A. MISSION AND AREAS OF FOCUS

The core of the Telecommunications and Information Technology Institute (IT\textsuperscript{2}) is advanced telecommunications and Information Technology research and applications that bring wireless and optical technologies and services to the home and community. Research conducted at the Institute ranges from core telecommunications technologies (e.g., wireless and optical) to cutting edge applications such as wearable computing, e-commerce, mobile education, telemedicine and information appliances. The institute associates with industry through an industry consortium to model and direct research programs.

Historically, departments have been established to provide an organizational structure for such educational and research programs that ensure permanence and optimize efficiency. However, departments tend to foster territoriality and preservation of intellectual turf. Departments seldom promote interfacing between disciplines that is so crucial to the activities of telecommunications and information technology. Yet, the field of Telecommunications and Information Technology is interdisciplinary by nature. In its foundation is the uniting of such distinct disciplines as telecommunications, computer science, computer engineering, electrical engineering, information engineering and engineering management.

IT\textsuperscript{2} has been uniquely designed to remove the barriers that inhibit interaction among these groups. It is expected that the affiliations IT\textsuperscript{2} is establishing will allow faculty to cross-traditional departmental barriers. Under the IT\textsuperscript{2}’s umbrella researchers will be able to develop multi-disciplinary teams that will allow them to become players in the bourgeoning field of IT and telecom for the purpose of coordinating and collaborating relevant projects and programs. It is expected that such an interdisciplinary team will also be active in seeking funding from public as well as private sources (including the industry) to support research efforts and contribute to the fiscal operation of the Institute and its programs. The procurement can be in the form of grants, specific industry projects, and for business and entrepreneurial efforts, among others.

To fulfill the IT\textsuperscript{2}’s mission and to launch the programs and ventures that are outlined in IT\textsuperscript{2}’s development plan, IT\textsuperscript{2} has already begun establishing the necessary internal collaborations with relevant academic units within FIU as well as outside compatible partners, that will allow for the support and coordination of academic programs.
B. ORGANIZATION, EXTERNAL TRENDS AND STRATEGIC DIRECTIONS

1. ORGANIZATIONAL ISSUES

We anticipate immediate recruitment for key staff positions, faculty and research positions and will request such positions.

2. ADVISORY BOARD

Our advisory council (board of directors and advisory board) is currently composed of the following: Henry Fiallo is currently the CEO of Enterasys, Trevor Kennedy is currently the vice president for strategy of Citrix, Rep. Carlos Lacusa is currently a Florida State Representative, Elisabeth Bates is currently the president of E.B. Goodman, Niki Pissinou is Director of the Institute, and Kia Makki is a Lucent Chair Professor, Dr. Milton Halem Assistant Director of Information Sciences and CIO of NASA’s Goddard Space Flight Center Barry Johnson, Vice President Corporate Affairs-Florida, AT&T, Manny Menendez, President of Deneba Software, Steve Mayberry Senior Vice President Business retention & Recruitment, Ramiro A. Ortiz President Suntrust Bank, Miami Connie Mack is a Florida State Representative, Donn Atkins General Manage IBM Latin America, Manuel D. Medina President, Chairman of the Board & CEO Terremark Worldwide, Inc., Adalio T. Sanchez Senior Executive Officer & General Manager Servers, Networks & Storage IBM, Diane Sanchez President & CEO Internetcoast Exchange, LLC
3. EXTERNAL TRENDS

As has been widely reported in the media, telecommunications and information technology firms have suffered financially in the recent past. Many of these firms would have been obvious funding sources. Nonetheless, the down-turn in the market can present several opportunities such as the involvement of technical personnel in academic research through graduate programs. The following chart summarizes the current situation. On the chart, unchanging trends are represented as •, downwards trends as – and upward trends as +.

<table>
<thead>
<tr>
<th>Availability of Funds for IT²</th>
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<tbody>
<tr>
<td>From the U.S. government</td>
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<tr>
<td>Within Latin America</td>
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<tr>
<td>From U.S. Industry</td>
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<tr>
<td>Government &amp; Private sector to fund dual use of technology</td>
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<tr>
<td>Non-governmental funding institutions</td>
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<tr>
<td>From venture capitalists</td>
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<table>
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<tr>
<th>Availability of Technologies</th>
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<tbody>
<tr>
<td>From U.S. industry</td>
</tr>
<tr>
<td>From entrepreneurs</td>
</tr>
<tr>
<td>Opportunities for New Technologies</td>
</tr>
</tbody>
</table>

4. STRATEGIC DIRECTIONS AND AREAS OF EMPHASIS

FIU’s IT2 vision is to be a recognized hemispheric leader in the fields of telecommunications and information technology. In addition to serving as think tank, repository of knowledge, and pedagogical entity involved in educating high level telecommunications and information technology practitioners in research, business and policy management and development, IT2 will enhance Florida’s role as a leader in IT and telecom by being the principal hemispheric catalyst for IT and telecom education, innovation and technology propagation. While IT2s will collaborate with eminent scholars worldwide and its research concerns will have a broad appeal and benefit an infinite market, IT2 will be viewed as an inter-American center whose base of operation is South Florida: the geographic point that links the Americas with the United States and the rest of the world.
C. 2000-2001 ANNUAL ACCOMPLISHMENTS

Since IT2 was only established in August 2001, our major goal was to establish the foundations for the Institute and planting the seeds for the Institute’s growth.

Goal 1: Create, develop and establish foundations for the Institute.

Assessment Criteria:
- Establishing and positioning IT2 as the Telecommunications & Information Technology center

Accomplishments:
- Wrote proposal to the Board of Regents to establish the Institute
- Developed IT2 concept, mission, goals and strategic plan
- Wrote business plan for State Legislatures
- Worked with FIU officers and lobbyists to encourage legislative support
- Developed plan for IT infrastructure and seek out funding for it
- Developed IT² presentation CD-Rom, Brochure & web site
- Received Type II approval from Board of Regents
- Received $2M per year recurring appropriation from the Florida Legislatures

Goal 2: Become a leading research center in the Southeastern United States.

Assessment Criteria:
- Conduct High Impact Research
- Patents
- Research funding
- Publications

Accomplishments:
- Developed, wrote and prepared research and infrastructure proposals
- Publish Refereed Articles with FIU and IT² affiliation (8 publications)
Goal 3: Develop academic activities area to become an important player in this geographical region (Addresses G I, G II, G III, and T I)

Assessment Criteria:
- Curriculum programs, procedures, policies and course content
- Student Interest and Participation

Accomplishments
- Developed the certificates, M.Sc., Ph.D. program (technical non-technical option) including course contents
- Incorporated existing resources from various department at FIU
- Presented to the Interim Dean and Chairs of ECE and ISE departments
- Taught new graduate course in Wireless Information Systems (large enrollment, excellent student feedback)
- Developed courses to teach in the fall of 2001 and spring of 2002
- Developed non-credit certificates in corporation with CBA
- Developed an aggressive strategy to recruit top level students into the program

Goal 4: To solve critical telecommunications and IT problems through applied research and service; (Addresses G I, G II, G III, and T I)

Assessment Criteria:
- Positioning IT2 as a premier telecommunications and research center in the region.

Accomplishments
- Established working relationships with Lucent, Terremark, CITRIX, Omnicluster and other local industries. Visited local industrial sites and developed plans for cooperative projects.
- Took a leading role in shaping South Florida’s IT agenda through the Internet Coast Research Initiative
- Established NSF sponsored workshop in wireless technologies with FIU & IT2 affiliations for 2001
- Extensively campaign to host international IEEE/ACM sponsored conferences at FIU
- Signed memorandum of understanding with industry and academia (e.g., With China Mobile and Party School, China, Shanghai, free collocation at the NAP etc)
- Continued external, professional activities with providing FIU visibility in telecom & IT areas

Goal 5: Improved and introduced new technologies. (Addresses G II, G III & T V)

Assessment Criteria
- Assisted in an increasing availability information on the center’s and college’s web site

Accomplishments
Established laboratories (wireless Lab) and other necessary foundations.

Implemented Institute’s Web

Developed plans for implementing a virtual library with dynamic access to research papers and database queries.

Assisted in the planning and implementation of a college wide wireless infrastructure

Assisted in the development of a College Research & Graduate School Web Site

Facilitated in the Training of Students/ Research Assistants

**Goal 6: Additional Accomplishments (Addresses G II, G III & T V)**

**Assessment Criteria**

- Assist in immediate visibility of IT2

**Accomplishments**

- Institute director is Associate Editor of IEEE Transactions on Data and Knowledge Engineering
- Institute director is editor of several other journals
- Dr. Makki is Associate Editor of several telecommunications journals
- Institute director and Dr. Makki were general chairs/committee members of several International conferences such as
  - ACM CIKM (Dr. Pissinou)
  - IEEE DE (Dr. Pissinou)
  - ACM/GIS (Dr. Pissinou and Dr. Makki)
  - IC3N
  - Wireless Communications
  - FIU Mill. Strategic Planning Committee (Dr. Pissinou)
  - FIU INTAC committee (Dr. Pissinou)
  - FIU Graduate Dean Search Committee (Dr. Pissinou)
  - IEEE Wireless Communications and Networking Conference. (Drs Makki and Pissinou)
- Developed plans for implementing a virtual library with dynamic access to research papers and database queries.

During the past year, IT2 has worked or initiated collaborative projects with the College of Engineering, the College of Business Administration, Computer Science and the Latin American and Caribbean Center to spearhead programs that will have a hemispheric impact.

**Within the College of Engineering**, IT2 has established close working relationships with the Department of Electrical and Computer Engineering and the Department of Industrial and Systems Engineering that aim at establishing close Telecommunications Engineering and Telecommunications Management and Policy divisions respectively. IT2 has developed drafts for the M.Sc. in Telecommunications which includes an engineering and a management and policy concentration and presented them to Dean Irey, Dr. Yen, Chair of Electrical and Computer Engineering and Dr. Lee, Chair of Industrial and Systems Engineering. All entities have reviewed the document and have reached consensus in the contents and administration of these programs. Other efforts concentrated on hiring new faculty tenured in ECE and affiliated with the Institute.

**Within the College of Business Administration**, IT2 has initiated and established close working relationships with Dean Elam and Dr. Kouloumas, the Chair of Management Information Systems, together with the Industrial and Systems Engineering group, and under the umbrella of the Institute, aim to develop a strong Telecommunications Management and Policy Division. Together with the College of Business administration, they have identified areas of collaboration and are working together in meeting these goals. For example, they are currently working in developing a series of non-credit certificate programs in Telecommunications. The Institute will try to aid in the formation
of a research projects traditionally underrepresented in the College. The two units have also discussed hiring a new Telecommunications Management faculty tenured in the MIS department but affiliated with the Institute.

Since the future of economic development and diversification of Florida is largely dependent on the state having a telecommunications industry with a global reach to South America, Central America, The Caribbean, the director of the Institute has also sought collaboration with the Latin American and Caribbean Center in joint projects that will address telecommunication policy issues as they pertain to Latin America.

D. 2001-2002 ANNUAL GOALS

**University Goal 1: Well Educated Students** To graduate a well educated, technologically sophisticated, and ethnically diverse student body, who can think critically about a changing world; and to continue to enhance undergraduate teaching while broadening graduate and professional programs;

**IT2 Goal 1: Coordinate** the cross-disciplinary activities essential to the advancement of the telecommunication fields, deliver superior telecommunication education and training, and provide graduates the training needed to fulfill the work force demand.

While IT2’s immediate academic emphasis will be wireless and optical technologies, as well as other unique high level, graduate, research-oriented courses that are missing from the curricula of other regional universities, of special concern will be the development of “train the trainer” courses to fulfill the overwhelming need to educate those who will disseminate technical education and train mid to low level practitioners needed to fill jobs in a highly competitive market. To achieve this goal IT2 will establish and activate the following:

- Telecommunication Certificate Program designed to prepare B.S. degree holders to teach IT and telecom at the technical school level, or enter the field as specialized practitioners. The program will consist of 12 graduate credit hours.
- Advanced Telecommunication Certificate Program designed to prepare M.S. holders to teach higher-level IT and telecom curricula (community college and undergraduate level) or to enter the field of IT and telecom as low-level managers. The program will consist of 15 graduate credit hours.
- Master of Science in Telecommunication, with concentrations in telecommunication engineering and telecommunication management, intended to prepare individuals for technical and mid to high level careers in IT and telecom management. The program will provide the educational foundation for: hardware and software developers and providers; service providers; large user organizations; government, etc.

IT2 will utilize existing resources within the College of Engineering’s Department Electrical and Computer Engineering and the Department of Industrial and Systems Engineering and augment the existing curricula with new course offerings in the areas of wireless technology, optical and other relevant areas to offer the above degrees.

IT2 will seek a collaboration with other relevant units to initiate, prompt and coordinate relevant IT and telecom curricula. IT2 will seek to establish a close link with the Latin American and Caribbean Center (LACC) in order to expand IT2’s reach to Latin America as a cohesive FIU entity and to possibly develop and coordinate IT and telecom efforts with Latin American organizations (including governmental agencies and others).
In addition to establishing internal relations with other FIU units, IT2 will seek to develop close ties with other local universities. This will be done for the purpose of coordinating IT and telecom programs and to guard against duplication. IT2 will also nurture relations with other American universities and foreign universities (including Latin American universities) for the purpose of developing joint academic programs and projects, accelerating research efforts and better coordinating these, and reaching a wider audience for the purpose of disseminating education and technology.

**Goal 2: Research and Creative Activities** To promote research and creative activities which contribute to the social, artistic, cultural, economic, environmental, scientific, and technological foundations of the 21st century.

**IT2 Goal 2**: Provide a level of research excellence that supports the image of southeast Florida as an international leader in telecommunications.

As a cross-disciplinary unit concerned with the broad and practically all-encompassing burgeoning field of telecommunications, and entity concerned with the transfer and commercialization of technology, economic development and the positioning of South Florida as a telecommunication hub, IT2 will look beyond the obvious financial support sources (such as academic and governmental funding agencies concerned with research) and procure diverse funding sources from local, statewide, national and international economic development entities; telecom-related industries, etc.

**Goal 3: Applied Problem Solving** To solve critical social, educational, environmental, health and transportation problems through applied research and service; Provide technology transfer Services in order to enhance the enabling technologies of the telecommunications industries.
**IT2 Goal 3:** An important feature of IT2’s mission is the integration of market needs and industry concerns and requirements in its research portfolio. In order for IT2 to achieve this, it has to develop and nurture a close relationship and collaboration with industry. In addition, an active alliance with local (or national and international) telecommunications concerns would permit IT2 to raise revenues by serving as R&D units of selected companies.

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<th>2001-2002</th>
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<tbody>
<tr>
<td>Plan first bi-annual meeting of industry advisory board</td>
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<tr>
<td>Host international IEEE/ACM sponsored conference in IT &amp; telecom</td>
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<tr>
<td>Plan and develop an annual report</td>
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<tr>
<td>Develop targeted proposals for specific telecom firms</td>
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The establishment of an entrepreneurial center specifically focused on IT and telecom would allow IT2 to guide innovators and lead them to the next step: commercialization. IT2 would follow the models established by other leading universities. An entrepreneurial center, specifically dedicated to the propagation of IT and telecom products and services would not only assist students become entrepreneurs, but also bring revenues to IT2 and help to establish it as a comprehensive exhaustive IT and telecom hemispheric center.

<table>
<thead>
<tr>
<th>2001-2002</th>
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<tbody>
<tr>
<td>Design basis for an entrepreneurial center based on existing models</td>
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**G I. Strategic Themes** To be recognized as a leading institution for teaching and research in the areas of Telecommunications and Information Technology;

**G II. Ranking / Research** To be recognized as one of the nation's top urban public research universities, while maintaining the highest quality of educational programs and further enhance our Carnegie Doctoral Research Extensive status.

However, in order to fulfill the above stated mission and to launch the programs and ventures that will be outlined in this document, IT2’s goal is to establish the necessary internal support infrastructure that will allow it to function as think tank and research center, business development enterprise, hemispheric proponent and coordinator of telecommunication and information technology programs and projects as well as academic entity within Florida International University. The proper support infrastructure will allow for the support and coordination of academic programs.

<table>
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<tr>
<th>2001-2002</th>
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<tbody>
<tr>
<td>Hire Senior Research &amp; Technical Personnel</td>
</tr>
<tr>
<td>Expand Equipment and Initiate Optical Lab</td>
</tr>
<tr>
<td>Hire Technical Support, Industry Liaison personnel &amp; Development Officer</td>
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E. EXECUTIVE SUMMARY

The first year has been one of progress and vitality for the Telecommunications and Information Technology Institute (IT2). In less than a year IT2 was conceived, developed, and nurtured to where it is today: a burgeoning academic institute rapidly evolving into an important and prestigious research center. Despite the initial absence of proper funding, IT2 managed to make tremendous strides in the direction of positioning itself as a leading telecommunications research institute and principal educational entity in this field.

In addition to developing the documentation and working with FIU officers and lobbyists that convinced State of Florida legislators of the need for the Institute (which prompted their appropriation of $2 million in recurring funds), IT2’s director Dr. Niki Pissinou’s and Dr. Kia Makki’s personal involvement with the business and civic community resulted in positioning IT2 as a prominent participant and principal research center within the regional telecommunications community and a telecommunications leader within the educational community. Because of these efforts and by underscoring its unique and unmatched research capabilities, IT2 is becoming the driving force behind the local telecommunications and information technology’s educational consortium’s initiative.

Close collaboration with leading telecommunication firms, locally as well as nationally, not only resulted in their executives’ interest and involvement with the Institute but also in solid recommendation of the Institute’s capabilities to other business entities which have directly resulted in requests for educational programs from business (including international) entities.

Through the dissemination of an internally developed CD-Rom and other ancillary material (such as brochures and a web site) IT2 reached out to the community at large to promote its non-credit certificate programs developed during the past academic year as well as for future programs and to recruit students for graduate credit programs. Additionally, IT2 made internal contacts and researched home-based capabilities to incorporate existing resources and encourage FIU faculty to consider and to incorporate telecommunications research and education.

In addition to conceptualizing and developing graduate courses for an impending master’s program (plans of which are being prepared to present to the Graduate Committee), Dr. Pissinou taught a graduate level course in Wireless Information System that attracted a large enrollment and received excellent feedback from students. Dr. Pissinou also continued her own research, wrote three additional proposals (including a Minority Infrastructure Proposal) and published refereed articles listing her affiliation to FIU and IT2. Dr. Pissinou also served as advisor to four doctoral students and two master’s students.

Lastly, and with the advent of the State funding, IT2 began the tasks of equipping laboratories (wireless and others) and of implementing a virtual library with dynamic access to research papers and data base queries.