

The Promise of Entrepreneurship for the Chattanooga Region

FINAL REPORT

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Sponsored in part by

The Kauffman Center for Entrepreneurial Leadership

and

The Chattanooga Area Chamber of Commerce

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Opinions presented here are solely those of the authors.

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Executive Summary

As the Chattanooga region moves into the twenty-first century, its leaders seek to rekindle the spirit of entrepreneurial development that has been an important source of its economic development in the past. This report, based on a six-month study of the region by the Office of Economic Development (OED) at the University of North Carolina at Chapel Hill, provides a foundation for that effort. While there is no “best” single strategy to develop, grow, and maintain a competitive local economy, many experts recognize the importance of small businesses and entrepreneurship as one cornerstone of economic development.

For this study, we interviewed more than forty regional experts and entrepreneurs to identify strengths and weaknesses for the Chattanooga region in eight dimensions¹ of economic competitiveness. We collected information about the current situation as well as policies and programs that are currently in progress or planned. The following figure summarizes our assessment of the current and future entrepreneurial potential within the Chattanooga region.

Our overall assessment is that the Chattanooga region is currently just past “fledgling,” working toward “emergent” in its entrepreneurship profile. The region would be more competitive *vis-à-vis* other parts of the southeast and U.S. if it were able to blend better the resources (including leadership) available not only in the City of Chattanooga and core counties, but in the adjacent rural counties in Tennessee and Georgia, as well. The success of the region ultimately rests on its ability to develop a coordinated economic development strategy.

A summary of the strengths and weaknesses within each of the dimensions in the following exhibit:

- *Workforce, education and training*: The high dropout rates in some counties in the region create a significant obstacle for workforce service providers. Chattanoogaans generally recognize the poor quality of K–12 public education

1. These were developed by the Kauffman Center for Entrepreneurial Leadership (KCEL). Its Global Entrepreneurship Monitor (GEM) project, a cross-national study of entrepreneurship dynamics for the United States and 20 other countries (in 2000), identified conditions that have a major impact on the nature and level of entrepreneurial activity nationally. The KCEL then adapted the international comparative design of the GEM study to regions within the U.S.

Overall Assessment of Chattanooga Region as an Entrepreneurial Economy²

Dimensions of Economic Competitiveness	Fledgling	Emergent	Established	Accelerated
Workforce, Education and Training	Yellow	Yellow		
Financial Capital: Debt	Yellow	Yellow		
Financial Capital: Equity	Yellow	Yellow	Red	
R&D/Technology Commercialization	Yellow	Red		
Commercial/Professional Support	Yellow	Yellow	Red	
Physical Infrastructure	Yellow	Yellow	Red	
Government Policy: State - Tennessee	Yellow	Red	Red	
Government Policy: State - Georgia	Yellow	Yellow	Red	
Government Policy: Local	Yellow	Yellow	Red	
Regional Leadership	Yellow	Red		
Quality of Place: to Live and Play	Yellow	Yellow	Yellow	
Quality of Place: to Work	Yellow	Yellow		
OVERALL	Yellow	Yellow	Red	

current
 if existing plans get implemented

in their region and have been working to improve the system. The community colleges and UTC are important regional assets; it is important for them to continue developing entrepreneurship programs.

- *Financial capital — debt*: While the supply of lendable funds is generally adequate, the conservative nature of local banking has impeded the flow of those monies into the hands of the entrepreneurs and small businesspeople who need debt capital.
- *Financial capital — equity*: Like many other parts of the country, the Chattanooga region has not had a venture capital industry that actively invests in regional businesses. However, two new innovative activities — Southeast Community Capital and the creation of an angel investor network — should improve access to venture capital.

2. We developed an assessment continuum identifying different levels of commitment to entrepreneurial development.
 - **Fledgling**: The community is just beginning to recognize the need for policies and programs that support entrepreneurship and there are limited economic development efforts underway currently.
 - **Emergent**: The community provides support for local business and industry and recognizes entrepreneurship as important; however, proactive policies and programs to encourage and support entrepreneurs are relatively new.
 - **Established**: The community understands the importance of entrepreneurship development and has created specific programs focused on supporting local entrepreneurs.
 - **Accelerated**: The community embraces entrepreneurship development and provides a wide range of supportive institutions and programs.

- *R&D/technology commercialization*: The immediate region does not contain a research university, research hospital, or industrial R&D headquarters. It is critical, therefore, for the region to use Internet2 to develop partnerships with research institutions elsewhere in the U.S., especially in the southeast (e.g., Oak Ridge, Atlanta, Research Triangle).
- *Commercial and professional support services*: The strong legal and accounting sector can assist most types of businesses, but there is a certain lack of expertise in high-tech and specialized service industries. Chattanooga lacks a one-stop shop or clearinghouse to match local expertise with existing and new demand.
- *Physical infrastructure*: The story is mixed. The road and air transportation networks are good and adequate, respectively, and being improved. Quality industrial sites are generally available, especially with the development of the Enterprise South Industrial Park. And, advanced IT is available in the region and the introduction of Internet2 will further enhance connectivity. On the other hand, rail service is underutilized to non-existent. And rural areas lag behind the cities in all types of infrastructure and are not likely to catch up in the near future.
- *Government policy — Tennessee*: State policies have only recently reflected any awareness of technology and entrepreneurship issues, and have yet to be implemented or funded. Recent budget cuts have stalled new programs.
- *Government policy — Georgia*: The State has a long track record of small business assistance, technology transfer, and workforce development programs.
- *Government policy — local*: The leadership of Hamilton County, the City of Chattanooga, and the Chattanooga Area Chamber of Commerce are focusing on entrepreneurship as an important economic development strategy. Leaders in the surrounding counties in Tennessee and Georgia are expected to give entrepreneurship more attention in the future.
- *Quality of place to live and play*: Many of the assets are natural endowments unique to the region; others are the products of community efforts.
- *Quality of place to work*: Sustained attention needs to be focused on workforce development and public education in order to make the region a better place to work.

3. Internet2 is a consortium being led by over 190 universities working in partnership with industry and government to develop and deploy advanced network applications and technologies, accelerating the creation of the Internet of the future. The primary goals of Internet2 are to: create a leading edge network capability for the national research community; enable revolutionary Internet applications; and ensure the rapid transfer of new network services and applications to the broader Internet community. For more information, see www.internet2.edu.

We should note that there is a great deal of diversity within the Chattanooga region that may be obscured in our overall assessment. A few initiatives and programs worth highlighting are included in the sidebar.

Recommended Next Steps

OED held a facilitated discussion of the project findings with local participants in May 2002. Based on the local priorities identified there, as well as the findings from the assessment, we recommend the following as next steps:

- Complete a regional entrepreneurship resource inventory (begun by this project) by circulating it among all the providers of related support services; then post and maintain it on an interactive website that all can link to and update. Convene periodic meetings of the principals of these organizations to work on coordination of similar services.
 - Create a regional steering committee to support entrepreneurship in the Chattanooga region, which would be a volunteer advisory board endorsed by all the chambers and local governments in the region.
 - Create a subcommittee of this steering committee to develop specific recommendations for how to focus education, training and workforce development programs to foster a) entrepreneurial understanding and learning at all levels and b) skills development, including vocational education, needed to create a workforce that will appeal to high-growth entrepreneurs.
 - Convene a regional advisory committee of entrepreneurs to react to and inform regional policy to foster entrepreneurship.
 - Compile an archive of regional entrepreneurship success stories, with the help of resource providers and entrepreneurs, and then work with existing and/or create new media outlets to publicize these on some regular basis.
 - Develop an inventory of specific technologies, technology developers and needs within businesses, universities and other institutions in the region (to include Georgia counties).
 - Use a broad-based group of regional leaders to develop a regional action plan for entrepreneurial development for the Chattanooga region that is consistent with other aspects of the economic development strategy and vision.
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- A few key resources to support entrepreneurship in the Chattanooga region**
- Quality of place that entrepreneurs love
 - Leadership in local government, higher education and foundations
 - Southeast Community Capital
 - Entrepreneurs in a range of sectors
 - A successful incubator (Business Development Center)
 - Plans for link to Internet2
 - Strong industry clusters with entrepreneurship history, e.g. in health/insurance, floor coverings, and baking
 - Strong small business support programs in Georgia
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The Promise of Entrepreneurship for the Chattanooga Region

As the Chattanooga region¹ moves into the twenty-first century, its leaders seek to rekindle the spirit of entrepreneurial development that has been an important source of economic development there in the past. This report provides a foundation for that effort, by restating the importance and limitations of entrepreneurship as an economic development strategy for the Chattanooga region (Section I), identifying the elements necessary for successful entrepreneurship (Section II), providing an assessment of the region's entrepreneurial potential (Section III), and identifying critical next steps for the region to consider (Section IV). The report is based on a six-month study of the region by the Office of Economic Development (OED) at the University of North Carolina at Chapel Hill. OED's approach is discussed more fully in Appendix A.

1. Bledsoe, Bradley, Grundy, Hamilton, Marion, Rhea, and Sequatchie Counties in Tennessee, and Catoosa, Dade and Walker Counties in Georgia.

SECTION I

The Importance of Entrepreneurship in Economic Development and for the Chattanooga Region

For decades, economic development researchers and practitioners have debated the merits of different strategies for economic growth and development. While there is no “best” single strategy to develop, grow, and maintain a competitive local economy, many experts recognize the importance of small businesses and entrepreneurship as one cornerstone of economic development.²

In this section, we define different types of entrepreneurship and what we mean by entrepreneurial growth companies and entrepreneurial networks. We then provide a brief history of entrepreneurship in the region.

However we define entrepreneurship, it is important for economic development because it can lead to significant new job formation, productivity improvements that

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2. Entrepreneurship, however, is only one approach to economic development. Successful communities and regions combine different strategies to expand and strengthen their economies (Malecki, 1997).

Industrial recruitment (or “smokestack chasing”) is the most traditional economic development tool. It consists of attracting an outside firm, usually a manufacturing or other value-added business, to locate a new plant and create jobs in an area. Recruitment tends to get most of the media attention, but it can be a risky strategy. Such efforts need to make sure that the recruited businesses are compatible with the existing economic structure and the overall development goals of the community.

A second strategy in economic development is the retention and **expansion of existing businesses**. It is important for a community to maintain contact and a good relationship with local businesses to address their needs and to help them grow in place. Assistance can include management advice, workforce development, infrastructure or site upgrades, export promotion, loans, or technical assistance. Increasingly communities are also helping to facilitate business networking among their local firms for joint problem-solving, overall or in clusters of related businesses. Many development experts emphasize the importance of assisting existing businesses as a fast way to create new jobs and to strengthen the local economy.

can make local economies more competitive, and a better quality of life, especially for segments of the population that have not been in the economic mainstream.

In terms of new job formation, the work of Birch (1987) and others has documented the importance of small businesses to the creation and maintenance of a vibrant economy. It is not just the creation of jobs that is key, but the type of jobs. A job created in 2002 is more likely to require the skills of a 2002 workforce, and to create a product or service demanded by today's consumers, than an "old" job. Jobs created in small businesses also leverage new jobs in larger businesses (and vice-versa). Indeed, as the work of Porter (1995, 2001) and others stresses, the creation of new regional clusters requires a healthy mix of small and larger businesses in a region, connected by a network of interactions.

Innovation is important to keep local businesses competitive in rapidly changing global markets. According to one estimate (National Commission on Entrepreneurship, 2001) entrepreneurs have been responsible for more than two-thirds of all innovations since World War II. Innovativeness among small businesses is enhanced both by making sure local leaders understand the significance of entrepreneurs' business ideas and by exposing entrepreneurs to examples of other innovators. Recognition and support for innovation is particularly important in more rural parts of a region.

Entrepreneurship contributes to quality of life by providing a lifestyle with more flexibility and independence, and for successful entrepreneurs, opportunities for wealth creation rather than wages. The literature is rife with examples of stay-at-home moms and other part-timers who created successful businesses in their home offices. These opportunities are particularly important for women and minorities who have not had the same access to wealth creation as white males have had.

Types of Entrepreneurship

Malecki (1997) identifies three different levels of entrepreneurship. At the lowest level, entrepreneurship simply refers to **small firms or enterprises**. In many settings, small businesses emerge as underground or informal economic activities outside the recognized and fully legal status of traditional firms. Most informal entrepreneurs fear the profit-reducing effects of bureaucratic barriers to formal and legal operation, mainly permits and registrations. Those usually hard-working, competitive, and sometimes innovative people decide to remain apart from the formal economy, but they are nevertheless — in some cases a quite significant — part of the local economy. Urban areas are frequently locations of an informal sector, but many rural areas have informal economic activity as well. While those entrepreneurs and businesses do not make significant contributions to employment growth, they contribute to the creation of an entrepreneurial climate. In some cases, informal economic activities provide income for people who otherwise would be unemployed or on welfare. A different type of entrepreneur in this category is somebody who starts a business to be independent, but does not have any intention to become a major employer. Others might start a business to generate additional revenue because the income from the major source (e.g. farming) is not sufficient.

At a second level, entrepreneurship refers to **new firm formation**. There is a general consensus among experts that a number of factors — local knowledge, values, experiences, and resources — play an important role in the creation of new businesses. Entrepreneurship is the basis of local economic development because entrepreneurs often respond to market opportunities left unfilled by large companies. Some of the new small businesses are formed on the heels of strategic changes taking place in large corporations. Disintegration of activities, layoffs of seasoned managers, and outsourcing of production and services create new business opportunities for small firms and increase their overall importance in the economy.

The highest level of entrepreneurship is built on **innovation** rather than imitation. Innovative entrepreneurs are visionaries who can “read” the market and create new enterprises to serve markets that are not necessarily well defined yet. Those businesses take advantage of new opportunities created by technological and business climate change and are able to fill innovative niches. Breakthroughs and revolutions, however, are not the norm in entrepreneurship. Even within the group of innovative entrepreneurs, many successful and rapidly growing businesses are built on relatively small innovations and improvements. Bhidé (2000) cites businesses like Jiffy Lube or Starbucks as examples of entrepreneurial growth companies (EGCs) that did not bring a revolution, but “executed ordinary ideas in exceptional ways.”

Entrepreneurial Growth Companies (EGCs)

While all businesses — including existing small and large businesses, new start-ups, and businesses in the informal sector — are important parts of a local economy, those companies that not only succeed but also grow rapidly are the ones that propel the economy forward most. Entrepreneurial growth companies (EGCs) make up only a small portion of all new businesses. There are estimates that at least 700,000 new businesses are started in the United States, but only about 4 percent of them are EGCs or “gazelles.” Those 4 percent, however, generate up to 60 percent of the net new jobs (National Commission on Entrepreneurship, March 2001).

According to Bhidé (2000), most new businesses start small and stay small. Some of them do not offer any productivity improvement and therefore do not have much potential for growth. In other cases, business owners simply have limited aspirations. Not every entrepreneur wants to create a Fortune 500 company; many are satisfied with a relatively steady stream of income and employment.

What distinguishes EGCs from small businesses is a distinctive period of growth that in most cases starts right away and is part of the initial vision for the company. In contrast to most small businesses, EGCs are often clustered around newly deregulated and emerging industry sectors such as telecommunications, financial services, and information technology.

Entrepreneurial Networks

Successful entrepreneurs are not working alone; they are usually part of active networks. Similarly, many successful economic development strategies focus on building and maintaining entrepreneurial and support networks. Networking includes many

different types of formal and informal cooperation, from happy hours to formalized groups that help finance new businesses to traditional chambers of commerce. Those networks also serve many purposes, from mentoring to capital access to training opportunities (National Commission on Entrepreneurship, December 2001).

Networks provide entrepreneurs with critical opportunities for peer learning. Such learning opportunities are important for the success and economic growth of a region. The economic development literature refers to “learning regions” where innovative small businesses and entrepreneurs work together, learn from each other, and benefit from a positive entrepreneurial climate. The success of those regions (Silicon Valley and Boston’s Route 128 are probably the most famous examples) is well documented in the literature. Several studies found that the local economy prospered due to patterns of networking that allowed firms to focus investments and skills on a particular market or industrial sector. In response, government programs have tried to encourage networks and alliances among small businesses.

Different businesses benefit from different networks. Younger firms and entrepreneurs, for example, tend to have a greater need for interaction with peers to learn from more experienced business owners. They also may have a stronger need for the social goal of belonging to a peer group that helps them overcome the feeling of isolation that often accompanies the start-up process. More mature businesses, on the other hand, are less interested in the social and learning aspects of networks. They often assume a more strategic approach to networking and form business alliances to fill gaps in their in-house resources or expertise.

Networks not only help entrepreneurs and businesses help themselves, they also offer benefits to the local community. Those benefits include, among others:

Brokering — formal networks can provide linkages between entrepreneurs and resources until new entrepreneurs have established their own set of networks. Effective networking organizations offer new entrepreneurs access to almost all the resources they need.

Creating Common Perspectives — networks can help aggregate the voices of small entrepreneurs and new businesses into a clear constituency. For policy-makers, formal business networks can serve as partners and advisors for economic development efforts and provide regular feedback on public initiatives. In dynamic regions, decision-makers are networked with businesses and institutions so that economic strategies and regional networks support each other.

Creating Civic Leaders — networks help nurture and mobilize private sector leadership.

Regional Competitiveness — studies have shown that highly networked regions are more competitive. Networks provide critical knowledge for start-ups and thus reduce the entry barriers. As businesses mature, they continue to use those networks to access new resources and customers and as a result create new jobs and wealth for the local economy.

Entrepreneurship in the Chattanooga Region: A Brief History

The Chattanooga region has a longstanding tradition of entrepreneurship that dates back to before the Civil War. The construction of the Western and Atlantic Railroad contributed to Chattanooga's growth in the mid-1800s. The charcoal iron industry moved into the area, and insurance companies and banks helped create wealth. Chattanooga became an important rail center and a key battleground during the Civil War. After the war, the existing transportation infrastructure, abundant natural resources, and an increased labor force (thanks to the migration of African-Americans) allowed Chattanooga to establish itself quickly as an industrial center and to become one of the leading iron and steel manufacturing centers in the nation by 1880.

By 1900, the city had become a major southeastern rail center and a hub for warehousing and distribution of cotton and other agricultural products. The growth in manufacturing continued through the early part of the twentieth century, leading to Chattanooga's moniker as the "Dynamo of Dixie." Entrepreneurship continued to flourish, and in 1899 two young lawyers from Chattanooga obtained the exclusive rights to bottle Coca-Cola across most of the United States — for the sum of one dollar.

The tradition of manufacturing and Chattanooga's dependence on heavy industry that contributed to the city's rise became a burden in the 1950s and 1960s. Pollution problems, suburban flight, and increasing crime were causing problems in downtown Chattanooga, and the shift in the economy hit the area hard. The last coal mine closed, and many of the iron and steel industries — once dynamic parts of the city — dramatically reduced production or shut down completely. Many of the old industrial sites within the city limits are now on the Environmental Protection Agency's Superfund list. Reductions in the textile and apparel workforce further contributed to Chattanooga's problems. At the same time, Chattanooga lost many of the remaining headquarters when large national or multinational companies acquired successful local businesses. The traditional local banks suffered a similar fate. Entrepreneurship in the region withered as more and more strategic economic decisions were made outside the region.

The entrepreneurial spirit was not quite dead, however. Beginning in the 1950s, entrepreneurs have created a healthy tourist industry in the region. And the "Chattanooga way" of using public-private partnerships, citizen participation, and creating visions has led to a turnaround of the Chattanooga downtown area. The planning and visioning process started in 1982, and in 1992, the Tennessee Aquarium opened. Since then, a number of additional businesses, shops, and restaurants have transformed downtown Chattanooga into a clear asset for the region.

Today's entrepreneurial activity is not limited to the city of Chattanooga. Cleveland, TN, and Dalton, GA, have been important smaller centers for a long time. Dalton — already the carpet capital of the world — has been successful in broadening its economic base and is becoming the "floor covering capital of the world."

Despite its history of entrepreneurship and can-do spirit, the Chattanooga region's lack of diversity in the economic base is frequently seen as one of the biggest current problems. A large part of the workforce in the region — especially in the rural counties — is still employed in traditional manufacturing jobs — metal, textiles, and furni-

ture. Table 1 shows that the Chattanooga region depends heavily on manufacturing. While only slightly more than 11 percent of all U.S. employees work in the manufacturing sector, the number for the Chattanooga region is almost 17 percent, higher than the state averages for both Georgia and Tennessee. Most of the largest employers in the region are manufacturing companies in traditional sectors, and the eight major manufacturers employ over 28 percent of the manufacturing workforce. Service sector employment in Chattanooga, on the other hand, is below average — despite the importance of tourism for the region.

A recent study indicated a number of potential directions for future diversification of the Chattanooga economy. Professor Michael Porter and his colleagues identified seven clusters that are either existing or emerging. Chattanooga has existing strengths in hospitality and tourism, confectionery and baked goods, medical devices and health services (in Chattanooga and Cleveland, TN), and logistics and transportation. The floor coverings and fibers cluster is expected to grow in the future, along with the insurance and rehabilitation and the electric vehicles cluster. There may be important niches for entrepreneurs within each of these clusters.

Table 1: Regional Facts: Employment Mix

	Bledsoe	Bradley	Grundy	Hamilton	Marion	Rhea	Sequatchie	Catoosa	Dade	Walker	Chattanooga Region	Tennessee	Georgia
Total full-time & part-time employment	4,550	48,558	4,455	234,181	10,052	14,921	4,098	19,401	4,839	21,039	366,094	3,506,618	4,905,751
Farm employment	17.8%	2.3%	11.2%	0.3%	4.2%	3.8%	5.2%	1.8%	4.5%	3.2%	1.5%	3.0%	1.4%
Nonfarm employment	82.2%	97.7%	88.8%	99.7%	95.8%	96.2%	94.8%	98.2%	95.5%	96.8%	98.5%	97.0%	98.6%
Private employment	56.8%	86.6%	72.9%	88.2%	83.4%	79.9%	81.7%	87.2%	81.8%	81.8%	86.4%	85.0%	84.5%
Ag. services, forestry, fishing, other	2.3%					0.9%				0.5%	0.1%	0.9%	1.2%
Mining						0.4%	2.4%			0.2%	0.1%	0.2%	0.2%
Construction	5.9%	5.1%	10.3%	5.6%	5.1%	5.6%			8.9%	7.6%	5.7%	6.1%	6.2%
Manufacturing	18.2%	26.5%	13.1%	14.0%	18.0%	33.6%	25.3%	22.8%	20.4%	29.6%	18.2%	14.8%	12.2%
Transportation, public utilities		2.8%	6.0%	9.1%	5.2%	2.2%	5.3%	3.0%		2.3%	6.9%	6.0%	6.2%
Wholesale trade	1.6%			4.4%	3.5%	1.0%	5.4%	3.6%	1.7%	3.2%	4.1%	4.6%	5.6%
Retail trade	7.6%	15.3%	15.9%	17.9%	24.6%	14.4%	14.5%	22.0%	20.7%	13.6%	17.4%	16.7%	16.7%
Finance, insurance, real estate	3.8%	5.9%	3.6%	8.8%	4.4%	3.1%	5.0%	5.2%	3.9%	3.8%	7.4%	6.9%	7.1%
Services	24.9%	24.9%	18.9%	27.8%	21.4%	18.7%	17.7%	24.1%	22.7%	21.0%	25.6%	28.6%	29.1%
Government, government enterprises	25.5%	11.1%	15.9%	11.5%	12.4%	16.3%	13.1%	11.0%	13.7%	15.0%	12.1%	12.0%	14.1%
Federal, civilian	0.4%	0.6%	0.5%	2.7%	0.8%	5.9%	0.3%	0.4%	0.4%	0.7%	2.1%	1.5%	2.0%
Military	0.9%	0.7%	1.2%	0.5%	1.0%	0.7%	1.0%	1.0%	1.2%	1.1%	0.6%	0.7%	1.9%
State and local	24.1%	9.8%	14.2%	8.3%	10.6%	9.7%	11.8%	9.6%	12.1%	13.2%	9.3%	9.7%	10.2%
State	12.3%	1.6%	1.3%	2.3%	1.1%	1.2%	2.0%	0.6%	1.0%	3.8%	2.2%	2.6%	3.0%
Local	11.8%	8.2%	12.9%	6.0%	9.5%	8.5%	9.8%	9.0%	11.2%	9.4%	7.1%	7.1%	7.2%

Source: Bureau of Economic Analysis, 2000.

SECTION II

Creating an Entrepreneurial Community

Even after a region agrees that entrepreneurship development is important, how does it go about fostering it, and evaluating the region's progress? Here we offer some insights about what it takes to develop and sustain an entrepreneurial community or region.

Community environment is at least as important to the success of entrepreneurs as it is to the success of large manufacturing firms. The community provides infrastructure such as telecommunications capacity and building sites that can support or impede business growth. The culture of the community may be encouraging to entrepreneurs who start new businesses or it may signal a lack of acceptance for those who "think outside the box." The quality of life in the community may attract entrepreneurs who are looking for a great place to work and to live. Local government may provide assistance to potential entrepreneurs or place barriers in the way of business start-ups. While local communities have little influence over macroeconomic policies that affect entrepreneurial businesses, the community environment can be altered to promote entrepreneurship.

How do we define an entrepreneurial community? Recognizing the importance of entrepreneurship in an overall economic development strategy is the first step toward creating an entrepreneurial community. Entrepreneurial communities have active "public entrepreneurs," who may be community leaders, elected officials, directors of nongovernmental organizations, and others within the community. Gregory Dees' (2001) definition of an entrepreneur as one who is an "innovative, opportunity-oriented, resourceful, value-changing agent" applies equally well to these individuals. Public entrepreneurs have an important role to play in creating an entrepreneurial community through their leadership, decisions regarding the allocation of resources, and through their own investment of time and resources.

Based on his fieldwork in a number of community environments, Don Macke (2002) has identified three characteristics of entrepreneurial communities — climate, infrastructure, and support. Climate refers to the culture or attitude toward entrepreneurship within the community. Within this climate, communities provide both physical infrastructure and support for business and entrepreneurs. The development of each characteristic varies across communities. At one extreme, the community may

simply recognize and value the role of entrepreneurs in community development. At the other end of the spectrum, communities may develop specific initiatives and devote human and financial resources to identify, encourage, and support entrepreneurs. The vision and commitment of community leaders, both public and private, to entrepreneurship development can help determine where along this continuum a specific community falls. Each of these characteristics is explored in more detail below.

Entrepreneurial communities provide a *climate* that is attractive to and supportive of new and existing entrepreneurs. Within both the public and private sectors, entrepreneurship is valued. Community leaders recognize the importance of entrepreneurship to overall economic development and commit resources to programs that encourage entrepreneurship. Failure is viewed positively, as a precursor to future success, rather than negatively. Individuals and the media share stories about entrepreneurial ventures throughout the community.

Another important aspect of the community environment is the focus on entrepreneurs rather than businesses. In their discussion of entrepreneurial development systems, Gregg Lichtenstein and Thomas Lyons (2001) argue that the focus of development efforts should be on identifying and encouraging potential entrepreneurs. They note that “what is missing in the current model of enterprise development is any attention to the quantity and quality of an area’s entrepreneurial capital.”

Ernesto Sirolli (1999) also emphasizes entrepreneurs in his model of enterprise facilitation. He notes that “right now, in your community, at this very moment, there is someone who is dreaming about doing something to improve his/her lot. If we could learn how to help that person to transform the dream into meaningful work, we would be halfway to changing the economic fortunes of the entire community.” Entrepreneurial communities focus on identifying, encouraging, and developing entrepreneurs and then providing the infrastructure and support that these entrepreneurs need to flourish.

Many communities emphasize *infrastructure* development as part of their economic development strategy. However, the type of infrastructure needed by entrepreneurs may be different from that required by more traditional manufacturing firms. While a manufacturer may be concerned about roads, sewer, water and other utilities, entrepreneurs may be more concerned about their ability to access high-speed Internet for their home-based business. Industrial parks meet the needs of large wholesale and manufacturing firms but may be inadequate for an entrepreneur who needs more ready access to business support services. At a time of limited resources in many communities, it is difficult to find the resources needed to finance infrastructure investments. Entrepreneurial communities can take a demand-driven approach to set priorities for infrastructure investment — working with entrepreneurs and other businesses within the community to identify the most critical infrastructure needs that are limiting future business growth.

In addition to physical infrastructure, communities provide *support* to the local business sector in other ways. Technical and business assistance services, financing programs, business incubators, marketing and export promotion assistance, employee training programs, and regulatory assistance are some of the services that communi-

ties provide to entrepreneurs and existing businesses. Some services such as business incubators focus primarily on encouraging and supporting entrepreneurs while others such as employee training programs are geared toward existing businesses. The way in which these services are provided to entrepreneurs and other businesses is as important as the services provided. One-stop business centers and other efforts to provide services more efficiently can be responsive to both the entrepreneurs and the service providers.

The Global Entrepreneurship Monitor (GEM),³ which was a cross-national study of entrepreneurship dynamics for the United States and 20 other countries (in 2000), found that entrepreneurial framework conditions have a major impact on the nature and level of entrepreneurial activity nationally. These framework conditions are more specific expressions of the concepts of infrastructure, support and climate described above. Working with the researchers from Babson College who conducted the GEM study, the Kauffman Center for Entrepreneurial Leadership (KCEL) adapted the international comparative design for the GEM study to a national design for regions within the U.S. They developed the following eight dimensions believed to be important influences on regional entrepreneurship dynamics:

- Workforce, education, training
- Financial capital
- R&D and tech commercialization
- Commercial, professional support infrastructure
- Physical, and advanced communications infrastructure
- Government policies and programs
- Regional leadership and institutions
- Quality of place

The remainder of this report includes, first, our assessment of the entrepreneurial potential of the Chattanooga region, along each of these dimensions. The assessment is based primarily on the qualitative data from field interviews,⁴ bolstered in spots with supporting secondary data. The last section of the report is a summary of the findings overall, including the start of an entrepreneurship resource inventory for the region, and recommendations for strengthening the regional framework supporting entrepreneurship for the future.

3. Zacharakis, Andrew L., Bygrave, William D., Shepherd, Dean A., and Kauffman Center for Entrepreneurial Leadership at the Ewing Marion Kauffman Foundation. *Global Entrepreneurship Monitor: 2000 Executive Report*.

4. A full description of our study methodology is included in Appendix A.

SECTION III

Assessment of Entrepreneurial Potential for the Region

To provide some perspective on where the Chattanooga region stands in terms of entrepreneurial potential, we developed an assessment continuum that includes four categories. Each category shows the level of commitment to entrepreneurial development within the region. The categories are:

- **Fledgling:** The community is just beginning to recognize the need for policies and programs that support entrepreneurship. However, the region's economic development infrastructure and activities are limited in general. There may be significant obstacles preventing local residents and leaders from embracing the concept of entrepreneurial development, such as an historic reliance on manufacturing activity that is just beginning to change.
- **Emergent:** The community provides support for local business and industry and recognizes entrepreneurship as important. However, proactive policies and programs to encourage and support entrepreneurs are relatively new. Most economic development efforts go toward creating a good business climate and providing infrastructure to support business in general.
- **Established:** The community understands the importance of entrepreneurship development and has created specific programs focused on supporting local entrepreneurs. Economic development activities include entrepreneurship programs along with more traditional industrial attraction and business retention activities. Entrepreneurship initiatives are beginning to appear outside of local economic development institutions, such as in the public schools and community organizations.
- **Accelerated:** The community embraces entrepreneurship development and provides a wide range of supportive institutions and programs. There are en-

entrepreneurial support organizations within the community whose purpose is to identify, support and provide resources to the region's potential and existing entrepreneurs.⁵ Entrepreneurship is promoted widely within the community, including through youth entrepreneurship programs.

For each of the dimensions of economic competitiveness that follow, we provide a summary of the assets and challenges that exist in the Chattanooga region. This summary is based on the observations offered by selected experts during the field interview process, as well as our own judgment based on work in other regions. Following this summary, we present an overall assessment of each specific aspect of the region as *fledgling*, *emergent*, *established* or *accelerated*.

We also include another assessment assuming that policies and/or programs that are currently in progress or planned continue to completion. This latter assessment indicates where the region will be once these ideas and innovations are incorporated into the region's overall economic development activities. This analysis helps to identify what the Chattanooga region is doing well in terms of encouraging entrepreneurship and what areas need further development. In this way, the region's current success in creating an entrepreneurial community can be evaluated, providing context for a discussion about strategies for the future.

Workforce, Education, and Training

This topic area addresses the extent to which the region's education, training and workforce development institutions have the capacity to cultivate a workforce that can start, manage and work in entrepreneurial companies. In terms of workforce development and training, we are interested in looking at the capacity within the region to train new entrants to the workforce and to retrain existing employees who are in need of new or updated skills. In terms of education, we are focused on both the ability of K-12 systems to provide graduates with basic skills and the ability of higher educational institutions to provide graduates with the higher-tech skills needed by the region's employers. It is also important to identify whether these institutions provide specific opportunities to learn about entrepreneurship and to be involved in creating entrepreneurial ventures.

We selected experts to represent a range of regional institutions such as a community college vice president in Tennessee, a community college vice president in Georgia, a director of a federal and regional workforce program, a superintendent of schools, and the manager of staffing/recruiting at a major regional employer. In addition, experts interviewed for other topic areas as well as entrepreneurs⁶ raised workforce development and education issues that are included here.

5. For more on entrepreneurial support organizations see Don Macke, *Entrepreneurial Support Organizations*, Center for Rural Entrepreneurship, Monograph 10, 2002, www.ruraleship.org and Gregg A. Lichtenstein and Thomas S. Lyons, "The Entrepreneurial Development System: Transforming Business Talent and Community Economics," *Economic Development Quarterly*, Volume 15, No. 1, February 2001.

6. Entrepreneur profiles are included in Appendix C.

One theme was recurrent across the experts — the need to change the way that the next generation of regional residents values education and skill development for a new economy. The historic dependence on manufacturing employment created opportunities for parents and grandparents without high school diplomas to earn a decent income working in the textile and carpet mills, chemical plants and foundries in the region. In some parts of north Georgia, those opportunities still exist. But for most of the present generation of Chattanoogans, manufacturing employment opportunities are limited. The service sector jobs that are available to high school graduates do not provide the same earnings potential as did the manufacturing jobs of their parents. The challenge in the region is to help the emerging members of the workforce recognize the need for a more developed skill set and take the steps needed to acquire those skills.

Workforce Development and Training: Assets and Challenges

The overall quality of the workforce was not defined as a strong regional asset, either by the workforce and education experts or by those reflecting on quality of place. The perception of quality is related both to work ethic and to skills. Most of the providers of workforce development services expressed that in general the region's workforce had a strong work ethic, an asset for employers. Historically, this work ethic helped to attract manufacturers to the region. However, a number of entrepreneurs expressed concern about the work ethic within the region. It may be that the work ethic characteristics valued by manufacturers, such as showing up and being willing to do routine work, are less important to entrepreneurs than are other characteristics, such as commitment to being part of a team, creativity, and a willingness to invest oneself in the business. In terms of skills, entrepreneurs also expressed concern about the lack of basic skills such as English, math, problem solving and teamwork. They also identified a need for more workers with the high-tech skills. The providers of workforce development services expressed similar concerns, particularly in terms of the lack of highly skilled workers that are attractive to high-tech industries. Clearly, improving the overall level of workforce quality remains a challenge throughout the region.

The community colleges in both states are important regional assets in terms of workforce development and training. Both community colleges we met with work with area employers to develop training and education programs to meet their specific needs. It appears that these connections are stronger with large employers than they are with area entrepreneurs. From the perspective of the community college, it is reasonable to consider developing a program in the insurance or health care industries that meet the needs of several employers rather than developing course programs for a single entrepreneurial company. However, customized training programs are offered by the community colleges for area businesses. It is not clear that small entrepreneurial companies are using this resource effectively.

The federal and regional workforce development programs administered throughout the region appear responsive to economic changes such as plant closings. These programs are designed to step in and help dislocated workers deal with the negative effects of unemployment and, if possible, develop new skills for new jobs. However,

these programs are not focused on providing skills for entrepreneurs interested in starting a business unless the displaced worker expresses such an interest.

Education:

Assets and Challenges

There was general consensus that the K–12 education system

is not a strong enough asset for the region. It was described by one expert as being a significant obstacle to the recruitment of new firms. Another suggested there is limited local recognition that public education is an “economic development driver.” Educators, workforce development service providers, community leaders, bankers and other professionals, and entrepreneurs all acknowledged the poor quality of the public education system and some of its failure to prepare students for the workplace. High dropout rates in some counties within the region are a disturbing indicator of future workforce problems.

The poor quality of public education is a challenge the region must overcome in order to encourage entrepreneurship development. However, the obstacles are significant. Chattanooga has exceptional private schools that attract the best students from throughout the region. The loss of these students affects the public schools in two ways. Quality students leave the system, taking their involved parents with them. There are fewer vocal parents left to advocate for improvements in the public school system. Another obstacle is the lack of state support for public education. Public school officials are asked to do more with fewer resources. To offset the loss of state funds, the county school system has been aggressive at seeking outside support via grants and has received \$35 million in external support. For example, the system received a national grant to support high school reform.

Vocational-technical education is another part of the public education system. Most experts view the vo-tech system negatively, describing it as the dumping ground for problem students. In addition to this negative perception, the capacity of the vo-tech system to meet the needs of those who are interested in vocational or technical training is limited. The problem of access to vo-tech services is more critical outside the Chattanooga/Hamilton County system. There are few private sector service pro-

Regional Facts: Educational Attainment

Persons 25 Years and Older, 2000

	Chattanooga			
	MSA	TN	GA	U.S.
■ High school graduate or higher	77.0%	75.9%	48.6%	80.4%
■ Some college or higher	47.4%	44.3%	49.9%	51.8%
■ Two-year degree or higher	25.4%	24.3%	29.5%	30.7%
■ Four-year degree or higher	19.7%	19.6%	24.3%	24.4%

Source: U.S. Census, 2000

Regional Facts: Public Schools Average Combined ACT Scores and Dropout Rates

County	ACT	Cohort
	Avg. Scores	Dropout Rates
Dade	22.2	30.1
Rhea	20.3	15.8
Catoosa	20.2	27.2
Bradley	20.1	22.5
Walker	19.9	51.8
Hamilton	19.4	15.8
Marion	18.2	9.2
Georgia average	19.8	31.1
Tennessee average	19.9	14.8
U.S. average	21.9	N/A

Source: TN 21st Century Schools Report Card, GA Public Education Report Card

Regional Facts: Higher Education

Colleges	2000 Enrollment	Degrees Offered	Average Graduates per Year
UTC	8,319	BS, BA, BFA, BM, BSE, BSN, BSW, BSOT, MA, MS, MM, MPA, MACC, MBA, MED, EDS, MSCI, MSN, MPT	1,734
Chattanooga State Technical Community College	8,873	AA, AS, AAS, 6 technical certificates, 17 certificates	539
Covenant College	839	BA, MED, AA, BSM, AS, BS, MSE, MSED, MS, BA	356
Southern Adventist University	1,939	BBA, BM, AA, BSW, AT, 2 certificates	444
Tennessee Temple	1,300	AA, AS, BA, BS, DT	134
Northwestern Technical College	1,482	AAT, 18 diplomas, 31 technical certificates	600
Dalton State College	3,139	BBA, BS, BAS, BSW, AA, AS, AAS, 6 advanced certificates, 20 1-year certificates, 1 2-year certificate, 14 mini-certificates	338

Source: Individual schools

viders, such as electronics or computer schools, to meet the vo-tech needs within the region. The north Georgia counties have comprehensive high schools that provide vo-tech training, but the private sector resources one might find in more urban environments are lacking.

In terms of higher education, the region has a number of positive assets. The community colleges and the University of Tennessee-Chattanooga provide solid training for students. UTC is committed to becoming a more urban university with connections to the downtown Chattanooga redevelopment efforts, including primary education. The community colleges do a good job of training students and most graduates have jobs before graduation. The explicit focus on entrepreneurship education is limited, however. The

community colleges try to emphasize small business in the curriculum and UTC emphasizes business with its majors. There is yet no entrepreneurship curriculum in these programs and there is no focus on training students to become entrepreneurs.

In spite of these assets, entrepreneurs continue to express concern about the shortage of highly skilled and high-tech workers. It may simply take time for the skills of the workforce to improve to the level needed by the region's higher-tech entrepreneurs. On the other hand, it will also take time for the region's base of higher-tech businesses to reach a critical mass that can attract and keep skilled workers in the region. The challenge of balancing the needs of the region's employers, large and small, with the skills of the region's workforce will continue into the future.

Workforce, Education and Training: Assessment

The region's public education system, K-12, can be assessed as *emergent*. While the poor quality public education system is not recognized as an asset in the region, the problem is recognized by leaders and strategies for improvement are being implemented. The success of these strategies, including the new downtown elementary schools and the high school improvement project, will determine whether Chattanooga can turn this challenge into a regional asset in support of entrepreneurship.

Higher education in the region is also assessed as *emergent*. While the community colleges and UTC are important regional assets, these institutions are just beginning to recognize the need for a more explicit focus on entrepreneurship. UTC's increased involvement in downtown development activities is a positive trend that suggests a potential role for the university in any partnership to promote entrepreneurship. However, these institutions will need to be engaged with both the business/entrepreneurial community and with other public education partners in order to identify their role in an entrepreneurship development strategy for the region.

The region's workforce and training resources are assessed as *fledgling to emergent*, depending on location within the region. The high dropout rates in some counties in the region contribute to an assessment of *fledgling*. In these areas, institutions charged with workforce development and training face a significant obstacle that is difficult to overcome. Changing economic circumstances in the region may bring more individuals into training and education programs, providing an opportunity to improve skill sets and create a more educated, skilled workforce. Other parts of the region are assessed as *emergent*. Workforce development resources are in place and are used to help train new and retrain existing and displaced workers. In addition, the State of Tennessee, before the most recent budget crisis, allocated significant funding to job skills enhancement. However, these local and state resources are not specifically focused on entrepreneurship or the type of training that might be useful to employees in entrepreneurial businesses.

Financial Capital

Financial capital refers to the availability and use of financial resources, both debt and equity, for new and growing firms within the region. Along with capital, this topic area considers how well entrepreneurs understand and use financial information in the operation of their businesses. Different institutional sources of capital, public, private and nonprofit, are considered along with non-institutional sources such as angel or private investors. Financial capital, including information and technical assistance, is important to entrepreneurial development. Lack of access to capital can make it difficult or even impossible for entrepreneurs to start their businesses and for existing small businesses to expand and grow their enterprises. Alternatively, regions with a full array of capital resources, from seed financing to mezzanine debt to venture capital, provide entrepreneurs with an opportunity to start and grow their businesses in the same community.

We interviewed experts that represent most major institutional sources of capital in the region including a small community banker, a large national banker, the director of a regional loan program, the head of a statewide community development financial institution, and the head of local community development venture capital program. These individuals and the entrepreneurs provided insights about the availability of both debt and equity capital throughout the region and how well entrepreneurs are networked with this system of financial capital.

Regional Facts: Banking Institutions

Banks as of 6/2/02	Institutions	Offices
Bledsoe	2	2
Bradley	8	32
Grundy	2	5
Hamilton	14	110
Marion	4	13
Rhea	4	9
Sequatchie	3	5
Catoosa	8	13
Dade	2	5
Walker	7	13

Source: Federal Deposit Insurance Corporation

Debt Capital: Assets and Challenges

Most experts agreed that the supply of debt capital in the Chattanooga region is adequate. However, the structure of the banking industry in the region creates some challenges to capital availability. Most banks in the Tennessee part of the region are regional or national banks that often are more conservative lenders. The focus is on larger customers with less attention to the small business sector. In north Georgia, there are more local community banks that are more aggressive lenders particularly to small businesses. Entrepreneurs are more likely to have difficulty gaining access to debt capital from banks practicing more conservative lending. Entrepreneurs in the region confirmed this observation. At the same time, small banks are reluctant Small Business Ad-

ministration (SBA) lenders and some make no SBA loans at all. While SBA loans are a potential resource for entrepreneurs, it is not clear how well used this program is in the region.

Mezzanine debt, subordinated debt or gap financing, is also available in the region primarily from one lending organization (Southeast Local Development Corporation). However, the challenge is that entrepreneurs who need gap financing are not always aware of the program and the resources it has to offer. This knowledge gap is particularly evident in the north Georgia part of the region. Part of the problem, it was suggested, is that alternative financing programs have limited staff and resources and choose to market their programs aggressively only in the early stages of the programs. As a result, some entrepreneurs are not aware of the resources available to help them meet their financial needs.

Equity Capital: Assets and Challenges

Most experts and entrepreneurs agreed that access to equity capital in the region is a significant challenge. This result is not surprising since the state of Tennessee had only five venture capital investments in 2001, accounting for only 0.4 percent of total venture capital investment in the U.S. Venture capital investment in the U.S. is concentrated geographically with Silicon Valley and the New England region accounting for more than 50 percent of investments in 2001. Investments are also concentrated sectorally with computer-related, telecommunications, and biotechnology accounting for 67 percent of investments in 2001.⁷ The Chattanooga region, like many parts of the U.S., does not have a venture capital industry that is actively investing in regional businesses. While some entrepreneurs have been able to tap into local sources of investment capital, such as angels or wealthy individual investors in the community,

7. PriceWaterhouseCoopers, *MoneyTree Survey 2001*, www.pwcmoneytree.com.

this resource is difficult to access for entrepreneurs who do not have connections to or contact with this pool of non-institutional capital.

While access to venture capital is an important challenge in the region, recent activities are addressing this challenge by focusing on some significant regional assets. Local leaders, through the mayor's and county executive's offices and the Chamber of Commerce, are trying to identify and fill the capital gaps that exist for the region's entrepreneurs. These gaps range from access to small amounts of seed or very early-stage, high-risk capital to more significant levels of venture capital investments that can lead to an IPO. Southeast Community Capital (SCC) is one regional asset that is being tapped to create greater access to venture capital. SCC is the state's first community development financial institution providing a range of debt and equity capital instruments and technical assistance to entrepreneurs and new businesses. Chattanooga and SCC have formed a partnership to provide the full range of SCC products and services to Chattanooga entrepreneurs. A local office has been established in the city and the program is being marketed to entrepreneurs. This partnership should create greater access to many types of equity capital products that have not been available in the region. However, the program is too new to assess the potential impact it will have on the region's entrepreneurs.

Another regional asset is the pool of individuals who have created and maintained their wealth within the Chattanooga community. These individuals, with their commitment to the development of the community, are a potential resource for entrepreneurs in need of both capital and business advice and mentorship. However, these investments are not likely to occur in a significant way without a mechanism for linking entrepreneurs with potential investors. The recent effort to create an angel investor network is the first step in trying to tap these local resources. It is hoped that this network will eventually become a more formal angel capital investment fund for the Chattanooga region. Since the network is still being formed, its success in linking entrepreneurs with local wealth is yet to be determined.

Knowledge of Financial Information: Assets and Challenges

Most experts expressed concern that entrepreneurs have limited understanding of their financial situation and their capital needs. One expert described entrepreneurs' approach to financial information and accounting as being "seat of the pants." This same lack of understanding also applied to venture capital investments. Entrepreneurs were described as not wanting to give up ownership in exchange for equity capital. As entrepreneurs exhaust other sources of capital, they become more willing to give up ownership. However, this process is not always based on a thorough understanding of the nature of venture capital investing and the way in which investments are structured.

This information gap presents an important challenge to local leaders as they develop new policies and programs to address capital gaps. Providing capital alone may not fully meet the needs of entrepreneurs. Some form of technical assistance and greater access to financial information should be a part of attempts to increase the

supply of both debt and equity capital and to link entrepreneurs to these new sources of capital.

Financial Capital: Assessment

It is difficult to provide an overall assessment of the Chattanooga region's financial sector. In terms of access to debt capital, the region can be described as *emergent*. While the supply is generally adequate, there are challenges, such as the conservative nature of bankers that are not easy to overcome given the structure of banking markets in the region. The key issue is how to match entrepreneurs and small businesses with the debt capital that they need — linking demand with supply. It is not clear that this issue is being addressed in a way that would change this assessment in the short run. As one expert described it, there is nothing really “innovative” occurring in the region at this time.

In terms of venture or equity capital, the Chattanooga region is assessed as *emergent* since it does not look very different from most other regions of the U.S. that are not centers of venture capital investment activity. However, there are two innovative activities under way in Chattanooga that, once successful, will lead to improved access to venture capital and angel investments for area entrepreneurs. With these innovations, Chattanooga would be assessed as *established* since it has created and invested in programs to address specific venture capital gaps in the region.

One expert made an observation about the region's approach to entrepreneurial development that is particularly relevant in terms of a future assessment of the region's capacity in terms of financial capital. The history of riverfront development in Chattanooga provides a model for action in other arenas that is not being applied presently. Riverfront development was the product of leaders who felt passionately about reconnecting to and benefiting from the river. These leaders created a task force of a few community leaders, conducted the community visioning and engagement, and developed a 20-year plan including specific institutional requirements for implementation, such as the creation of a nonprofit organization. As a result of these activities, the achievements associated with development of the riverfront are significant and the next phase of the revitalization is progressing. This same approach could be applied to entrepreneurial development in Chattanooga, focusing on the specific components of an entrepreneurial development plan like financial capital. What is needed, as another expert suggested, is to tap the wealth and leadership within Chattanooga's philanthropic community for economic development purposes more generally.

R&D and Technology Commercialization

This dimension measures the extent to which research and development conducted in the region will be accessible to entrepreneurs and whether it will lead to new commercial opportunities there. It is especially important for cultivating the high-technology entrepreneurship most known for job creation in successful regions such as Silicon Valley, Route 128 in Massachusetts, and the Research Triangle.

The local informants we interviewed included officials from the public university, manufacturing extension programs, and the health care industry. We also inter-

viewed the management of the local incubator (Business Development Center) and heard through entrepreneurs and others about opportunities for federal contracting with Oak Ridge National Laboratories (ORNL) and the Marshall Space Center in Huntsville, Alabama.

R&D: Assets and Challenges

An R&D inventory typically considers industry, university and hospital-based research, as these institutions are the usual drivers of new technology development that may have commercial value.

The Chattanooga region has well-developed business clusters in a few relatively unique niche areas — medical/rehab/disability; baking and confection; chemicals, textiles and carpet; logistics, materials handling and trucking; and energy. What is generally lacking within these sectors is a clear emphasis on research or technology commercialization; if industries are doing any substantial R&D investment, it is being done quietly. The focus of industrial extension efforts with local companies tends to emphasize process improvements rather than new product development. Local corporations rarely do R&D partnerships with entrepreneurs, which are common in a hotbed such as Silicon Valley.

There are several entrepreneurs in the Chattanooga region working in technology-oriented startups that may offer high growth potential in the future. Some of these are already working with Oak Ridge National Labs, the Department of Energy, Georgia Tech, Emory University, and Vanderbilt University. Some of their specific areas of activity are nanofibers, wound management, aerospace, and data automation. But so far, they are just flying solo rather than being part of any explicit attempt to bring innovation to the market.

Regional Facts: Patent activity, 1990–99

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 Population
Total Number of Patents											
Bledsoe, TN	0	0	0	0	0	0	0	1	1	1	12,367
Bradley	3	8	30	23	22	12	9	5	8	7	87,965
Grundy	1	0	0	2	0	0	0	0	1	0	14,332
Hamilton	34	48	41	41	39	38	38	34	44	52	307,896
Marion	0	0	0	1	1	0	0	0	0	0	27,776
Rhea	2	0	3	1	1	1	1	1	0	3	28,400
Sequatchie	1	1	0	0	0	0	0	1	0	0	11,370
Catoosa, GA	3	3	3	2	0	1	3	6	2	2	53,282
Dade	0	0	0	0	1	0	1	0	1	1	15,154
Walker	2	1	3	4	2	4	2	4	4	3	61,053
Chattanooga Region	46	61	80	74	66	56	54	52	61	69	619,595
Atlanta MSA	461	468	471	522	597	641	761	744	1,034	1,045	4,112,198

Patents per 100,000 people (using 2000 Census population data)

Chattanooga Region	7.42	9.85	12.91	11.94	10.65	9.04	8.72	8.39	9.85	11.14
Atlanta MSA	11.21	11.38	11.45	12.69	14.52	15.59	18.51	18.09	25.14	25.41

Source: U.S. Patent and Trademark Office, "A Technology Assessment and Forecast Report," www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm; 2000 U.S. Census.

The University of Tennessee at Chattanooga (UTC) has several initiatives, programs and resources that could enhance R&D, but these are not yet coordinated into a new way of doing business for the university that is well understood either within or outside UTC. Some local leaders have an awareness of the power of a research university in new economy job generation, but UTC is not and will not be a research university. It can, however, be a better information and resource broker among entrepreneurs, engineering faculty and students, and industrial product developers, as well as a demonstration site participating in projects of other universities and the federal labs at Oak Ridge and Huntsville.

For example, UTC has a new engineering building, which may be a catalyst to bring applications research to the region. UTC is partnering with TVA, Automated Applications, and intellectual capital at Oak Ridge National Labs. In addition to the engineering and computer science offerings, the building will have an Internet2 supercomputer connecting it to ORNL, Atlanta, and Livermore Labs in California. This suggests numerous opportunities to capitalize on this computing power and the scientists from ORNL. Such as:

- Consolidating and analyzing insurance claims data from the medical/rehab/disability cluster of local firms
- Speeding up data analysis to inform the logistics and trucking sector

- Conducting computer simulations for electric power, water, etc. (TVA, e.g.)
- Environmental engineering: prediction modeling to prevent pollution actions.

Potential Players in a Regional R&D Strategy

- The Internet2 project and computation center
 - The University of Tennessee at Chattanooga (UTC), including schools of engineering, business, and the medical college, and a new PhD program (from Mississippi State University)
 - The University of Tennessee, Center for Industrial Services (the MEP)
 - Tennessee Technical University, Center for Advanced Manufacturing (serves northern rural counties of region)
 - Southeast Community Capital's R&D fund
 - Tennessee Means Technology initiative (TN ECD)
 - Georgia Tech (for the northern Georgia counties)
 - Oak Ridge National Laboratories (ORNL)
 - Tennessee Valley Authority (TVA)
 - Erlanger Hospital (teaching)
 - DuPont Corporation
 - Various technology entrepreneurs
 - Chattanooga's council of technology CEOs
 - Dalton State College
 - Riverbend Institute of Technology
 - Other colleges
-

There is a local teaching hospital — Erlanger — and an occasional new product development in the medical devices area, but no research hospital. Local hospitals have limited libraries of journals and research articles to support the physician who may be entrepreneurially inclined. However, in terms of institutional infrastructure, there is already a regional alliance of hospitals in the area, Galaxy Health Alliance, which is a vehicle for collaboration among hospital CEOs that could be extended to include more of a focus on R&D, including partnerships with research hospitals in Tennessee or Georgia.

Various business service providers within the region, including the Small Business Development Center, the UT Center for Industrial Services, the TTU Center for Manufacturing Research and Innovation, the Southeast Tennessee Development District, the Northwest Geor-

gia Development Authority, and Georgia Tech all occasionally run into innovators and “technology entrepreneurs.” These entrepreneurs need to be connected to university, government, and corporate opportunities for technical assistance, publicity, research, investment capital, etc. as appropriate. There is no clearinghouse of research or technology information that entrepreneurs can access. UTC does not have a research center to assist with grant writing, venture capital mergers, etc.

The State of Tennessee, as part of its Tennessee Means Technology initiative, has begun an inventory of technology companies, resources, and needs, in order to foster the transition of new technologies to markets that can use them. This effort is neither complete nor well known within the region. Through the state or on its own, the region needs a better system for inventorying — and tracking — the R&D assets within especially Hamilton and the north Georgia counties.

The proximity of the region to Atlanta is an untapped advantage for R&D. As the preceding table on patents suggests, Atlanta is a relative powerhouse in new technology development and commercialization.

R&D: Assessment

The current level of R&D and technology commercialization activity in the region can be described as fledgling. There is no research (PhD-granting) university,⁸ research hospital or industrial R&D headquarters, any of which can be a source of innovation and new product development.

Nonetheless, in the near future, the region could become *emergent*. Opportunities include leveraging more applications research, and partnerships for demonstration projects with research institutions elsewhere (e.g., Oak Ridge, Atlanta, the Research Triangle) through Internet2. Perhaps the local council of technology CEOs could identify new product niches within existing clusters such as rehab/disability, logistics, or baking.

The region may want to consider developing a technology “mining and matching” database — such as that recently developed by the Knoxville Chamber of Commerce — to identify resources and needs within region and match up companies with other companies, universities, federal labs, etc. Chattanooga could volunteer to work with the Tennessee ECD to be a demonstration site in expanding this resource statewide.

Commercial and Professional Support Services

The commercial and professional support infrastructure includes a number of services that assist entrepreneurs and existing businesses in their activities. This category includes locally available legal, accounting, marketing and other business services, but not banking and financial services (which are included in the section on financial capital).

Business services for entrepreneurs are not only provided by the private sector. Frequently other institutions such as the SBDC offer services particularly for startup

8. UTC had just introduced a PhD program offered by Mississippi State University.

companies and entrepreneurs. General availability and quality of professional support services are necessary for entrepreneurship and economic development, but those two factors are not sufficient. Entrepreneurs need easy access to these services, and a “one-stop shop” with information about availability of services and expertise of the providers can be very helpful in this context.

We interviewed experts to represent a variety of service providers: the executive director of the incubator, a partner in a local law firm, a managing member in a local accounting firm, and the chief manager of a program to promote minority entrepreneurship.

Information about available services turned out to be a crucial factor that was brought up in many conversations with experts as well as entrepreneurs. The best expertise is useless when local entrepreneurs are not aware of its availability. In addition, Chattanooga’s economy is undergoing a transition. While employment in traditional manufacturing is declining, several entrepreneurs have developed business concepts and ideas that are new to the area. Therefore the question of supply and demand is particularly important. We try to assess how well the existing commercial and professional support infrastructure can assist new — “different” — businesses and thus help Chattanooga move forward in this transitional period.

Support Services: Assets and Challenges

Most experts agree that the availability and quality of commercial and professional support services in Chattanooga is very good. Table 2 shows the number of professional support services establishments in the region. Most of the activities are concentrated in Chattanooga, with smaller additional concentrations in Cleveland, TN, and Dalton, GA. However, those smaller centers lack the expertise that the larger firms in Chattanooga offer. The north Georgia counties access business services primarily in Atlanta and not in Chattanooga — the state line has an impact here. Particularly in legal matters, businesses and entrepreneurs need providers who are familiar with state

Table 2: Professional Services Establishments by SIC, 2000

	<u>Business Services</u>	<u>Legal Services</u>	<u>Acct, auditing, bookkeeping</u>	<u>Mgmt, Public Relations</u>
Bledsoe				
Bradley	83	32	20	13
Grundy				
Hamilton	492	157	103	141
Marion	14	11		7
Rhea	19	5		
Sequatchie	6			
Catoosa	25	11		
Dade	6			
Walker	32	17	10	
TOTAL	677	233	133	161

Source: Bureau of Labor Statistics

laws and regulations. Therefore Atlanta is a better resource than Chattanooga for Georgia businesses.

Legal and accounting services are very strong in the Chattanooga region. Both sectors are well established and include branches of national firms as well as large independent local firms. The larger local accounting and law firms have offices in other cities and cooperate with other partners across the nation, accessing expertise and resources that are not available locally.

The expertise of the business services providers reflects the history of Chattanooga. The strengths are in traditional manufacturing and distribution, but the providers lack expertise in government contracts, services and high-tech. In general most of the experts agreed that the local providers are capable of assisting most types of businesses either using internal or external resources. The providers argue that resident skills and networks exist to support almost any business initiative through local and networked outside talent. Among the entrepreneurial community, however, there is the perception that entrepreneurs sometimes “can’t find what they need.” Several entrepreneurs mentioned that they used lawyers and accountants in cities as far away as Washington, DC. Many local businesses view the providers in Chattanooga as focused on traditional sectors and not qualified or sometimes unwilling to work with startups in high-tech and other nontraditional sectors.

The SBDC also provides commercial and professional support services to entrepreneurs, helps with business plans, and gives entrepreneurs the opportunity to present their ideas to a group of bankers at the same time instead of meeting with them individually. The mentoring and volunteer counseling program is a major — but not necessarily well-known — asset. Volunteer bankers and lawyers come to the center to assist entrepreneurs in a more casual way. This approach works much better than sending entrepreneurs to banks or law firms to access services there (even when they are free, just as they are at SBDC). For many people, the “fancy buildings” provide a barrier; they feel more comfortable in the informal setting. However, many entrepreneurs are not aware that such a service exists in Chattanooga.

Cooperation with local universities provides another resource for entrepreneurs. For example, the accounting program at UTC places students in local businesses (including startups) for internships. Both sides benefit from the program — students gain more hands-on experience, and entrepreneurs and small businesses get assistance. In some cases, the businesses later hired the previous intern as a regular employee.

The services provided through the SBDC are particularly important for minority and women entrepreneurs who find the costs outside the center sometimes prohibitive. While the resource center assists startups with many essential services, patent assistance is limited. The center lacks expertise in that specific area.

The main problem related to commercial and professional support services is a lack of information and insufficient communication between providers and (potential) clients. Experts and entrepreneurs agreed that private providers as well as the SBDC do not market their services well enough. There is no central information source listing available services and the local and networked expertise to help entrepreneurs

identify a provider that meets their needs. Consequently, entrepreneurs have to spend more time and energy finding business services with the appropriate expertise and after a negative experience often turn to outside providers who market their services better. Legal and accounting firms in Chattanooga fail to reach out — “they are used to doing business with companies that have been around forever” and do not see the need to market their services and expertise to small businesses and entrepreneurs. While the existing quantity and quality of commercial and professional support services in Chattanooga could be a real asset, the lack of information and awareness within the business community presents a challenge.

Support Services: Assessment

The commercial and professional support services in the Chattanooga region can be described as “emergent to established.” The strong legal and accounting sector can assist most types of businesses, but the local firms need to reach out more to small businesses and entrepreneurs. There is a certain lack of expertise in high-tech and specialized service industries, due to the historic focus on traditional manufacturing. Chattanooga definitely lacks a one-stop shop or a clearinghouse to match local expertise with existing and new demand. The main problem is not availability of services, but information.

Physical and Communications Infrastructure

The quality and capacity of physical infrastructure play an important role in economic development of all types. Here we focus on the types of physical infrastructure most relevant to entrepreneurs. In this report, physical capital includes transportation infrastructure (air, road, rail, and river), utilities and commercial sites as well as advanced telecommunications infrastructure.

To obtain information about the current situation and future plans, we interviewed a number of experts in the Chattanooga region, including the executive directors of a regional planning agency and of the local incubator, the president of the airport authority, the director of a utility provider, and the vice president of a trucking company. In addition, other experts and entrepreneurs mentioned infrastructure issues that are included in this section.

While investments in transportation and telecommunications networks are not sufficient to guarantee success, they are often a necessary baseline. Investments in physical infrastructure must be part of a broader development concept. In addition, we recognize that decisions about such investments are sometimes not made at the local level.

Transportation Infrastructure: Assets and Challenges

Air Service. The Chattanooga airport currently has 52 daily departures to five major hubs (Atlanta, Charlotte, Chicago, Cincinnati, and Memphis). That level of service is excellent compared to other small airports in similar regions. The carriers serving Chattanooga (Delta, US Airways, American Airlines, Northwest Airlines) provide one-stop connections to almost any destination in the U.S.

The annual passenger volume at the Chattanooga airport is 600,000, about 80 percent of which are business travelers. The airport depends heavily on the large companies in the area as customers. They are not only passengers on commercial flights, but several of them also have corporate jets at the airport. Those companies need their own jets, because their destinations (other company locations) are frequently in areas that do not have high quality air service.

The airport authority encourages all carriers to offer competitive prices for flights in and out of Chattanooga. For many business customers, the convenience of the smaller airport (shorter check-in and security check times) offsets the slightly higher prices. A direct flight to Chicago leaves early in the morning and presents an ideal connection for business travelers.

A number of residents and businesses have a more negative perception of the air service. In addition to the limited number of destinations, the complaints focus on prices and quality. The major problem is the reliability of the service that ASA provides to and from Atlanta. However, this issue has been addressed and quality of service has improved and will continue to improve as the carrier adds new equipment to its fleet.

Future projects and plans could make the Chattanooga airport more attractive for business customers. The construction of an air tanker facility to fight wildfires is scheduled to begin this summer. The new access road to this facility will open a large, currently unused, part of the airport for development. The cargo facilities are currently under renovation, and a new facility just opened. Chattanooga would be an ideal location for air cargo, because of the proximity to the overcrowded Atlanta airport where cargo carriers experience significant delays. There are also specific talks to expand passenger air service with Detroit and Dallas as possible new destinations.

The most significant changes could take place in about 10–15 years. It is very likely that the growing capacity problems in Atlanta will require the construction of a new airport in north Georgia. A location close to Chattanooga would provide excellent air service with more direct connections. The current Chattanooga airport could either become a corporate aviation and cargo facility, or be turned into a manufacturing site.

Regional Facts: Airport

- 2 runways, main runway is 7,400 ft long
- Airlines:
 - American Eagle, nonstop to Chicago
 - ASA (Delta Connection), nonstop to Atlanta
 - Comair (Delta Connection), nonstop to Cincinnati
 - Northwest Airlin, nonstop to Memphis
 - US Airways Express, nonstop to Charlotte
- 52 daily departures in total
- General Aviation and private aircraft service provided by Krystal Aviation
- Cargo Airlines:
 - Airborne Express
 - ASA (Delta Connection)
 - Bax Global
 - Chattanooga Air Freight
 - Comair (Delta Connection)
 - Emery Worldwide
 - Federal Express
 - Northwest Airlin
 - Southern Air Freight
 - Tri-State Delivery
 - US Airways
 - United parcel Service (UPS)
- Cargo Space, 15-acre cargo facility expansion plan will increase capacity by 300%

Source: Chattanooga Area Chamber of Commerce

Regional Facts: Location/Major Highways

- **I-75 North** to Knoxville (112 miles)
- **I-75 South** to Atlanta (118 miles)
- **I-24 North** to Nashville (135 miles)
- **I-59 South** to Birmingham (143 miles)
- Hwy 27 South to Rome Ga. (68 miles)
- Hwy 27 North to Oak Ridge (114 miles)
- Hwy 127 North to Crossville (115 mile)
- Hwy 41 West to Winchester (80 miles)
- Hwy 72 West to Huntsville (130 miles)
- More than 12 million people live within 150 miles of Chattanooga
- More than 70 motor freight companies and 70 freight terminals serve the area

Regional Facts: Freight rail service

- CSX Corporation
- Norfolk Southern
- Both offer daily switching
- Switching facilities are available throughout the area
- Chattanooga and Chickamauga Railway Company:
 - a railroad common carrier, provides freight services over two rail lines
 - from Chattanooga to Lyerly, GA
 - from Chattanooga to Hedges, GA
 - a junction settlement carrier interchanging all traffic with the Norfolk Southern at Chattanooga

Regional Facts: Ports

- Tennessee River: three public port terminals within city limits
- Able to handle dry bulk, liquid and dry rail cars, and general freight transfer
- Connecting to ports along the Tennessee, Mississippi, Missouri, and Ohio Rivers and the Gulf of Mexico

Sources: Chattanooga Area Chamber of Commerce, www.cagy.com/cckyrail.htm

Roads. Chattanooga is located at a major Interstate crossroads. The area ranks fifth in the nation for commercial truck traffic. In general, the quality and capacity of the road network in and around Chattanooga meet the demands. Recent construction activities have caused some temporary congestion, but now the capacity will be sufficient for a number of years. The State of Tennessee has made significant investments in the secondary road system as well. Overall, the connections are excellent, even in the rural parts of the area.

There are plans to improve traffic patterns in downtown Chattanooga through realignment of streets and modifications to the one-way system that is currently in place. The initiatives are an attempt to make the downtown area more accessible and easier to navigate in order to attract more business and other activities to downtown locations.

Rail. While not as important as in the past, rail service still plays a role in Chattanooga. Similar to the Interstate network, the city is also a crossroads of major rail lines. Chattanooga has always been a rail center, but freight traffic has declined over the past 20 years. Currently, most of the freight traffic is passing through and there is no passenger service.

Current initiatives attempt to revitalize passenger service and to improve reliability of freight service in order to compete better with the trucking industry. The companies are now beginning to offer one-car service for smaller businesses and to serve more customers. Rail service has to overcome a negative image as slow and unreliable, and also faces an unfair competitive disadvantage. The railroad companies own and need to maintain their own infrastructure, whereas trucking companies benefit from public investments in Interstates and other highways.

River. The river has always had an important function for Chattanooga. There is significant barge traffic even today, and the river is well utilized. However, some of the locks are very old and in need of repair. There is a risk that barge traffic will shut down if no investments are made.

Transportation Infrastructure: Assessment

Overall, the Chattanooga region can be described as “emergent to established” in terms of the transportation infrastructure that serves businesses in the area. Air service is adequate for many customers, and there are initiatives on the way to make improvements. The size of the market and the proximity to one of the largest hubs in the nation limit the number of direct connections that can be offered. The road network is one of Chattanooga’s assets; it serves the community well and constant improvements are being made. Quite the opposite can be said about the railroad. The location and the existing infrastructure would allow a much better use of the resources, but at this point rail service is rather a challenge and not an asset. Improvements that are being discussed are small steps, but they could make freight service especially more attractive for specific types of businesses.

Utilities and Sites: Assets and Challenges

Every business needs utilities (electrical power, natural gas, water and sewer) as well as space — in the form of an industrial site or office space. Capacity and reliability of utilities in the Chattanooga region are adequate; there are sufficient reserves for future expansions. Experts as well as entrepreneurs are satisfied with the current situation and did not identify any problems.

The availability of major industrial sites was limited until the purchase of the former Volunteer Army Ammunition Plant property (now Enterprise South Industrial Park). This site includes 200 acres for a small office park for expanding local businesses. Entrepreneurs and business startups also find office space in the SBDC. In general, experts or entrepreneurs did not see the availability of space as a problem.

Utilities and Sites: Assessment

The current level can be described as “emergent to established.” Availability and quality of sites and utilities are generally good. With the development of the Enterprise South Industrial Park, utilities and sites in the future will become *established*.

Regional Facts: Utilities

- Electricity:
 - Electric Power Board (EPB) of Chattanooga distributes electricity from the TVA
 - EPB offers several electric incentives and rates to qualified businesses locating or expanding in the Chattanooga area (enhanced growth credit, variable price interruptible power, and time-of-day programs)
- Natural Gas:
 - Chattanooga Gas Company is supplied by two interstate pipeline suppliers (Southern National Gas and East Tennessee Natural Gas)
 - One liquefied natural gas storage facility
 - Natural gas incentive programs available
- Water and Wastewater:
 - Tennessee-American Water Company and smaller suppliers
 - Modern filtration plant draws water from the Tennessee River
 - Capacity of 65 million gallons-per-day, current peak demand 52 million gallons-per-day
 - Moccasin Bend Sewage Treatment Plant: capacity of 120 million gallons-per-day, current usage 61 million gallons-per-day
- Utility tax: gas and electric: 6.0%, water: 8.25%

Source: Chattanooga Area Chamber of Commerce

Regional Facts: Telecommunications

- BellSouth is the primary provider
- 11 Central Offices, all digital network
- 2 Northern Telecom DMS 100 digital switches, served by SONET rings
- 9 Lucent 5ESS, served by SONET rings
- available technologies: ISDN, ADSL, SONET, Internet
- Points of Presence (POPs): AT&T, MCI, Sprint
- Digital wireless service
- Five competitive local exchange carriers (CLECs: EBP, KMC Telecom, US LEC, Birch Telecom, BTI)
- More than 40,000 miles of fiber optic cable
- High speed cable modems are available through local cable providers throughout the region

Source: Chattanooga Area Chamber of Commerce

Information Technologies:

Assets and Challenges

Chattanooga is a “tier-three city” in terms of its size and therefore does not receive the same kind of attention and investments as larger cities do. New technologies become available in the area only when they are “not so new” anymore — for example, BellSouth only recently started to offer DSL. The market is too small and there is not enough competition to force the providers to make big investments and to upgrade their equipment rapidly. Cable modems are also relatively new to Chattanooga and the surrounding areas; their availability is still limited. Long-distance fiber-optic lines follow the TVA high-voltage lines and railroads and intersect in Chattanooga. Two companies (EPB is one of them) have built fiber-optic rings

around Chattanooga; both are within a block of each other. While the region is at the crossroads of long-distance lines, businesses in downtown Chattanooga (as well as other parts of the city) do not have fiber-optic connections available to them.

The situation is very different outside Chattanooga. The only types of Internet connections available in small towns and rural areas are dial-up access or cable modems. Cable companies only market to residential customers, they almost completely ignore the business market. DSL is the main high-speed technology for small businesses, but its availability is still very limited (due to technical limitations). The availability of high-speed Internet connections is the main problem in the area; costs are not a major issue. Currently, residents cannot work (telecommute) from their homes; therefore the region is not as attractive to an educated workforce as better-connected areas are. Because of technical limitations, fairly large portions even within the city limits do not have and will never get certain high-speed services.

A number of initiatives and proposals are likely to improve the availability and quality of advanced telecommunications infrastructure in the area:

- Fiber-to-the-home (FTTH) is an initiative to connect individual homes to fiber-optic networks. One line can handle all the communications needs.
- The new UTC engineering building will be connected to a new high-speed connection that passes through Chattanooga and gives UTC access to the new supercomputer at Oak Ridge as well as to computing power in RTP and Atlanta. That will allow the university to attract researchers who need supercomputing power.
- A statewide fiber-optic network is planned in Tennessee. The State can play a part in providing access to schools and local governments. At the local level, the city is considering public investments in fiber-optic networks to attract businesses.

- Some smaller utility companies and cooperatives that currently only operate electrical power lines are considering investing in cable TV and Internet services. If they enter the market, they could bring high-speed access to rural areas and provide a better communications infrastructure. That would stimulate economic development and entrepreneurship through decreased rates.
- “Metronet” is an initiative to bring fiber to downtown and to connect the incubator and nearby business locations to existing fiber-optic networks.
- Wireless access might be the future for the rural counties in Tennessee and north Georgia.

Information Technologies: Assessment

Overall, we assess the availability and quality of the information technology infrastructure in the region as “emergent to established.” Our assessment for the future is *established*. There are significant differences between the city of Chattanooga and the rural parts of the Chattanooga region. Currently, the communications infrastructure can be described as *established* in Chattanooga; it will become *established to accelerated* with UTC’s new high-speed connection and other improvements. The current situation in the rural areas has to be assessed as *fledgling to emergent*. Improvements are not very likely because of the size of the market and technical limitations. With the emergence and increased availability of new technologies (especially wireless), service in rural areas could eventually improve to *emergent*.

Government Policy and Programs

In looking at government policy — at the state and local levels — we examined the extent to which policies reflected in taxes, regulations, or the application of these are size-neutral or encourage new and growing firms. We also inventoried state and local programs to assist new and growing firms.

The informants we contacted included Tennessee’s Department of Economic and Community Development, as well as various local and regional informants who discussed the state policy and programs of both Tennessee and Georgia. We also talked with local elected and staff officials of the City of Chattanooga, Hamilton and Walker Counties, and we collected observations from others (including entrepreneurs) about local government.

State Policy: Assets and Challenges

Two issues need to be separated in our discussion of state policy: the amount of investment targeted to the improvement of essential infrastructure, and the sources of revenues. Those are clearly related, since the level and mix of taxes provide the resources needed for public investment.

In terms of state spending, the State of Tennessee is relatively late to the policy scene with programs to support transitions to the New Economy, but it has several recent initiatives worth noting:

- The Technology Development Corporation, started in 1998 in Oak Ridge, provides networking opportunities for entrepreneurs and manages the \$35 million Tennesseed Fund.
- Tennessee Means Technology initiative includes a resource inventory of companies, capital, entrepreneurship assistance programs, etc.
- Tennessee's New Economy Strategy includes pillars on building an entrepreneurial culture and connecting people with technology opportunities.
- Tennessee's funding for new and expanding industry training (NEIT)⁹ went from \$6 million in 1998 to \$20 million in FY 2002. This compares with \$6 million in North Carolina and Alabama, \$13 million in Virginia, and \$12 million in Georgia. Among the southeastern states, only South Carolina funded NEIT at a higher level, at \$25 million including a package tailored to BMW.
- Tennessee also funded a \$60 million multi-year package of training programs for existing workers, compared with North Carolina's \$18 million.

Unfortunately, in the most recent budget crisis, Tennessee cut funding to the Technology Development Corporation and other programs.

In contrast to the relatively recent focus on Tennessee's part, Georgia's spending on programs to support business development has been relatively high for several years. Its Small Business Development Centers are considered among the best in the nation and were viewed favorably by the entrepreneurs we interviewed. Moreover, based on its Quick Start program, Georgia was ranked number one in the nation on workforce training programs by *Expansion Management* magazine in October 2001. The award was based on a comprehensive interview of site consultants who were asked to evaluate workforce-training programs in terms of value and ease of access for their clients.

On the sources of revenue side, a significant fact is that Tennessee is one of only six states in the U.S. that does not levy a personal or business income tax, though it does assess business franchise and excise taxes. Since most early stage entrepreneurs realize income as individuals, partnerships, or, at most, subchapter S corporations, where income is claimed on personal tax returns, the absence of the personal income tax is a significant asset, as long as the state is able to afford necessary investments from the tax receipts from other sources.

However, Tennessee also has the third highest franchise taxes in the U.S., and relative to Georgia, high sales taxes (state and county sales tax combined: 8.25 percent vs. 7.0 percent). Table 3 compares the tax structures in both states. Depending on the nature of the business, each of these taxes can be very relevant to the bottom line for an entrepreneur.

Tennessee's state tax incentive programs are effectively (though not intentionally) geared to larger businesses because of their thresholds (e.g., 25 jobs). Georgia's Quick Start program is for companies hiring 15 or more employees so it has some bias

9. Cynthia Liston, Regional Technology Strategies, Inc., presentation to North Carolina Economic Developers Association conference, June 2002.

Table 3: State Tax Structures

	<u>Tennessee</u>	<u>Georgia</u>
Sales tax	6.0%	4.0%
Property tax	None	Property tax or ad valorem tax is based on the value of real and personal property subject to the tax. All property, except agricultural, is assessed at 40% of fair market value. Agricultural property is assessed at 30%.
Corporate Excise tax	6.0% on net earnings	6.0% applied to taxable net income from business conducted on property owned in the state.
Franchise tax	Equity Method: \$.25 per \$100 outstanding capital stock, surplus and undivided profits; minimum \$10. Book Value Method: \$25 per \$100 on book value of all real and tangible goods owned or used by the corporation in Tennessee.	A graduated franchise tax from \$10 for \$10,000 in sales to \$5,000 for over \$22,000,000 in sales is applied to foreign and domestic corporations based on net worth including capital stock, treasury stock, paid-in surplus and earned surplus.
Unemployment Compensation tax	Varies from 0.00% to 10% of first \$7,000 of wages paid to each employee in calendar year. New employers set at 2.7% for the first three years.	Varies from 0.00% to 5.4% of the first \$8,500 of wages paid to each employee in calendar year. Rate for new employers set at 2.7% of first \$8,500 in wages for the first three years.
Inventory tax	None on finished goods inventory. Varies based on the type of business.	Any county or municipality may elect, with the approval of the voters, to exempt certain types of tangible personal property. The percentage of exemption can be set at 20, 40, 60, 80 or 100%. Over 60% of Georgia counties and cities have adopted the Freeport Exemption at some level.
Personal Income tax	No income tax on wages.	6.0% income tax on income above certain minimum levels.

Source: Chattanooga Area Chamber of Commerce

against very small firms as well. Organizations such as the Northwest Georgia Joint Development Authority can defer business taxes for several years, allowing an entrepreneur to pay no taxes during their initial quest for profitability, and then pay increasing taxes over time. Some small businesses do complain, however, about the inventory taxes in Georgia.

State Policy: Assessment

Because state policies were mentioned on both sides of the state line as being influential to new business development, and Tennessee and Georgia state policy is perceived very differently, we suggest a different scalar assessment for Tennessee (fledgling) and Georgia (emergent). Tennessee's state policies have only recently reflected any awareness of technology or entrepreneurship issues, and these have yet to be fully implemented or monitored for results, whereas Georgia has a long track record of small business assistance, technology transfer and workforce development programs. If Tennessee programs are fully implemented, it could approach a more established level.

Local Policy: Assets and Challenges

The Chattanooga region as we defined it includes the City of Chattanooga, Hamilton County, several other counties in Tennessee and three urban-adjacent rural counties in Georgia, including Walker. Our interviews on local policy were directly about the City of Chattanooga, Hamilton County, and Walker County only. If the other Tennessee or Georgia counties, or the municipalities within them, are different in their business policies, then the findings below will not apply. We are therefore breaking out the assessment by each jurisdiction to which it applies.

The metropolitan area of Chattanooga is clearly the economic engine of the region. Both Hamilton County and the City of Chattanooga have been strong supporters of business development in general, though their active interest in entrepreneurship is relatively new.

Hamilton County designated a senior staff person in 2001 to help with the current regional entrepreneurship project¹⁰ in collaboration with the Chattanooga Area Chamber of Commerce. The county is also an important partner to the city in several economic development ventures, including:

- Funding the economic development activities for the Chattanooga Area Chamber of Commerce (\$400,000/year each from county and city);
- Developing a one-stop shop (joint city/county) for developers (permitting, architectural guidelines, etc.);
- Sponsoring a minority contracting partnership among Associated General Contractors, the local minority contractors association, Herman Russell Co., the African-American Chamber, and the RiverCity Company to develop apprenticeships and sustainable minority enterprises connected to private wealth, not just government contracts; and

10. Sponsored initially by a grant from the Kauffman Center for Entrepreneurial Leadership and continued with the authors, whose office at the University of North Carolina is part of a national network of entrepreneurship research partners.

- Jointly purchasing and planning for the 7,000-acre former Volunteer Army Ammunition Plant site, recently named the Enterprise South Industrial Park, as a supreme site for a national manufacturing project, also to include a small office park for expanding local businesses.

The county executive meets regularly with the mayor and senior leadership of the Chamber of Commerce to develop joint efforts on economic development. Some of the other elected officials are not perceived to be as forward-looking about the new economy as their leadership. Hamilton County has done an urban growth plan with intended land uses countywide. The plan is well known, and considered binding, by businesses who want to evaluate where to invest.

In the City of Chattanooga, a referendum in 1996 helped pass a sales tax increment to support economic development; this generates \$8.8 million annually, most of which has been used for the nationally recognized downtown development in the riverfront and convention center areas. To date, however, the redevelopment of downtown has not directly helped the adjacent inner-city neighborhoods. The city's status as one of 40 federally designated "urban renewal communities" does allow tax credits to businesses locating or hiring in certain areas.¹¹ And there is a new initiative underway in city council District 9 to help foster business development, including among minority entrepreneurs. With support from the city, especially the councilman from District 9, and funding from two local hospitals, minority consultants with expertise in finance, community development, and business mentoring are working with citizens and businesses in this district to develop the city's first neighborhood-level economic development plan. They will help the area form a business association and will be asked by the city to develop a training curriculum for microenterprise development.

Currently, five of the city's nine city council members are business people who understand and support business development. Its mayor, Bob Corker, is both an entrepreneur himself and a former financial officer for the state. According to some local businesspersons, he understands wealth creation and the importance of a pro-business climate. Under his leadership as mayor, since he came into office in early 2001, the city has:

- Created the Chattanooga Opportunity Fund (into which the city invested \$1.5M) for minority and smaller startups;
- Helped establish a local office (Southeast Community Capital) of a state venture fund formerly called Tech 2020, for which the city pays part of the overhead;
- Convened a council of local technology CEOs;
- Helped create MetroNet, a new telecom utility, that will sell Tier 1 Internet service via gig-E connectivity to data-intensive businesses at co-op rates (60 miles of this loop in the central business district is already completed);
- Announced plans to fund a master plan for a bike-friendly community;
- Passed tax incentives to encourage more residential development downtown;

11. Announced by the U.S. Dept. of Housing and Urban Development in January 2001.

- Held meetings for local businesses interested in contracting with ORNL or Marshall Space Center, each of which were well attended;
- Endorsed the District 9 project to foster entrepreneurship in low-wealth urban areas; and
- Begun plans to develop a microloan program with two inner-city credit unions.

Some of the concerns we heard about city policy were that its stormwater regulations sometimes “give businesses heartburn,” and that the mayor can move so quickly and unilaterally that some of the necessary rest of the team is not on board with him.

It is important to note, however, that most of our informants viewed the degree and quality of collaboration among Hamilton County, the City of Chattanooga, and the Chamber of Commerce as “much better and improving.” The current period is

viewed as an important window of opportunity for a confluence of local policy on economic development.

Our coverage of local policy outside the metro core is less complete. Walker County was our primary focus in Georgia because of the active involvement of the Walker County Chamber in the regional entrepreneurship effort with the Chattanooga Area Chamber of Commerce and Hamilton County. Walker County has put sewer where it wants growth, and has a grant to develop green space along waterways and entranceways. It also has a business plan for an 8,000-acre equestrian complex to include polo, soccer, golf, etc. Water has long been an issue in that part of Georgia, and Walker County needs more water distribution lines. The county has only one county commissioner, who actively supports economic development, so new local policy initiatives are relatively simple to pass. The local understanding of and focus on entrepreneurship is rudimentary, however, as the economy is still primarily based on manufacturing.

More generally, it was mentioned to us that the dry counties in the region might struggle with entrepreneurship because they are not attractive to restaurants or to business executives. An entrepreneur we interviewed bemoaned the local regulations

Regional Facts: Incentives

- Financing:
 - Industrial development bonds
 - Minority Enterprises/Small Business Investment
 - Small Business Administration (SBA) 7(a) Guaranty
 - Small Business Administration LowDoc
 - SBA 504 Certified Development Company Program
 - Southeast Tennessee Local Development Corporation (SEIDA)
 - Tennessee Valley Authority Economic Development Loans
 - Valley Investment Fund
- State Programs:
 - Industrial Training Service (ITS)
 - Tennessee Job Skills
 - Tennessee Industrial Highway Program
 - Tennessee Industrial Infrastructure Program
- Tax Credits:
 - Jobs Tax Credit
 - Machinery and Equipment Tax Credit
 - Tennessee Sales Tax Credit
 - Work Opportunities
- Other Programs:
 - Community Development Block Grant Program
 - Electric Power Board
 - Expedited Permitting
 - Foreign Trade Zone
 - The Southeast Tennessee Career Center System

Source: Chattanooga Area Chamber of Commerce

in a Georgia municipality that require the use of local maintenance contractors, who were more expensive yet less capable than competing labor.

Local Policy: Assessment

We assess the local policy on entrepreneurship to be emergent in Chattanooga and Hamilton County and more fledgling in Walker County. Many of our informants credited the mayor of Chattanooga with elevating the local awareness and understanding of entrepreneurship in the past year and several also acknowledged the county executive. As leadership from both the city and Hamilton County focuses more explicitly on entrepreneurship as an important economic development strategy, as they and the Chattanooga Area Chamber of Commerce have clearly begun to do, the surrounding counties in both Tennessee and Georgia are likely to give it more attention as well.

Regional Leadership and Institutions

In considering regional leadership and institutions, we assess how various actors and organizations, both formal and informal, facilitate regional development and the approaches they take in doing so. Leaders can come from all parts of the economy and community (e.g., grassroots community leaders, entrepreneurs, established company executives, mayors, and economic development officers).

The people we interviewed represent regional organizations in both Tennessee and Georgia, chambers of commerce, and community foundations. In addition, all of our informants with expertise on the other topics as well as the entrepreneurs commented on regional leadership as well.

Leadership: Assets and Challenges

It may be important to distinguish here between leadership within the region on issues related to fostering entrepreneurship, which is quite strong in some organizations, and leadership that thinks regionally about these issues, which is less prominent.

The Chattanooga region is blessed with a history of philanthropy from a prior generation of prominent entrepreneurs. There is great wealth among several local families and foundations that support whatever local initiatives they decide need doing. The redevelopment of the riverfront is the most salient such success story. The area also has an impressive recent history (over the last 20 years) of collaborative community activism and volunteerism among citizens. As one informant described it, "People here have heart and soul, and the willingness to give time and energy to make the place better."

The combination of citizen commitment and substantial local wealth is rare and a clear asset for entrepreneurial development or whatever else becomes a focused priority. The strong local nonprofits with their own governance through outside boards — including Chattanooga Neighborhood Enterprise, the RiverCity Company, Community Impact Fund, Galaxy Health Alliance — have provided and will continue to provide continuity of leadership across elected administrations. Some of our informants highlighted the importance of the strong leadership of Chattanooga Neighbor-

hood Enterprise and the Community Impact Fund for neighborhood empowerment and renovation. These help address the economic opportunity for disadvantaged citizens as a way to elevate the economy.

The current mayor's understanding of wealth creation, his articulate and assertive style, and his ability to use the podium to elevate citizen awareness and to use his business connections to mobilize local resources are all assets for regional leadership on entrepreneurship. There are very capable, national-caliber staffs in both the mayor's office and the chamber of commerce. One commonly voiced concern is that the mayor will get so far out in front that nobody else is with him. Another is that so far the mayor has not reached out to the Georgia counties, thereby providing leadership to the whole economic region.

The type of leadership required for the New Economy, partnering government, business and education, is just coming together in Chattanooga. There are fairly weak linkages around economic development among public, private, education and non-profit leaders and institutions, and a limited leadership focus on entrepreneurship until recently. Several entrepreneurs feel under-served and under-recognized, and some may even move their businesses away. UTC, the Chamber, the mayor and county executive are all working harder together now.

Another weakness is that there has been very little private business engagement in economic development in Chattanooga, except maybe in the health cluster. A lot of the private leadership left with the corporate headquarters. Some believe that the strong local foundations have made it easier for businesses to be passive. One comment was "There are few risk takers and visionaries among our business leaders," which may be a challenge for a greater focus on entrepreneurship.

Some also mentioned the need to create a new generation of leadership with a different model than the Rotary Club, especially if entrepreneurs are expected to participate in it. A couple of our informants pointed out an apparent age discrimination — "you need to be 45 or 50 to be accepted as a leader here" — and that there is a small pool of people on every board: "I see the same faces a lot, and we don't go deep enough into organizations to involve people."

There is a limited sense of regional identity and cooperation of Chattanooga and Hamilton County with the surrounding counties. On the plus side, the Southeast Tennessee Development District's board includes county executives from 10 counties, who work well together. An official from the district said, "We see opportunities for entrepreneurship in all our (TN) counties. Every community has someone who is an entrepreneur, who can change the fabric of life there."

On the Georgia side, the Joint Development Authority is highly valued by the North Georgia counties it serves (Catoosa, Dade, and Walker). The Georgia Center, run by Georgia Power, has a good database on sites and buildings for the whole state.

However, there is a weak sense of leadership across the state line, by either the mayor of Chattanooga or others who could reach across to engage the Georgia portion. A few organizations do bridge these jurisdictions and their work could be built upon to strengthen the identity of this two-state region. The TVA-initiated Southeast Industrial Development Association (SEIDA) focuses much more broadly now than

just industry recruitment. It and the Southeast Tennessee Development District sponsor a women's small business counseling center, focused on underserved rural areas in TN, NC and GA. The electric co-ops are entrepreneurial and their territory crosses state lines. The Chattanooga Times Free Press is now a regional newspaper that includes coverage of Georgia.

Leadership: Assessment

Our assessment is that the region is emergent in terms of the visible leadership within the region, and with certain partnerships of business, education and government around specific projects. The region is still fledgling in terms of behaving like a region across the state line and with a cross-sectoral vision uniting business, education and government.

Quality of Place

The quality of place in a region is determined by both the natural and built environment. Natural amenities such as mountains, rivers, and lakes create opportunities for recreation and enjoyment that contribute to an overall high quality of place. Conversely, the extent to which a region's natural amenities are negatively affected by environmental degradation reduces quality of place. The built environment, including the arts, culture and development of the region, also contributes to a region being a good place in which to live, work and play. Quality of place is considered to be an important factor in attracting and keeping entrepreneurs who want to live and run their businesses in the same high quality place, particularly for knowledge-intensive businesses that have people as their primary asset.

We selected experts in a number of different areas to provide a picture of quality of place in the Chattanooga region, including the leader of an arts organization, a community volunteer, a newspaper editor, the head of a local nonprofit development organization, the owner of a key tourist attraction, and an air quality expert. These individuals approached quality of place from different perspectives and, as a result, provided a relatively comprehensive picture of the region. These experts often framed their comments by referring to whether the Chattanooga region was a good place to live, to play, and to work or run a business.

As background to the discussion of quality of place it is important to consider the history of the region in terms of environmental quality. Quality of place in Chattanooga today is quite different from that in the 1960s. At that time, Chattanooga's air quality was considered to be the worst in the nation. However, local leadership to develop the Chattanooga Air Pollution Control Ordinance, coupled with the en-

Regional Facts: Living in Chattanooga

- Cost of Living Index (Q4 2001): 94.8
- Average home sale price for a 3 bedroom house: \$110,915
- 49 parks with 1,266 acres in total
- 11 public and 6 private golf courses
- 6 country clubs
- 18 community centers
- 3 area rivers
- More than 40 area attractions

Source: Chattanooga Area Chamber of Commerce

forcement of tighter federal air pollution standards, improved the quality of the natural environment in the region. These tighter environmental regulations coincided with the decline in the region's manufacturing base as local facilities were closed in favor of lower cost offshore locations or because of global competition. Several experts noted that some vocal community residents placed the blame for plant closings on government regulations rather than on the changing global economy, creating some ill will within the region. As a result of these collective changes, Chattanooga is a cleaner, more attractive city with a different economic base than in the past.

A Place to Live: Assets and Challenges

The region's natural amenities, such as mountains, the river, hiking/biking trails, white water rafting, and national parks, are assets that make the Chattanooga region a good place to live. Specific aspects of the built environment that contribute to a high quality of life include the arts and cultural activities, residential diversity, safety, proximity to larger urban areas (Atlanta and Nashville), low cost of living and limited traffic. In addition, most experts mentioned that the community is small enough that individuals can make a difference, whether through involvement in politics, schools, the arts, or other aspects of community life. A specific example was the community involvement process that was institutionalized as part of riverfront development.

While there were few negatives offered regarding Chattanooga as a place to live, they present difficult challenges for the region. The poor quality of the public school system was emphasized by all of the experts. This issue is complicated by the number of high quality private schools in Chattanooga and the lack of state support for public education overall. In addition to problems in the public schools, issues of class and racial inequality were raised as well. While the experts noted that Chattanooga has come a long way on these latter issues, inequalities remain that make the region less attractive as a place for minorities to live.

A Place to Play: Assets and Challenges

While the natural amenities have always made the region attractive for recreation and leisure, the development of the riverfront, particularly the Tennessee Aquarium, has created new assets for residents and nonresidents alike. Cultural events along the river, such as Riverbend, serve to bring people into the region and to the downtown area. The hiking trails and riverfront parks have increased access to the river and enhanced its recreational value. All of these improvements to the natural environment increase tourism in the region and provide an opportunity to showcase Chattanooga's quality of life. While no significant challenges were described, the next phase of riverfront development should include consideration of how to preserve the quality and character of Chattanooga's natural and built assets.

A Place to Work: Assets and Challenges

It is relatively easy to describe the Chattanooga region as a good place to live and play. It is harder to describe it as a good place to work or run a business. Experts cited the

good fiber optics capability and the growing recognition and support for entrepreneurs as two assets for the region. However, the list of challenges was significant.¹² One challenge is the poor quality of the region's workforce, particularly in terms of finding higher skilled workers. The importance of low skilled manufacturing in the region has contributed to a lack of workers who have the skills needed for high tech jobs. And, the best and the brightest high school students continue to leave the region because opportunities at home are limited. The poor quality of public education also contributes to a skills gap. High drop out rates (over 50 percent in some north Georgia counties), limited vocational-technical capacity at the high school level, and lack of state support contribute to a situation where the workforce lacks even basic skills.

In addition to workforce issues, several other factors create a less desirable business climate in the region. Lack of access to capital is an obstacle to the creation of new businesses in the region. Entrepreneurs and businesses that are not connected to the local elite find it more difficult to gain access to capital and support. Poor air service and limited flat land for development make it harder to do business in the region. While local government in Chattanooga is trying to address some of the constraints facing entrepreneurs and small businesses, local government in north Georgia is not perceived as being focused on economic development and helping area businesses. Together these issues present challenges to entrepreneurs and businesses that want to make Chattanooga home.

Quality of Place: Assessment

The Chattanooga region can be described as *established* in terms of its quality as a place to live and play. Many of its assets are natural endowments unique to the region. Others are the product of community efforts to overcome challenges, such as the air pollution problems in the 1960s and the decline in manufacturing in the 1980s. In both cases, the value of regional amenities was improved by the community's efforts. The Chattanooga region has performed better than many communities because of its willingness to recognize and act to improve these quality of life amenities.

The Chattanooga region is *emergent* in terms of its quality as a place to work and run a business. The region is taking steps already to address a number of specific issues, such as access to capital. However, workforce development and the problems associated with public education are issues that require long-term solutions and they will not be remedied in the short term.

12. Many of these challenges are discussed in depth in other parts of this report and thus are not addressed in detail here.

SECTION IV

Overall Summary And Recommendations

Summary of the Chattanooga Region as an Entrepreneurial Economy

Table 4 is a histogram summarizing our assessments of the current and imminent status of the region on each of the eight dimensions of entrepreneurship.

Overall, our assessment of the Chattanooga region is that it is currently fledgling and working toward emergent in its entrepreneurship profile. In many of the specific areas such as quality of life and regional leadership, there are tremendous assets to build upon, and there are good financial capital development programs underway. Perhaps the most problematic area for launching the region ahead as a locus of entrepreneurship is workforce development and education, which will require systematic thinking and sustained investment over several years to overcome some daunting numbers that impede high-technology growth. In addition, we believe the region's economic engine in the core does not behave enough like a region, with the rural counties in Tennessee or the Georgia counties, to compete as effectively with other regions as it could by aggregating and coordinating its resources, leadership, and strategy at a regional level.

We should note that there is a great deal of diversity within the Chattanooga region that is obscured by this overall assessment. There are pockets of innovation that can be identified and used as models for other parts of the region. For example, the community banks in north Georgia are active small business lenders, creating a potentially supportive financial environment for local entrepreneurs. The Business Development Center actively supports entrepreneurs in Chattanooga. An initial step in creating an entrepreneurship development strategy for the whole region is to catalog those resources within the region that can serve as the building blocks for this strategy.

Draft Inventory of Entrepreneurship Resources

Table 5 represents the beginning of a regional inventory of entrepreneurship resources, and it includes public, nonprofit and private resource providers. This is a draft, based on our interviews in the region. It is not intended to represent a comprehensive list of

available services, but to create a template for completion by regional leaders and service providers who know what is available and from whom. The value of such an inventory is to communicate both to the various providers what else is available in parallel or perhaps even in conflict to their own, and to market to the entrepreneurs and others who seek various services and do not think there is a good clearinghouse for this type of information.

The Chattanooga Area Chamber of Commerce has a listing of all the workforce development programs in the immediate area; this is a good start and should be expanded into a more tabular and/or searchable format as well as to include the broader region.

Recommended Next Steps

In order to review the major findings of this assessment with regional leaders before finalizing the report, OED made a presentation to about 60 people at the Marriott Convention Center in Chattanooga on May 23, 2002, and then facilitated a discussion to generate priority action items to begin to implement an entrepreneurship development strategy.

Table 4: Overall Assessment of the Chattanooga Region as an Entrepreneurial Economy

Dimensions of Economic Competitiveness	Fledgling	Emergent	Established	Accelerated
Workforce, Education and Training	Yellow	Yellow		
Financial Capital: Debt	Yellow	Yellow		
Financial Capital: Equity	Yellow	Yellow	Red	
R&D/Technology Commercialization	Yellow	Red		
Commercial/Professional Support	Yellow	Yellow	Red	
Physical Infrastructure	Yellow	Yellow	Red	
Government Policy: State - Tennessee	Yellow	Red	Red	
Government Policy: State - Georgia	Yellow	Yellow	Red	
Government Policy: Local	Yellow	Yellow	Red	
Regional Leadership	Yellow	Red		
Quality of Place: to Live and Play	Yellow	Yellow	Yellow	
Quality of Place: to Work	Yellow	Yellow		
OVERALL	Yellow	Yellow	Red	

current
 if existing plans get implemented

Table 5: Starting Inventory* of Entrepreneurship Resources in the Chattanooga Region

Type of resource	Public providers	Non-profit providers	Private providers
LEARNING			
Entrepreneurship degree programs	UTC concentration within MBA		
Small business/ entrepreneurship classes	NWTCC: online CSTCC: concentration Bradley County high school	NW JDA: seminar for women entrepreneurs in NW Georgia	
Internships with entrepreneurs	UTC accounting program places students in local businesses		entrepreneurs volunteer in middle schools
Mentoring programs		African-American Chamber	
Support for public education		Public Education Foundation	
ASSISTANCE			
business plan development	Business Development Center; Women's Business Development Center; Georgia SBDCs	African-American Chamber; SCORE (TN)	
business management assistance	Univ of GA: one-on-one counseling one day per week at NW JDA office; SE TN Dev Dist; Business and Industry Division of Chattanooga State	SCORE (TN and GA)	
technical process assistance	TN Industrial Services reps		
marketing assistance			
export promotion			
contracting	ORNL info session in March 2002; minority contracting project	African-American Chamber	
technology commercialization	UTC; SE TN Development District		
permit and regulatory assistance			

Table 5 continues next page >

*Note: This is a template, which currently includes only information that UNC gathered. It is intended to be expanded upon and updated by regional leaders.

Table 5: Starting Inventory* of Entrepreneurship Resources in the Chattanooga Region

Type of resource	Public providers	Non-profit providers	Private providers
FINANCING			
financing information			
loans	SE Local Dev Corp: mezzanine capital	SE Community Capital collaboration	
equity capital investments			angel network just organizing
audience with financiers			Miller & Martin; DeCosimo
PROFESSIONAL SERVICES			
legal services, including patenting	SBDC resource center (limited)		Miller & Martin; DeCosimo
accounting services			Hazlett, Lewis & Bieter
incubator space and shared services	Business Development Center		
INFORMATIONAL NETWORKS			
information clearinghouse	Development Resource Center (one stop shop for developers)		
networking with local corporations	council of technology CEOs in works		
publicity for local entrepreneurs			

*Note: This is a template, which currently includes only information that UNC gathered. It is intended to be expanded upon and updated by regional leaders.

A few of the priority action items raised at the meeting on May 23rd were:

- Better coverage and publicity for existing entrepreneurs and entrepreneurial services in the region;
- An inventory and better coordination and communications among existing service providers for entrepreneurs;
- Strategy for state and federal linkages to support regional efforts; and
- Strategy for improving public education to support entrepreneurship at all levels, including vocational training.

Based on these local priorities, as well as the findings from the assessment, we offer the following recommendations for next steps:

- Complete the regional entrepreneurship resource inventory, by circulating it among all the providers of related support services, and then post and maintain it on an interactive website that all can link to and update. Once it is complete it should be distributed and publicized by all of the providers. Convene periodic meetings of the principals of these organizations to work on coordination of similar services.
- Create a regional steering committee to support entrepreneurship in the Chattanooga region, which would be a volunteer advisory board endorsed by all the chambers and local governments in the region.
- Create a subcommittee of this steering committee to develop specific recommendations for how to focus education, training and workforce development programs to foster a) entrepreneurial understanding and learning at all levels and b) skills development, including vocational education, needed to create a workforce that will appeal to high-growth entrepreneurs.
- Convene a regional advisory committee of entrepreneurs to react to and inform regional policy to foster entrepreneurship. They should also review the resource inventory before it is complete. Include a mix of business owners from various types of business and parts of the region. Limit the length and number of their meetings to keep them very focused. For example, they could meet quarterly with the regional entrepreneurship steering committee.
- Compile an archive of regional entrepreneurship success stories, with the help of resource providers and entrepreneurs. Work with existing and/or create new media outlets to publicize these on some regular basis, such as Entrepreneur of the Month, and to communicate realistic expectations about risk, growth, and resource needs.
- Develop an inventory of specific technologies, technology developers and needs within businesses, universities and other institutions in the region (to include Georgia counties).
- Use a broad-based group of regional leaders to develop a regional action plan for entrepreneurial development for the region that is consistent with other economic development strategy and vision. Roll out the plan to the community.

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APPENDIX A:

Approach and Protocols for this Assessment

This assessment was conducted as part of a national project on entrepreneurship initiated by the KCEL. In 2001, KCEL developed a Regional Entrepreneurship Framework based on the GEM study and partnered with UNC's Office of Economic Development and several other university partners from around the United States to explore entrepreneurial potential and dynamics in several U.S. labor market areas (LMAs). Using the eight dimensions discussed above, they developed interview protocols that the research partners reviewed and pretested.

The LMAs were defined by KCEL, based to a degree on 1990 Census data on travel to work and commuting zones. The labor market area for the Chattanooga region was delineated to include the Tennessee counties (from north to south) of Fentress, Cumberland, Bledsoe, Rhea, Sequatchie, Grundy, Hamilton, and Bradley, and the Georgia counties of Dade, Walker, and Catoosa. After conversations with leaders in both Chattanooga and in Fentress and Cumberland Counties, we determined that these two counties are both economically and politically tied to the Knoxville region, not Chattanooga, so we focused our interviews and report accordingly. Leaders on both sides of the state line do view the three Georgia counties as part of the Chattanooga economic region.

The research design called for at least 40 face-to-face interviews in each region: four with experts on each of the eight dimensions plus eight entrepreneurs to provide the demand-side perspective. To identify candidate informants, we first conducted some basic reconnaissance about the organizations and dynamics at work in the region within each of the eight dimensions. Table A-1 summarizes what we looked for in our reconnaissance effort, which also serves as the beginning of a regional resource inventory. Our information sources included a variety of websites and publications available electronically, as well as the insights of our four engagement partners in the region:

- Jeannine Alday, Hamilton County
- Maxine Bailey, community development consultant
- Jeff Olingy, Chattanooga Area Chamber of Commerce
- Cynthia Simonds, Walker County Chamber of Commerce

We conducted three visits to the Chattanooga region during this phase. The *first visit*, in December 2001, was a brief reconnaissance trip by the principal investigator (Luger) and a senior associate (Stewart) to meet with each of the four engagement partners in the region. They helped us establish local context and background, set the stage for the intensive fieldwork, and identify potential interviewees to contact.

In January 2002, OED conducted local pretests of interview questions with four types of informants in the Research Triangle region, in parallel with several other university research partners, to gauge the length and flow of the interviews.

Table A-1: Reconnaissance to Help Identify Expert Informants and Prepare for Fieldwork

- **Workforce, education, training:** What higher education organizations operate within this labor market area (LMA)? Are there vocational or other training programs at the secondary school level? What public programs for training or workforce development exist?
 - **Financial capital:** What banking institutions operate here? What private venture capital institutions operate here? What public business loan programs operate here? What public venture capital programs operate here? What non-profit business loan programs operate here? What non-profit venture capital programs operate here?
 - **R&D, tech commercialization:** What university-based R&D or tech commercialization activities occur in this area? What public R&D or tech commercialization activities occur in this area? Are there public or non-profit programs designed to encourage these activities? What private sector R&D or tech commercialization activities occur in this area?
 - **Commercial, professional support infrastructure:** What higher education institutions provide business development programs or assistance? What private sector organizations provide business development programs or assistance? What non-profit organizations provide business development programs or assistance?
 - **Physical, advanced communications infrastructure:** What government entities are responsible for overseeing the development of the region's physical infrastructure (roads, airports, etc.)? What government entities are responsible for overseeing the development of the region's telecommunications infrastructure? What private sector firms provide telecommunications service and technology in the region?
 - **Government policies, programs:** What government entity is responsible for overseeing economic development activities? What government entity oversees business taxation and regulatory policies? What government entity is most involved in encouraging activities that would benefit entrepreneurs?
 - **Regional leadership, institutions:** Is there a regional governing body in this LMA? Are there regional development institutions? Are there regional voluntary organizations? Are there any partnerships among local governments within this region related to economic development or entrepreneurial activities?
 - **Quality of place:** What public and private organizations are engaged in environmental or other quality of life (crime reduction, school improvement, recreation, cultural activities, etc.) issues in the LMA? What non-profit organizations are engaged in environmental or other quality of life issues?
-

We all provided comments to KCEL, which provided final versions for our use on site. The final interview questions are included at the end of this appendix.

We used the guidelines provided by KCEL, the recommendations of our engagement partners, and our own best judgment based on the reconnaissance to select our four or more informants per dimension as well as a variety of entrepreneurs. The entrepreneurs included only people in business for eight years or fewer; some firms were early stage and some were older but expanding rapidly, and they included a variety of businesses from candy to nanofibers.

We sent letters about the project to each of the selected informants, and then the OED senior research associates (Markley, Stewart, Traxler) called to schedule appointments during a week in March 2002. In general, we divided up the experts by topic area so that, for example, one person spoke to all the financial capital informants. In cases where the targeted person was not available, he or she either helped us identify a senior associate from the same organization or we went to an alternate from our list. Then we sent out another letter thanking those who agreed to participate and confirming the time and place for the appointment. Participants were told to expect a 90-minute meeting.

The *second visit* to the Chattanooga region involved three senior research associates on site together for 4.5 days in March 2002 to conduct the in-person interviews. A list of the persons we interviewed is attached. We each had a rental car and a separate set of appointments. The advantage of having all three of us on site concurrently was that we could convene at the end of the day and compare notes, as well as back each other up for last-minute scheduling changes. We each audiotaped the interviews, where authorized by the participant, and took extensive notes that were written up immediately following the interview.

After returning from the fieldwork, we shared our interview notes with each other and the principal investigator and jointly developed common themes and findings. We planned a briefing and discussion forum in the Chattanooga region in late May 2002 — our *third visit* — to present key findings and solicit local input on priority next steps, and then completed the final report.

Expert Interview Guide: The General Questions

1. In what ways is entrepreneurship important to the development of your region? Explain. (a) What specific benefits, if any, does your region derive from entrepreneurs and entrepreneurship?
2. Currently, what are the greatest opportunities (2-3) for increasing entrepreneurship (e.g., new businesses created) in your region? (a) What is unique about how your region has developed over time that makes these opportunities relevant for today? (b) What are your regional leaders (e.g., business executives, government officials, or leading educators) doing today, if anything, to take advantage of these opportunities?
3. Currently, what are the greatest challenges (2-3) to increasing entrepreneurship (e.g., new businesses created) in your region? (a) What is unique about how your region has developed over time that makes these challenges relevant for today? (b) What are your regional leaders doing today, if anything, to overcome these challenges?
4. What specific risks, if any, would your region face if it made entrepreneurship a more important part of its core strategy for economic development? [*Note to interviewer: This question may have been addressed in the respondent's answers to the previous questions.*]

Table A-2: Interviewees

Name	Title	Organization	Location	Topic area
Jeannine Alday	Chief of Staff to the County Executive	Hamilton County	Chattanooga	Government Policies and Programs
Tim Andrews	Executive Director, Business Development Center	Chattanooga Chamber of Commerce	Chattanooga	Commercial and Professional Support Infrastructure
Hicks Armor	President	Galaxy Health Alliance	Chattanooga	Research and Development
Mary Bach	Staffing & Recruiting Manager	TVA	Chattanooga	Workforce, Education, and Training
Barry Bennett	Executive Director	Chattanooga Hamilton Co Regional Planning Agency	Chattanooga	Physical and Advanced Communications Infrastructure
Jim Bowen	Vice President	Riverty Company	Chattanooga	Quality of Place
Sheila Boyington	President	Thinking Media	Hixson	Commercial and Professional Support Infrastructure
Kingsley Brock	Deputy Commissioner	TN Dept. of Economic & Community Development	Nashville	Regional Leadership and Institutions
Bill Chapin	President	See Rock City, Inc.	Lookout Mountain	Quality of Place
Pete Cooper	President	Community Foundation of Greater Chattanooga, Inc.	Chattanooga	Regional Leadership and Institutions
Bob Corker	Mayor	City of Chattanooga	Chattanooga	Government Policies and Programs
John Coxwell	Managing Member	Hazlett, Lewis & Bieter, PLLC	Chattanooga	Commercial and Professional Support Infrastructure
Kenneth Currie	Professor, Industrial & Manufacturing Engineering	Tennessee Technical University	Chattanooga	Commercial and Professional Support Infrastructure
Harold DePriest	Director	Electric Power Board	Cookeville	R&D
Jayesh Doshi	CEO/President	eSpin Technologies, Inc.	Chattanooga	Physical and Advanced Communications Infrastructure
Richard Ector	President	Tennessee Valley Infrastructure Group	Chattanooga	Entrepreneurs
Bill Farris	Sr. Vice President	USXpress	Chattanooga	Commercial and Professional Support Infrastructure
Sherrie Gilchrist	President & CEO	African-American Chamber of Commerce	Chattanooga	Physical and Advanced Communications Infrastructure
Tom Griscom	Executive Editor	Chattanooga Times Free Press	Chattanooga	Regional Leadership and Institutions
Joe Guthrie	Director	Southeast Local Development District	Chattanooga	Quality of Place
Yusef Hakeem	District 9 Representative	Chattanooga City Council	Chattanooga	Regional Leadership and Institutions
Bebe Heiskell	County Commissioner	Walker County	Chattanooga	Government Policies and Programs
Jim Hill	Community Volunteer		Lafayette	Government Policies and Programs
Al Hutchison	Vice President, Economic Development	Northwestern Technical College	Signal Mountain	Quality of Place
Joe Johnson	Owner	Johnson Waterhouse Public Relations	Rock Spring	Workforce, Education, and Training
Kathy Johnson	Executive Director	NW Georgia Joint Development Authority	Chattanooga	Entrepreneurs
Carolyn Jones	President	C.J. Enterprises	Rock Spring	Regional Leadership and Institutions
David Jones	Lending Director	Southeast Local Development Corp.	Chattanooga	Commercial and Professional Support Infrastructure
Charles Kimbrough	Vice President of Operations & Business Development	Regional Planning Agency	Chattanooga	Financial Capital
Steve Leach	Department Coordinator	WIA	Chattanooga	Commercial and Professional Support Infrastructure
Wanza Lee	Director	Andalan Confections	Ft. Oglethorpe	Workforce, Education, and Training
Anita Loizeaux	President	UT Center for Industrial Services	Chattanooga	Entrepreneurs
Paul Middlebrooks	Field Representative	Lyndhurst Foundation	Chattanooga	R&D
Jack Murrain	President	Chattanooga Chamber of Commerce	Chattanooga	Regional Leadership and Institutions
Jeff Olingy	Director of Strategic Planning	TRACE Program	Chattanooga	Commercial and Professional Support Infrastructure
Setina Pouengue	Chief Manager	Hamilton Co. Dept. of Education	Chattanooga	Workforce, Education, and Training
Jesse Register	Superintendent	Chattanooga Hamilton Co. Air Pollution Control Bureau	Chattanooga	Quality of Place
Errol Reiksten	Engineering Manager	Allied Arts of Greater Chattanooga	Chattanooga	Quality of Place
Mollie Sasse	Executive Director	Miller & Martin LLP	Chattanooga	Quality of Place
Hugh Sharber	Partner	Walker County Chamber of Commerce	Chattanooga	Commercial and Professional Support Infrastructure
Cynthia Simonds	President	UT-Chattanooga	Chattanooga	Regional Leadership and Institutions
William Stacy	Chancellor	Gateway Bank & Trust	Chattanooga	Research and Development
Boyd Steele	Executive Vice President	Chattanooga Metro Community College	Chattanooga	Financial Capital
Elaine Swafford	Vice President, Economic and Community Development	City of Chattanooga	Chattanooga	Workforce, Education, and Training
Mark Van Loh	President	Tech 2020 Finance Corp.	Chattanooga	Physical and Advanced Communications Infrastructure
Amy Walker Cherry	Business & Industry Liaison	Chattanooga Chamber of Commerce	Chattanooga	Government Policies and Programs
Don Welby	President	Worham Laboratories, Inc.	Oak Ridge	Financial Capital
Tom Edd Wilson	President & CEO		Chattanooga	Financial Capital
Leon Wortham	Owner		Chattanooga	Entrepreneurs



Workforce, Education and Training

The extent to which the region’s workforce development, education and training institutions cultivate a labor force that is capable of starting, managing and/or working for entrepreneurial companies.

A. Workforce

1. Describe the overall quality of your region’s workforce. Is the workforce generally well prepared to meet the needs of entrepreneurial businesses in your region? Why or why not?
2. Is the workforce in your region an asset for attracting entrepreneurs and entrepreneurial/innovative businesses? Why or why not?
3. Describe specific workforce skill shortages that exist in your region that may keep entrepreneurs from founding new businesses or growing existing businesses?
4. Describe the ways in which employers in your region communicate their needs for specific skills to educational institutions and training organizations.
5. Describe the greatest challenges to improving workforce readiness and availability in your region (e.g., childcare, cost of housing and public transportation).
6. Describe the work ethic and level of job commitment of the workforce in this region.

B. Education

1. In your opinion, to what extent does K-12 education prepare youth in your region for higher educational opportunities? Explain.
2. What is the current role of local universities/colleges in the economic development of your region?
3. Explain the extent to which post secondary education in your region prepares graduates for starting, managing, or working for entrepreneurial companies. (a) What are the specific deficiencies, if any? (b) How are these problems being addressed in your region?
4. Do the universities/colleges that service your region offer courses or programs in entrepreneurship? (a) If so, how would you rate their quality? (b) If so, how would you characterize their impact on the level of entrepreneurial activity in your region?

C. Training and Lifelong Learning

1. To what extent are vocational/technical programs available in your region for training, skills upgrading, and continuous learning (i.e., via community colleges, university extension programs, and/or private programs)?
2. Characterize the quality and capacity of these programs in terms of (a) the expertise of instructors, and (b) the ability to custom design and implement specific programs to meet the needs of entrepreneurial businesses in your region.
3. Are these programs adequately funded so that they can establish and maintain the infrastructure necessary to deliver the highest quality service? Explain.

Innovative Practice Question

Identify an innovative practice in (a) education, (b) training and (c) workforce readiness in your region (e.g., strategy, policy or program; private or public) that could serve as a “best practice” for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., web site, organization name, contact name, etc.)



Financial Capital

The availability and effective use of financial resources (equity and debt) for new and growing firms within a region. Consideration is made for various types of financing (e.g., venture capital, angel funds, grants, and loans.) and for various sources (e.g., government, private individuals, professional investment firms, and banks).

A. Supply and Access

1. Describe the investment mindset or philosophy of the financial community in your region as it relates to providing capital in support of local entrepreneurship activities. (a) Does this mindset vary by type of business (e.g., small, high tech, fast growth)? (b) How does the investment mindset of the banks in your region differ from that of other institutional investors?
2. Describe the types of financial capital that are available in your region for *starting a new business* (e.g., venture capital, angel capital [wealthy individual investors], government grants and loans, and bank loans). (a) Does access to these types of capital differ by gender in your region? (b) Does access vary by race/ethnicity in your region?
3. Describe the types of financial capital that are available in your region for *growing an existing business* (e.g., venture capital, angel capital [wealthy individual investors], government grants and loans, and bank loans). (a) Does access to these types of capital differ by gender in your region? (b) Does access vary by race/ethnicity in your region?
4. Is there an adequate supply of *debt capital* in your region for entrepreneurs looking to start or grow businesses? Why or why not? (a) Is there an adequate supply of *equity capital* in your region for entrepreneurs looking to start or grow businesses? Why or why not?

B. Knowledge and Support

1. How knowledgeable are entrepreneurs in your region about understanding and forecasting their needs for financial capital? (a) How successful have they been, generally speaking, at raising capital?
2. Generally, how knowledgeable are entrepreneurs in your region of the financial condition of their firms? (a) Are they capable of recognizing in advance when they will face financial peril and planning accordingly?
3. How knowledgeable are entrepreneurs in your region about the sources of capital available to fund their business activities? (a) Are entrepreneurs in your region typically willing to exchange equity/ownership in their businesses in order to raise external capital? Why or why not?
4. Are there active business investors (individual or institutional) in your region that provide knowledge, expertise and contacts for new or growing ventures? Why or why not? (a) What impact, if any, have these experts had on the level of entrepreneurial activity in your region?
5. Are there any recognized (formal or informal) intermediaries (e.g., law firms, accountants, economic development agencies, and government assistance programs) in your region that help to match entrepreneurs and investors? (a) If so, what impact, if any, have these intermediaries had on the total number of entrepreneurial businesses created in your region?

C. Risks and Rewards

1. Describe the probability of financial loss by venture capitalists on the investments they have made in your region over the last decade?

2. Describe the level of return venture capital investors have received for their investments in the entrepreneurial businesses in your region over the last decade? (a) What would it take for these returns to improve in the future?
3. Describe the probability of financial loss by business angel investors on the investments they have made in your region over the last decade?
4. Describe the level of return business angel investors have received for their investments in the entrepreneurial businesses in your region over the last decade? (a) What would it take for these returns to improve in the future?

Innovative Practice Question

Identify an innovative practice in financial capital in your region (e.g., strategy, policy or program; private or public) that could serve as a “best practice” for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., web site, organization name, contact name, etc.)



R&D and Technology Commercialization

This refers to the extent to which research and development conducted in a region will be accessible to entrepreneurs and whether or not it will transfer and/or lead to new commercial opportunities within that region.

A. Regional Involvement in Research and Development

1. Describe the extent to which universities and other educational institutions in your region are involved in research and development activities (i.e., facilities, personnel, budgets, projects under consideration).
2. Describe the extent to which businesses in your region are involved in research and development activities (i.e., facilities, personnel, budgets, projects under consideration). (a) Does the level of business R&D activity vary between privately-held and publicly-traded companies? Explain.
3. Describe the extent to which governmental laboratories or military installations in your region are involved in research and development activities (i.e., facilities, personnel, budgets, projects under consideration).
4. Describe the role these R&D institutions play, if any, in the economic development of your region. (a) Do the leaders of these institutions understand and accept this role? (b) Do they vary greatly in how they undertake this role? Explain.

B. R&D Commercialization

1. Describe the extent to which R&D technologies developed in your region are commercialized (i.e., new product ideas, new products and services, licenses). (a) Are most of the efforts to commercialize local R&D technologies carried out by individuals or organizations located in your region? Why or why not?
2. To what extent are entrepreneurs able and willing to access the R&D technology generated in your region? (a) Are most of the entrepreneurs who access local R&D technology from your region? Why or why not?
3. To what extent does the R&D activity in your region lead to spin-off businesses? (a) Are most of the spin-off businesses developed around local R&D technologies created in your region? Why or why not?

C. Technology Transfer Programs

1. Describe any formal technology transfer programs that exist to assist entrepreneurs with accessing and commercializing technologies developed in your region (e.g., innovation accelerators, incubators, manufacturing extension programs, research parks and research consortia). (a) Describe the impact, if any, that these programs have had on the level of entrepreneurial activity in your region.
2. Do any specialized research and development facilities (e.g., laboratories) exist in your region? (a) How widely used are these facilities and what impact are they having on the level of technology transfer in your region? (b) Do these facilities offer services to actively support efforts to commercialize developed R&D technologies?

D. Government Regulations

1. What impact, if any, have state and local government regulations had on the level of research and development activity in your region? Explain.
2. Describe any specific incentives, tax or otherwise, that the state and/or local government

provide for the commercialization of R&D technologies in your region? (a) What impact, if any, have these incentives had on the level of entrepreneurial activity in your region?

Innovative Practice Question

Identify an innovative practice in (a) research and development and (b) technology transfer and commercialization in your region (e.g., strategy, policy or program; private or public) that could serve as a “best practice” for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., web site, organization name, contact name, etc.)



Commercial and Professional Support Services

Commercial and professional support services are necessary to support the entrepreneurial activity within a community. These services are typically secured in the local market and address a variety of business functions such as legal, financial, accounting, marketing, distribution and training.

A. Commercial and Professional Services

1. Describe the overall availability of commercial and professional (e.g., legal, accounting, banking, and consulting) business support services in your region.
2. Are these services equally accessible throughout your region or are they mostly only available in particular metro areas? (a) Explain how the level of accessibility throughout the region impacts the level of entrepreneurial activity throughout the region.
3. Describe the overall quality of the commercial and professional business support services available to entrepreneurs in your region.
4. How do the costs of the business support services in your region compare to those in other regions of similar size, industry makeup and economic status? Explain.

B. Access and Impact

1. Do all entrepreneurs (e.g., minority and non-minority, start-up and growth, and male and female) have the same level of access to the commercial and professional business support services available in your region? Explain.
2. What impact does the level of availability, overall quality and costs of the business support services have on the level of entrepreneurial activity in your region? Explain.
3. Of all the business support services necessary for entrepreneurial success, identify the two that need the most improvement in your region. (a) Describe what can be done to improve them in your region?
4. Of all the business support services necessary for entrepreneurial success, identify the two that are the strongest in your region.

Innovative Practice Question

Identify an innovative practice in commercial and professional support services in your region (e.g., strategy, policy or program; private or public) that could serve as a “best practice” for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., website, organization name, contact name, etc.)



Physical and Communications Infrastructure

Physical and communications infrastructure elements can be critical to the successful launch and growth of a business venture. These elements include transportation, utilities, real estate, communications, etc.

A. Physical Infrastructure

1. Describe the overall quality of the physical infrastructure in your region (e.g., road, rail, air, ports, utilities, and real estate).
2. Is the overall quality of and access to the physical infrastructure uniform throughout your region or is there a great deal of variation? Explain. (a) What impact do these variations have, if any, on the level of entrepreneurial activity in your region? Explain.
3. Describe the effectiveness of state, regional and local planning for the physical infrastructure needs of your region.
4. Describe the level of public capital investment and incentives in the physical infrastructure in your region. (a) Is this level of investment adequate? Why or why not? (b) How does this level of investment compare with other regions of similar size, industry makeup and economic status?
5. Describe the most significant developments underway designed to improve the physical infrastructure in your region. (a) How will these projects, once completed, impact the level of entrepreneurial activity in your region? Explain.

B. Communications Infrastructure

1. Describe the availability of and access to the Internet in your region. (a) In what ways, if any, is access different for public, commercial or residential users in your region?
2. Describe the overall quality of Internet access and services in your region (e.g., bandwidth, redundancy, and reliability).
3. Describe the costs of Internet access in your region? (a) How does the cost of Internet access in your region compare with that of other regions of similar size, industry makeup and economic status?
4. What impact, if any, does the accessibility, quality and costs of Internet access have on the level of entrepreneurial activity in your region? Explain.
5. Describe the effectiveness of state, regional and local planning for the communications infrastructure needs of your region.
6. Describe the level of public capital investment or incentives in the communications infrastructure in your region. (a) Describe the level of regulation in the communications infrastructure in your region.
7. Describe the most significant developments underway designed to improve the communications infrastructure in your region. (a) How will these projects, once completed, impact the level of entrepreneurial activity in your region? Explain.

Innovative Practice Question

Identify an innovative practice in physical and communications infrastructure in your region (e.g., strategy, policy or program; private or public) that could serve as a “best practice” for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., web site, organization name, contact name, etc.)



Government Policies and Programs

This refers to the extent to which state and local government policies reflected in taxes, regulations, or the application of either are either size-neutral or encourage new and growing firms. It also includes the presence of programs to assist new and growing firms at state and local levels of government.

A. Awareness of Entrepreneurship Needs

1. Describe the general rapport between state and local government agencies and the business community in your region.
2. To what extent are state and local policy makers aware of the needs of new and growing companies in your region? (a) To what extent are state and local policy makers aware of how their policy initiatives impact the level of entrepreneurial activity in your region?
3. Describe the mechanisms, formal and informal, by which state and local policy makers learn the needs of new and growing companies in your region. (a) Which mechanisms are most effective?

B. Tax and Regulatory Environment

1. In what ways do state and local employment and workplace regulations (i.e., hiring, wages, conditions of work, dismissal, etc.) impact the startup and growth of new businesses in your region?
2. In what ways do state and local environmental and safety regulations impact the startup and growth of new businesses in your region?
3. In what ways do local taxes (i.e., sales, personal property, local business activity fees, etc.) impact the startup and growth of new businesses in your region?
4. Describe the challenges new and growing businesses in your region face in complying with state and local business and land use regulations.
5. Do state and local government agencies treat all firms the same regardless of size or age when it comes to regulatory enforcement? Explain.

C. Government Programs

1. How effective are the state and local government programs designed to encourage people to start and grow businesses in your region? Explain.
2. Describe the specific state and local government assistance programs (e.g., technical and financial) in your region that exist for *starting new businesses*? (a) Have they been effective? Why or why not?
3. Describe the specific state and local government assistance programs (e.g., technical and financial) in your region that exist for *growing existing businesses*? (a) Have they been effective? Why or why not?
4. How would you characterize the awareness and reach of state and local government assistance programs throughout your region? (a) Are there under served segments of the population in your region? Explain.
5. Describe what state and local governments *do best* to support new and growing businesses in your region. (a) Describe what they *do worst* in supporting new and growing businesses.

Innovative Practice Question

Identify an innovative practice in (a) government policies and (b) government programs in your region (e.g., strategy, policy or program; private or public) that could serve as a “best practice” for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., web site, organization name, contact name, etc.)



Regional Leadership and Institutions

This refers to the institutions and leaders that seek to facilitate regional development and the approaches they take in doing so. Leaders come from all parts of the economy and community (e.g., grassroots community leaders, entrepreneurs, established company executives, mayors) Institutions are both formal and informal.

A. Leadership, Vision and Institutions

1. Describe the overall quality of regional leadership in your region?
2. Does the regional leadership from the business community in your region include representatives from both established and emerging businesses? Why or why not?
3. Do regional stakeholders (e.g., public and private, commercial and civic, university, racial and ethnic) share a common vision for the development of your region? Explain. (a) If there is not a single shared vision, are the multiple visions generally complementary or in conflict? Explain.
4. Describe the nature and degree of interaction among the different types of organizational stakeholders? (a) How does the level and quality of interaction between stakeholders in your region compare with the level and quality of interaction in other regions of similar size, industry makeup and economic status?
5. Which types of organizations are most effective at facilitating development in your region (e.g., chamber of commerce, incubator, economic development corporation, community college, and private foundation)? (a) Describe the primary strategies these organizations employ for economic development. (b) Which of these strategies best supports the region's competitive advantage and why (e.g., leadership, structure, resources, and community buy-in)?
6. Describe the impact, if any, that economic development efforts have had on the level of entrepreneurial activity in your region? (a) Do regional leaders strive to encourage entrepreneurs in your region to start and grow businesses? Explain.
7. Is entrepreneurship a key component of the strategies for and practices of economic development in your region? Why or why not?

B. Regional Interdependence and Networks

1. How would you describe the degree of collaboration across jurisdictions in your region around (a) infrastructure, (b) quality of life, (c) economic development, and (d) education, training, and workforce preparedness?
2. Describe the barriers to collaboration among regional leaders, if any. What are regional leaders doing, if anything, to eliminate these barriers?
3. In your region, do people prefer to interact, for social and business reasons, more through the existing formal voluntary organizations or through more informal settings? (a) Do the more formal associations or groups of people tend to be inclusive or exclusive? (b) Describe the degree to which these associations or groups of people tend to overlap or intersect with one another. (c) Do you think that these associations impact the level of entrepreneurship in your region?

Innovative Practice Question

Identify an innovative practice in regional leadership in your region (e.g., strategy, policy or program; private or public) that could serve as a "best practice" for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., web site, organization name, contact name, etc.)



Quality of Place

This refers to the natural and built environment of a region that contributes to an overall sense of quality of life and which can have an impact on the launch and growth of businesses, particularly those that are knowledge intensive and have people as their primary asset.

A. Quality of Life

1. Describe the pattern of development your region has experienced over time. (a) How has this pattern affected the quality of life in your region?
2. What are your region's major quality of life amenities (e.g., arts, culture, recreation and vital down towns)? To what extent do these amenities appeal to young workers, attracting them to live and work in the region? Explain.
3. Describe the three most common complaints about your region as a place to live and work (e.g., traffic congestion, boredom, air quality, lack of open space, climate, crime, and access to other regions).

B. Livability and Social Capital

1. Can the people who work in your region afford to live in close proximity to where they work? Explain. (a) Do the people who work in your region generally choose to live in close proximity to where they work? Why or why not?
2. Characterize your region's openness towards (a) income diversity, (b) racial/ethnic differences, (c) differences in religious beliefs, and (d) diverse lifestyles?

C. Natural and Built Environment

1. What attributes make your region attractive to an entrepreneur as a place to start and grow a business? (a) How does your region compare on these attributes to other regions of similar size, industry makeup and economic status?
2. For every ten businesses started in your region, how many are started by people who moved from another region for the distinct purpose of locating their business here and discuss why.
3. What attributes make your region unattractive to an entrepreneur as a place to start and grow a business? (a) What is being done to overcome these limitations and by whom? Explain.

Innovative Practice Question

Identify an innovative practice designed to improve the quality of life in your region (e.g., strategy, policy or program; private or public) that could serve as a "best practice" for accelerating entrepreneurship. (Obtain contact information for follow-up purposes, i.e., web site, organization name, contact name, etc.)



Entrepreneurs: A Demand-Side Perspective

This refers to the entrepreneurship community's perspective on the environmental conditions for entrepreneurship. These questions are designed to ascertain the entrepreneur's opinion of and satisfaction with the resources and conditions in which to launch and grow a successful business in a region.

A. Education, Training and Workforce

1. Describe how the skill level of the available workforce (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.
2. Describe how the entrepreneurship education available to post secondary students in your region (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.

B. R&D and Technology Commercialization

1. Describe how the access to R&D and developing technologies in your region (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.

C. Commercial and Professional Support Services

1. Describe how the commercial and professional support services currently offered in your region (a) enhance or (b) limit the efforts of entrepreneurs to create and grow successful businesses in your region.

D. Physical and Communications Infrastructure

1. Describe how the physical infrastructure in your region (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.
2. Describe how the communications infrastructure in your region (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.

E. Government Policies and Programs

1. Describe how the state and local government programs available in your region (a) enhance or (b) limit the efforts of entrepreneurs to create and grow successful businesses in your region.
2. Describe how the state and local government policies implemented in your region (a) enhance or (b) limit the efforts of entrepreneurs to create and grow successful businesses in your region.

F. Financial Capital

1. Describe how the supply of and access to debt capital in your region (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.
2. Describe how the supply of and access to equity capital in your region (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.

G. Regional Leadership and Institutions

1. Describe how the quality and effectiveness of the regional leadership (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.

H. Quality of Place

1. Describe how the quality of living and working in your region (a) enhances or (b) limits the efforts of entrepreneurs to create and grow successful businesses in your region.

APPENDIX B:

Regional Briefing Output, May 23, 2002

Summary of final exercise, where priority action items were developed and then voted on, by four dot votes per person:

Votes	Priority action items
6	Media: positive promotion of local entrepreneurs (educate media about technology)
4	Reform vocational education system and strengthen linkages to business sector
4	Inventory and coordinate (at high level) existing resources/institutions for service delivery
3	Create one-stop shop or database on professional support services for entrepreneurs in the region
3	Network (via council) entrepreneurs in high-tech high-growth enterprises
3	Establish think tank/task force to consider and influence state and local policy affecting entrepreneurship
3	Educate and reach out to "power brokers," CEOs, etc. about entrepreneurship and technology
2	Sell region as a great place for entrepreneurs to work
2	Continue and publicize current efforts for angel network and Southeast Community Capital
2	Triage system for entrepreneurs to self-screen on what they need
2	Link minority entrepreneurs to power brokers
1	Recognize full value of water resources including river
1	Emphasize entrepreneurship education in schools at all levels
1	Training and outreach for entrepreneurs
1	Create microloan program for less than \$25K
1	Improve capital access across region and for women/minorities
1	Education/outreach/linkages on capital for entrepreneurs
1	Broaden entrepreneurship mentoring experience/opportunities
1	Develop medical research center for region
1	Have quarterly meetings of providers to coordinate and publicize services, successes
1	Establish advisory council of entrepreneurs to help keep effort demand-focused
	Extend quality of place to neighborhood level
	Reform K-16 education, make seamless and connect to industry (esp. TN)

Establish performance standards for pre-K education
Create/identify sources of early-stage capital
Publicize investments judiciously and realistically
Create mentoring center for early-stage minority/women entrepreneurs
Invest more heavily in existing support services
Identify and group physical infrastructure needs, then take local action
Create new regional airline
Create biotech incubator
Provide tech transfer assistance to entrepreneurs
Link existing R&D expertise to entrepreneurs
Use, secure, build upon R&D/tech resource inventory of TN and extend to GA
Refocus city services to customer focus
Continue neighborhood enterprise development initiative
Bring business executives into economic development arena
Bring faith-based organizations into economic development arena

Specific ideas generated by attendees to entrepreneurship forum on May 23, 2002

Quality of Place

- Chattanooga has advantage in this area
- “Sell” the quality of place to prospective entrepreneurs
- Neighborhood renewal
- Focus District 9 economic plan so it has strong emphasis on new business development (short term)
- Bring about a sense of safety/security; reduce/eliminate slum areas, prostitution, drug dealing, crime (necessary for small businesses to invest and live in area)
- Improve all urban neighborhoods to reduce crime, violence, drugs, etc.
- Investigate how this compares to inner city vs. downtown vs. suburbia, income, etc. (short term)
- This should by all rights become an area of acceleration

Workforce/Education

- Create entrepreneurship training with actual experience, environment just like NFTE organization; provide similar training to other organization
- Begin entrepreneurship education in public schools; use existing programs such as Junior Achievement or National Foundation for Teaching Entrepreneurship (NFTE)
- Reinvent/renew “Junior Achievement” with emphasis on twenty-first century economic and business development, establish chapters in every school in area, network school representatives, create interest among students across class and economic lines, link with leaders (short term)

- Create a good mentoring program for entrepreneurs
- Need a labor finders/trainers center for training and job placement
- Recognize both public and private K-12 education as integral to community education system
- Recognize K-20 as seamless education system
- Provide new business training programs aimed at improving new and established business chances for success
- Redirect the vocational education program in the public school system to include training in the emerging jobs (more high tech)
- Create additional vocational education classes with an emphasis on the importance to the community
- Develop comprehensive high schools to attract more students into vocational training and avoid the stigma attached to attending vocational education school
- Chattanooga's corporations have very little diversity. Less than 1 percent of CEOs in this community are of color.
- Measurable/diagnostic skills testing/evaluation (short term)
- Trade-specific "new economy" training linked to industry and linked to unemployed inner city initiative (middle)
- Soft skill/work readiness for inner city population via community-based organizations (churches, etc.) (short term)
- Industry and public schools need to work much more closely to encourage young people to get a meaningful education
- Task force of regional representatives to identify workforce needs and how workforce and education are linked; one can't be successful without the other
- Have post-secondary institutions amass resources for dissemination to entrepreneurs
- Raise percentage of high school graduates going to college (long term)
- Lower drop-out rates (long term)
- Develop and implement a strong and real effort to reform education in TN — charter schools, vouchers
- Vocational education needs much more monetary and moral support
- We may not have research-based universities, but we need terminal degree programs in certain key disciplines

Financial Capital

- Money is important, but other infrastructures are more important
- Identify some organizations that are willing to put up high-risk capital to "nurture" start-ups
- Establish a fund for high-risk venture capital for start-up companies
- Real serious effort to make capital accessible to minority businesses
- Resources for business needing less than \$25,000
- Microloan program (short term)
- Economic Community Development Corporation: ed outreach, technical and financial assistance

- Availability for surrounding region
- Communication between groups and with region
- Classes on how to acquire and manage credit (short term)
- Small business classes on securing financing, i.e. debt vs. equity (short term)
- Grow Chattanooga Opportunity Fund with philanthropic and corporate investment (short term)
- (Finish)/launch angel network (mid term)
- (Finish)/launch microloan program (mid term)
- Develop business plan/technical assistance support
- Push forward with the angel network

Support Infrastructure

- Minority and women's entrepreneur support groups (long term)
- R&D council (long term)
- Create a vibrant "high growth council" where entrepreneurs can network
- Chamber task force on entrepreneurship — long-term commitment, staffed full-time, inclusive of various sectors (banks, UTC, government, foundations, etc.)
- Create a Center for Entrepreneurial Growth that mentors entrepreneurs and early-stage companies through the process and bring cost-reduced resources
- One-stop shop where support service information is available for region. Names, contact information, location, specific services available
- More involvement with small business
- Recognition of economic impact of small businesses
- Need to identify entrepreneurs
- Integrate/coordinate support organization — BDC, SBDC, CSTCC, UTC, CofCs, city and county governments
- Develop list of resources for entrepreneurs
- Identify entrepreneur needs
- Challenge local professionals to donate time in an effort to assist start-ups (i.e. seminars, workshops)

Physical Infrastructure

- Recognize videoconferencing capability already here
- An ideal application of entrepreneurship to address needed physical infrastructure would be the creation of a new regional airline bypassing traditional hubs
- Regional group to identify needs of area
- Local groups to focus on certain needs of rural areas
- Strategically think of fresh water not as an infrastructure commodity, but as a source of learning, specific expertise, conferences and training
- Railroad infrastructure isn't just underutilized, in the case of passenger rail, it's nonexistent for the past three decades

Research and Development

- Utilize local industry knowledge with their R&D expertise
- Open up communication lines between existing industry and up and coming new/small business
- Provide resources to “mine” R&D at ORNL, MSFC, or other R&D centers
- Develop a medical research center which serves the region
- Product development assistance/tech transfer expertise here, on the ground
- Tech incubator
- Develop a biotechnology incubator
- If no local or regional inventory of tech/R&D assets exists, why not take a slice of the state-level survey
- Fund schools

Government Policy and Programs

- State policy improvements so industry will want to come to region
- State income tax necessary to support education improvement and enhancement; high priority
- Reduce sales tax
- Don't be afraid to include faith-based organizations that are doing economic development
- The term innovation recurs in your presentation. Identify all possible ways to connect this study and the Chamber's new award for innovation (the first and only such chamber award in the nation)
- Need for infusion of private investment and many new “players”
- Much less emphasis on control and more celebration of the marketplace. The environmental city and huge amount of planning has not generated a growing vibrant economy
- Develop a think tank on public policy
- Educate officials
- Get project from government and let entrepreneurs compete
- Promote and capitalize on and celebrate open trade, investment and immigration policies even though these are federal
- Take more strategic advantage of Rep. Zach Wamp's Tennessee Valley Corridor Summits and key initiatives starting with June 28-30 in Nashville
- Local policy & programs — better tax breaks, breaks on services i.e. phone, high speed Internet
- Mayor's strategic neighborhood initiative needs timely implementation
- Reorganization of city services through the customer services telephone computer tracing

Regional Leadership

- Media needs to recognize entrepreneurship and R&D activities
- Media to take role of setting the “buzz” of entrepreneurship

- A stronger connection/relationship between the power brokers of the city and minority leaders or potential minority leaders
- Have quarterly meetings of various providers/nurturers to develop synergy and publicize results
- Leadership seminar series (open to everyone) showcasing talent from across the country (short term)
- Media coverage of entrepreneur efforts on a regular basis (long term)

APPENDIX C:

Entrepreneur Profiles

Entrepreneur 1:

Location: North GA

Industry: Confectionery

Founded: 2000

Employees: 4 to 26, on average 16

Entrepreneur 2:

Location: Chattanooga

Industry: Biotech

Relocated from California in 1999

Employees: 50, rapid expansion planned

Entrepreneur 3:

Location: Chattanooga

Industry: Records management and health information management

Founded: 1980

Employees: 70

Entrepreneur 4:

Location: Chattanooga

Industry: Nanotechnology

Founded: 1999

Employees: 3

Entrepreneur 5:

Location: Chattanooga

(home-based business)

Industry: computer based training, software development

Founded: 1997

Employees: 4 full time, 15-20 contracted

Entrepreneur 6:

Location: Chattanooga

Industry: Power and utility consulting and management

Founded: 1998

Entrepreneur 7:

Location: Chattanooga

Industry: Online newspaper

Founded: 1998

Employees: 16

Entrepreneur 8:

Location: Chattanooga

Industry: Marketing and PR

Founded: 1996

Employees: 60, growing rapidly

