays 4% indirect to the university and 7% to the dean of Arts and Sciences.

CENTER/INSTITUTE PROFILE

University: Florida State University

Name of C&I: Collins Center for Public Policy

Type: 1

Organizational Affiliation: Provost

Name of Director: Mr. James Apthorpe

Mission: The mission of the Collins Center for Public Policy is to promote through thought and action creative solutions to major private and public issues facing the people of Florida and the nation.

Expenditures 2000-2001: SUS \$00 (Endowment funds not specified); External \$152,476; Total \$152,476

Date of Visit: May 13, 2002

Summary of Notes:

1. The Center was founded by an initial \$2,000,000 endowment grant from the legislature, with matching funds from the university. The current endowment is currently approximately \$6,800,000, with the generated interest providing much of their operating funds.
2. The university provides a free building, utilities and maintenance, and some computer support services. The Center does not receive any recurring (E&G) funding.
3. The Center currently is running a voting education teacher-training project initially funded by the Department of Education (DOE) for \$300,000 with an additional \$400,000 in subsequent funding. The Center pays 5 percent indirect to FSU on a DOE project.
4. The Center has been loosely connected to the university through several academic departments and views itself as a service-oriented semi-autonomous group.
5. The Center currently supports 4 graduate fellows, per year, at \$15,000 each.
6. The Center's Board is an important asset in maintaining statewide contacts.
7. With regard to Type I C&Is, they said that evaluations should:
 - be conducted only for C&Is that meet a certain budget level
 - be university-based
 - occur on a five-year cycle
 - use performance criteria generated by each C&I
8. The Collins Center for Public Policy is a good example of the diversity that exists in the Type I C&Is.

CENTER/INSTITUTE PROFILE

University: Florida State University

Name of C&I: Center for Materials Research and Technology (MARTECH)

Type: 2

Organizational Affiliation: College of Arts and Sciences

Name of Director: Dr. Stephan Von Molnar

Mission: MARTECH was established to 1) train scientists and engineers in emerging technologies through a strong commitment to graduate and undergraduate education; 2) to continue building a world-class center of excellence for research in materials science; 3) to strengthen graduate research and international cooperative research by aggressively pursuing external funding sources; 4) to provide a mechanism for collaboration in materials science among the departments and interdisciplinary programs at Florida State University.

Expenditures 2000-2001: SUS \$1,289,360; External \$631,609; Total \$1,920,969

Date of Visit: May 13, 2002

Summary of Notes:

1. Dr. Stephan Von Molnar became the director of MARTECH in 1994.
2. The 10-11 MARTECH part-time and full-time faculty and 3 permanent technical staff conduct basic multidisciplinary research in materials.
3. Most MARTECH faculty members also teach courses and perform other faculty activities within their respective departments.
4. MARTECH conducts some outreach programs for young people.
5. MARTECH operates on a budget of approximately \$460,000 per year. The above-listed SUS funding of \$1,289,360 includes funding for regular faculty who work in MARTECH as part of their assignments. Part of the funding comes from state recurring funds, with the larger part coming from externally-funded research contracts/grants.
6. MARTECH is completely integrated into the university academic structure, with offices and facilities located within the Physics department and other departments on the FSU campus and off-campus.
7. Dr. Von Molnar suggested that, because of the nature of the basic research carried out at MARTECH, any evaluators must be peers, that is, scientists in closely-related fields. However, he would welcome visits from federal and state representatives that would give him an opportunity to communicate MARTECH's activities and successes.
8. MARTECH appears to be a good example of a Type 2 C&I that emphasizes basic research.

CENTER/INSTITUTE PROFILE

University: Florida State University

Name of C&I: Institute for Fishery Resource Ecology

Type: 3

Organizational Affiliation: Department of Biological Science, College of Arts and Sciences

Mission: The mission of the Institute for Fishery Resource Ecology (IFRE) to 1) coordinate and facilitate existing research of mutual interest to FSU and the National Marine Fisheries Service (NMFS) in basic and applied marine science, technology, policy, and resources, particularly as they relate to marine resources in the southeastern United States; 2) to stimulate the training of scientists in the discipline of marine resource ecology while developing a diverse scientific workforce; 3) to disseminate research findings to the public, local, state, and federal officials and other interested parties by a variety of methods including peer-review and lay publications, seminars, and workshops.

Expenditures 2000-2001: SUS \$00; External \$157,331; Total \$157,331

Date of Visit: May 13, 2002

Summary of Notes: Please see Chapter 2 for a detailed discussion of this C&I.

- 1 IFRE was initially funded by a small endowment and partial salary support (lasting two years) from the Dean.
2. Dr. Coleman, the director, began the institute in 1994-95 within the Biology Department. She is a non-tenure-earning faculty researcher.
3. The institute is funded by contracts and grants from State and federal agencies.
4. The institute normally funds one graduate student and 8-12 undergraduates, per year.
5. Office and lab space and some computer systems support are provided by the department.
6. There is very close collaboration with other regular faculty members who work on the fisheries management projects.
7. Most of the institute's work is applied research, with some community service.
8. The institute's major beneficiaries are the funding agencies who use the applied research and students who work on the projects and complete internships.
9. Dr. Coleman says that her institute bridges a gap between basic and applied research in fisheries management and other applied fields. In her opinion, this is a legitimate and necessary link in an academic institution.
10. The institute is evaluated by the Board of Directors, teaching faculty members, and the funding agencies. The project deliverables serve as the performance-based evaluation criteria for the funding agencies.
- 11 The IFRE appears to be a good example of a science-oriented Type 3 C&I.

CENTER/INSTITUTE PROFILE

University: University of Florida

Name of C&I: The Center for Solid and Hazardous Waste

Type: 1

Organizational Affiliation: College of Engineering

Name of Director: Dr. John Schert

Mission: To preserve and protect the state's natural resources by coordinating research, training, and service activities relating to waste management.

Expenditures: SUS \$0.00; External: \$1,322,108; Total: \$ 1,322,108

Date of Visit: October 20, 2002

Summary of Notes: Please See Chapter 2 for a detailed discussion of this C&I.

1. The Legislature created the center in 1988 through the Solid Waste Management and Resource Recovery Act of 1988.
2. Approximately 70 percent of center activities in 2000-01 were dedicated to applied research projects. The center's research program is designed to transfer research results to the public and private sectors for practical solutions to Florida's waste management problems.
3. The center is truly representative of the Type 1 Center designation. The center fulfills a statewide mission through its multifaceted activities that involve both state and private universities.
4. The center conducts an annual Research Needs Survey to determine the most critical environmental research needs in the State. The center then issues an RFP to address those identified needs.
5. Funding is complex. The center reports no state appropriated funds, but it does receive \$500,000 a year in the form of a ledger transfer from the Florida Dept. of Environmental Regulation. Those dollars are generated from the State's tire recycling trust fund. In addition the center receives \$25,000 a year in rebate indirect funds from UF's College of Engineering.
6. The center's executive director is a non-tenure earning faculty member who reports to the Dean of the College of Engineering.
7. The center is periodically evaluated by outside funding agencies.

CENTER/INSTITUTE PROFILE

University: University of Florida

Name of C&I: Evelyn F & William L McKnight Brain Institute (MBI)

Type: 2

Organizational Affiliation: Multidisciplinary/College of Medicine

Name of Director: Dr. William G. Luttge

Mission: To provide a research and clinical environment wherein a dedicated and evolving team of interdisciplinary researchers in the neurosciences will focus on the clinical and commercial applications of brain research.

Expenditures 2000-01: SUS: \$3,406,971 External: \$1,091,057 Total: \$4,498,028

Date of Visit: October 15, 2002

Summary of Notes:

1. The MBI was established in 1992 with an \$18 million U.S. Department of Defense Grant and a \$36 million matching grant from UF. In 1998 the \$60 million UF Brain Institute Building, paid for with external grant funds, was completed. In 2000, the Brain Institute received a \$15 million gift from the McKnight Brain Research Foundation. This award was matched by the State of Florida to create a \$30 million permanent endowment devoted to fundamental research on memory impairment in humans and to the development of strategies for its prevention and /or alleviation.
2. The MBI is one of the world's largest research institutions devoted to brain and nervous system disorders. The multidisciplinary MBI brings together 315 UF faculty from 51 departments in 10 colleges who are dedicated to the study of neuroscience. According to director Luttge, the MBI is "more like a college or school than an institute." Luttge appoints MBI faculty even though those faculty report to their department chairs who report to the deans. Luttge reports to the vice president of health affairs.
3. The MBI building is a multi-user core facility for multidisciplinary research. The building houses a number of specialized hands-on teaching facilities as well as smaller research core facilities, imaging research suits, and "beyond state of the art" medical equipment.
4. The MBI has lucrative collaborative partnerships with government agencies and private industry that underwrite most of its innovative research on brain disorders. MBI physicians/scientists are currently conducting research on traumatic spinal cord and brain injury, neuro-degenerative diseases, neuro-gene identification and repair (with adult human stem cells) and biomedical engineering.
5. UF's new Department of Biomedical Engineering was initiated by the MBI. All faculty in this new department will be affiliated with the Institute. A unique case of an institute establishing an academic department.

CENTER/INSTITUTE PROFILE

University: University of Florida

Name of C&I: Archie Carr Center for Sea Turtle Research

Organizational Affiliation: College of Liberal Arts and Sciences

Type: 3

Name of Director: Karen Bjorndal

Mission: To conduct research in all aspects of the biology of sea turtles, to train graduate students, and to further sea turtle conservation through the communication of these research results to the scientific community, management agencies, and conservation organizations throughout the world.

Expenditures 2000-01: SUS: \$00.0 External: \$376,560 Total: \$376,560

Date of Visit: October 20, 2002

Summary of Notes:

1. The Archie Carr Center was established in 1986 in recognition of the achievements and pioneering research of the late Dr. Archie Carr and the University of Florida's international reputation in the field of sea turtle research.
2. The Director is a faculty member in the Department of Zoology. She receives a 30 percent reduction in her teaching load to direct the center's activities. A full-time principal investigator is paid from external grants. Although the center reported no SUS appropriated (state) expenditures in FY 2000-01, it receives free space and utilities as well as some furniture. In addition, the Zoology department provides a full-time technical person to help operate the center. This type of fiscal arrangement is not unusual for Type 3 C&Is. Typically, Type 3 C&Is support the majority of their activities (and staff) with outside grants and do not receive a direct state appropriation. They do however; utilize the infrastructure of their host university and often the resources of their department or college. The Center receives 7.5% of the indirect funds generated and expended as a rebate. The director uses the money to buy items that can't all be bought through C&G funding. Some of the center's research is supported by in-kind matches by interested groups.
3. The Center developed the "Sea Turtle Online Bibliography." This bibliographic database can be accessed worldwide free of charge via the internet. It includes all aspects of sea turtle biology, conservation and management. The Center maintains the Sea Turtle Tag Inventory to avoid duplication of tag numbers when tags are purchased by different research programs. The Center has developed a website to facilitate marine turtle population genetic studies.
4. The Center has worked with fishermen to develop "barbless open" hooks to be used on long line fishing that has drastically reduced the mortality of turtles.

CENTER/INSTITUTE PROFILE

University: University of Central Florida

Name of C&I: Center for Research and Education in Optics and Lasers (CREOL)

Type: 2

Organizational Affiliation: School of Optics/CREOL; V.P. for Research

Name of Director: Dr. Eric Van Stryland

Mission: The Florida Legislature established CREOL to bring together diverse disciplines into a cohesive program in optics and lasers. The goals of the School of Optics/CREOL are to:

1. provide the highest quality education in optics, lasers, and photonics
2. conduct scholarly fundamental and applied research, and
3. aid in the development of Florida's and the nation's technology-based industries.

Expenditures 2000-2001: SUS \$3,347,864; External \$7,376,580; Total \$10,724,444

Date of Visit: September 19, 2002

Observations: Please see Chapter 2 for a detailed discussion of this C&I.

1. CREOL was established in 1986 as a "Center of Excellence."
2. The School of Optics and CREOL are one-in-the-same. They are staffed by the same people (faculty and students) but perform separate but interrelated functions. The primary function of the School of Optics is education, while the mission of CREOL is research.
3. CREOL has a 3-person external review board and a board of directors.
4. The School/CREOL has 25 faculty members, 25 Ph.D. staff members, 20 administrative support staff, and over 100 graduate students.
5. CREOL's staff has attracted and works with 106 of the 148 optics companies in the Orlando area.
6. Involvement and support of industry is critical. This support is given as both in-kind and funding support.
7. CREOL and UCF have made it a point to focus and use resources as intended in the funding legislation. This is different from some other C&Is that redirect their efforts away from the original mission. This focus is one reason why CREOL has received ongoing support from the university and from the State.
8. The three pillars of success for CREOL are:
 - Recruit outstanding faculty
 - Recruit outstanding students
 - Emphasize accomplishments

CENTER/INSTITUTE PROFILE

University: University of Central Florida

Name of C&I: Florida Solar Energy Center

Type: 1

Organizational Affiliation: V.P. for Research and Provost

Name of Director: David L. Block, Ph.D., P.E.

Mission: The Mission of the Florida Solar Energy Center (FSEC) is to research and develop energy technologies that reduce Florida's use of energy and enhance its economy and environment, and to educate the public, practitioners and students on the results of the research.

Expenditures 2000-2001: SUS \$3,324,495; External \$5,080,581; Total \$8,405,076

Date of Visit: September 19, 2002

Summary of Notes:

1. Created in 1974, FSEC is the largest and most active state-supported renewable energy and energy efficiency research, training, and certification institute in the United States. FSEC is divided into seven divisions, Academic and Learning Technologies, Business Affairs, Public Affairs, Buildings Research, Hydrogen Research and Development, Photovoltaics and Distributed Generation, and Testing and Operations. The legislature created FSEC as a Type 1 center and provided land for the move from the original location.
2. FSEC employs only 2 tenure track faculty but 47 non-tenure track (research) faculty, and 23 technical staff, with 2 undergraduate and 6 graduate students. Approximately 40 percent of their work is basic research, while another 38 percent is applied research. During the study year, FSEC produced: 140 scholarly publications, 5 curricular materials, and 180 other publications; made 330 invited presentations and 110 other presentations; conducted 30 workshops, 30 professional meetings, 10 public service sessions, and received 4 patents or copyrights; and taught 5 graduate and 3 undergraduate courses.
3. Included in the \$5,080,581 in external funds that FSEC generated during the study year was an unusually large amount from fees (\$1,060,082) that derive from
 - Solar testing equipment of manufacturers
 - A computer program for the thermal energy code

CENTER/INSTITUTE PROFILE

University: University of Central Florida

Name of C&I: Hydrogen Research and Applications Center

Type: 3

Organizational Affiliation: Florida Solar Energy Center; VP for Research, Provost

Name of Director: David L. Block, Ph.D., P.E.

Mission: To lead the research, development, and education effort needed to put hydrogen to use in meeting Florida's and the nation's rapidly growing transportation needs for space, automobiles, and other vehicles.

Expenditures 2000-2001: SUS \$00.00; External \$75,223; Total \$75,223

Date of Visit: September 19, 2002

Summary of Notes:

1. The Hydrogen Research and Applications Center is a spin-off from the FSEC. It was conceived as a marketing vehicle and a new focus for research.
2. This center is not unlike many Type 3 centers at universities, in that it was organized to bring together researchers and industry leaders to acquire external funding that will advance the research goals of individual faculty members and the university.
3. Interest in the Center's work and products has been expressed by the Ford Motor Company, NUI Ventures, Praxair, Inc., Sentech, Inc., Teledyne Brown Engineering Energy Systems, and the Association of State Energy Research and Technology Transfer Institutions, the Hydrogen Technical Advisory Panel, the National Hydrogen Association, and the Solar Energy Industries Association.
4. This center is in its infancy and displays many of the characteristics of other Type 3 C&Is in the state.

CENTER/INSTITUTE PROFILE

University: The University of North Florida

Name of C&I: The Florida Center for Public Policy and Leadership

Type: 2

Organizational Affiliation: Political Science and Public Administration

Name of Director: Dr. Adam Herbert

Mission: To assess economic, demographic and social trends throughout the First Coast region, Florida and the nation and identify opportunities to enhance economic growth, community development and quality of life for all Floridians.

Expenditures 2000-01: SUS: \$969, 911 Total: \$969,911

Date of Visit: April 18, 2002

Summary of Notes:

1. The Center, which opened in March 2001 as an interdisciplinary public policy research and leadership development organization, provides state and local elected officials with information on and strategies for addressing the most significant public policy challenges confronting the State and the First Coast Region.
2. In addition to the documentation of social trends in the State, the Center is focusing its research and policy analysis activities in four major areas: The Florida child, juvenile justice; race relations and health care services/finances.
3. To facilitate its research and policy analysis activities, The Center is developing a set of comprehensive databases that are available to the public including U.S Census Data Files; Inter-University Consortium for Political and Social Science Research; Metropolitan New Economy Index; and the National Juvenile Justice System and the Florida Department of Juvenile Justice.
4. The Center established the Geographic Information System (GIS) Laboratory to support and facilitate its research and policy analysis activities. The GIS Laboratory includes web-based mapping application that provides information access to the public in ways geared to make complex issues easier to understand. The Center's website includes links to a variety of education governance and legislative issues.
5. The Center established a Public Opinion Research Laboratory as a resource for public policy makers, faculty researchers, government agencies, businesses and students at Florida's universities.
6. Select undergraduate and graduate students have the opportunity to develop applied policy research skills, study the policy formulation process and participate in the activities of the center.

CENTER/INSTITUTE PROFILE

University: The University of North Florida

Name of C&I: Florida-West Africa Linkage Institute

Type: 2

Organizational Affiliation: Multidisciplinary

Name of Director: Dr. Dennis J. Gayle

Mission: To encourage and expand economic, educational, and cultural linkages between Florida and 16 West African partner countries.

Expenditures: SUS: \$ 11,570; External: \$32,196; Total: \$52,627

Date of Visit: April 18,2002

Summary of Notes: Please See Chapter 2 for a detailed discussion of this C&I

1. FLAWI is one of 11 “linkage institutes” established by the Legislature in 1991 to assist in the development of stronger ties between Florida and strategic foreign countries.
2. Linkage institutes are atypical for Type 2 C&Is even within the loose framework that currently exists statewide. Each institute is co-administered by a university-community college partnership. State funds (which have been severely cut in recent years) flow to the institutes indirectly from the Florida Department of State.
3. FLAWI works with interested chambers of commerce, governmental and non-governmental organization to develop existing potential for trade expansion and to further economic development activities in West Africa.
4. FLAWI is involved in the first phase of a collaborative project to improve health care education and delivery in Senegal. The institute has worked with Senegal’s Ministry of Education since 1994 to assist in reforming the country’s education system.
5. To promote cultural and educational linkages with West Africa, FLAWI provides non-resident tuition waivers to qualified students from its partner countries.
6. The institute’s executive director is UNF’s Associate Vice President of Academic Affairs, and a professor in International Economics. Faculty from a variety of disciplines participate in FLAWI’s mission.

CENTER/INSTITUTE PROFILE

University: University of North Florida

Name of C&I: The Northeast Florida Center for Community Initiatives (CCI)

Type: 3

Organizational Affiliation: Department of Sociology, Anthropology and Criminal Justice

Name of Director: Dr. Jeffry A. Will

Mission: Provides high quality research and evaluation support to community, local, state and federal programs affecting community life in Northeast Florida.

Expenditures 2000-01: SUS: \$0.00 External: \$270,251 Total: \$270, 251

Date of Visit: April 18, 2002

Summary of Notes:

1. The CCI is comprised of sociology and anthropology faculty and students who conduct research projects on social issues confronting Northeast Florida and evaluate existing local social service programs and initiatives.
2. CCI staff conducts the Annual Jacksonville-Duval County Homeless Census and Survey, the results and analyses of which is used by local leaders to address issues of homelessness and related concerns.
3. Other research projects include evaluation of juvenile justice programs, prison reform and infant mortality.
4. The Community Relations Commission of Jacksonville funded the CCI's *Comprehensive Study of Race Relations in Jacksonville Florida*. Several Philanthropic organizations have funded the CCI's assessments and evaluations of local juvenile delinquency and intervention programs as well as those services and programs for older adults. The CCI has also sponsored archeological surveys of areas of historic and anthropological interest.
5. The CCC works closely with the Florida Center for Public Policy and Leadership in a variety of policy initiatives in Northeast Florida.
6. The Center director is a sociology professor who does not receive release time from teaching to conduct center activities. He noted that it is very difficult to fill out an annual expenditure report to the state as the funding/expenditures for his and other CCI faculty activities are seen as an outreach of their academic department and of their professional interests and commitment. This is typical of many small type 3s within the SUS.
7. Sociology and Anthropology undergraduate and graduate students receive opportunities to participate in hands on research, often in paid research assistant positions. Many of the CCI's research and public service activities provide data for MA Theses and Demonstration Projects.

CENTER/INSTITUTE PROFILE

University: University of South Florida

Name of C&I: Florida Policy Exchange Center on Aging

Type: 1

Organizational Affiliation: Office of the Provost

Name of Director: Dr. Larry Polivaka

Mission: To inform policy makers, the media, scholars, and advocates on policies, programs, and services for older adults.

Expenditures 2000-01: SUS \$654,524; External \$360,477; Total: \$1,525,961

Date of Visit: July 10, 2002

Summary of Notes: Please See Chapter 2 for a Detailed Discussion of This C&I

1. The center was established by the Legislature in 1992 as a Type 1 C&I. The Advisory Board is comprised of health care representatives and experts from a variety of agencies and universities in Florida.
2. The center collects and analyzes information about long-term care, transportation, employment income security, and a variety of other areas that affect the daily lives of elderly residents.
3. The Center has two main units, the USF Training Academy of Aging and the State Data Center on Aging. The Data Center generates analytical reports on aging-related issues in such areas as health care, long-term care and housing.
4. The Center served as staff of the Legislature's Task Force on the Availability and Affordability of Long-Term Care in 2000-01. As a result of Task Force activities, legislation was passed to reform long-term care in the State.
5. Center staff has worked collaboratively with other centers and individual faculty from other SUS institutions in several age-related projects. A Chronic and Long Term Care Research Proposal involving all ten SUS universities in a \$36 million dollar, five year project was developed by the Center and submitted to Congress in July 2001.
6. The Center's director is a tenured member in the Department of Gerontology, teaches courses in that department, and supervises doctoral students enrolled in the university-wide Ph.D. in Aging Studies Program.

CENTER/INSTITUTE PROFILE

University: University of South Florida

Name of C&I: Center for Aging and Brain Repair

Type: 2

Organizational Affiliation: College of Medicine

Name of Director: Dr. Paul R. Sanberg

Mission: To develop new therapeutic strategies to promote repair and regeneration of aging and diseased brain. Translates innovative ideas into industrial partnerships and education and clinical services to address key needs of the community and those suffering from brain injury and disease.

Expenditures 2000-01: SUS: \$675,000 External: \$1,066,000 Total: \$1,741,000

Date of Visit: July 10, 2002

Summary of Notes:

1. Established in 2000 the Center's medical research faculty develop models of care, translational research applications, clinical trials and biotechnology development focused on repair of the degenerative processes of aging and in diseases of the brain.
2. The Center is heavily involved in technology transfer, particularly with biotechnology companies based along the I-4 corridor. In 2000-01, center faculty received two of the Florida Hi-Tech Corridor grants with Tampa Bay Industrial partners.
3. Center faculty have developed patents for medicines used to treat Parkinson's disease, stroke, and other related brain diseases.
4. Center scientists were the first in the nation to prove that umbilical cord blood-derived stem cells (distinguished from the controversial use of embryonic stem cells) could successfully reverse brain injury in rats genetically engineered to suffer from strokes. One of the center's neuroscientists has been awarded a \$1.3 million federal grant to study whether human umbilical cord stem cells can rescue the brain from age-related decline and the effects of diseases such as Alzheimer's, Parkinson's and a host of childhood brain disorders.
5. Center faculty are research scientists but also provide lectures and supervise students at the undergraduate and graduate level.
6. Center faculty provide clinical care to Florida residents through USF's health center.
7. According to Director Paul Sanberg, one of the Center's administrative weaknesses is that faculty appointments are made through the academic departments within the college of medicine, not through the Center itself.

CENTER/INSTITUTE PROFILE

University: University of South Florida

Name of C/I: Center for Biological Defense

Type: 3

Organizational Affiliation: College of Public Health

Name of Director: Jacqueline Cattani

Mission: Perform coordinated research to identify and develop new and innovative methods for recognizing and combating bioterrorism. Training first-line responders and developing detection and typing methodologies of biological terrorism agents.

Expenditures 2000-01: SUS: \$00.00 External: \$583,361 Total: \$583,361

Date of Visit: July 10, 2002

Summary of Notes:

1. The Center was established in October 2000 when USF and the Florida Department of Health Laboratory in Tampa first received funds from the Department of Defense.
2. Since September 11, 2001, the Center has grown into a comprehensive network that includes the Florida Department of Health, the Centers for Disease Control and Prevention, the Federal Bureau of Investigation, the U.S Army Medical Research Laboratory of Infectious Diseases and the Florida Department of Law Enforcement. The CPD funds five other SUS institutions that are conducting biodefense research in a variety of areas including agricultural terrorism and food born terrorism. The CBD has established collaborative relationships with several private sector companies to facilitate technological and procedural improvements in testing for biothreat agents.
3. According to the center director, the CBD is the only center of its type in the United States to sponsor a full range of activities from basic research on new technologies in the laboratory to operation research in the field. The CBD has a staff of six (all of whom are supported by external grants) but faculty from a variety of disciplines participate in the center's activities.
4. Because of the scope and the immediacy of the center's work, Dr. Cattani and her staff are in dire need of administrative support from the university. The center, which really functions as a Type 1 C&I but without state support, will apply for one of the state's new Center of Excellence Grants.

CENTER/INSTITUTE PROFILE

University: University of West Florida

Name of C&I: UWF Small Business Development Center (SBDC) Affiliate

Type: 1

Organizational Affiliation: College of Business

Name of Director: Larry A. Strain, Executive Director

Mission: The SBDC provides existing and prospective entrepreneurs in Escambia, Santa Rosa, Okaloosa, and Walton counties with high quality management and business technical counseling, entrepreneurial training, and information access and transfer, enabling them to maximize their business' growth, competitiveness and profitability.

Expenditures 2000-01: SUS \$280,394 ; External \$240,888 ; Total \$521,282

Date of Visit: June 26, 2002

Summary of Notes:

1. The federal Small Business Administration (SBA) and the SBD Network funds and oversees SBA projects in Florida.
2. Although almost half of the SBDC affiliate's funds come from this base grant, the SBDC at UWF receives a majority of its funding from other external (contracts and grants).
3. UWF's mission components, in priority order, are teaching, public service, and research. The SBDC affiliate is involved with all three, provides great visibility for the university, helps attract and support good students and provides research opportunities for faculty and students.
4. For every federal dollar they receive, they generate eight state tax dollars.
5. The director teaches for-credit-courses in the School of Business. One graduate seminar actively involves students in the SBDC's consulting projects.
6. The SBDC does 150 seminars annually resulting in 22,500 direct contact hours. They also see approximately 1,000 clients in their office per year.
7. The SBDC is evaluated by the university's Inspector General, the Florida (federal) SBA, the UWF SBDC network, SBDC peers, and advisory board members.
8. Because the evaluation criteria are published in advance and are quantifiable, it is relatively easy to evaluate the SBDC center.

CENTER/INSTITUTE PROFILE

University: University of West Florida

Name of C&I: Center for Environmental Diagnostics and Bioremediation (CEDB)

Type: 2

Organizational Affiliation: Provost

Name of Director: Dr. K. Ranga Rao

Mission: CEDB engages in basic and applied research pertinent to the assessment and improvement of environmental health; provides research and training opportunities for graduate and undergraduate students; delivers several core courses and specialized elective courses for strengthening academic programs; and contributes to public service, including activities to enrich science education at K-12 levels in public schools.

Expenditures 2000-2001: SUS \$359,986; External \$753,133; Total \$1,113,119

Date of Visit: June 26, 2002

Summary of Notes:

1. CEDB was started in 1990 to give UWF leverage with the federal Environmental Protection Agency (EPA) and to assist the academic departments.
2. SUS-supported lines reside within CEDB. Currently, four tenure-earning faculty members do research at CEDB (about half-time) and teach some of the university's basic courses.
3. CEDB currently supports about 25-30 undergraduate about 20 graduate students.
4. The SUS funding adds stability to CEDB's fluctuating grant situation. Since it started in 1990, CEDB has brought in \$13.1 million in external funds. The center's C&G money will increase in the future due to several multiyear grants, including a consortium with other universities, USDA, the U.S. Army, CDC, EPA, NSF, and others.
5. In order to evaluate a C&I, Dr. Rao feels that you need to look at a center or institute's mission, objectives, student support provided, and outreach (public service) activities. Don't just look at dollars generated. Evaluation should involve both qualitative analyses and quantitative evaluation measures. Only C&Is who get significant amounts of state money should be evaluated. To properly evaluate a C&I, you have to first know the intent of the original SUS appropriation. The evaluation should be externally conducted, perhaps by a peer group of 3 persons and should concentrate on what the center or institute does in relation to the mission of the university. Perhaps evaluations of centers and institutes should be done every 5 years like the old Board of Regents rule on academic program reviews.

CENTER/INSTITUTE PROFILE

University: University of West Florida

Name of C&I: Center On Aging

Type: 3

Organizational Affiliation: College of Professional Studies

Name of Director: Dr. Petra Schuler

Mission: 1) provide consultation and training to social service agencies that provide services to the elderly; to provide seminars and workshops on issues concerning aging; 3) to engage in applied research; 4) to administer and provide course instruction to the aging studies program; to sponsor the Gerontology Club; and 6) to invite guest speakers.

Expenditures 2000-2001: SUS \$13,775; External \$00 ; Total \$13,775

Date of Visit: June 26, 2002

Summary of Notes:

1. Interview conducted with Dr. Douglas Friedrich, Provost Emeritus and Professor, who, along with 5-6 other faculty members, collaborate with the Center on Aging.
2. The Center on Aging has been in existence for about 15 years. It is an interdisciplinary center with faculty from all three of UWF's colleges. They have developed and are conducting an Aging Studies master's degree program.
3. During FY 2000-2001, the center expended a small amount of E&G money (\$13,775), or "incentive money," to provide minimal support for the director and maybe some expense money for the center.
4. The center is a vehicle for faculty with common interests to work together.
5. Any new C&I would be initiated through the university's annual planning process.
6. Dr. Friedrich said that evaluation of C&Is is essential because it is too easy for them to become "institutionalized." Some C&Is are "money generators" contributing significantly to the indirect costs funds accumulated by the universities. They also bring prestige to the university.
7. He does not think that the legislature should evaluate C&Is. External reviews should be conducted by peers and should cover annual plans, objectives, outcomes, and should involve beneficiaries.
8. If the legislature mandates the evaluation of C&Is, it should be for Type I Centers that receive significant state funding. Funding agencies also review the work of centers. According to Dr. Fredrick, the old Board of Regents system of Type I, II and III centers made sense in the beginning, and probably helped protect smaller universities like UWF and UNF, but is not very helpful now.

Appendix F

Survey of Centers and Institutes

Appendix G
Beta Test Sites

BETA TEST SITES

UNIV TYPE NAME OF CENTER/INSTITUTE

FAU	2	Joint Center for Environmental and Urban Problems
	2	Communications Technology Center
	2	Center for Environmental Equity and Justice
FGCU	2	Center for Leadership and Innovation
FIU	1	International Hurricane Center
	2	Latin American and Caribbean Center
	2	Center on Aging
FSU	2	Center for the Advancement of Human Rights
	2	Center for the Study of Teaching and Learning
UCF	2	Center for the Discovery of Drugs and Diagnostics
	1	Florida Solar Energy Center
UF	1	Florida Sea Grant College Program
	2	Center for Aquatic and Invasive Plants
	2	Center for Women's Studies and Gender Research
UNF	2	Northeast Florida Institute for Science, Mathematics, and Computer Education
USF	1	Lawton and Rhea Chiles Center for Healthy Mothers and Babies
	2	Institute on Black Life
	2	Florida Center for Community Design and Research
UWF	2	Archeology Institute

Appendix H
Technical Appendix
Economic Impact of Centers and Institutes in
Florida's Public Universities

TECHNICAL APPENDIX

Economic Impact of Centers and Institutes in Florida's Public Universities

This chapter describes the impact of public postsecondary centers and institutes (C&Is) on Florida's economy. It measures the increase in employment and economic output generated by C&I activities across the broader statewide economy. The net economic stimulus from C&Is is estimated by summing C&I external and internal expenditures for FY 2000-01. External expenditures include contracts and grants (government and private sponsors), auxiliary fees/services, and other external sources. Internal expenditures include all state (SUS-appropriated) expenditures. The sum of these dollars represents all C&I expenditures used for salaries, materials and equipment, travel and all other C&I expenditures (see Table 1).

These expenditures were then put into a Florida regional input-output model that includes cross linkages among every sector of the Florida economy. As C&Is expend dollars, further demand for goods and services across other sectors of the Florida economy are generated. The direct C&I spending creates a secondary "multiplier" cycle of spending that further increases income, jobs and total state economic activities referred to as state output. This analysis measures those direct and indirect economic increases flowing from C&Is based on the initial FY 2000-01 expenditure data. This study did not quantify the intangible benefits generated by the presence of C&Is to the local economy, such as teaching and instruction, quality of life enhancements, cultural opportunities, intellectual stimulation (through publications, presentations, public service), and creation of spin-off companies, among others. The intangible benefits of C&Is are discussed in other chapters of this study.

The definition of C&I economic impact is the difference between existing economic activity in Florida and the level of economic activity that would exist in the absence of university C&Is. Since the C&Is already exist, we measured their impact on the state economy by first removing them from the economy. The difference between the economy with C&Is and the economy without C&Is represents the net C&I economic impact. By using the Regional Economic Model, Inc. (REMI, 2000) analysis, we capture and present the positive net economic impacts of C&Is on the state of Florida. Measured economic impacts include increases in:

- 1) Florida Gross Regional Product (or State Output)
- 2) Personal Income (Including Wages)
- 3) Number of Jobs Created
- 4) State and Local Tax Revenues Generated

Short-term economic impacts are the net changes in regional output, earnings, and employment that are due to new dollars entering into a region from a given enterprise or economic event. In this study, the enterprise is the state university C&Is, and the region is Florida. The effects of expenditures external to Florida (termed leakages) are not included in the impact estimates.

Table 1. C&I Expenditures by Funding/Expenditure Category FY 2000-01

C&I Expenditures	SUS-Appropriated Expenditures	External Expenditures	Total Expenditures
Faculty Salaries	\$50,870,097	\$71,219,373	\$122,089,470
Special Category*	\$7,237,254	\$13,722,391	\$20,959,645
Electrical	\$2,550,269	\$349,814	\$2,900,083
Operating Expenses	\$5,532,500	\$15,152,070	\$20,684,570
Other**	\$14,614,511	\$69,566,575	\$84,181,086
Graduate Salaries	\$4,855,875	\$31,422,080	\$36,277,955
House Staff***	\$3,116,185	\$10,702,919	\$13,819,104
	\$5,737	\$571,339	\$577,076
Total	\$88,782,428	\$212,706,561	\$301,488,989

* Includes libraries and data processing

** Includes primarily sub-contracts

*** Includes salaries and other for UF and USF medical staff and centers

Economic impacts are effects on the levels of activity in a given area. They may be expressed in terms of 1) business output (or sales volume) 2) value added (or gross regional product) 3) wealth (including property values) 4) personal income (including wages), or 5) jobs. Any of these measures can be an indicator of improvement in the economic well-being of area residents. The net economic impact is viewed as the expansion (or contraction) of an area's economy, resulting from changes in a facility or project, or in assessing the economic impact of an already existing facility or project. The net economic effect would take into account the probability that in the absence of the facility, or project, the monies would be reallocated to other facilities and/or projects. Economic effects are different from the valuation of individual user benefits and the broader social impacts (amenity value) of a facility or project. However, assuming they can be quantified, they may be included to the extent they affect an area's level of economic activity (Weisbrod, 1997). Economic impacts also may be examined in conjunction with fiscal impacts, which are changes in government revenues and expenditures. Economic impacts such as changes in GRP or personal income can affect government tax revenues by expanding or contracting the tax base. In addition, employment and/or population shifts can affect government expenditures by changing demand for public services. For the purpose of this study, both the economic and fiscal impacts of SUS C&Is in Florida will be reported.

Short-term economic impacts are the net changes in regional output, earnings, and employment that are due to new dollars entering into a region from a given enterprise or economic event. In this study, the enterprise is the State University C&Is, and the region is Florida. Since the C&Is already exist, we will estimate their impact on the Florida economy by removing them from the economy. In order to allow ease in interpretation of the results, we will report the C&Is affects as a positive value (i.e., reversing the signs of the variables). The effects of expenditures external to Florida (termed leakages) are not included in the impact estimates. Since the state level covers a larger economic area that

the county level, a greater portion of direct expenditures are captured, resulting in less leakage at the state level.

Review of University Economic Impact Studies

This study examined previous university economic impact studies (from 1999 to current) to determine methodologies pertaining to benefit-cost analysis, measurement (input output models such as REMI, IMPLAN or RIMS III), and what time frame to use (long-term or short-term). Most of the studies estimated the economic impact of university center and institute spending from a long-term perspective by calculating rates of return to education. A University of Waterloo study provided one of the most far-reaching outlooks, including spin-off companies and intellectual capital as economic activities (PWC, 2000-01). A University of Connecticut study also used the REMI model in its analysis. In addition to deriving the economic benefit of the University of Connecticut on the local economy using university expenditures, they examined other economic activities as well, including visitor expenditures, community service, and spin off companies (CCEA, 2002). An often Cited study, by the National Association of State Universities and Land-Grant Colleges (NASULGC), based on data from 96 member institutions and survey data, reported various findings such as impact on the local economy, ratio of dollar of state appropriated funding the university received relative to the dollar amount in total spending in the local economy, the amount the university generated in tax revenues, number of patents, among others (NASULGC, 2000-01). Another study conducted by the Selig Center for Economic Growth estimated the economic benefits to the Athens, Georgia community using university-related expenditures and including visitor expenditures and spending by students (Selig Center, 1999). Another study, conducted by the University of South Carolina (USC, 2000), provided economic benefit estimates for South Carolina and its' regions. In addition, they calculated the internal rate of return for a student's investment and the state return on a bachelor's degree and a graduate degree. The University of Arizona (UA, 2000-01) performed an economic impact analysis of its' technology park on the economy of two adjacent counties, with a focus on jobs, wages, and total output (sales). The University System of Maryland, through the Jacob France Institute (USM, 2002), studied the economic and fiscal impact of USM on the Maryland economy, workforce development and USM contribution to economic development using Regional Input Output Modeling System (RIMS II) as their input output model. Arizona State University (ASU, 1999) conducted an economic impact study of ASU on the state of Arizona using data from university, employee, student and visitor expenditures, and the IMPLAN model. The IMPLAN model is an input-output model, which presents results in terms of direct, indirect, and induced effects over an annualized time frame. In summary, the university economic impact studies ranged from a short time frame using university expenditures to determine economic impact, to more extensive analyses including university, employee and student expenditures, survey data, spin-off companies, among other intangible benefits of the university on the state and local economy.

The REMI Model

REMI, 2000 is a widely accepted and used dynamic integrated input-output and econometric model. REMI is used extensively to measure proposed legislative and other program and policy economic impacts across the private and public sectors of the state by the Florida Joint Legislative Management Committee, Division of Economic &

Demographic Research, the Florida Department of Labor and other state and local government agencies. In addition, it is the chosen tool to measure these impacts by a number of universities and private research groups that evaluate economic impacts across the state and nation.

The REMI model used for this analysis was specifically developed for the state of Florida, and includes 172 sectors (see end of this technical appendix for a detailed listing). REMI's principal advantage is that it can be used to forecast both direct and indirect economic effects over multiple-year time frames. Other input-output models primarily are used for a single year analysis.

Input output (I/O) models are basically accounting tables which trace the linkages among industry purchases and sales within a given county, region, state or country. The I/O model produces multipliers that are used to calculate the direct, indirect and induced effects on jobs, income and GRP generated per dollar of spending on various types of goods and services in Florida. REMI combines these capabilities plus the ability to forecast effects of future changes in business costs, prices, wages, taxes, etc.

REMI was founded in 1980, and continues to be enhanced to date. The entire regional economy (i.e., Florida) is modeled as interactions between five linked groups of economic variables; output, labor and capital demand, population and labor supply, wages, price, and profits, and market shares of national and local firms operating in the region.

The output block contains the input-output component of the model. Final demand drives the output block. Production uses factor inputs (e.g., labor; capital and fuel) and intermediate inputs. Coefficients of the production functions are based on national input-output tables produced by the Bureau of Labor Statistics. Intermediate inputs are used in fixed proportions. Factor input use is governed by Cobb-Douglas production functions in Block 2. The relative factor intensities respond to changes in relative factor costs (i.e., wage rate changes, cost-of-capital changes, and changes in fuel prices).

Labor supply in Block 3 responds positively to increased wage rates because of migration. Also, the ratio of residence- adjusted employment to the potential labor force influences migration. Place-of-work income also is adjusted for place of residence to obtain disposable income. The interaction of labor demand calculated in Block 2 and of labor supply calculated in Block 3 determines wage rates in Block 4. Migration induces government spending through additional taxes paid and consumer spending through increased wage and non-wage income. The increase in real disposable income derived from migration also stimulates residential investment. Nonresidential investment is stimulated by increased capital demand by businesses.

Wage rates affect the competitiveness of local firms relative to firms in other regions in Block 5. Regional competitiveness affects the shares of local and exports markets (market shares) that local firms capture. The proportion of the local market captured is known as the regional purchase coefficient (RPC), and the proportion of the export market is known as the interregional and international coefficient. Also, the RPC, which is a measure of self-sufficiency, increases as a region grows because of agglomeration effects.

Endogenous consumption, investment, and government expenditures plus exports are the final demands that drive the output block. The endogenous RPC gives the proportions of

local expenditures satisfied by imports or local production. Solution values for the endogenous variables in the REMI model must satisfy the equations in all five blocks simultaneously.

By suppressing certain endogenous responses in the REMI model, multipliers comparable to those computed from an input-output model can be obtained. If the responses of labor intensities, labor supply, wage rates, industry RPC's, and endogenous final demands are suppressed, Type I input-output multipliers are obtained. By allowing consumption to be endogenously determined, Type II multipliers are obtained. Complete endogeneity in the REMI model produces what is referred to as Type III multipliers. This Type III multiplier differs from standard Type III input-output multipliers because of the endogeneity of export and propensity to import responses in the REMI model.

The detailed structure of the REMI model requires an extensive amount of data. The input-output component is non-survey based, using national technical coefficients. Of particular importance are data on employment, income, and output. Also, because complete regional accounts consistent with the National Income and Product Accounts are not routinely available, they must be constructed.

REMI uses three sources of employment wage and salary data: the Bureau of Economic Analysis (BEA) employment, wage, and personal income series, ES-202 establishment employment and wage and salary data, and County Business Patterns (CBP) data published by the Bureau of the Census. The BEA data are annual averages and are reported at the two-digit level for states and at the one-digit level for counties. The ES-202 data, the foundation for the BEA data, are collected monthly in conjunction with the unemployment insurance program at the two-digit level for counties and states, and they are the foundation for the BEA data. CBP data are collected in conjunction with the Social Security program in March of each year.

Confidentiality requirements produce many suppressions in the data. Where suppressions occur, the number of establishments and the ranges of the number of employees for each establishment are supplied by CBP. REMI fills in the suppressions based on the hierarchical structure of the BEA data within regions and within industries. First, all two-digit standard industrial classifications (S.I.C) (i.e., industries) are made consistent within the corresponding one-digit industries for each state simultaneous with all two digit industries summed to the major region two-digit totals. Second, for the counties REMI uses the ES-202 data, if available, and CBP data if ES-202 data are not available. Whichever data set is selected, it is made consistent with BEA one-digit county totals and state two-digit totals.

Output measures are based on regional employment data, the BEA Gross State Product series, and national output-to-employment ratios. REMI begins by applying the national output-to-employee ratio to employment by industry. This application is adjusted by regional differences in labor intensity and total factor productivity. Regional differences in labor intensity are given by the industry production function and the unit factor costs. Total factor productivity calculations depend on industry value added in production reported in real U.S. dollars by BEA and on adjustments by REMI to the BEA numbers to reflect differences in regional production costs. The ratio of real regional value added per unit of input relative to U.S. value added per unit of input is the REMI relative total factor productivity.

Methodology

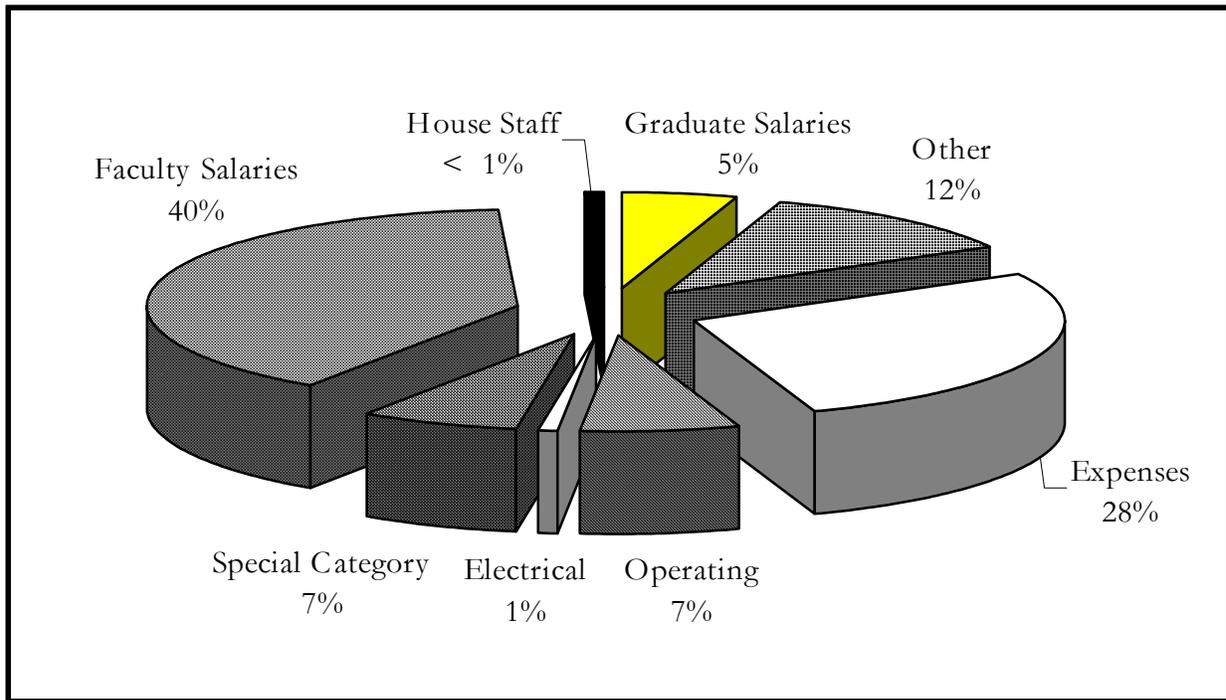
As a part of our modeling strategy, we examined both the revenue and the expenditure approach regarding the impact of C&Is on the Florida economy. The revenue approach allows the REMI model to redistribute the expenditures according to sectors (based on actual historical data). For the expenditure approach, C&Is' actual FY 2000-01 expenditures were used to calculate the economic impact. This approach allowed us to achieve a greater level of detail by capturing the detailed economic impacts of the system via the specific expenditure path using actual data rather than the estimated paths provided by the REMI model. Thus, the expenditure approach was the selected method for this analysis.

Staff evaluated the economic impact of C&Is across the Florida economy from the expenditure approach perspective. The expenditure approach disaggregates the various C&Is direct expenditures (e.g., salaries, equipment purchases, travel, etc.) by specific economic sector to calculate the economic impacts. The data on FY 2000-01 C&I expenditures were collected from each SUS institution and from the annual C&I expenditure reports submitted to the Division of Colleges and Universities (DCU).

Table 1 presents the C&I expenditures and the breakdowns for FY 2000-01 by funding/expenditure category. Figure 1 provides a percentage breakdown of the budget categories in terms of total expenditures. For the purpose of this analysis, the funding/expenditure categories used were SUS appropriated expenditures and (all) external expenditures.

The direct expenditures were divided into salaries, expenses, OCO (operating capital outlay), electrical, special category, graduate, house staff, and other categories. We applied the percentage breakout from the expenditures report data to the expenditures collected from each SUS institution, and used the category assignments as variables in the REMI model. Table 1 (see page 2) presents the C&I expenditures and their assorted breakouts for FY 2000-01. Figure 1 provides a percentage breakout of the categories in terms of the total budget. For the purpose of the economic impact analysis, the categories we used were SUS funds and external expenditures. The salaries category included salaries for all faculty and staff. The OCO category included equipment greater than \$1,000 in value. Expenses included such items as travel, materials and supplies, etc. The special category only included those items directed for libraries and data processing. The graduate category included salaries for graduate students, and house staff only included salaries and other expenses for University of Florida and University of South Florida medical staff and health centers. The other category was primarily used for sub-contracts. The expenditure data was entered into REMI, for both the revenue and expenditure approach.

Figure 1. Percent of C&I Expenditures for FY 2000-01



Model Assumptions

This report provides estimates of only the direct, pecuniary/financial benefits (or “return”) generated for the state (income, employment, taxes) as a result of the “investments” that the state makes in C&Is via SUS-appropriated funds through the Florida Legislature. The “returns” that are estimated using this analysis are exclusively associated with external contracts, grants and other awards brought into the universities by C&Is during fiscal year 2000-01. This analysis *excludes* “returns” to the state that are not financial benefits (these are known as “non-pecuniary/non-market” or “intangible” benefits). These intangible benefits include those associated with the teaching, research and public service activities of C&Is. Therefore, the assumptions used to estimate the economic return to the state through its investments in C&Is in this report can be characterized as conservative.

It is important, however, to recognize that the benefits to the state of Florida associated with these C&I intangible benefits (e.g., value of new medications or high tech products produced and commercialized, quality of life enhancements, teaching, research, publications, presentations, public service, and a host of other cultural and amenity values) are significant. The amenity values or benefits to the community by having a research university present (and enhanced by the multi-faceted activities of C&Is) can also be significant.

The model assumptions are:

- 1) The base model assumes a constant rate of growth for the economy;

- 2) The expenditure approach model used actual FY 2000-01 C&I expenditures (by category: salaries, expenses, etc.)for Type 1, 2, 3 C&Is and Type 1, 2 C&Is;
- 4) Total SUS state investment (expenditures) in FY 2000-01 was \$88.8 million;
- 5) This state investment leverages an additional \$212.7 million in additional external contracts and grants, fees and private expenditures yielding a total of \$301.5 million in FY 2000-01 for all expenditures made by C&Is statewide.
- 6) We assumed that, in the absence of C&Is, the SUS investment (\$88.8 million) would be reallocated to other Florida higher educational activities; and;
- 7) REMI results were expressed in terms of impacts on GRP, employment, personal (disposable) income, and state tax revenues.

Results of the REMI Analysis

Staff assumed that in the absence of state expenditures allocated to support C&Is, the initial state’s investment of \$88.8 million would be reallocated to support other higher education needs. As our modeling strategy, we used the university C&Is’ expenditures to calculate the economic impact via specific expenditure paths. Two scenarios were run, the first including Type 1, 2, 3 C&Is, and the second including Type 1 and 2 C&Is, only. The results were expressed in fixed 1992 dollars. To update the results to a FY 2000-01 base year, the dollars were inflated using a REMI-generated Consumer Price Index. Because expenditure multipliers often require decades to completely exhaust their iterative impacts, discounting analysis was used to present the economic impacts over the period FY 2000-01 to FY 2034-35.

The need to discount stems from the fact that, even when dealing with constant dollars, the value that we place on income and expenditures depends on when they occur (e.g., a dollar received a year from now is worth less than the dollar received today because of the time-value of money. Future values need to be converted to the common basis of today’s value, referred to as the present value, in order to compare them. The present value of a stream of future values is the sum of the present values of each element of the stream. The following results present the positive net economic impact of C&Is on the state of Florida. The present value (PV) of a future cost or benefit is determined by the formula:

$$\text{Where: } PV = \frac{s}{(1 + r)^n}$$

The following results present the positive net economic impact of C&Is on the State of Florida economy.

Table 2 summarizes the total economic impact of C&Is on the Florida economy. The table shows the economic impacts (for Type 1, 2, 3 and Type 1, 2 C&Is) on employment, gross regional product (GRP), real disposable income (Wages), and taxes from the C&I external expenditures made during FY 2000-01. Gross Regional Product (GRP or state output) is the dollar value of final goods and services produced across the Florida economy over the FY 2000-01 time period. Increases in personal (or disposable) income translate into more economic activities and local and state tax revenues. In addition to GRP and income, C&I s generate a significant amount of employment across the state. The REMI model assumes that changes in employment affect wages. These changes in wages affect in-migration (i.e., population) and labor supply, which in turn affects employment levels. The employment

results are expressed in terms of jobs. Gross Regional Product (GRP) and real disposable income results are expressed in terms of FY 2000-01 dollars. The amenity value that C&Is add to the state – through services such as education, research, public education, and fine arts, among others, makes Florida more attractive which also encourages in-migration. In addition, employment opportunities and other economic factors affected by Florida's C&Is also encourage in-migration. It is indicated that these effects increased population by 1,511 in Florida as a result of FY 2000-01 expenditures.

For Type 1,2,3 C&Is, as also depicted in Figure 2, GRP was estimated to increase by \$256 million (revenue approach) and \$269 million (expenditure approach) from C&I external spending. This C&I-generated rise in state output created considerable direct and indirect increases in employment across the state. Table 2 indicates that 5,832 (revenue approach) and 6,955 (expenditure approach) jobs, respectively, were created from these spending increases. In turn, this employment increase also generated higher wage and salary earnings for Floridians. Table 2 illustrates that direct and indirect personal (or disposable) incomes increased by \$184 (revenue approach) and \$244 million (expenditure approach) from these external C&I contracts, grants and awards.

For Type 1,2 C&Is, as also shown in Figure 2, GRP was estimated to increase by \$174 million (revenue approach) and \$159 million (expenditure approach) from C&I external spending. This C&I-generated rise in state output created considerable direct and indirect increases in employment across the state. Table 2 indicates that 3,393 (revenue approach) and 4,112 (expenditure approach) jobs were created from these spending increases. Table 2 illustrates that direct and indirect personal (or disposable) incomes increased by \$123 million (revenue approach) and \$145 million (expenditure approach), respectively, from these C&I non-state of Florida research grants and awards.

Finally, these increases in state output resulted in higher state tax yields. On average, for each \$1,000 of GRP generated in FY 2000-01, the Florida Department of Revenue (DOR) collected \$67.42 across all taxes (State, Local and Other). These estimates provide a base for calculating the potential statewide average taxes generated from SUS C&Is direct and indirect economic activities.

Table 2. Revenue and Expenditure Model Results for Employment, Present Value of Discounted Benefits GRP, Disposable Income, Population and State Taxes Generated by Florida C&Is for FY 2000-01 For Type 1,2,3 C&Is, and Type 1,2 C&Is.

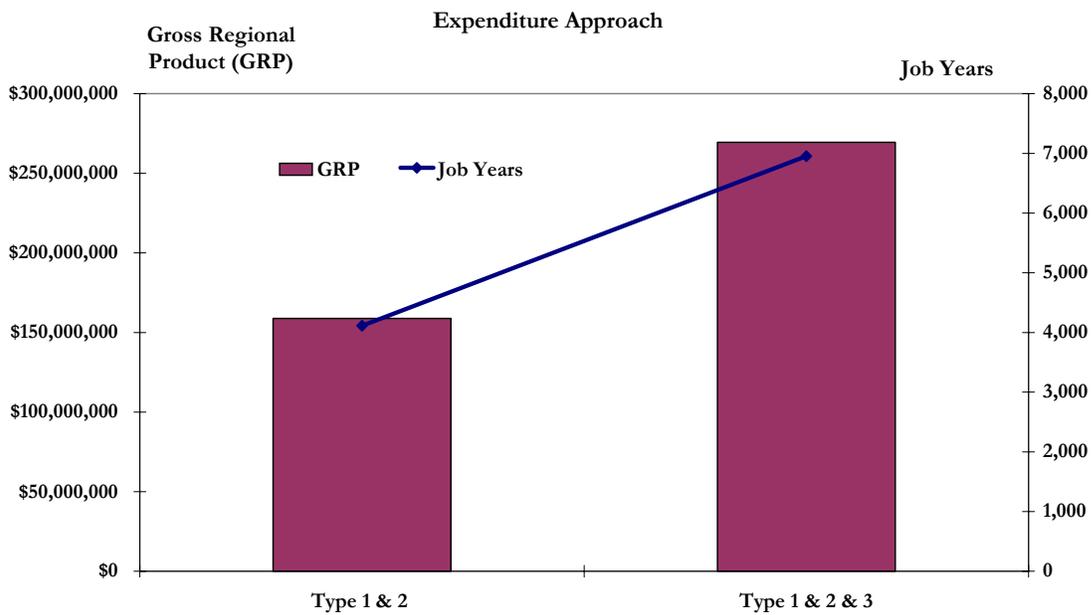
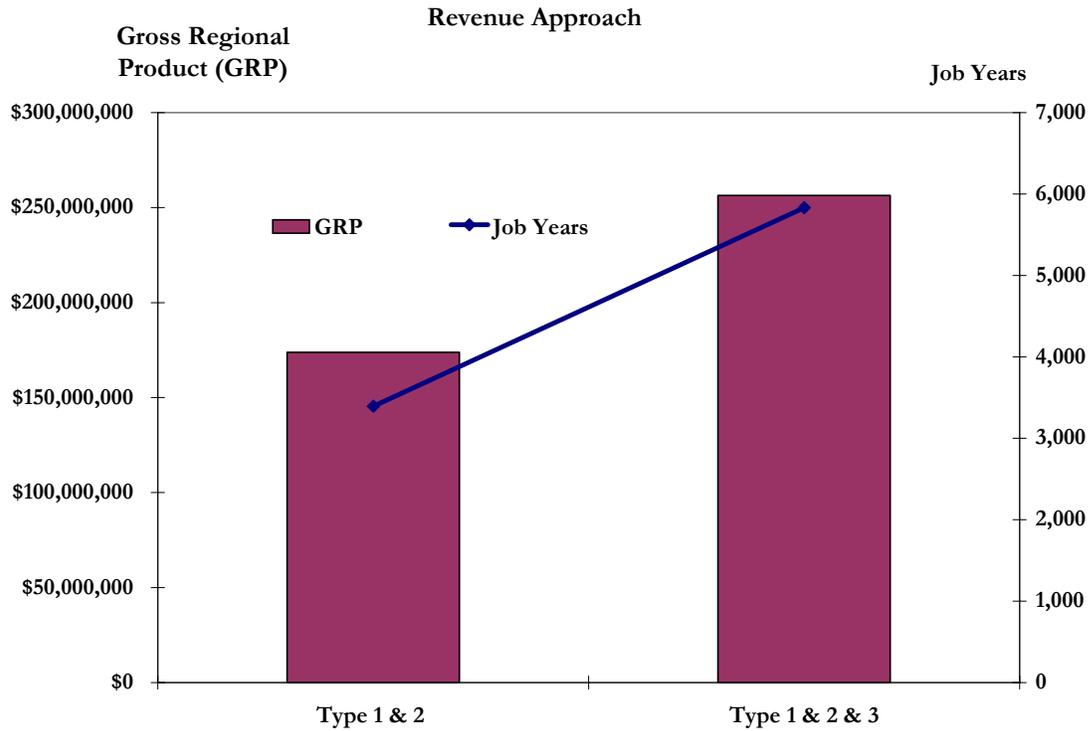
Summary of REMI-Generated Revenue Approach Results For Types 1, 2 & 3 C&Is (2001-2035)	
Net Present Value of GRP	\$256,344,236
Net Present Value of Taxes	\$17,281,590
Net Present Value of Wages	\$180,850,325
Number of Jobs*	5,832
Summary of REMI-Generated Revenue Approach Results For Type 1 & 2 C&Is (2001-2035)	
Net Present Value of GRP	\$173,794,891
Net Present Value of Taxes	\$11,716,412
Net Present Value of Wages	\$123,153,201
Number of Jobs*	3,393

*Note: REMI output results of employment are in terms of job years (one job/year)

Summary of REMI-Generated Expenditure Approach Results For Types 1, 2 & 3 C&Is (2001-2035)	
Net Present Value of GRP	\$269,416,041
Net Present Value of Taxes	\$18,162,728
Net Present of Wages	\$243,924,273
Number of Jobs*	6,955
Summary of REMI-Generated Expenditure Approach Results For Type 1 & 2 C&Is (2001-2035)	
Net Present Value of GRP	\$158,819,204
Net Present Value of Taxes	\$10,706,824
Net Present Value of Wages	\$145,233,082
Number of Jobs*	4,112

*Note: REMI output results of employment are in terms of job years (one job/year)

Figure 2. FY 2000-2001 C&I Economic (GRP) and Employment Results



Fiscal Impact of State Collected Taxes Generated From Florida SUS C&I Economic Activities for FY 2000-01

Tables 3 and 4 provide the reported total Florida Department of Revenue (DOR) final FY 2000-01 tax revenue collection levels for taxes collected in Florida, using the expenditure approach. The first column of data provided in the first part of the table profiles the individual and total DOR state tax collections for each category of tax paid for that year. Table 3 indicates that the DOR collected \$14.9 billion from the statewide six cents sales tax collections and a total of \$24.26 billion in state taxes, over all categories, for that fiscal year. The second part of Table 4 indicates that the DOR collected \$3.37 billion in DOR local taxes and \$4.53 billion in other taxes.

The next column of data in Table 4 estimates the annual tax yield for each \$1,000 of Gross Regional Product (GRP) generated over FY 2000-01. For example, for every \$1,000 generated in GRP, \$31.19 in state tax revenue (see Table 3) is generated from the six cents sales tax base. Totaled, every \$1,000 of GRP produced over FY 2000-01 generated \$50.85 in DOR state taxes.

Comparatively, every \$1,000 generated in GRP in FY 2000-01 generated \$7.06 in DOR collected local taxes and \$9.50 in all other taxes (see Table 4). In total, for each \$1,000 of GRP generated in 2000-01, the DOR collected \$67.42 across all taxes collected (State, Local and Other).

These estimates provide a base for calculating the potential statewide average taxes generated from SUS C&Is direct and indirect economic activities. Specifically, the fourth column in Table 3 provides estimates of the C&I tax yields generated from the \$212.7 million direct contract and grant expenditures these research organizations made during FY 2000-01. This \$212.7 million infusion of externally funded economic activity generated a total of \$269.4 million in direct and indirect dollars of GRP across the state in that year. Each category of tax generated from this direct and indirect economic stimulus is estimated in the last column in Table 3. For example, the statewide 6% sales tax alone generates an estimated \$8.4 million. The C&I related economic activities statewide generate an estimated DOR state tax collection total of \$13.7 million for FY 2000-01. Comparatively, C&Is stimulated GRP in 2000-01 and generated \$1.9 million in DOR collected local taxes and \$2.6 million across all other (alcohol, tobacco, vehicle and other) taxes. In total, for the C&I generated economic stimulus generated a tax yield across all tax categories of \$18.16 million in FY 2000-01.

Another impact of C&Is is on population. The amenity value that C&Is adds to the state – through services such as education, research, public education, and fine arts makes Florida more attractive thereby encouraging in-migration. Due to the dynamic nature of the REMI model, employment opportunities and other economic factors affected by Florida's C&Is encourage in-migration. It is estimated that these effects increased population by 1,511 in the state as a result of FY 2000-01 externally funded C&Is expenditures.

Table 3. Florida C&I Taxes Generated For All Direct and Indirect Economic Activity for FY 2000-01

STATE AND LOCAL TAX RECEIPTS		REMI # OF EMPLOYEES 2001		
DOR ADMINISTERED TAXES/ DOR ACCOUNTS			9,085,236	
OFFICE OF RESEARCH & ANALYSIS				TAXES GENERATED
Fiscal Year 2001 Statistics				BY SUS C&Is
DOR State Tax Receipts	TAX COLLECTION	TAX YIELD	TAX YIELD PER /	FROM FY 2000-01
<u>TAX COLLECTION CATEGORY</u>	<u>LEVEL</u>	<u>PER EMPLOYEE</u>	<u>MILLION \$ GRP</u>	<u>EXTERNAL</u>
Sales & Use Tax (chapter 212)				EXPENDITURES
Sales at 6 percent	\$ 14,881,006,072	\$ 1,637.93	\$31.19	\$ 8,401,978.32
Use at 6 percent	\$ 852,726,382	\$ 93.86	\$1.79	\$ 481,458.62
Corporate Taxes (chapter 220 & 221)	\$ 1,591,873,507	\$ 175.22	\$3.34	\$ 898,789.14
Documentary Stamp Tax (chapter 201)	\$ 1,305,200,810	\$ 143.66	\$2.74	\$ 736,930.61
Insurance Premium Tax (chapter 624)	\$ 387,855,367	\$ 42.69	\$0.81	\$ 218,987.37
Intangibles Taxes (chapter 199)	\$ 717,300,000	\$ 78.95	\$1.50	\$ 404,995.40
Annual Tax (B & D) Beverage	\$ 498,923,872	\$ 54.92	\$1.05	\$ 281,697.86
Nonrecurring Tax (C)	\$ 233,469,995	\$ 25.70	\$0.49	\$ 131,819.71
Government Leasehold Tax	\$ 907,385	\$ 0.10	\$0.00	\$ 512.32
Estate Tax (chapter 198)	\$ 707,564,664	\$ 77.88	\$1.48	\$ 399,498.73
Severance Taxes (chapter 211)		\$ -	\$0.00	\$ -
Part 1 - Oil & Gas	\$ 8,449,519	\$ 0.93	\$0.02	\$ 4,770.69
Part 2 - Solid Minerals	\$ 40,864,529	\$ 4.50	\$0.09	\$ 23,072.56
Fuel Tax (chapter 206)		\$ -	\$0.00	\$ -
Part 1 - Motor Fuel	\$ 1,019,975,798	\$ 112.27	\$2.14	\$ 575,889.46
Part 2 - Special Fuel		\$ -	\$0.00	\$ -
Diesel & Misc. Special Fuel	\$ 186,908,486	\$ 20.57	\$0.39	\$ 105,530.57
Lp Gas (Altern. Fuel Decal)	\$ 6,253	\$ 0.00	\$0.00	\$ 3.53
Part 3 - Aviation Fuel	\$ 65,112,188	\$ 7.17	\$0.14	\$ 36,763.05
Fuel Tax (chapter 336) SCETS	\$ 459,684,720	\$ 50.60	\$0.96	\$ 259,543.01
Gross Receipts Utility Tax (chapter 203)	\$ 651,141,531	\$ 71.67	\$1.36	\$ 367,641.61
Pollutants Taxes (chapter 206 pt. IV)		\$ -	\$0.00	\$ -
Coastal Protection Tax	\$ 7,590,854	\$ 0.84	\$0.02	\$ 4,285.88
Water Quality Tax	\$ 20,188,109	\$ 2.22	\$0.04	\$ 11,398.43
Inland Protection Tax	\$ 206,755,525	\$ 22.76	\$0.43	\$ 116,736.42
Hazardous Waste	\$ 20,692,847	\$ 2.28	\$0.04	\$ 11,683.41
Dry Cleaning Tax (chapter 376)	\$ 9,902,297	\$ 1.09	\$0.02	\$ 5,590.94
Rental Car Surcharge (section 212.0606)	\$ 145,891,717	\$ 16.06	\$0.31	\$ 82,372.05
Waste Tire Fee (chapter 403)	\$ 18,887,665	\$ 2.08	\$0.04	\$ 10,664.18
Lead Acid Battery Fee (chapter 403)	\$ 9,240,112	\$ 1.02	\$0.02	\$ 5,217.07
Audit & Warrant Collections	\$ 214,293,026	\$ 23.59	\$0.45	\$ 120,992.18
Misc. State Taxes and Fees	\$ 2,086,860	\$ 0.23	\$0.00	\$ 1,178.26
Sub-Total DOR State Taxes	\$ 24,264,500,090	\$ 2,670.76	\$ 50.85	\$ 13,700,001.38

Table 4. Florida C&I Taxes Generated For All Direct and Indirect Economic Activity for FY 2000-01

DOR ADMINISTERED TAXES/ DOR ACCOUNTS		REMI # Of Employees		TAXES GENERATED	
OFFICE OF RESEARCH & ANALYSIS		41,795		BY SUS C&Is	
DOR State Tax Receipts				FROM FY 2000-01	
	TAX COLLECTION	TAX YIELD	TAX YIELD PER /	EXTERNAL	
<u>TAX COLLECTION CATEGORY</u>	LEVEL	PER EMPLOYEE	MILLION \$ GRP	EXPENDITURES	
Sales & Use Tax (chapter 212)					
DOR LOCAL TAX RECEIPTS					
Sales Taxes/Surtaxes					
Infrastructure Surtax	\$ 607,749,637	\$ 66.89	\$1.27	\$	343,142.07
Charter County Transit Surtax	\$ 51,563,928	\$ 5.68	\$0.11	\$	29,113.56
Education Surtax	\$ 51,922,843	\$ 5.72	\$0.11	\$	29,316.20
Indigent Care Surtax	\$ 167,125,658	\$ 18.40	\$0.35	\$	94,360.97
Tourist Development Tax	\$ 3,711,306	\$ 0.41	\$0.01	\$	2,095.44
Dade Documentary Stamp Tax	\$ 12,099,362	\$ 1.33	\$0.03	\$	6,831.43
Motor & Special Fuel Taxes	\$ 1,738,400,000	\$ 191.34	\$3.64	\$	981,519.60
County Voted at 1 cent	\$ 62,689,700	\$ 6.90	\$0.13	\$	35,395.29
County & City Nonvoted @ 1-6 cents	\$ 533,159,834	\$ 58.68	\$1.12	\$	301,027.86
Additional Local Option	\$ 141,652,109	\$ 15.59	\$0.30	\$	79,978.33
Miscellaneous Local Taxes and Fees	\$ -	\$ -	\$0.00	\$	-
Total DOR Local Taxes	\$ 3,370,074,377	\$ 370.94	\$7.06	\$	1,902,780.75
Total DOR State and Local Taxes	\$ 27,634,574,467	\$ 3,041.70	\$57.91		
OTHER (Florida Tax Handbook 2002)					
Beverage Licence and Taxes	\$ 575,300,000	\$ 63.32	\$1.21	\$	324,820.65
Cigarette and Tobacco Product Tax	\$ 442,800,000	\$ 48.74	\$0.93	\$	250,009.71
Motor Veh & Mobile Home Ann Reg	\$ 535,900,000	\$ 58.99	\$1.12	\$	302,574.98
All others ***** ESTIMATE	\$ 2,980,000,000	\$ 328.00	\$6.25	\$	1,682,540.50
	\$ 4,534,000,000	\$ 499.05	\$9.50	\$	2,559,945.85
SUB TOTAL					
					5119891.695
TOTALS ALL CATEGORIES	\$ 32,168,574,467	\$ 3,540.75	\$67.42	\$	18,162,727.97
NUMBER OF THOUSANDS 2002\$ IN	\$ 269,416				
REMI GRP 2001\$	477,171,160,920				

Return on Investment and Benefit/Cost Ratio Calculations: An Explanatory Note

The calculations of the Return on Investment (ROI) and the Benefit/Cost Ratio utilize the same initial numerical data for the numerator and the denominator – however, the B/C ratio is expressed as a ratio of two numbers, while the ROI is most commonly expressed as a percentage by multiplying the ratio by 100. The B/C ratio is an expression most commonly used for economic evaluations (i.e., by economists), while the Return on Investment is more commonly used for financial evaluations (i.e., by business-oriented professionals). However, both are equivalent ways to express the relationship between cost (initial investment) and benefit (return).

Return on Investment Analysis

Section 240.706 of the Florida Statutes (FS) directs the Council for Education Policy, Research and Improvement (CEPRI) to assess the “return on the state’s investment in research conducted by public postsecondary institutions”. A focus of this assessment is on “research” centers and institutes (C&Is) in Florida’s public universities. A classic text- book approach for calculating return on investment (ROI) involves an arithmetic comparison of

the initial investment with the value of the net benefits or returns resulting from that investment.

Annualized Return on Investment Using the Initial FY 2000-01 Expenditure Input Data: A Preliminary Estimate

Using the initial year (FY 2000-01) data as input for calculating a preliminary ROI, staff initially estimated the ROI to be approximately 240%. The C&I ROI calculation utilized all externally funded research expenditures (regardless of source) during FY 2000-01 as the return to the state (\$212,706,561) from its investment (of \$88.8 million). This ROI implies that for each dollar the state invested in C&Is in FY 2000-01, the state realized a return of \$2.40 (using only the total expenditures from external sources that were “leveraged” as a result of the state’s initial investment).

Return on Investment Using REMI-Generated Input Data: A More Comprehensive Estimate

The REMI model, however, allows for a more robust estimate of the ROI using discounted data, present valued over a 35-year period. Given the known dynamic nature of the REMI model, the calculated value of the 35-year ROI estimate was less than the FY 2000-01 annualized ROI estimate as was anticipated ($ROI_{REMI} = 217\%$ for Types 1, 2 and 3 C&Is; $ROI_{REMI} = 128\%$ for Types 1 and 2 C&Is). This ROI estimate implies that for each state dollar invested in C&Is (multiplied and discounted over a 35-year period), the state realizes a return of \$2.17.

Benefit Cost Analysis

The “benefits” to the state of Florida from a conservative perspective were defined as the amount leveraged by the state’s investment (i.e., all external expenditures). The “costs” to the state of Florida were defined as the initial state investment (\$88.8m) assumed to be redistributed to alternative higher education spending (i.e., a measure of the opportunity cost). The REMI model calculated the 35-year, multiplied net present value of the opportunity cost of the initial state investment of \$88.8 million to be \$124 million. In summary, if funding for C&Is were reallocated across Florida’s higher education system, the state economy, according to REMI output results (See Table 2), would result in a decline of \$269.4 million (with an overall net decline of \$145 million in GRP and 4,502 in jobs).

- Benefit to the state = \$269.4 million;
- Cost to the state (opportunity cost of \$88.8 million) = \$124 million;
- $B/C_{REMI} = 2.17$ (Type 1, 2 and 3)

Conclusions

The results of the economic analysis using the REMI model indicated that C&Is contribute significantly to the Florida economy. The economic benefits extend to job creation; generation of GRP, personal income and state taxes, from the expenditures made by all types of C&Is. The following are the primary contributions that are attributable to C&I expenditures from all funding sources in Florida:

- For every \$17,829 spent by the state of Florida on C&Is, one job is created;

- The external funds generated by these C&Is leverage an additional 6,955 jobs;
- For every dollar of state support spent on C&Is, GRP increases by \$2.17;
- For every dollar of state support spent on C&Is, income increases by \$1.96;
- Given the FY2000-01 state investment, C&Is expenditures results in additional \$18 million in tax revenues;
- The ROI_{REMI} for Types 1, 2 and 3 C&Is is 217%;
- The ROI_{REMI} for Types 1 and 2 C&Is is 128%;
- The B/C_{REMI} for SUS C&Is is 2.17;
- The benefits of SUS Centers and Institutes are substantially greater than the state of Florida investment cost.

Listing of 172 Industrial Sectors Used in the REMI Model

1. Logging
2. Sawmills and planing mills
3. Millwork, plywood, and structural members
4. Wood containers and misc. wood products
5. Wood buildings and mobile homes
6. Household furniture
7. Partitions and fixtures
8. Office and misc. furniture and fixtures
9. Glass and glass products
10. Hydraulic cement
11. Stone, clay, and misc. mineral products
12. Concrete, gypsum, & plaster products
13. Blast furnaces and basic steel products
14. Iron and steel foundries
15. Primary nonferrous smelting and refining
16. All other primary metals
17. Nonferrous rolling and drawing
18. Nonferrous foundries
19. Metal cans and shipping containers
20. Cutlery, hand tools, and hardware
21. Plumbing and non electric heating equipment
22. Fabricated structured metal products
23. Screw machine products, bolts, rivets, etc.
24. Metal forgings and stampings
25. Metal coating, engraving, and allied services
26. Ordnance and ammunition
27. Misc. fabricated metal products
28. Engines and turbines
29. Farm and garden machinery and equipment
30. Construction and related machinery
31. Metalworking machinery and equipment
32. Special industry machinery
33. General industrial machinery and equipment
34. Computer and office equipment
35. Refrigeration and service industry machinery
36. Industrial machinery
37. Electric distribution equipment

38. Electrical industrial apparatus
39. Household appliances
40. Electric lighting and wiring equipment
41. Household audio and video equipment
42. Communications equipment
43. Electronic components and accessories
44. Misc. electrical equipment
45. Motor vehicles and equipment
46. Aerospace
47. Ship and boat building and repairing
48. Railroad equipment
49. Misc. transportation equipment
50. Search and navigation equipment
51. Measuring and controlling devices
52. Medical equipment, instruments and supplies
53. Ophthalmic goods
54. Photographic equipment and supplies
55. Watches, clocks and parts
56. Jewelry, silverware, and plated ware
57. Toys and sporting goods
58. Manufactured products
59. Meat products
60. Dairy products
61. Preserved fruits and vegetables
62. Grain mill products and fats and oils
63. Bakery products
64. Sugar and confectionery products
65. Beverages
66. Misc. food and kindred products
67. Tobacco products
68. Weaving, finishing, yarn, and thread mills
69. Knitting mills
70. Carpets and rugs
71. Misc. textile goods
72. Apparel
73. Misc. fabricated textile products
74. Pulp, paper, and paperboard mills
75. Paperboard containers and boxes
76. Converted paper products except containers
77. Newspapers
78. Periodicals
79. Books
80. Misc. publishing
81. Commercial printing and business forms
82. Greeting cards
83. Blankbooks and bookbinding
84. Service industries for the printing trade
85. Industrial chemicals
86. Plastics materials and synthetics
87. Drugs

88. Soap, cleaners and toilet goods
89. Paints and allied products
90. Agricultural chemicals
91. Misc. chemical products
92. Petroleum refining
93. Misc. petroleum and coal products
94. Tires and inner tubes
95. Rubber products and plastic hose and footwear
96. Misc. plastic products
97. Footwear, except rubber and plastic
98. Luggage, handbags, and leather products
99. Metal mining
100. Coal mining
101. Crude petroleum, natural gas and gas liquids
102. Oil and gas field services
103. Nonmetallic minerals, except fuels
104. Construction
105. Railroad
106. Railroad transportation
107. Trucking and warehousing
108. Local and interurban passenger transit
109. Air transportation
110. Water transportation
111. Pipelines, except natural gas
112. Passenger transportation arrangement
113. Misc. transportation services
114. Communications
115. Electric utilities
116. Gas utilities
117. Water and sanitation
118. Banking
119. Depository institutions
120. Insurance carriers
121. Insurance agents, brokers, and services
122. Non depository; holding and investment offices
123. Security and commodity brokers
124. Real estate
125. Eating and drinking places
126. Retail trade, except eating and drinking places
127. Wholesale trade
128. Hotels and other lodging places
129. Laundry, cleaning and shoe repair
130. Personal services
131. Beauty and barber shops
132. Funeral services and crematories
133. Electrical repair shops
134. Watch, jewelry and furniture repair
135. Misc. repair services
136. Private households
137. Automotive rentals, without drivers

138. Automobile parking, rapier, and services
139. Advertising
140. Services to buildings
141. Misc. equipment rental and leasing
142. Personnel supply services
143. Computer and data processing services
144. Misc. business services
145. Producers, orchestras, and entertainers
146. Bowling centers
147. Commercial sports
148. Amusement and recreation services
149. Motion pictures
150. Video tape rental
151. Office of health practitioners
152. Nursing and personal care facilities
153. Hospitals
154. Health services
155. Legal services
156. Engineering and architectural services
157. Research and testing services
158. Management and public relations
159. Accounting, auditing, and other services
160. Educational services
161. Individual and misc. social services
162. Job training and related services
163. Child day care services
164. Residential care
165. Museums, botanical, zoological gardens
166. Membership organizations
167. Agricultural services
168. Forestry, fishing, hunting, & trapping
169. State and local government
170. State
171. Local
172. Federal civilian

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