

# Economic Impact Analysis of The Enterprise Center

the **Ochs Center**  
for metropolitan studies

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**October 2010**

## **Executive Summary**

In April 2010, The Enterprise Center contracted with the Ochs Center for Metropolitan Studies to conduct an independent analysis of the economic impact of its operations and programming on the Chattanooga region.

The Enterprise Center, Inc. (TEC) was created in 2002 by the City of Chattanooga during the administration of then-Mayor Bob Corker. TEC's mission is to lead the City of Chattanooga's and Hamilton County's technology-based economic development initiatives and includes "assisting in the stimulation of new capital investment, encouraging revitalization, promoting research and development, coordinating public and private economic and technology development strategies, and providing advice and financial assistance to the public and private sectors for economic and social development."

Based on a review of TEC's financial statements, detailed records of the Renewal Community program, interviews with TEC staff and participants in TEC programs and a roundtable discussion of TEC with some of its key partners in the community, our findings suggest that TEC has had a significant, quantifiable impact on the region's economy. Moreover, TEC's ongoing role as a catalyst for future development – where economic impact is harder to quantify and where potential benefits remain unrealized as of yet – may be significant as well.

## Findings

**Day to Day Operations:** Since 2002, TEC's day to day operations – exclusive of program activities related to Renewal Community -- have resulted in over 171 job-years and \$19.1 million in total monetary impact to the Chattanooga region.

**Tax Benefits and Renewal Community Program:** If all of the savings through depreciation were reinvested in the region, total economic impact of the Renewal Community program alone would exceed \$198.7 million in economic activity and more than 1,600 years of employment – an average of approximately 200 jobs per year.

**Catalyst for Economic Development:** In its ongoing work on technology transfer, transportation and the nuclear renaissance, TEC is increasingly seen as a catalyst. Because of its mission and relatively small size, TEC can be more opportunistic in seeking out opportunities to bring jobs and investment to the region. In doing so, it is emerging as a key player in regional innovation and the development of a knowledge network.

## Introduction

In April 2010, the Enterprise Center, Inc. (TEC) contracted with the Ochs Center for Metropolitan Studies to conduct an analysis of TEC's economic impact on the Chattanooga region over the course of its eight-year history. This analysis is based on data collected from TEC, interviews with businesses that have participated in TEC programs and a roundtable discussion with TEC partners in the community – including government, foundation, business and civic leaders.

The analysis is designed to achieve two principal purposes – to provide funders and other interested parties with an independent assessment of TEC's activities to date and to provide TEC leadership and management with a series of baseline indicators by which it can assess future progress.

## About The Enterprise Center

TEC was created in 2002 by the City of Chattanooga. TEC's mission is to lead the City of Chattanooga's and Hamilton County's technology-based economic development initiatives and includes "assisting in the stimulation of new capital investment, encouraging revitalization, promoting research and development, coordinating public and private economic and technology development strategies, and providing advice and financial assistance to the public and private sectors for economic and social development."<sup>1</sup>

Within TEC itself, there are now six main programs designed to achieve the organization's overall mission and create economic benefits in the region:<sup>2</sup>

- **Renewal Community:** From 2002 to 2009, TEC was charged with leading Chattanooga's Renewal Community program, a U.S. Department of Housing and Urban Development initiative that provided investor access to \$5.6 billion in federal tax incentives for the revitalization of 40 designated communities across the country.
  
- **Brownfields Initiatives:** As part of its community revitalization program, TEC led the Mayor's Brownfields Task Force from 2005 to 2007. TEC continues to play a strategic role working with other partners to plan and execute more than

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<sup>1</sup> *The Enterprise Center Strategic Plan*, June 2008.

<sup>2</sup> In addition to these programs, from 2002 to 2006, TEC housed and later managed the \$1.5 million Chattanooga Opportunity Fund revolving loan program, which targeted small, minority- and women-owned start-up firms seeking access to capital.

\$3.5 million in federally funded brownfield initiatives aimed at remediating and reusing underutilized and abandoned properties whose redevelopment may have been complicated by the presence or potential presence of hazardous substances, pollutants or contaminants.

- **High Speed Ground Transportation/Maglev:** TEC has played a major role in facilitating the planning of the Atlanta-Chattanooga-Nashville High Speed Ground Transportation Project. While the planning phase of the project has resulted in \$13.8 million in federal funding to the region, full implementation of this initiative has the potential to provide efficiencies in passenger and freight transportation and serve as a major regional economic development initiative.
- **Nuclear Renaissance:** TEC is providing strategic leadership to the community through its Nuclear Renaissance initiative, which seeks to advance opportunities for the Chattanooga region to benefit from the replacement of obsolescent nuclear equipment and expansion of the nuclear energy industry through the development of production technologies, distribution infrastructure, and commercial vendors and suppliers. The Tennessee Valley Authority has developed and refocused its mission to be the global leader in nuclear energy. This has created an opportunity for Chattanooga and the Tennessee Valley Corridor to be the leader in the supply and retooling of new nuclear facilities. In coordination with its strategic partners, TEC is leading the development and execution of a strategy to bring jobs and economic development to the Tennessee Valley Corridor associated with these initiatives.
- **Technology Development and Transfer:** TEC seeks to promote technology commercialization by connecting local businesses and entrepreneurs to regional research institutes like Oak Ridge National Laboratory, Y-12 National Security Complex, the University of Tennessee Research Foundation, and NASA. TEC then works to facilitate the successful licensing, development, and marketing of new technology.
- **SimCenter Partnership:** TEC has worked closely with the University of Tennessee at Chattanooga's SimCenter to develop technologies that have practical value to the region, the nation, and the world. One recent example is involvement in the development of a solid oxide fuel cell, known as the "Bloom Box." First tested by the SimCenter in Chattanooga and then demonstrated in California on facilities owned by Ebay and Google, the second phase of testing of 100kW units will demonstrate this technology in Chattanooga in a partnership between Bloom Energy, the SimCenter, EPB, and The Enterprise Center.

### **About The Enterprise Center's Council of Managers**

In addition to its own direct efforts, TEC works toward its mission through a Council of Managers. In this capacity, TEC promotes communication, collaboration and accountability among its main programs and the following projects:<sup>3</sup>

- *CARTA/ Intelligent Transportation Systems (ITS) Project*: This U.S. Department of Transportation-funded initiative was created to identify, develop and deploy intelligent transportation systems that will serve CARTA and other organizations through the use of new and emerging technologies.
- *Center for Energy, Transportation and the Environment (CETE)*: This is a program of applied research at the University of Tennessee at Chattanooga to develop and deploy technologies that utilize clean and secure sources of energy. CETE seeks to advance and develop clean renewable energy systems for transportation as a critical element in national and global efforts to reduce the harmful effects of engine exhaust gases, while promoting energy conservation and independence.
- *Center for Entrepreneurial Growth (CEG)*: CEG is a consulting organization that assists in the establishment and growth of technology-based firms in the region and serves a mentoring role for start-up and existing businesses.

### **Assessing the Economic Impact of the Enterprise Center**

Direct spending or investment causes changes in the economy resulting from increased production of goods and services in response to increased demand. Using this estimate of initial increased economic activity, known as the direct effect, aggregate economic impacts manifested in the region can be modeled through input-output analysis.

Since its inception, a majority of TEC's \$7.5 million expenditure<sup>4</sup> of local and federal funds have flowed through the regional economy. Specifically, in its day to day

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<sup>3</sup>Previously, the Council of Managers also included participation by two programs that no longer exist – the New Economy Institute and the Riverbend Technology Institute.

<sup>4</sup>The Enterprise Center, Inc. Financial Reports 2005-2009; Financial Statements 2002-2004.

operations and its programming, TEC has helped to create economic activity and jobs. Impacts from operational expenditures can be quantified with the use of an impact modeling technique.

The Ochs Center used an impact modeling software program created by the Minnesota IMPLAN Group, Inc. known as IMPLAN. The IMPLAN model adapts national input-output matrices to the county level so that impact estimates can be generated at the county and regional levels of analysis. This model allows for the assessment of employment<sup>5</sup>, output<sup>6</sup>, and income<sup>7</sup> impacts at three different levels:

- **Direct effect:** Changes in employment, income and output attributable to activity of The Enterprise Center and its funded programs
- **Indirect effect:** Changes in employment, income and output attributable to activity of linked firms in the region
- **Induced effect:** Changes in employment, income and output attributable to household spending by employees of linked industries in the region

### Economic Impact of Enterprise Center Operations

Since 2002, TEC's day to day operations – exclusive of program activities related to Renewal Community -- have resulted in over 171 job-years and \$19.1 million in total monetary impact to the Chattanooga region.

**TEC Operational Impact Estimates<sup>8</sup>**

	<b>Output</b>	<b>Income</b>	<b>Employment</b>	<b>Total Monetary</b>
<b>Direct</b>	\$7,547,401	\$3,635,918	111.6	<b>\$11,183,319</b>
<b>Indirect</b>	\$2,424,127	\$908,741	27.0	<b>\$3,332,868</b>
<b>Induced</b>	\$3,599,235	\$1,032,559	33.2	<b>\$4,631,794</b>
<b>Total</b>	<b>\$13,570,763</b>	<b>\$5,577,218</b>	<b>171.8</b>	<b>\$19,147,981</b>

<sup>5</sup> IMPLAN provides estimates of full-time equivalent (FTE) employees at each level of impact.

<sup>6</sup> IMPLAN provides estimates of the value of increased production of each good or service at each level of impact.

<sup>7</sup> IMPLAN provides estimates of the value of employee compensation and proprietary income at each level of impact.

<sup>8</sup> Impact estimates do not include activities undertaken by the Council of Managers.

Direct operational impacts – or impacts resulting from organizational expenditures on human capital, supplies, contracted services, etc. – are estimated to be \$7.5 million in output, \$3.6 million in income, and 111.6 jobs. Total direct monetary impact from operations is over \$11.1 million.

Indirect impacts resulting from TEC operations consist of linked industry-to-industry transactions that occur as expenditures flow into the regional economy. These transactions create additional impacts as linked industries meet demand created by TEC operations. The indirect output effect is estimated to be \$2.4 million. The indirect income effect is \$908,741. The total indirect monetary impact is over \$3.3 million. The indirect employment effect is 27 jobs.

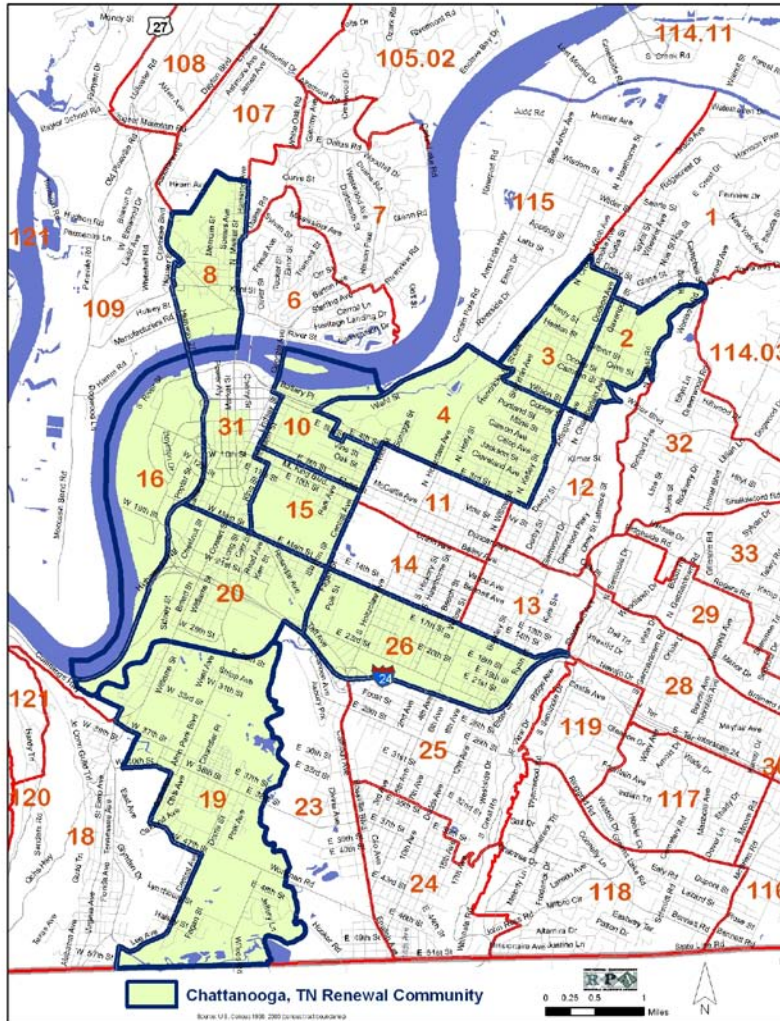
Total induced impacts created by linked industry employee household expenditures are estimated to be over \$4.6 million and 33.2 jobs. Total induced monetary impacts include an output effect of \$3.6 million and an income effect of over \$1 million.

### **Economic Impact of Renewal Community Federal Tax Incentives**

Chattanooga is one of 40 communities nationwide that was designated as a Renewal Community (RC). The RC program encourages public and private investment in distressed communities through the marketing of the following federal tax incentives:

- Commercial Revitalization Deduction
- Work Opportunity Tax Credits
- Renewal Community Wage Credits
- New Markets Tax Credits
- Low-Income Housing Tax Credits
- Environmental (Brownfields) Cleanup Cost Deduction
- Qualified Zone Academy Bonds
- Increased Section 179 Deduction
- Zero Percent Capital Gains Rate

Chattanooga's RC encompasses 1990 and 2000 Census Tracts 2, 3, 4, 8, 10, 15, 16, 19, 20, 21, 26 and 31, and includes most neighborhoods located in zip codes 37402 through 37410.



TEC was directly involved in the promotion, utilization and selection of participants for the Commercial Revitalization Deduction.<sup>9</sup> As a Renewal Community, Chattanooga was allocated \$12 million annually (2002 to 2009) in Commercial Revitalization

<sup>9</sup> There is evidence that while TEC was not directly involved in application or utilization of some of the other federal tax incentives promoted as part of the RC program, those programs yielded significant economic benefits as well. For example, since inception, Hamilton County firms reported \$1.4 million in savings through the Work Opportunity Tax Credit program and \$1.2 million in tax savings through the Renewal Community wage credit: not all firms utilizing these benefits were required to report use to TEC. In addition, the Hamilton County Department of Education utilized the QZAB program in financing school construction and renovation; local community development corporations and community development financial institutions were allocated New Markets Tax Credits; and multiple developments utilized low income housing tax credits.

Deduction tax incentives to encourage private development of commercial properties, business recruitment and expansion, redevelopment of older commercial corridors, reuse of vacant lots and abandoned, underutilized buildings, and the creation of permanent, new jobs in the RC.

With a CRD tax incentive, property owners that develop industrial or commercial properties in a designated RC are able to benefit from accelerated depreciation of expenses associated with capital costs of qualifying building projects. Property owners can take up to 50% deduction allowed in the first year a building is placed in service, or 10% per year pro rata for 10 years can be taken from qualified expenses related to acquisition and/or improvement to properties that will be used for business purposes.

Since 2002, TEC has worked with the City to award some \$96 million in CRD tax incentives for the construction or renovation of 70 commercial, mixed use and industrial buildings. Of these CRD awards, approximately \$84 million in depreciation claims have been made by local firms to the Internal Revenue Service. This amount represents savings to participating firms in Chattanooga over the 10-year depreciation period.

The CRD tax incentive has been awarded to commercial development projects in the Downtown, Cameron Hill, ML King, Main Street, Broad Street, Alton Park, 23<sup>rd</sup> Street, and Manufacturers Road areas. This incentive has benefited companies such as Blue Cross/Blue Shield of Tennessee, Federal Express, 2 Northshore, Chattem, Staybridge Suites Hotel, and the DoubleTree Hotel.

Estimates of impacts from the Renewal Community's Commercial Revitalization Deduction represent a best-case scenario in terms of local effects. In other words, researchers determined the upper limit of economic impact by assuming a scenario in which participating firms reallocated all tax savings to expenditures made within the region. Depending on firm behavior, actual expenditures manifested locally could be reduced to the extent that participating firms allocated deductions to savings, to non-local investment instruments, or to equipment/contractors/suppliers operating outside of the Chattanooga region.

#### Commercial Revitalization Deduction Impact Estimates

	<b>Output</b>	<b>Income</b>	<b>Employment</b>	<b>Total Monetary</b>
<b>Direct</b>	\$84,000,000	\$39,159,044	1,027.8	<b>\$123,159,044</b>
<b>Indirect</b>	\$21,834,713	\$8,585,609	239.9	<b>\$30,420,322</b>
<b>Induced</b>	\$34,387,104	\$10,772,676	346.3	<b>\$45,159,780</b>
<b>Total</b>	<b>\$140,221,817</b>	<b>\$58,517,329</b>	<b>1,614.0</b>	<b>\$198,739,146</b>

The upper-limit estimate of total impact resulting from the tax savings benefit to participating Renewal Community firms is over \$198 million and 1,614 years of employment. This estimate includes an indirect effect of \$123.2 million and 1,027 years of employment, and an induced effect of \$45.2 million and 346.3 years of employment. In total, the output effect is estimated to be \$140.2 million and the income effect is estimated to be \$58.5 million.

### **Enterprise Center as an Economic Catalyst**

While it is possible to quantify the impact of spending and tax benefits generated through TEC, it is harder to quantify its impact as a catalyst for economic activity and development in the region. For example, in some cases, TEC's ability to provide tax benefits to a project was simply one part of a development plan. In other cases, tax incentives – and the involvement of TEC staff – may have been the difference between a project happening or not. In addition, because of TEC's close working relationships with local government, the Chamber of Commerce and the University of Tennessee at Chattanooga, it is able to leverage its small staff as a convener and connector.

To assess the role of TEC as a catalyst, Ochs Center staff conducted a series of interviews with firms that have participated in TEC programs and initiatives. Staff also conducted a roundtable discussion with TEC partners in economic development.

In the case of the Renewal Community program, many recipients of tax benefits suggested that the program did not necessarily affect whether to make investments, but it did determine how those investments were made.

*We would have done the remodels regardless – it let us do a better job. Regardless what we do with the building – tenants can only pay so much in this area. You already know what you can spend based on what you're going to get out of it.... From my viewpoint, CRD fits in to upgrade a project.*

*Our initial decision was not affected by the tax (deduction). This was an area that was underutilized and the word on the street was that it was an environmentally impacted property. So, a program like that where you get more rapid depreciation will give people more opportunity to invest.*

*I think I would have looked for a big warehouse tenant. It would have been so much easier and so much less risk. We spent 5:1 to what we spent on improvements to what we bought it for... Say you're going to make 9% with a big warehouse space, but you can make 12-15% with mixed-use development and accelerated depreciation. People start thinking about that.*

In some cases, however, incentives either changed the nature of the development decision or had indirect effects on proximate properties:

*It made the property much more attractive than it would have been. ... There was more development around our property, immediately. That had a very material impact on the neighborhood. It looks a heck of a lot better. It is a more attractive place to live and work.*

*The neighborhood has definitely changed for the better since we came in. We have been an example for people to mow the grass between the sidewalk and the curb. People have started to take care of their property really well. The people here are taking good care of their property. When someone moves in that cares it has an effect on everyone else.*

#### **Federal Express Case Study**

In 2007, TEC worked with the Mayor's Office, Chattanooga Area Chamber of Commerce, Tennessee Department of Economic and Community Development, local elected officials, and private investors to bring a Federal Express small package ground delivery unit to Alton Park. FedEx received \$1.5 million in abated property taxes and other incentives from local government and \$5 million in federal tax incentives from the Renewal Community program. In addition, TEC facilitated the relocation of an adjacent residential community and provided subsequent assistance and tax incentives to other businesses relocating to the FedEx site.

Bob Holcombe, vice president of FedEx Ground's southern division, attributed the decision to locate in Chattanooga to a "combination of things. Certainly the site was important and the tax incentives were important..."

Increasingly, TEC appears to be playing a similar catalyst role around other initiatives – such as technology development and transfer, advanced transportation, and nuclear renaissance.

*We have been a part of innovation here and Chris (Daly) has been a very active advocate for bringing technology to the community. He helps with all kinds of deals, not only tech transfer. We have three or four companies that are going through the pipeline. I have no idea if they will become a reality. But he is out there and he is conveying to entrepreneurs in a regional area that Chattanooga wants entrepreneurs and I think that's important.*

*You can connect transportation modes. You have to have transportation for businesses to come in. If you look at places like Germany – they tie all modes of transportation together. So when Joe (Ferguson) came to me and asked if I was interested in high-speed rail, I said absolutely but I'm interested in a lot more than just high-speed rail. And he was very interested in learning more about multi-modal transportation - and I said that you need to tie all of these things together to provide more resources to our community. We looked to TEC for a long-term plan. It is difficult to keep a fifteen or twenty-year plan going in a climate where people are very short sighted. This plan really has the potential to change this country.*

*For me, I think they are kind of amazing....They are kind of the chamber of commerce on steroids. There are some aspects that don't fall in the realm of what the chamber does and what the technology council does. They are a catalyst. They put people and things together...Some of the negotiations with (local companies) are going on behind the scenes and they bring everyone together to see what we need to do to make this work. The real dollar value is very hard to speculate. It would be really hard to do. They are a glue, they are a catalyst.*

*TEC is truly a catalyst. They are a really well-kept secret. There is nothing like them in the markets that we have done work in. The most prominent benefits that we have seen is the technology transfer conference. I think it's a spectacular event and Chris did a really good job raising the bar in this past year's conference...He does a great job connecting entrepreneurs and capital with technology.*

### **The Enterprise Center and Regional Innovation**

With its increasing emphasis on technology transfer and energy-related issues, TEC is returning to its original area of focus. In announcing the ongoing role of TEC in 2004, City, County and federal leaders noted that TEC's program had "a strong technology focus and all were created as tools for stimulating the region's economic engine and for strengthening the Technology Corridor."

The result is that TEC's catalyst role is consistent with the development of a regional *innovation system* and *knowledge network*.

*Innovation systems* are "a set of organizations and institutions and the relationships among them", and "typically encompass private firms or firm sub-units, governmental and non-governmental agencies, universities, research facilities, venture capitalists, associations, etc."<sup>10</sup> *Innovation systems* require knowledge. Knowledge in this context is "information that changes something or somebody, either by becoming grounds for action or by making an individual or an institution capable of different or more effective action".<sup>11</sup>

More specifically, innovation systems require knowledge networks. The existence of knowledge networks is one of the "key reasons why a number of the most successful localities and regions throughout the world have become or remained more competitive than those that have not adopted a networked approach."<sup>12</sup>

Networks within these leading regional economies are able to mobilize and fully develop the human capital residing within knowledge-based firms, in particular small-

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<sup>10</sup> Markard, J., Truffer, B., 2008. Technological innovation systems and the multi-level perspective: towards an integrated framework. *Research Policy*, 37 (4), 596-615.

<sup>11</sup> Peter Drucker, 1989. *The New Realities: In Government and Politics/In Economics and Business/In Society and World View* (New York: Harper and Row).

<sup>12</sup> Robert Huggins and A. Johnston, 2009. "Knowledge Networks in an Uncompetitive Region: SME Innovation and Growth", *Growth and Change* 40 (2), p. 228.

and medium-sized enterprises through external networks providing feedback loops, ensuring the continuation of high levels of innovation.<sup>13</sup>

These knowledge networks are often manifested in the form of strategic alliances between institutions in the form of formalized collaboration and joint ventures, and other contracted relationships resulting in frequent and repeated interaction. Firms gain competitive advantage from alliances by accessing the resources of its alliance partners.<sup>14</sup>

Over time, the regional knowledge network will produce knowledge spillovers. Knowledge spillovers are externalities that directly or indirectly transfer knowledge from one party to another. Knowledge spillovers are normally created by firms engaging in innovation activities and are valued because they provide knowledge that is new to the receiving firm. As the network of users grows, the technology gains value for all members of the network, and this stimulates further purchases and further growth in the region, stimulating technical innovation in that local area.<sup>15</sup>

TEC appears to be emerging as the facilitator and organizational center of the region's *innovation system*. This requires intensive maintenance of the regional *knowledge network*. This function is critical to the region's emerging innovation and entrepreneurial capacity. TEC may therefore play a catalyst role that no other organization in the region is able to provide. In the absence of TEC, the regional *knowledge network* would be fragmented, disconnected from innovation commercialization opportunities, and unable to sustain the momentum needed to bring innovations to the marketplace.

As the regional knowledge network facilitator, TEC follows the theory and practice of other regions seeking to develop an *innovation system*. Organizations such as The Connecticut Technology Council facilitate collaboration among government, business, nonprofit and academic organizations, and promote investment in high-tech growth by investing in early-stage technology companies, university/industry research collaborations, technology transfer, and clean energy initiatives.<sup>16</sup>

The Council for Entrepreneurial Development in Chapel Hill, North Carolina is an independent economic development organization "designed to work with all of the universities in the region, promote entrepreneurship, and accelerate the transfer of

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<sup>13</sup> Ibid.

<sup>14</sup> Ibid., p. 230.

<sup>15</sup> Ed Bee, 2003. "Knowledge networks and Technical Innovation in America's Metropolitan Areas: A Paradigm for High-Technology Economic Development", *Economic Development Quarterly* 17; 115.

<sup>16</sup> Connecticut Technology Council at [www.ctinnovations.com](http://www.ctinnovations.com).

technology out of the universities.”<sup>17</sup> The Council - along with participation of the University of North Carolina - was instrumental in the development and eventual success of Research Triangle Park.

In some cases, university-based technology centers are the norm. The IC<sup>2</sup> Institute at the University of Texas-Austin has become an international leader in science and technology commercialization.<sup>18</sup> At the University of California-San Diego, UCSD Connect was formed to be a catalyst organization that connected service providers, capital investment, and entrepreneurs. UCSD currently has approximately 1,000 member companies and manages start-up ventures for about 50 companies per year.<sup>19</sup>

TEC is unique in that it operates outside of the confines of a large bureaucracy such as a university, although it is connected to such institutions (UTC, Oak Ridge National Laboratory) through a working collaborative partnership. This independence, TEC’s mission and small staff allows the organization greater flexibility to take advantage of opportunities in the regional market that require rapid, decisive decision-making and action.

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<sup>17</sup> Raymond Similor, et. al., 2007. “The Research University and the Development of High-Technology Centers in the United States”, *Economic Development Quarterly* 21:203, p. 218.

<sup>18</sup> *Ibid.*, p. 213.

<sup>19</sup> *Ibid.*, p. 216.