

# To Attract, Retain and Grow: The History of the Florida High Tech Corridor Council

By *Connie L. Lester and James C. Clark*

Viewers who tuned into MSNBC's "Morning Joe" November 16, 2011, heard former President Bill Clinton point to the University of Central Florida (UCF) and Orlando as examples of the economic benefits of public-private partnerships in the development of the high tech industry.<sup>1</sup> Two months later, in his State of the Union Address, President Barack Obama also used an Orlando high tech partnership to illustrate his point about government-academic-industry cooperation.<sup>2</sup> For many, who only associate Orlando with vacations and theme parks, the presentation of the region as an important center for technology advances must have been shocking. When did Central Florida and the I-4 Corridor become identified with high tech areas such as the North Carolina Research Triangle, the Austin-Houston Corridor, Boston's Route 128 and California's Silicon Valley? The answer lies in innovative changes that occurred in the 1990s and the development of the Florida High Tech Corridor Council (FHTCC).

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<sup>1</sup> [www.youtube.com/watch?v=AplZitbnZFv4](http://www.youtube.com/watch?v=AplZitbnZFv4) Accessed November 3, 2012.

<sup>2</sup> <http://www.whitehouse.gov/the-press-office/2012/01/24/remarks-president-state-union-address> Accessed November 3, 2012.

The emergence of technological “clusters” after the mid-20<sup>th</sup> century signaled a new economy that bypassed many of the stratified, vertical, bureaucratic business models of modern industry. Centered in urban areas and associated with research universities, the tech industry, while highly competitive, was none the less more “open” in its cooperative exchanges of information and facilitation of the movement of engineers and scientists from one project (or firm) to another. As historians and analysts assessed the high tech industry in the last decade of the 20<sup>th</sup> century, they focused on a “nature vs. nurture” question. Did the technological clusters create a synergy much greater than the sum of its parts to foster innovation and economic growth? Conversely, were innovation and economic growth the result of management by individual leaders? In AnnaLee Saxenian’s widely read comparison of Silicon Valley and Route 128, she argued that “Network systems flourish in regional agglomerations where repeated interaction builds shared identities and mutual trust while at the same time intensifying competitive rivalries.”<sup>3</sup> Saxenian was not suggesting that spatial proximity alone guaranteed the success of a tech cluster. Her complex analysis posited the view that tech clusters represented the intersection of local and global information networks and markets. The degree to which clusters integrated both tech firms and the research university into the local culture and economy while simultaneously connecting with the global culture and economy was the critical indicator of potential success. In her analysis, Silicon Valley and Stanford University achieved this, while the Massachusetts Institute of Technology remained aloof from the collaborative opportunities offered by tech firms located on Route 128, and the firms themselves remained wedded to older, vertical business models. The Silicon Valley “miracle” started as an attempt to replicate the successes of the eastern industry in the immediate post-World War II period, but in meeting the

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<sup>3</sup> AnnaLee Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* (Cambridge, Massachusetts: Harvard University Press, 1994), 4.

geographical and technological challenges associated with living in Northern California, the high tech industry was transformed. “Without intending to do so,” she wrote, “Silicon Valley’s engineers and entrepreneurs were creating a more flexible industrial system, one organized around the region and its professional and technical networks rather than around the individual firm.”<sup>4</sup> Saxenian concludes that Silicon Valley’s innovative and economic power derives from its ability to “reinvent itself as its specialized producers learn collectively and adjust to one another’s needs through competition and collaboration.”<sup>5</sup>

A decade later, Rob Koeppe challenged Saxenian’s thesis, claiming that she exaggerated the ability of Silicon Valley to pursue “multiple technical opportunities through spontaneous regroupings of skill, technology and capital.”<sup>6</sup> He claimed that although “[n]etworks can greatly aid the work of the innovative and the entrepreneurial ... no evidence has ever surfaced that they have come to replace people or firms as the actual ‘locus of economic activity.’”<sup>7</sup> Koeppe argued for the importance of managerial leadership in creating effective clusters, stating that “[a] cluster becomes especially interesting when it goes beyond representing a place to which enterprises have collocated and functions as a collection of intermingling enterprises whose leaders make use of local resources to manage their organizations better.”<sup>8</sup> Effectively managed clusters provided “a region with genuine economic staying power.” Indeed, he called it the “key to understanding how places like Silicon Valley and Silicon Fen [the Cambridge high tech cluster named for the British wetlands] exist and work as they do.”<sup>9</sup>

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<sup>4</sup> Ibid., 30.

<sup>5</sup> Ibid., 161.

<sup>6</sup> Rob Koeppe, *Clusters of Creativity: Enduring Lessons on Innovation and Entrepreneurship from Silicon Valley and Europe’s Silicon Fen* (West Sussex, England: John Wiley & Sons, Ltd., 2002), 12.

<sup>7</sup> Ibid., 13.

<sup>8</sup> Ibid., 14-15.

<sup>9</sup> Ibid., 16.

The founding of the Florida High Tech Corridor Council and its subsequent history do not fit neatly into the analytical paradigms outlined in the current historiography of high tech industries. Perhaps not always consciously, the Council embraced the historical, cultural and economic reality of the region as it built upon Central Florida's new urban, technological economy in a manner consistent with Saxenian's insistence that successful clusters must be grounded in the local in order to participate in the global. On the other hand, FHTCC imposed a more structured leadership consistent with Koegg's focus on the role of individuals in promoting high tech cluster development. Indeed, the Florida Cluster Metrics Task Force argued in its 2000 report [compiled with the assistance of FHTCC] to the Florida Office of Tourism, Trade and Economic Development that successful high tech clusters required strong industrial (and academic) leadership, established organization that included "public-private partnership with representation from academic, private and government sectors," a strong core industrial presence in at least one industry, capacity for growth, related complementary industries, and industries that would provide "desirable wage, environmental impact, export and other economic characteristics."<sup>10</sup>

FHTCC seldom explains its origins or history within the context of the larger historiographical context of the regional economy. Indeed, institutional lore on the origins of FHTCC begins with a crisis and the scramble to solve a threat to the long-term viability of semiconductor manufacturing in Orlando. In the short term, the crisis fostered the innovative thinking that led to FHTCC and Central Florida's rise in the high tech industry. A closer inspection reveals that the roots of FHTCC are much deeper and reside in the region's dynamic

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<sup>10</sup> Guy Hagen and Keith G. Baker, "Florida's High Tech Corridor: Opening the Door to Florida's Future" Interim Report to the Florida Office of Tourism, Trade and Economic Development, September 2000, p. 4-5.

political energy, innovative risk-taking patterns and university leadership. Like other high tech regions, Central Florida had a long history of military investment that included the rising simulation industry. Moreover, as the site of NASA's space launches, the area benefitted from a high concentration of research capacity. Indeed, one of the founding institutions of FHTCC, the University of Central Florida, had been established in 1963 to provide educational support for NASA. Arriving in 1992 as UCF's fourth president in the institution's 30-year history, John C. Hitt<sup>11</sup> worked in a regional environment that was "on the move." The arrival of Walt Disney World in 1971 and the subsequent theme parks developed by Universal Studios and SeaWorld brought creative ideas to more traditional high tech research. An international airport and the rapid urban development of the previously agrarian region also generated a group of dynamic political leaders who acted in a bipartisan effort to assure the success of FHTCC. In other words, local leadership built on long-standing advantages and the energy of new institutions and firms to establish the Florida High Tech Corridor Council.

The FHTCC founding narrative focuses on the immediate actions and neglects the underlying history that eventually led to the establishment of the Council. The well-known story begins with competition between Orlando's Cirent semiconductor plant<sup>12</sup> and one in Madrid, Spain, that would determine which site would be able to continue production into the future. The proposed \$600 million expansion represented 600 new jobs and the continued presence of the

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<sup>11</sup> John C. Hitt earned his doctorate in physiological psychology in 1966 from Tulane University, where he began his academic career as an assistant professor. He moved to Texas Christian University where he rose through the academic and administrative ranks to serve as vice president of the university's research foundation and then dean of TCU's Graduate School. He moved to Bradley University, where he served as professor of psychology, provost, vice president of academic affairs. In 1987, he moved to the University of Maine where he was professor of psychology and vice president of academic affairs. In 1991, he was named as interim president before accepting the position of president of the University of Central Florida in 1992.

<sup>12</sup> Cirent was a joint venture of Lucent Technologies (an AT&T spinoff) and Cirrus Logic of California. The joint venture was initiated in October 1995. The Orlando plant on John Young Parkway was the manufacturer of Complementary Metal Oxide Semiconductor (CMOS) wafer fabrication.

facility. A money-based bidding war between Florida and Spain held few prospects for success for the Sunshine State. The Spanish government offered a \$90 million cash inducement to ensure the selection of the Madrid site, while Florida's economic incentive program allowed only \$5,000 per new job to qualified industries with another \$2 million from a road improvement fund, generating a total of \$5 million. Negotiations with Orange County garnered an additional \$6 million payable over 10 years.<sup>13</sup> A hastily organized Florida team recognized the need for a more comprehensive plan of action to entice support for Orlando's claims to the expansion.

Dr. Peter Panousis,<sup>14</sup> then CEO of Cirent Semiconductor, recalled that AT&T had recently moved 100 engineers to the Orlando plant and they wanted to stay in Florida. He knew that choosing to fund the Orlando plant was not simply a matter of money, but represented important potential for research. Panousis recalled the situation, "We needed to come up with a way to offset the money that the Spanish government was putting on the line, and the state of Florida needed to wake up to the realization that they needed to compete for jobs."<sup>15</sup> He was "particularly interested in getting the university system involved since we had a very high tech company." He approached UCF President John Hitt with a plan to develop a package that would include \$20 million of research funding to benefit the industry over the next decade. Hitt liked the idea and brought in Betty Castor,<sup>16</sup> the new president at the University of South Florida

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<sup>13</sup> Amy Bayes, "From Soap Suds to Sheer Success: The Florida High-Tech Corridor Council Story," Curley & Pynn Public Relations Archives, no date; Hagen and Baker, "Florida's High Tech Corridor."

<sup>14</sup> Dr. Peter Panousis began his career at AT&T's Bell Laboratories in New Jersey, rising to the position of vice president of Lucent's silicon microchip process technology. In 1993 he was named CEO of Cirent Semiconductor and moved to Orlando. His actions in meeting the crisis posed by the plant expansion made him one of the founders of the Florida High Tech Corridor Council. In 2000, he joined the University of Central Florida faculty. He created the HiTech Economics Center in the UCF College of Business Administration and served as Dean of the College of Sciences from 2005 until his retirement in 2011. <http://www.floridahightech.com/publication/e-newsletter/2011-05.html#council> Accessed December 5, 2012.

<sup>15</sup> Interview with Joseph England and Jennie Miller, fall 2011.

<sup>16</sup> Betty Castor earned a reputation as a leader in Florida politics and education. A graduate of Rowan University and the University of Miami, she was first elected to office in 1972 as the first female member of the Hillsborough County Commission. She served three terms in the Florida State Senate and was the first female elected to the

(USF). In order to facilitate the research, each of the universities pledged \$1 million per year. The pledge required confirmation from Florida State University System Chancellor Charlie Reed, who approved the deal, and Orlando got the go-ahead for the Cirent plant expansion. The expansion, which involved the construction of a second cleanroom and facilities to develop semiconductor manufacturing process, produced 700 jobs, plus 14 months of employment for the 500 contractors who built the facility and 300 additional jobs for technical vendors who serviced the plant.<sup>17</sup>

The success of the team effort to keep the Cirent plant in Orlando led to the founding of the Florida High Tech Corridor Council (initially the I-4 High Tech Corridor Council). According to Hitt, the idea for a sustainable partnership between academia and the high tech industry came to him one morning as he prepared for work. He had spent his formative years in Texas and remembered how the cities of Dallas and Fort Worth grew together and attracted employers along the Interstate-30 corridor. Looking at a map of Florida, he realized that the Interstate-4 corridor offered the same opportunity. Before leaving home that morning he called Betty Castor to hear her views on his inspiration. Castor remembers that she immediately approved and “within a month” they had developed “a cohesive plan.”<sup>18</sup> The core of the plan for the partnership between industry and the universities would provide much more than funding—it could take the industry to new levels with access to research and an educated workforce.

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Florida Cabinet as Commission of Education (1986). In 1994, she became president of the University of South Florida. She has been repeatedly honored for her service, receiving the 2008 Florida Education Association Lifetime Achievement Award, the 2009 League of Women Voters Lifetime award and the 2009 Audubon of Florida Women in Conservation Award. In 1996, she was inducted into Florida’s Women’s Hall of Fame.

<http://collinsinstitute.fsu.edu/content/betty-castor> (accessed January 7, 2013) and [www.fcsu.net/halloffame/WHObios/betty\\_castor.htm](http://www.fcsu.net/halloffame/WHObios/betty_castor.htm) (Accessed January 7, 2013)

<sup>17</sup> Taped interview with John C. Hitt, Randy Berridge, Peter Panousis and Daniel Holsenbeck, conducted by Connie L. Lester, James C. Clark and Roger Pynn, December 3, 2012, hereafter referenced as Hitt et al. interview.

<sup>18</sup> Bayes, “From Soapsuds to Sheer Success,” 3; Telephone interview with Betty Castor by James C. Clarke, October 2012; Hitt et al. interview.

At a series of meetings that included Betty Castor, UCF Vice President Dan Holsenbeck, and AT&T executives Peter Panousis and Randy Berridge, Hitt presented a nighttime satellite image of the lights along the I-4 corridor. At first Panousis thought they were the headlights from cars traveling along the highway. But Hitt pointed out that they were homes and businesses, creating what he called “Florida’s high tech corridor.” Hitt predicted that the I-4 region, which already housed more than half of Florida’s population, would continue to grow: “More and more people would be moving to the area and the question that occurred to me was ‘What kind of jobs are they going to have?’” As he explained, “If we went to our historic answer, it would be agriculture and tourism, with a smattering of good high tech industry as well, but ... if we could pool the resources of the University of Central Florida and the University of South Florida as the anchors of the corridor, we might produce a future in which there were more, very high-paying, high-value added jobs in high tech industry than we would get in the more traditional tourism and agriculture industry.”<sup>19</sup>

As academics and industrialists embraced the idea of high tech development from “Volusia and Brevard counties on the East Coast through Orlando in the center to Hillsborough and Pinellas counties on the Gulf,”<sup>20</sup> the Florida High Tech Corridor Council was born. Within months, in July 1996, Hitt and Castor met with CEOs and officials from 15 high tech industries, including GTE, AT&T, Lucent Technologies, Lockheed, Harris, Oracle and Schwartz Electro-optics for the first official meeting of the Council.

Hitt’s memory of the founding downplays his own intellectual groundwork for the generation of the idea that led to FHTCC. On November 19, 1992, at his inauguration as the

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<sup>19</sup> Hitt et al. interview.

<sup>20</sup> Bayes, “From Soapsuds to Sheer Success,” 3.



fourth president of UCF, Hitt outlined his vision for a “modern metropolitan university.” He imagined UCF as “a vital cultural and intellectual resource and as an indispensable force for economic development for all of Central Florida.” He committed the university to “offering access to high-quality, affordable education grounded in the liberal arts; to providing the highly educated workforce a modern economy must have to flourish; to producing and transferring the scientific and technical knowledge necessary for creation and sustenance of well-paying jobs; and, to developing a base of knowledge and expertise to assist with the formulation of wise public policy.” Hitt summarized his vision for the future of UCF in five goals, among which was the expectation of becoming “America’s leading partnership university.” Arguing that Central Florida would be “extremely congenial” to “partnerships between business, government, universities and venture capitalists,” Hitt expected UCF to play a “key role in helping [partnerships] form and propel [the] economy into the next century.”<sup>21</sup> In short, the new president outlined the vision that would produce FHTCC on his first day on the job—well before the crisis that activated the scheme.

In articulating his vision for UCF and Central Florida, Hitt reached into the past to draw upon an idea born in the mid-19<sup>th</sup> century and meld it with the anticipated economic dynamo of the 21<sup>st</sup> century. As a metropolitan university, UCF would become the “land grant college” of the future. Enacted by Congress in 1862, as the Civil War raged, the Morrill Act provided public land to each state for the founding of one or more land-grant colleges. The mission of the colleges was to teach and research in agriculture, mechanical arts (engineering), and military

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<sup>21</sup> John C. Hitt, “Vital Force, Vital Partner,” Inaugural Address delivered November 19, 1992, University Archives, Library, University of Central Florida, Orlando.

science—the engines of economic development for the day.<sup>22</sup> In evoking the urban university as a modern-day land grant college, Hitt clearly imagined a partnership between academia and the practical application of research outcomes for industry that would benefit the community and the region economically. As he noted in his inaugural speech, through the 19<sup>th</sup> century Morrill Act, the World War II-era GI Bill and other state and federal legislation, “Americans have forged a bond of special trust with their colleges and universities.”<sup>23</sup> Thus, his association of this partnership with earlier models also assumed that leadership would come from higher education and those associated with academia.

Like Hitt, Betty Castor was the newly installed president of a young university. Founded in 1956, the University of South Florida campus was located on the site of the former World War II-era Henderson Air Field. The university quickly emerged as an energetic research center with expectations of becoming the “Harvard of the South” and in 1994, as Castor assumed the presidency, USF had three satellite campuses and a medical school. Castor’s career included a number of legislative and educational “firsts” that made her open to the challenges associated with the proposed academia – industrial partnership. Entering the political world at the height of the feminist revolution of the 1970s, she became the first woman elected to the Hillsborough County Commission. She served three terms in the Florida State Senate where she chaired the Educational Appropriations Committee and co-sponsored the 1976 bill to ratify the Equal Rights Amendment that failed in the Florida Legislature. In 1986, she became the first female to serve

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<sup>22</sup> The Morrill Act, signed by Abraham Lincoln July 2, 1862, was proposed by Justin S. Morrill (1810-1898), a member of the U.S. House of Representatives from 1855-1867 and the U.S. Senate (1868-1898). Officially titled “An Act Donating Public Lands to the Several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts,” the Morrill Act provided each state with 30,000 acres of federal land for each member in their Congressional delegation. The land was then sold by the states and the proceeds used to fund public colleges that focused on agriculture and the mechanical arts. Sixty-nine colleges were funded by these land grants, including the University of Florida.

<sup>23</sup> Hitt, “Vital Force, Vital Partner.”

in the Florida Cabinet when she was elected commissioner of education and served two terms in that office before being appointed president of USF. Castor had begun her teaching career in Uganda and her commitment to education and Africa continued after her tenure at USF. In 1999, she left the academic post to become president and CEO of the National Board for Professional Teaching Standards. In 2006, she returned to USF to direct the Kiran C. Patel Center for Global Solution, an endowed center to “improve living conditions in poor countries through research in drinking water and sanitation, urbanization and sustainable economic development.” In 2011, President Barack Obama appointed her to the J. William Fulbright Foreign Scholarship Board.<sup>24</sup> The strengths and interests of the two presidents complemented one another and the working partnership they formed was critical to moving the idea of FHTCC forward. At a pivotal moment two young universities, headed by new presidents eager to make a name in research and technology for their schools and with a commitment to education and research in a globalizing economy, were at the right place at the right time for Central Florida to advance.

Under the leadership of the two university presidents the Florida State Legislature provided for the establishment of the Florida High Tech Corridor and the organization quickly developed a working structure. FHTCC, which originally included 21 counties, operates as a 501(c)(6) organization to “attract, retain and grow” the high tech industry in Central Florida. In January 2005, the University of Florida (UF) joined FHTCC as a full member and added two counties to the region served. Chaired by the presidents of the three research universities, the Council currently consists of two presidents from the 14 area community (state) colleges who serve on a rotating basis, the president of the Florida Institute of Technology and nearly two dozen representatives of high tech industries. Originally the Council focused on five target

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<sup>24</sup> William March, *Tampa Tribune*, July 6, 2009; Richard Danielson, *Tampa Bay Times*, June 30, 2009; and, *Orlando Sentinel* October 21, 2006.

industries—semiconductor manufacturing and development, software development, simulation and training, laser and electro-optics, and medical technology. Sectors have been selected to reflect the growing academic and research strengths of the universities and their ability to support industry. Over the 17 years of its existence to date, the transformation of the high tech industry has been reflected in the list of targeted sectors, which now include agritechology—which was added at the request of the University of Florida when it joined; aviation and aerospace; digital media/interactive entertainment; financial services; information technology; life sciences/medical technologies; microelectronics/nanotechnology; modeling, simulation and training; optics and photonics; and, sustainable energy. Council members describe their relationship as a competitive partnership in which each must “leave their ego and their logo at the door.” Members contribute time and resources to advance the goals of the Council, not their specific institution, government agency or business. In the process, everyone benefits.

Randy Berridge<sup>25</sup> has served as president of FHTCC from its funding to the present and oversees the Core Team, which is made up of academic, government and industry representatives. The Team meets weekly through a conference call and finding a convenient time for the busy members proved daunting. The group finally settled on Tuesdays at 7:45 a.m.

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<sup>25</sup> Randy Berridge has held the position of president of the Florida High Tech Corridor Council since its formation in 1996. He also currently serves as president of the Berridge Consulting Group Inc., and as an advisory board member of SunTrust Bank, N.A. Previously, Berridge held several positions with AT&T Corporation including chair of the Central Florida AT&T Management Council; district manager of public relations for the Florida Division; manager of legal divestiture planning; and, coordinating supervisor of budgets, forecasts, planning, human resources and telephone manufacturing. Berridge earned a bachelor’s degree in liberal arts and business from the University of Evansville in Indiana, and he has completed graduate courses in marketing and finance at Butler University in Indianapolis, Indiana. He was appointed to the board of directors for Workforce Florida and also serves on the board of directors of the Enterprise Florida Stakeholder Council, the Florida Chamber of Commerce, the National Entrepreneur Center, the Tampa Bay Partnership, Central Florida Partnership’s How Shall We Grow Organization, the Tampa Bay Technology Forum, the University of Central Florida Technology Incubator Network, the University of South Florida Technology Incubator, the Florida Photonics Cluster, the National Center for Simulation, the Florida College System Foundation and the UCF Foundation.

as the only time everyone could meet—leading Roger Pynn<sup>26</sup> to label the meeting the “pajama hotline.” The Core Team is divided into smaller working committees that address the target industries and report on government/legislative issues, marketing, workforce projects, techPATH (the Council’s vehicle for STEM education), and incubators/entrepreneurial centers. Some members of the Core Team, including Dan Holsenbeck, Ed Schons, Roger Pynn, Randy Berridge, Jeff Bindell, Guy Hagen, Vicki Morelli and Tom O’Neal, have served since the beginning of FHTCC. Others have come and gone over the 17-year history of the team. In a recent interview, John Hitt described the Core Team as an “adhocracy” that provides both structured and flexible leadership to meet the changing needs of FHTCC.<sup>27</sup>

The most visible action in the early years focused on funding for the ambitious project. Fortunately for the High Tech Corridor, the timing was perfect. In 1997, when Corridor representatives first sought legislative funding, the Central Florida delegation enjoyed a period of bipartisan strength in the state legislature that put the area in a unique position of power in both houses. Antoinette “Toni” Jennings<sup>28</sup> was president of the Senate, Daniel Webster<sup>29</sup> was

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<sup>26</sup> Roger Pynn is an Orlando native and a graduate of the University of Central Florida, Bachelor of Arts in Communication and has completed graduate studies in Business at Rollins College. He received the University of Central Florida Distinguished Alumnus Award, Distinguished Alumni Achievement Award and Alumni Distinguished Service Award, UCF Alumni Association Jefferson Award for Lifetime Achievement, as well as Florida Public Relations Association Outstanding Public Relations Professional of the Year. He serves on the myregion.org and Orlando/Orange County Convention & Visitors Bureau boards of directors, is a Charity Challenge board member, chairman of the Dean’s Advisory Council for the University of Central Florida College of Science, and former chairman of the UCF Foundation. Before founding Curley & Pynn in 1984, Roger headed public relations for Westinghouse Power Generation Systems, Belcher Oil Co. (The Coastal Corp.) and The Public Relations Group at McAllister-Barker Associates. Previously he had been a bureau chief, reporter and metropolitan editor for the *Orlando Sentinel*.

<sup>27</sup> Hitt et al. interview; Core Team Agendas, 1999-2010, provided by Curley and Pynn.

<sup>28</sup> Antoinette “Toni” Jennings served in the Florida House of Representatives from 1976-1980 and in the Florida Senate from 1980-2000, where she became the only person in the history of Senate to serve two terms as president of the Senate, 1996-2000. In 2003, Jeb Bush appointed her to the position of Lt. Governor after Frank Brogan left the office to become president of Florida Atlantic University. She was the 16<sup>th</sup> Lt. Governor and the first woman to hold that position.

Speaker of the House of Representatives, Tom Feeney<sup>30</sup> was a rising Republican star in the House and future Orlando mayor Buddy Dyer<sup>31</sup> was a key player on the Senate appropriations committee. As Betty Castor explained, “Central Florida had the strength to acquire the necessary funding to launch the High Tech Corridor.”<sup>32</sup> Although the favorable position of the area’s delegation gave the project an advantage, the complexity of the concept required considerable explanation to convince skeptical legislators that a state investment would be well spent.

Legislators routinely dealt with individual university requests for money for new buildings or new programs, but the Corridor involved two universities and multiple private firms in an initiative that was without precedent in Florida’s academic and legislative history. The schools proposed the development of academic programs that would require the exchange of faculty. Seventeen years later such partnerships are routine and “old hat,” but in 1997 the concept was new and just different enough to require extensive lobbying. According to Castor, “Legislators couldn’t quite grasp the idea that we were working on a concept to build intellectual capacity.”<sup>33</sup>

It fell to UCF Vice President Daniel Holsenbeck to walk the halls of the Capitol building in Tallahassee and explain the concept to legislators. Peter Panousis, Randy Berridge and Roger Pynn travelled with Holsenbeck to visit individual legislators and explain that “they had this idea that they wanted to develop this high tech intellectual corridor ... [that] was very much on the

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<sup>29</sup> Daniel Webster served 28 years in the Florida State Legislature in both the House and the Senate, the longest tenure in Florida history. In 2010, he was elected to the U.S. House from Florida’s eighth district; he was re-elected in 2012.

<sup>30</sup> Thomas Charles Feeney III was first elected to the Florida House in 2000. He ran unsuccessfully for Lieutenant Governor with Jeb Bush in 1994, and was re-elected to the House in 1996. He served four terms in the U.S. House of Representatives, 2001-2009.

<sup>31</sup> John H. “Buddy” Dyer served in the Florida House of Representatives from 1993-2001. He was elected Mayor of Orlando in a special election in 2003, and has been re-elected in every subsequent election.

<sup>32</sup> Interview with Betty Castor conducted by James C. Clark, June 2012.

<sup>33</sup> Ibid.

cutting edge.” It was during one of these lobbying efforts that Holsenbeck hit upon the slogan that would define the mission of FHTCC. While sitting in the outer office of one legislator, Holsenbeck scribbled talking points on the back of an envelope—“attract, retain and grow the high tech industry.”<sup>34</sup>

Holsenbeck picked up strong support from private industry, proving to legislators that the proposal had widespread backing. Ed Schons,<sup>35</sup> who was also enlisted to lobby on behalf of the Corridor, recalls that it was Pynn who proposed the concept that the project would be “a forum where people leave their egos and logos at the door.” This was something new in business—where companies saw only competition—Hitt and Castor expected them to engage in cooperation and partnership. Rather than reacting to economic changes as they had done with Cirent, academic and business partners would be proactive. In Schons’ view, supporting the High Tech Corridor was “a right thing to do ... It was refreshing that you had two university presidents with a vision” that would change the way business was conducted in Central Florida and “come together to do good things”<sup>36</sup> and “work together across the Corridor boundary-less.”<sup>37</sup>

The Central Florida delegation looks back on their support of the project as representing an important regional and state contribution to the economy. To advance the initiative Toni Jennings worked with Buddy Dyer and the appropriations committee to steer the funding

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<sup>34</sup> Hitt et al. interview.

<sup>35</sup> Ed Schons is UCF director of Economic Development and was 2011-2012 chair of the Florida Economic Development Council. Prior to beginning his tenure at UCF in 2001, Schons was economic development manager with Florida Power Corporation from 1981-2001. He is the recipient of several awards, including the Florida Chamber President’s Award for Outstanding Service, the Leadership St. Pete Alumni Association’s “Leadership Award for Outstanding Contributions to the Community” and the “Eunice Sullivan Economic Development Professional Award from the Florida Economic Development Council for Outstanding Dedication and Commitment to the Economic Development Profession.

<sup>36</sup> Interview with Ed Schons conducted by Joseph England and Jennie Miller, fall 2011.

<sup>37</sup> Interview with Ed Schons, *Circuit* (progress-energy.com/economic, summer/fall 2010), accessed May 8, 2013.

legislation through. Today, Orlando Mayor Dyer remains involved in the programs of the High Tech Corridor and frequently enumerates the benefits to the city. In a recent interview, he characterized the collaboration between UCF, the city, the business community, developers, not-for-profits and the state as “one of the catalysts for our region.” Tom Feeney, who now heads Associated Industries of Florida, recalls the moment when Hitt and Holsenbeck came to his office to discuss the High Tech Corridor proposal. “From ‘97 to ‘98 on, we were able to get more and more support, more meat on the bones of President Hitt’s vision and ultimately we have been able to make incredible advancements in arenas like modeling, simulation and training, and the biomedical field, and others,” he remembers. As the High Tech Corridor advanced, businesses changed the way they thought about Central Florida from their views of the region as the “home to Disney, Universal, Busch Gardens, and citrus ...” to the next center for “high tech business opportunity.” “We saw the potential,” Daniel Webster recalls. “We saw it as a great thing to do because we were sort of providing the educational tools necessary in a partnership which was unheard of before between industry and universities.” The work of Holsenbeck’s team resulted in a state appropriation for \$925,000 for the year 1996-97.<sup>38</sup>

In its first annual report, FHTCC explained how the money was used. Curriculum development accounted for the largest share of the budget—\$442,700. The report noted that funds had provided coursework for more than 200 Cilent Semiconductor employees in “silicon processing and vacuum technology developed and delivered by USF and electromechanical, JMP, and metrology courses developed and delivered by UCF.” UCF had also developed a network computing certification program for which AT&T had “invested more than \$200,000 in equipment and facilities.” The UCF and USF Colleges of Engineering had spent \$365,300 of the

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<sup>38</sup> Clark interview, June 2012; England and Miller interview, fall 2011.



appropriation to develop nine research projects with Cirent (six at UCF and three at USF). Another \$103,000 was spent by Valencia Community College in association with UCF to develop a two-year associate degree in manufacturing with an emphasis on semiconductor processing. The remaining \$15,000 was used “to conduct a survey of the 15 corporate members ... to determine employee and other assets ... that could benefit the Corridor mission and the state as a whole.”<sup>39</sup> As John Hitt explained, from the outset the legislature could see that the High Tech Corridor could deliver what it promised.<sup>40</sup>

In 1999, Cirent Semiconductor enhanced research opportunities for UCF and USF when the company presented the two universities with funding for endowed chairs that would attract eminent scholars. The funding, \$600,000 for each university, would be matched with \$400,000 per school by the State of Florida’s matching funds program. The funding was designated for Computer Science at UCF and for Microelectronics at USF. In announcing the gifts, Peter Panousis credited the partnerships between industry and the universities with the continued presence of Cirent in Central Florida. “Never have I seen universities so eager to partner with industry, so innovative in how they build partnerships, and so dedicated to creating a future full of economic well-being for their constituents,” he said.<sup>41</sup>

In September 2000, the Florida Cluster Metrics Task Force issued a research report titled “Florida’s High Tech Corridor: Opening the Door to Florida’s Future.” Created by Florida Tax Watch and FHTCC and convened by the Florida Office of Tourism, Trade and Economic Development, the Task Force was designed to “develop methods for evaluating the costs and benefits of a new class of Florida investment programs that support the development of high tech

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<sup>39</sup> <http://www.floridahightech.com/publication/annual-report/ar-96-97.pdf> Accessed December 20, 2013.

<sup>40</sup> Hitt et al.

<sup>41</sup> “Making History Happen: Cirent Semiconductor Presents First-ever Simultaneous Chair Endowments to UCF and USF” Press Release, June 10, 1999. Curley & Pynn.

industry clusters.” The report included a set of guidelines for “identifying and funding regional clusters” that mimicked the organizing principals of FHTCC: infrastructure, organization and a “seed” project. The authors admitted that measuring cluster economic impact presented problems in both the long term and short term. For one thing, “the targets of cluster investments” are “companies and workers that receive no direct funding ... companies that are attracted to [the] region to take advantage of research, technology transfer, sales and cooperative venture opportunities, and ... workers [who migrate] to capitalize on recruiting competition ...” For another thing, “more than 20 years may be required before such cluster efforts reach full fruition.” Nevertheless, the report claimed a multiplier effect of 2.3 to 1 for the research universities of UCF and USF in 1998. An investment of \$6.8 million to the two universities via the board of regents “to support technology transfer and growth of the Florida High Tech Corridor” had produced a one-year impact of more than “\$15.7 million and at least 155 jobs, raising \$9.5 million of private-sector matching investment.” The larger investment by state, county and city governments in silicon industries like Cirent had a multiplier effect of almost 15 to 1. The report anticipated that governments could expect to recoup their investment within six years “through state revenue resulting from increased economic activity.” Following the guidelines outlined in the report, the authors expected continued economic growth for high tech clusters.<sup>42</sup>

The report was the latest in a long history of similar southern state studies that projected economic growth if legislators and firms followed the prescribed advice. The challenge for FHTCC was to provide leadership in the transformation of a mindset that accepted the status

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<sup>42</sup> Hagen and Baker, “Florida’s High Tech Corridor,” 1, 2.

quo. It would do so with innovations in workforce education, support for research through matching grants and a program that fostered business growth for startup high tech firms.

Efforts to modernize and revitalize the economy of the South, locally and regionally, have a long and generally unsatisfactory history. From Henry Grady<sup>43</sup> in the 1880s and his advocacy of a New South that would place cotton mills in the cotton fields to Mississippi's depression-era "Balance Agriculture With Industry" initiative<sup>44</sup> to more recent efforts to lure industry to the region, southern economic and political leaders "sold" the idea of a region that would provide low taxes, low wages and compliant labor for potential employers in exchange for jobs that were produced by technology developed elsewhere.<sup>45</sup> While southern governors recognized that, with few exceptions, the region had contributed little to the innovations that were the engines of economic development, they also understood that, after World War II, future economic growth in the South depended on the development of high tech industries. In 1963, U.S. Secretary of Commerce Luther Hodges<sup>46</sup> warned southern governors that "The South's future depends upon its ability to move to the forefront of modern technology."<sup>47</sup> According to historian Bruce Schulman, the South took the warning to heart and, by 1985, the southeast region "housed seven of the nation's technology incubators and nine of the 27 research parks."<sup>48</sup>

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<sup>43</sup> See Ferald J. Bryan, *Henry Grady or Tom Watson?: The Rhetorical Struggle for the New South, 1880-1890* (Macon, Georgia: Mercer University Press, 1994).

<sup>44</sup> See Connie L. Lester, "Balancing Agriculture with Industry: Capital, Labor and Race in Mississippi's Home Grown New Deal," *Journal of Mississippi History*, 57:3 (Fall 2008): 235-263.

<sup>45</sup> See James C. Cobb, *The Selling of the South: The Southern Crusade for Industrial Development, 1936-90* (Chicago: University of Illinois Press, 1993). Also see "The Southeast Economy: A Historical Context," 2007 Annual Report (Federal Reserve Bank Atlanta): 18-25.

<sup>46</sup> Luther H. Hodges (1898-1974) served as governor of North Carolina (1954-1961) and U.S. Secretary of Commerce (1961-1965). As governor, he shepherded the development of the North Carolina Research Triangle Park.

<sup>47</sup> Quote from Bruce J. Schulman, *From Cotton Belt to Sunbelt: Federal Policy, Economic Development, & The Transformation of the South, 1938-1980* (Durham, North Carolina: Duke University Press, 1994, 2007, originally published by Oxford University Press, 1991), 168.

<sup>48</sup> *Ibid.*, 169.

Critical to this transformation were new emphases on education advanced by the Southern Regional Education Board (est. 1948) and federal investment in defense research.

The Florida High Tech Corridor benefited from earlier efforts to make the South a technological innovator. Like other southern states, Florida built on defense investment in simulation and training and federal programs that had turned Brevard and Volusia counties into the “Space Coast.” In order to address a persistent southern problem and create an educated workforce to meet the anticipated demand, FHTCC established the Tech 4 Consortium to develop, educate and sustain an adequate high tech workforce. The Consortium’s efforts began in the public schools and continued into specialized programs in the community colleges and research grants for university graduate students and faculty.

In 1998, during the first year of its operation, the Tech 4 Consortium established and transitioned into what became known as techPATH to reach students as young as 12 years of age to introduce them to the high tech world as a way to put them on a path toward college and employment in the high tech industry. Jeff Bindell, who holds a Ph.D. in physics, launched and continues to direct the program that specializes in developing interest among students who are less likely to have opportunities for exposure to high tech training and make them aware of the possibilities for careers. During its 14-year history, techPATH has delivered nearly 100 programs to more than 3,500 teachers and students across the 23-county region that makes up the Corridor. As education coordinator Vicki Morelli explained, her goal is to “grow them locally and keep them.”<sup>49</sup>

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<sup>49</sup> [www.floridahightech.com/techpath.php](http://www.floridahightech.com/techpath.php)

techPATH cultivates tomorrow's workforce through a variety of innovative programs and workshops called techCAMPs for students and teachers. Currently techCAMPs are offered in Optics & Photonics, Information Technology, Manufacturing, Microelectronics, Robotics and Modeling, Simulation and Training. Microscopy workshops equip educators with the tools to conduct "virtual field trips" by arranging scheduled times to connect with a Scanning Electron Microscope (SEM) via the Internet. Students can operate the SEM at the Orlando Science Center (OSC), which received the equipment through a grant from FHTCC, to perform science projects under the supervision of OSC staff. Middle school students visit the campuses of nearby state or community colleges to participate in techPATH's Math & Physics Day. This program is designed to introduce the math and science that are crucial to the video gaming and digital media industry, a growing segment of the Florida High Tech Corridor. By the end of its 16<sup>th</sup> year, techPATH hosted Robotics Camp for students at South Florida Community College and Florida Hospital's Nicholson Center for Surgical Advancement.

Bindell explained the program's approach, "We prefer to go after the kids who have never been exposed to this stuff, have never seen it." These students are often very bright consumers of technology, but, in many cases, "they just haven't had the switch turned on." Through hands-on demonstrations, students see the connections between high tech jobs and the math and science courses offered in their schools. techPATH's camps and workshops stimulate students to think beyond their consumer views of technology to consider innovative and creative careers in the high tech industry.<sup>50</sup>

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<sup>50</sup> [www.floridahightech.com/techpath.php](http://www.floridahightech.com/techpath.php) Accessed January 10, 2013. Jeff Bindell was transferred to Orlando in 1994 by Bell Laboratories to join the Cirent plant. He has worked with the educational programs of FHTCC since its inception. Vicki Morelli, also a Southern Bell/AT&T/Lucent Technologies veteran, joined FHTCC in 2002.

Although FHTCC is anchored in the research universities of UCF, USF and UF, cultivating a high tech workforce also means the development of partnerships with the area's private colleges, and state and community colleges. In 1999, the Consortium received three years of funding from the National Science Foundation to "develop educational programs, instructional materials for enhanced curriculum, faculty development and 'traveling' module labs ... to introduce and encourage ... students throughout the state to pursue careers in ... technology fields." The grant funded initiatives on "cleanroom science, high vacuum technology, metrology, hazardous materials and photolithography." Cirent Semiconductor pledged "an additional \$1 million in matching funds to provide equipment for the enhanced science-based curriculum." Valencia, Hillsborough, Brevard and Seminole community colleges, as well as St. Petersburg College were early participants in the Consortium.<sup>51</sup>

As Randy Berridge explained in a recent interview, the Florida High Tech Corridor Council worked with the universities to utilize their faculty to develop and teach courses at the community colleges that would make students marketable for high tech jobs and lay the foundation for them to go on to obtain baccalaureate degrees. The resulting 2+2 program proved to be both a success and fell short of initial expectations. On the one hand, high tech firms recognized the superior skills of students graduating from the two-year programs and offered them jobs immediately. However, the demand for their skills was so great that most did not continue directly into the baccalaureate program as expected, although many returned and later completed the program while they worked.<sup>52</sup>

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<sup>51</sup> Amy Bayes, "Community Colleges on Florida's High Tech Corridor Benefit from \$1.1 Million Grant," Curley & Pynn.

<sup>52</sup> Hitt et al.

In December 2011, one of the Corridor’s community colleges received national recognition for its success in developing strong jobs programs that produced high earnings when Dr. Sanford Shugart, president of Valencia Community College (now Valencia State College), accepted the first Aspen Prize for Community College Excellence. In addition to the national recognition, this honor comes with a \$600,000 award to be used to support educational programs. Valencia was chosen after a rigorous competition among the 1,200 community colleges across the country. Josh Wyner, executive director of Aspen Institute’s College of Excellence program, explained the critical role of community colleges in the education of the nation’s work force, “In an era when a college degree is the ticket to the middle class, real educational opportunity for our citizens and real economic growth for our country will depend on our community colleges.” The Florida High Tech Corridor Council and its educational and business partners had long recognized the validity of that statement and acted to enhance the opportunities for Central Florida students through the implementation of high tech instruction that led to strong job growth.<sup>53</sup> As impressive as the programs have been in training a high tech workforce, recent publications by the University of Florida and the Federal Reserve Bank in Atlanta indicate the need for greater investment in education in order to develop a larger workforce to meet the expanding needs of the high tech industry.<sup>54</sup>

The centerpiece of FHTCC’s investment is the Matching Grants Research Program (MGRP). Established in 1996, the MGRP has matched the \$57 million invested by FHTCC with nearly \$160 million from 350 participating companies to provide more than 300 faculty and

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<sup>53</sup> Story in the *Chronicle of Higher Education* <http://chronicle.com/article/Valencia-College-Wins-First/130091/> See also <http://valenciacc-news.com/events/valencia-named-top-community-college-in-nation> and <http://www.insidehighered.com/news/2011/12/13/valencia-college-wins-first-aspen-prize>. Accessed May 2, 2012.

<sup>54</sup> “Greetings from Florida: A State of Change,” *EconSouth* Second Quarter 2011, p. 9 [www.frbatlanta.org](http://www.frbatlanta.org) Accessed October 25, 2012; Lynne Holt and David Colburn, “Florida and Orlando: Choosing the Future after the Recession,” *Florida Focus* May 2011 (Bureau of Economic and Business Research at the University of Florida). Also see *Florida’s Innovation Benchmark Study* (June 2008), 9.

2,400 students with research opportunities to work on projects with practical applications. The MGRP developed a competitive, peer-reviewed process for awarding grants that is managed on the three campuses by leaders in the respective offices of research. According to Dr. M.J. Soileau,<sup>55</sup> vice president for Research and Commercialization at the University of Central Florida, the program provides real benefits for students, faculty, industry and political leaders. The universities put “real money on the table” to incentivize faculty and provide real-world experience for student researchers; produce innovative answers to problems through access to the best minds; and, create economic development that results from the public investment in research.

In 2010, the Council’s MGRP won the Excellence in Technology-Based Economic Development award by the State Science & Technology Institute, a national group formed to encourage economic development. The Institute’s president, Dan Berglund says MGRP “provides an exemplary model for states to develop ties between industries and universities.” FHTCC President Randy Berridge noted that the Council “realized early the real power of this [program] in providing a meaningful research experience of our students.”<sup>56</sup>

One of those research projects assisted the work of College of Arts & Humanities Ph.D. candidate Alex Katsaros in the development of Interactive Expeditions (INTX), a multi-year project that supports real-time educational programs via satellite from anywhere in the world. The project was the creation of Philip Peters of UCF’s School of Visual Arts and Design, and Cobham SATCOM Land Systems, an Orlando-based leader in the mobile satellite communications industry. The collaboration resulted in the creation of INTX and an online

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<sup>55</sup> M.J. Soileau, a professor of Optics, Physics and Electrical Engineering, was the first director of the University of Central Florida’s Center for Research and Education in Optics and Lasers (CREOL). In 1999, he was named vice president for Research and Commercialization at UCF.

<sup>56</sup> *florida.HIGH.TECH* 2011, p. 7.



network called TracStar Ed-PAD that connects learners with instructors who teach from the field. In one example of the use of this technology, UCF philosophy professor Bruce Janz conducted his online course, “A South Africa Cultural Transect,” on site from South Africa. In one special intersection between instructors and a group of invited students, master African drummers played and conversed with elementary student drummers at Orlando’s Nap Ford School in real-time—a connection between people and culture that transcended time and space. “Ultimately,” Katsaros says, “it’s about the immersive learning experience,” an observation that has new meaning for both college and elementary students who participated in the INTX experience.<sup>57</sup>

The Tampa-area company Ocean Optics is another example of the benefits of partnership. The company, which originally grew out of work conducted by USF researchers, achieved national attention when they were the first to manufacture a miniature spectrometer that provided an alternative to the traditional table-top laboratory optical spectrometer that cost more to install than they did to make. Ocean Optics has a long tradition of recruiting engineers from the University of South Florida which supports the central principles of the Corridor Council. UCF’s Center for Research and Education in Optics and Lasers also drew the attention of the company and was a factor in the decision by Ocean Optics to choose Winter Park as their new expansion location. The Ocean Optics example embodies the central principles of the Corridor Council. It shows how the partnership between USF and UCF has benefitted the region through innovation and job creation. Similar to the connection between USF and UCF shown with the example of Ocean Optics, a bond was formed between the UF spinoff company Sestar Technologies and Sarasota-based ROBRADY design. The two companies joined forces through

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<sup>57</sup> “Interactive Expeditions: Make the World Your Classroom,” *florida.HIGH.TECH* 2012, p. 21-22.

the MGRP to develop and design a plasma sterilization device. The most effective feature of partnerships is their connective networking quality.<sup>58</sup>

At UF, companies continue to gain notice because of advances in technology as a result of the Matching Grants Research Program. In March 2009 at a gathering at the White House, President Obama praised Deepika Singh the founder of the Gainesville-based company, Sinmat, for her research dealing with an innovative new way of manufacturing microchips that will help power smarter energy systems. Singh was recognized by the president for being an energy entrepreneur who brought technology from the lab to the manufacturing line and eventually into the living room.<sup>59</sup>

High tech entrepreneurs are innovative and highly skilled, but may lack the specialized knowledge to advance in the business world. The Florida High Tech Corridor Council addresses the life-long learning needs of the high tech partners in three innovative programs—the Florida Virtual Entrepreneur Center, 13 Technology Incubators and Venture Capital organizations, and GrowFL. The Florida Virtual Entrepreneur Center, an online portal, connects businesses with governmental and commercial services and information on permits, regulations, tax incentives and funding sources. Having access to the latest information through a single site provider educates firms interested in relocating to Central Florida and enables established companies to remain knowledgeable about changes that affect the high tech world. In its sixth year of operation, the FLVEC database is a free service that facilitates business planning and development.

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<sup>58</sup> “10 Years of Tech: A look at six leading high tech companies that have flourished in the past 10 years,” *florida.HIGH.TECH* 2011, p. 12.

<sup>59</sup> <http://www.youtube.com/watch?v=Ceb7ma1ZIBg>. Accessed December 12, 2012.

A 2008 report, “Florida’s Innovation Benchmark Study,” cited the University of Central Florida Technology Incubator as one of the most successful examples of incubator/accelerator programs in the state.<sup>60</sup> It serves four counties to mentor new businesses with access to marketing and public relations information, legal counsel, accounting, human resources and interaction with experienced and peer entrepreneurs. One of the first high tech entrepreneurs to benefit from the program was Dan Rini, who got his Ph.D. in mechanical engineering from UCF. In 2000, Rini took his dissertation research in thermal management and developed RINI Technologies. The Oviedo, Florida, company’s core expertise is in Evaporative Spray Cooling, Thermal Energy Storage and Miniature Refrigeration System. Its customers include Army Natick Soldier Center, Air Force Research Laboratory, Office of Naval Research and the Defense Advanced Research Projects Agency.<sup>61</sup>

GrowFL is a program of the Florida Economic Gardening Institute at the University of Central Florida. GrowFL provides technical assistance in market research, competitive intelligence, social media strategy, search engine optimization and geographic information systems for second-stage companies. Dr. Tom O’Neal, UCF associate vice president for Research & Commercialization and executive director of the Florida Economic Gardening Institute, points to the impressive record of GrowFL as evidence of the success of the program. Since its inception, more than 400 companies have completed the program. The first 250 companies helped create 3,285 direct, indirect and induced jobs, and contributed more than \$510.4 million (direct and indirect) to Florida’s economy. Educating high tech entrepreneurs

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<sup>60</sup> Boyette Levy, *Florida’s Innovation Benchmark Study* (Atlanta: Boyette Levy, 2008), 26.

<sup>61</sup> <http://www.rinitech.com> Accessed January 15, 2013.

about business innovations retrains and grows existing firms and helps FHTCC attract and foster new ones.<sup>62</sup>

The development of venture capital to advance the innovative firms within the Corridor has been more problematic. In 2002, FHTCC's optimistic report on venture capital acknowledged the reduction in venture funding that followed the bursting of the dot-com bubble. Nevertheless, "Florida ranked sixth among the states for the second quarter of the year," accounting for 3.2 percent of the venture capital. Thirty-one Florida companies "netted \$311.1 million in venture capital funding between April 2001 and June 2001."<sup>63</sup> The report cited two venture capital companies with special interest in Corridor companies—Sarasota-based New South Ventures and Orlando-based Grace Venture Partners L.P. John Montelione of New South Ventures, saw "potential in the state's bio-science, medical device and agricultural-based firms." Ned Grace of Grace Venture Partners, whose firm invested in "seed and early-stage information technology investments," saw the Corridor as "a favorable spot for high technology companies to grow and prosper." Despite this initial enthusiasm, a 2008 benchmark study found venture capital investment in the state lagging. In 2007, venture capital investment in Florida totaled 2.01 percent of the national investment, slightly ahead of North Carolina, but less than half the percentage invested in Texas. No state in the study came close to the percentage of investment dollars commanded by California (45.64 percent).<sup>64</sup>

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<sup>62</sup> *The Innovator*, Volume 1, Issue 2, Winter 2012-13, p. 12; "Harvest Time," *Texture*, Volume 7, Issue 1 (2010), 28-29.

<sup>63</sup> "Venture Capital: Slow But Sure: Intellectual and Venture Capital are Taking Root in the Corridor," *florida.HIGH.TECH* 2002, p. 47.

<sup>64</sup> Del Boyette, Charlie Sloan, Tracy King Sharp and Victoria Tucker, "Florida's Innovation Benchmark Study," (Atlanta: Boyette Levy, 2008), 36.

**2007 Venture Capital Investment  
(Millions of Dollars)**

State	VC Dollars	Share of U.S. VC Dollars
<b>United States</b>	<b>\$30,245,933,500</b>	<b>100%</b>
California	\$13,802,961,100	45.64%
Texas	\$1,416,470,600	4.68%
New York	\$1,195,328,800	3.95%
Pennsylvania	\$835,166,500	2.76%
Florida	\$608,338,400	2.01%
North Carolina	\$577,022,200	1.91%
Georgia	\$462,935,400	1.53%
Ohio	\$170,030,200	0.56%

A local report on the study provided some illumination on the venture capital problems Corridor entrepreneurs faced. Dan Rini explained that, “many companies with sound ideas have trouble getting started due to the lack of venture capital and startup funding provided by ‘angel investors’ – wealthy individuals who invest their own money in new businesses in exchange for ownership equity or convertible debt.”<sup>65</sup> Gordon Hogan, business development executive for the UCF Technology Incubator also noted the “artificial gap” between “angel” investments of \$500,000 and venture capital investments of \$5 million and more.<sup>66</sup> FHTCC and its partner universities had done a good job of fostering research and translating that research into small entrepreneurial firms. However, the venture capital that would fund the “next big thing” was not

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<sup>65</sup> *Orlando Business Journal*, July 28, 2008.

<sup>66</sup> *Ibid.*

available for Florida firms. The benchmark study concluded that Florida was “competitive with many states in most of the indicators ... placing it in a position to seize the opportunities created by an evolving economy.” The report reassured readers that “[s]uccess or failure [would] not be determined by the mere size of the state or any single indicator” and encouraged Florida to create its own path to success.<sup>67</sup>

A survey of the anniversary years of FHTCC provides a snapshot of the growth of the high tech industry and the indicators that the Corridor used to measure its development. By the time of its fifth anniversary in 2002, the Florida High Tech Corridor Council had funded 290 research projects for a total of \$25.2 million and claimed more than 145 corporate and institutional partners. Corporate and federal matches added another \$55 million for research. Six target industries—aviation and aerospace, information technologies, medical technologies, microelectronics, optics and photonics, and modeling, simulation and training—operated under the Council umbrella. In 2002, Florida ranked fifth in the nation in high tech employment, with most of the companies clustered in the Central Florida region.<sup>68</sup>

Five years later, FHTCC celebrated a Decade of Partnership. As the success of the Council became clear, new or potential participants lined up to become involved in FHTCC and the number of high tech industrial clusters increased to 10, including agritechnology. In 2005, the University of Florida joined UCF and USF to provide a third academic anchor and added Alachua and Putnam counties to the Corridor. Partnership with UF gave FHTCC an additional \$2 million annually for the Council’s Matching Grants Research Program, expanded the region’s high tech research into new areas and enhanced economic growth. UF President Bernard

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<sup>67</sup> Boyette et al., “Florida’s Innovation Benchmark Study,” 37.

<sup>68</sup> *florida.HIGH.TECH* 2002, p. 9.

Machen recognized that “the strength of the Corridor is the (university) institutions” and characterized the work done by UCF and USF as a “groundbreaking economic development strategy” that promised a “bright economic future” through partnership. Machen and UF were not the only ones convinced of the benefits of the public-private partnership strategy. On its 10<sup>th</sup> anniversary, FHTCC served 23 counties in Central Florida and, in addition to the three universities, partnered with 14 community colleges and more than 20 local and regional economic development organizations. The Council proudly boasted that its matching grants had generated more than \$150 million to fund 715 research partnerships with more than 250 companies.<sup>69</sup>

In the 2011 edition of *florida.HIGH.TECH*, FHTCC summarized its accomplishments in an article titled “The Corridor by the Numbers.” Based on the 2010 Cybercities Report published by Tech America Foundation, the article reported the Florida High Tech Corridor’s favorable ranking when compared to tech cities in California, Texas and North Carolina. Noting that the Corridor was home to 8.2 million residents and 70 percent of the state’s high tech employment, the article pointed to the 11,588 companies that operated within the area, a 400 percent increase in the number of high tech firms during fifteen years of FHTCC’s history. High tech areas with similar population sizes included Silicon Valley in California which claimed 23,376 high tech companies; the Austin [Texas] region with 16,631 companies and North Carolina’s Research Triangle with 11,800 firms. Like the Florida High Tech Corridor, all three centered around research universities that included the University of California at Berkeley, Stanford University, San José State University, the University of Texas, the University of

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<sup>69</sup> *florida.HIGH.TECH* 2007. Accessed October 3, 2012.

Houston, Rice University, the University of North Carolina at Chapel Hill, Duke University and North Carolina State University, respectively.<sup>70</sup>

The favorable comparison of these well-known cybercities and their research universities to FHTCC is more impressive than the numbers suggest. The rapid growth of the two founding research universities, UCF and USF, during the first decade of the 21<sup>st</sup> century elevated the schools to rank second and eighth in size in the nation [UF ranks sixth] with a combined student population of more than 150,000 and brought them to the attention of a national audience. However, the substantial endowments that characterize the universities in California, Texas and North Carolina have not been replicated in Florida. Endowment funding for the three Silicon Valley universities totaled more than \$17 billion; the Texas region's universities boasted a combined endowment total of more than \$8 billion; and, the universities in the North Carolina Research Triangle also recorded combined endowments of 8.6 billion. By comparison, the three Florida research universities, two of which were much younger than the other schools, recorded a combined endowment of \$1.8 billion. Finally the short history of FHTCC has spanned the period that witnessed both the bursting of the high tech "bubble" and one of the worst economic recessions in a half century. Building on its history of federal and defense investment, working with the resources at hand, and relying on the enthusiasm of its partners, FHTCC has developed a high tech cluster that successfully attracted new research facilities like The Scripps Research Institute in Jupiter and the Sanford-Burnham Medical Research Institute at Lake Nona in Orlando.

A closer look at the report shows the local economic impact of the high tech industry. The Orlando area, which included the counties of Orange, Lake, Osceola and Seminole, recorded

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<sup>70</sup> *florida.HIGH.TECH* 2011, 50.



2,600 high tech companies in 2009, with a total employment of 44,330 workers whose average salary was \$66,500, a 77 percent increase over the average workers wage in other sectors. In the Tampa-St. Petersburg area of Hernando, Hillsborough, Pasco and Pinellas counties, 3,600 high tech firms employed 53,900 workers at an average salary of \$71,000. The Palm Bay-Melbourne area in Brevard County showed employment of 24,000 workers in 800 high tech businesses with an average salary of \$73,100. The Palm Bay-Melbourne area ranked fifth among all U.S. cities in the percentage of high tech workers in the private-sector workforce—148/1,000. According the Cybercities Report, states like Florida that are characterized by their high tech hubs “contain factors that are attractive to the tech industry, such as strong research universities, a skilled workforce, an attractive quality of life and a tech-savvy population.”<sup>71</sup>

As impressive as the numbers are, they also mask ongoing changes in the high tech industry. As Georges Haour noted in his book on technology innovation, “the gales of creative destruction” that economist Joseph Schumpeter identified with early 20<sup>th</sup> century industries, are applicable to high tech firms of the 21<sup>st</sup> century, putting “innovation and entrepreneurial energy at the centre of renewal and economic growth.”<sup>72</sup> According to FHTCC publications, over a 10-year period from 2002 to 2012, the number of jobs rose from 161,000 to 238,588, while the number of high tech companies grew from 6,800 to 19,911. Despite the impressive figures, growth within the high tech sectors first identified with FHTCC has not been uniform. Some industries, like modeling and simulation, have remained the workhorse of the Corridor. Others like aviation and aerospace have had their ups and downs as the vagaries of funding reduced the

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<sup>71</sup> “The Corridor by the Numbers,” *florida.HIGH.TECH* 2011, 48-50; “Cybercities 2010: The Definitive Analysis of the High-Technology Industry in the Nation’s Top 60 Cities,” Tech America Foundation, December 2010, “Press Releases by Cybercity.”

<sup>72</sup> Georges Haour, *Resolving the Innovation Paradox: Enhancing Growth in Technology Companies* (London and New York: Palgrave MacMillan, 2004), 2; Joseph A. Schumpeter, *The Theory of Economic Development* (Cambridge, MA: Harvard University Press, 1911).

workforce by half over the course of the first decade in the 21<sup>st</sup> century. The addition of new high tech industries reshaped the Corridor. In 2005, the University of Florida brought its Institute of Food and Agricultural Sciences (IFAS) to the Corridor. Nationally known, IFAS pioneered in food safety, transportation, pesticide alternatives and biofuels. In Tampa Bay, the expansion of financial service technologies and the insecurity of New York institutions following 9/11 brought several major banking facilities including Citicorp and Chase to the area. Innovation in the digitization of financial transactions spurred employment and financial services now account for 7.7 percent of workers in Hillsborough County alone. Likewise, FHTCC now includes cleantech industries to meet the challenges of industrial growth and environmental sustainability. Finally, FHTCC is home to major names in the digital media/interactive entertainment industry, including Electronic Arts Tiburon. To develop and fill the workforce pipeline for this emerging field, UCF developed the Florida Interactive Entertainment Academy, a graduate video game design school to educate the next generation of game designers, developers and producers. The transformation of the Corridor over its brief 17-year history highlights the need for a highly skilled and adaptable workforce.

Today, the Florida High Tech Corridor Council can look back on 17 years of leadership in public-private partnership that has earned national and international recognition as it built a foundation for regional economic growth. Since 1996, FHTCC has partnered with more than 350 companies on more than 1,200 research projects, engaging 2,400 students and 300 faculty members with a total project value of more than \$1 billion. In 2009, the International Economic Development Council, a nonprofit membership organization “dedicated to helping economic developers do their job more effectively and raising the profile of the profession” recognized

FHTCC with its top award for Economic Development Partnerships with Higher Education for its Matching Grants Research Program and Workforce Development efforts.<sup>73</sup>

Council leaders also look back on their accomplishment with pride. “Creating opportunities for companies to solve problems in our academic environments—to work side by side with world class faculty researches and students eager to join the workforce—has proven a recipe for success,” says USF President Judy Genshaft.<sup>74</sup> In 2002, Council President Randy Berridge stated that “The Florida High Tech Corridor Council provides the muscle that our local economic development organizations need to attract, retain and grow high tech industry.” In order to accomplish the goal of building a secure economic future for the region, FHTCC “pushed the envelope of what can be accomplished through relationships built between educational, economic development, governmental and business leaders.”<sup>75</sup> More than 10 years later, his insight remains an accurate description of the Florida High Tech Corridor Council—a revolutionary idea with growing potential. John Hitt quotes Jacob Stuart, the head of the Orlando Chamber of Commerce, saying “We don’t do partnerships because they are easy; we do them because they work.”<sup>76</sup> Those partnerships between the University of Central Florida, the University of South Florida, the University of Florida, and state and private colleges over 23 counties may not have been easy, but the results have been impressive. Bernie Machen, president of the University of Florida, explained that the strength of the Corridor is in the aggressive efforts of the research universities in creating new technologies. As he reflected on the history of FHTCC, Machen observed that the willingness of the Florida State Legislature to fund basic research through the matching grants program was unique to state governments and

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<sup>73</sup> *florida.HIGH.TECH* 2010.

<sup>74</sup> “Powerhouse Partners,” *florida.HIGH.TECH* 2007, p. 12.

<sup>75</sup> “High Tech and Mickey: Universities, Businesses and the Corridor Council Keep High Tech Growing in Central Florida,” *florida.HIGH.TECH* 2002, p. 9.

<sup>76</sup> Interview with Joseph England and Jennie Miller, fall 2011.

one of the most significant components of its success. The memories of FHTCC leaders center on those aspects of the venture that are central—its mission, the role of partnerships between industry and academia, the matching grants program. Those innovations have shepherded the Council through its formative years and Dan Holsenbeck believes, “The sky is the limit ... I don’t see anything but a tremendous future ahead.”<sup>77</sup>

That enthusiasm is tempered by the recognition that the work of FHTCC is not finished. At least five areas will need to be addressed in the future: the role of FHTCC in national and international high tech development; continued commitment to development of an educated workforce; consistent funding of research and development; venture capital investment and the development of innovation synergy; and, the transition from the leadership of the founding individuals to a new generation of leadership.

1. **FHTCC and national and international economic development.** Florida and the Corridor’s achievement has been the fostering of applied research that can be developed and nurtured through industry with the potential for future growth. This positions the Corridor well for competition with other southern states. As the benchmark study suggested, “Florida [has been] faced with the challenge of transitioning from a historically low-cost southeast state that competed with other southern states for job creating investment projects to an economy that competes globally for talent, ideas and discoveries that drive” the market.<sup>78</sup> This “next step” places the Corridor in the position of acting locally and thinking globally to attract both international business and the international innovators to the region. The regionalism that has marked the state’s history

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<sup>77</sup> Interview with Joseph England and Jennie Miller, fall 2011.

<sup>78</sup> Boyette, et al., “Florida’s Innovation Benchmark Study,” 63.

must give way to long-range thinking in attracting a national and international workforce of talented men and women.

2. **Development of an educated workforce.** The development of an educated workforce is always a work in progress. New technologies, new methods of delivering content and new industries continually challenge colleges and universities in their efforts to provide the workforce for the next five, 10 or 15 years. The Florida respondents to the 2008 benchmark study consistently cited “weaknesses in human capital and talent development” as the “defect in the system that makes the transition to an innovation economy more difficult.”<sup>79</sup> FHTCC has initiated efforts to bring technology to the classroom in K-12 schools and develop an educated workforce through coursework in community colleges and state colleges. However, in 2007, only 5.73 percent of Floridians were employed in professional scientific and technical services. Growth in the high tech industry will require even greater educational efforts and stronger links between rural counties and the emerging innovation clusters.<sup>80</sup> The funding and visualization of education for the high tech market requires new ways of thinking. Consistent funding for the long term and education to develop workers capable of making the transition to new jobs as the demands of the high tech industry changes requires broader rather than narrower curriculum development. In an interesting echo of John Hitt’s inaugural call for broader education, Jack Sullivan, CEO of Florida Research Consortium recently noted that a “core characteristic of innovative economies worldwide is excellence in a broad spectrum of higher education disciplines to include traditional liberal arts, business, law,

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<sup>79</sup> Ibid.

<sup>80</sup> Charles Davidson, “Wanted: Jobs 2.0 in the Rural Southeast,” EconSouth, Third Quarter 2012 (frbatlanta.org).

science, technology, engineering and math.”<sup>81</sup> Former Governor Jeb Bush agreed, suggesting that education for an innovative economy demanded “an environment that can adjust and adapt to what the world is five years from now, 10 years from now.”<sup>82</sup>

Developing the educational skills for the next phase of high tech development means both filling in the gaps that have historically existed in education in the South and preparing students for an economy that will require constant adaptation.

- 3. Research and Development.** FHTCC has made its reputation on the Matching Grants Research Program that moves commercial technologies from the research laboratories to the market. As the annual magazines and reports illustrate, the growth in research funding has translated into positive gains in jobs and economic impact for the Corridor. As is frequently stated, “since the inception of the program in 1996, the Council has partnered with more than 350 companies on more than 1,200 research projects engaging 2,400 students and 300 faculty members. The nearly \$57 million in funds that have been invested by the Council have been matched by corporate cash and in-kind investments of \$159 million, generating an additional \$784 million in quantifiable downstream impacts, resulting in a return of \$943 million and total project value of more than \$1 billion.”<sup>83</sup> As impressive as these numbers are, the studies funded by FHTCC indicate that the next 15 years will continue to require sustained investment by state government and high tech companies in order to support the research necessary to meet the industry demands for innovation. As Georges Haour argued, the name of the game in the high tech industry is

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<sup>81</sup> “Everyone agrees that innovation is the solution ... but does Florida have what it takes,” *florida.HIGH.TECH* 2012, p. 9.

<sup>82</sup> *Ibid.*.

<sup>83</sup> “Collaborating to Shape Florida’s High Tech Future Through Research,” *florida.HIGH.TECH* 2012, p. 17.

what will you do tomorrow?<sup>84</sup> The Council will be challenged to find new sources of funding and push the research and development sectors of the region to new levels of innovation.

4. **Venture capital and innovation synergy.** As presented earlier, one of the challenges in moving entrepreneurial high tech firms to the level of national and international competitiveness has been the small amount of venture capital available in Florida. Florida Venture Forum Inc. in Tampa has a 28-year history of assisting high tech firms in finding venture capital with a total of \$2.6 billion in funding. However, when compared with venture capital funding in California or Texas, the gap between Florida and its competitors is startling (see table on page 29). As with other areas of expansion, the need for venture capital will only increase over the next 15 years of high tech development. Like the need for venture capital, mature high tech clusters generate an innovation synergy that supports research and capitalization of new firms. Silicon Valley is the principal example of this dynamic that spins new firms from existing ones to develop an energy that infuses the entire cluster and promotes innovation and economic growth.<sup>85</sup> FHTCC has yet to reach that plateau, but it has the potential to do so. Finding creative ways to bring together the creative minds in the multiple small firms has been a recent initiative. The Tampa Bay Technology Forum and the newer Central Florida Technology Forum have the potential to foster that dynamic. With a goal of growing and promoting Tampa Bay's technology "eco-system," the Tampa Bay Forum promotes events,

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<sup>84</sup> Haour, *Resolving the Innovation Paradox*, 2.

<sup>85</sup> See Saxenian, *Regional Advantage* for a discussion on the synergy for innovation generated by large tech companies and their spin-offs.

education, networking, advocacy and philanthropy programs.<sup>86</sup> The Central Florida Technology Forum is in its formative stage.

5. **Transition to a new generation of leadership.** For the most part, the leaders who first organized the Florida High Tech Corridor Council remain at the helm 17 years later. Their enthusiasm for the Corridor and the Council remains undiminished, but they all recognize that the next 15 years will see enormous change. They are at or nearing retirement age and the next generation of leaders will, no doubt, both expand on their insights and take the Corridor and the Council in new directions. Recognizing what has been accomplished and what remains to be done is fulfilling and daunting.<sup>87</sup> The groundwork has been laid for Florida and FHTCC to emerge as industry leaders. The Council has used its resources well and the Corridor has developed a reputation as an area to watch. Its partnership model could become the industry standard. It has nurtured research into viable firms and encouraged education to supply a workforce to meet the demands of the high tech industry. The next generation of leadership will find that they were well-served by the founders, but they cannot necessarily expect a smooth pathway to the future. Just as their predecessors experienced economic, institutional and political barriers and roadblocks, they could also be faced with longstanding and unexpected challenges. The Council's leaders are aware of these potential challenges and are planning for an effective transition of leadership. At UCF and the partner universities, commitment to the future of FHTCC will be an important priority for future presidents. Within the Corridor the addition of new member industries as the high tech world evolves will enable FHTCC to maintain its leadership role.

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<sup>86</sup> [www.tbtf.org](http://www.tbtf.org) Accessed February 4, 2013.

<sup>87</sup> Hitt et al. interview.



## **Conclusion**

To attract, retain and grow remains as essential to the Florida High Tech Corridor Council today as it did when Dan Holsenbeck first wrote the words on the back of an envelope. The vision that recognized the potential for the counties that surrounded the I-4 Corridor emerged from the region's history and was developed in the minds of men and women whose education and experience prepared them to take the steps to make the inspiration live. Looking back, it is easy to think that the clustering of high tech firms was a "natural" development and the partnering of universities, community colleges and businesses a logical outcome of the 1990s. What is not so evident without research into the documents that detail the history of FHTCC is the enormous amount of talent and effort that has gone into its development to date. Men and women dedicated to its success traveled to trade shows, marshaled legislative and congressional support, found resources from their own budgets to support the Council's goals, and met regularly to foster the growth of the high tech industry. It has been a competitive cooperativism that has brought out the best in industry, academia and government. One can only hope that the same spirit of partnership and support for the "common good" will characterize the Council's history for the next 15 years

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