

*During the keynote address at a Computational Biology Summit at the University of Tennessee at Chattanooga on February 7, 2011, J. Wayne Cropp, President and CEO of The Enterprise Center, asserted that Chattanooga's reputation for technology innovation has substantially increased and the area offers the infrastructure, expertise, vision, education and resources that make it a center of commerce and technology that is in its ascendancy. His remarks were in response to and supported by the city's recognition a month earlier as one of the world's seven smartest cities in 2011 by the Intelligent Community Forum.*

## **Introduction**

On January 25, 2011, Chattanooga received international accolades when the city was named one of the Top 7 Intelligent Communities of the Year by the Intelligent Community Forum (ICF), an economic and social development think tank that studies 21<sup>st</sup> Century growth within the global community. This recognition is yet another third-party verification that the collaborative, private-public efforts our city is known for are continuing to pay rich rewards.

Chattanooga is an economic engine committed to transformation. The world is changing before our very eyes and in ways that are exhilarating and impossible to envision. Global political powers, the economy, and the way we learn and communicate are evolving at an accelerated pace. Here in Chattanooga, we embrace these changes and intend to benefit from them.

Our community has transformed itself from a city known for its environmental devastation and resulting economic hardship into a vibrant city poised for greatness. We are leading the new manufacturing economy — one based upon expedited product delivery, exemplary quality, and environmental sustainability.

Chattanooga's reputation for technological innovation is growing and drawing a world-wide audience. Our leadership in advanced manufacturing, intelligent systems, transportation, education and the environment are hallmarks of Chattanooga's

reputation. The Enterprise Center, a high-tech economic development entity funded, in part, by the City of Chattanooga, is working with its community partners to create opportunities for technology development, commercialization, and community revitalization. Our role at The Enterprise Center is to support and build the entrepreneurial culture, capital systems, and technological innovation necessary to create wealth and high value jobs for the future.

In Chattanooga, we are committed to the development of a skilled workforce that understands the need for life-long learning. President Barack Obama set the bar high when he delivered his Innovation Week speeches in February 2011 by saying, "In today's global, competitive economy, the best jobs and newest industries will take root in countries with the most skilled workers, the strongest commitment to research and technology and the fastest ways to move people, goods and information". We are committed to accomplishing these goals in the local economy in *The Chattanooga Way* — through a community-wide vision and by creating and maintaining private-public partnerships that will protect and nurture the land and people we cherish.

Chattanooga is uniquely positioned to move forward from the economic doldrums of the U.S. and global recession of 2008-2010.

This is not just civic boosterism — here are some of the facts!

- Number 1! — Chattanooga is the one and only American city with a population in excess of 100,000 to see a 10% population decline in the 1980's-90's, and then to experience growth in population at the turn of the new century (Community Research Council, March 2006).
- We are one of only three American cities to experience growth in the urban core in the past decade (Brookings Institute, September 2008).

- A recent article in *Forbes* magazine ranks Chattanooga in the Top 10 Cities where home values will rise in 2011 (*Forbes*, January 21, 2011).

## **The Cultural DNA of Chattanooga is Leading to an Economic Rebirth**

Every city has a storyline that defines and influences its character. Let's reflect for a moment on some of the significant events and assets that have helped define our character.

In the 1850's, Chattanooga became the gateway to the South. With the prominent rise of railroads in the mid-nineteenth century and the opportunity for riverboat travel and passage through the mountains, Chattanooga was the portal to the Deep South. With its strong railroad history, scenic waterways, interstate highway systems, and utilization of these assets in the trucking, warehousing and logistics industries, Chattanooga continues to reign as an important center of transportation and commerce.

Because of our strategic location, Chattanooga was the critical crossroad for the War Between the States as the battles for Chickamauga, Chattanooga, and Missionary Ridge ultimately opened the doorway into the South — and what some acknowledge as *the beginning of the end of the War* — thereby influencing history forever.

Southern veterans returned from the War to find their homes and businesses destroyed. They began building a new empire of iron, pioneering coke-fired iron processing in the region and spurring the Southern economy. These efforts began a manufacturing revolution that would soon give Chattanooga the nicknames: "Pittsburgh of the South" and "The Dynamo of Dixie". In the years that followed, Chattanooga drew many Northern veterans of the Civil War to the South because of its natural beauty and rising industrialization.

This migration of innovative Northerners, combined with risk-taking Southerners, led to many world-class businesses in the area. A few of these local companies with proven staying power are:

- Coca-Cola Bottling Company
- American National Bank/SunTrust Bank
- BlueCross BlueShield of Tennessee
- McKee Foods
- Chattem/Sanofi-aventis
- Provident/Unum
- Astec Industries
- Chattanooga Bakery

The dynamic economy driven by the iron industry also had a dark side. Chattanoogaans lived for many decades with an ugly environmental legacy, which was highlighted by the CBS Evening News when Walter Cronkite proclaimed in 1969 that Chattanooga was the “Dirtiest City in America”, based upon a decades-long air pollution problem. This designation at the time of the first Earth Day movement was not the kind of attention that Chattanooga wanted. It led to major environmental changes, resulting in the city in 1989 becoming the first metropolitan area in the country to move from “dirty air” or non-attainment status for the Environmental Protection Agency’s ozone air quality standard to attainment. Chattanooga rightfully claimed a “worst to best” environmental turnaround reputation in the country.

Fortunately, despite Chattanooga’s pollution problems of old, we were blessed by God with a unique and unsurpassed natural environment. Caves and rock formations were recognized by visionary leaders as attractions and were converted into local destinations such as Rock City and Ruby Falls. The mighty power of the Tennessee River also carved its way through the great mountains of the Appalachians, forming the Tennessee River Gorge, starting in what is today’s downtown Chattanooga. Streams, waterfalls, rare plants and animals provide unparalleled opportunities to hang-glide, rock climb, bike, hike, kayak, fish and garden in a sportsman’s paradise.

Chattanooga has taken great care to preserve, protect and showcase these assets with the world’s largest freshwater aquarium, a 12-mile Riverwalk (greenway along the Tennessee River), and walking bridges that span the river. Tourism continues to play a

vital role in Chattanooga's economy and a vibrant, revitalized downtown keeps the nightlife bustling.

Now, thanks to visionary leadership, we are experiencing the rebirth of the manufacturing economy, and the keys to success are based on technology, a knowledge-based workforce, and a public that values our environment.

When Stefan Jacoby, then President of Volkswagen Group of America, was asked in 2008 why Chattanooga was chosen for VW's flagship U.S. plant, he responded, "Something in our gut or maybe in our heart ... looking across the mountains and across the rivers, the intangible suddenly became very tangible. This is America at its best."

We attribute our progress to many factors: strong and stable political leadership, an attractive state-supported economic development climate, local foundation investment, visioning, and the ability to execute. We are fortunate to have these resources; however, Volkswagen recognized what is *unique* about Chattanooga: our God-given beauty, our preservation and protection of it ... and our people!

## **The World is Talking about Chattanooga**

### ***Manufacturing Leader***

The Chattanooga Area Chamber of Commerce has done an outstanding job in industrial recruitment and in marketing our community. We are proud to have recently recruited Alstom, Amazon, SAIG Aerisyn, Westinghouse, Volkswagen and many Volkswagen suppliers that have invested billions of dollars and created thousands of technology-based jobs. The Chamber's promotions tell the story correctly ... *The World is Talking about Chattanooga.*

### ***Intelligent Systems Leader***

Chattanooga's high-tech manufacturing rebirth is just one of this city's great modern-day successes. There is another tale — surprising to many — that is also grabbing world

headlines. The wow factor that is capturing people's imagination is our leadership in broadband and internet capabilities.

Chattanooga has taken the lead in the "economy of the future" by creating the fastest broadband technology in America. The Electric Power Board's (EPB's) one gigabit Internet speeds are ultra-fast and offered to our entire community — in our homes, industries and commercial establishments and in the urban core, suburbs and rural areas.

In addition to the blazing fast broadband, EPB has also entered into a \$300 million partnership with the U.S. Department of Energy to create a Fiber-To-The-Home (FTTH) program that will further transform our community in ways we cannot even dream about today.

We can envision some concrete advantages. Utilizing EPB's fiber network as a communications infrastructure, the FTTH Grid will consist of 170,000 smart electric meters and a corresponding power management system capable of controlling and managing the Smart Grid remotely in real-time. The Smart Grid will create operational efficiencies, improving reliability, power quality, and load management opportunities.

The building block of EPB's fiber backbone has also allowed the City of Chattanooga's Information Services Department to create and deploy a self-healing wireless "Mesh Network", capable of serving public safety agencies across the region. This Network is the largest, most advanced wireless service in the country. It will house a wireless communications pipeline, enabling up to a 300-megabyte data rate and throughput of 150 megabytes. This service will ultimately support and provide access to every mobile application in use by city, county and local government agencies.

One of the earliest initiatives of this Mesh Network is the deployment of wireless access to all police vehicles, creating a virtual "office" in all police cars that is never "off-line." Officers have immediate, real-time access to web security cameras strategically placed

throughout the city. They can also use the system to "run" names and vehicles through appropriate databases to search for warrants and public alerts. In a related initiative, the City of Chattanooga will implement electronic police reporting for arrest reports, accident reports, and training reports using the Mesh Network.

This broadband capability is producing jobs of its own. In the last two years, Chattanooga has experienced — through new, start-ups and expansions — over 800 jobs in customer care and fulfillment. Numerous data centers also exist in Hamilton County, including: Airnet, Terenine, EPB Fiber Optics, NetAlliant Technologies, Networks Inc., VPNtranet, Peace Communications, Data Safe, and CTC Technologies. Proprietary data centers include: BlueCross BlueShield of Tennessee (BCBST), LifeCare, KenCo, and Convergent – Luken Properties.

Another Chattanooga treasure is the SimCenter at the University of Tennessee at Chattanooga and its affiliated SimCenter Enterprises. The SimCenter is a cutting-edge computational engineering and simulation center that is truly world-class. In addition to its unmatched problem-solving capabilities, the SimCenter is generating a wealth of technology leaders with advanced graduate degrees. The capability of the SimCenter has been recognized nationally, as with the recent acknowledgement by Dave Turek (Vice President, IBM Deep Computing, July 13, 2010) that the SimCenter has the ability to lead the world in computational engineering and that it is a potential “gold mine” for the local economy.

### ***Medical Health and Medical Technology Research Leader***

The University of Tennessee College of Medicine at Chattanooga participates in clinical training of residents and has developed a translational research program. A little known fact is that there are over 250 clinical trials currently being performed at Erlanger Health System.

Dr. Thomas Devlin, a researcher and clinician at Erlanger and founder of the Chattanooga Stroke Network, has developed and tested innovative stroke treatments.

He is a key figure in acute stroke care and has successfully implemented innovative programs at a variety of healthcare facilities. His discoveries have advanced the Pleiades Foundation, whose mission is to accelerate the diffusion of biomedical technology for acute stroke intervention and prevention.

Dr. David Adair at Glenveigh Medical has introduced two new medical products into the market, The Ebb and Jetty. Glenveigh is a life sciences and medical company focused on obstetrics and high risk pregnancy with a core mission of improving the lives of pregnant mothers and their babies.

### ***Transportation Leader***

The Center for Energy, Transportation and the Environment (CETE) at the University of Tennessee at Chattanooga is a program within the College of Engineering and Computer Science that applies research towards the development and deployment of technologies using clean, secure sources of energy. CETE emphasizes the critical role of developing renewable energy systems for transportation, while advancing energy conservation and independence.

The City of Chattanooga and Hamilton County, in conjunction with the Chattanooga Area Regional Transportation Authority (CARTA), created a partnership in 1992 that resulted in the Electric Bus Initiative. The benefits of the partnership include 18 electric buses providing free service on two downtown shuttle routes, reduced congestion on downtown streets, improved air quality, and new jobs. In addition, CARTA has instituted free Wi-Fi service on its buses and an intelligent transportation system that provides real-time communication of bus fleet scheduling and tracking for emergencies and repairs.

In another visionary project, The Enterprise Center leads local initiatives to create a high-speed ground transportation (HSGT) system between Atlanta-Chattanooga-Nashville. The Atlanta to Chattanooga portion of the project is currently progressing through a Tier 1 Environmental Impact Study being conducted by the Georgia

Department of Transportation. The Atlanta-Chattanooga-Nashville system is part of a larger transportation plan to connect Tennessee with a national corridor of high-speed trains potentially utilizing magnetic levitation technology (Maglev) and running from Chicago to Miami. This project has substantial economic development components, and the advantages of this mode of transportation are safety, reliability, speed, environmental improvement, and a reduction in traffic congestion.

The U.S. Department of Energy, the State of Tennessee, Oak Ridge National Laboratory, the Tennessee Valley Authority, Nissan North America, and the cities of Chattanooga, Knoxville, and Nashville have partnered to participate in an electric vehicle study taking place across the state. Approximately 2,500 solar-assisted electric vehicle charging stations are being built in Chattanooga, Knoxville, and Nashville for testing purposes with the new Nissan Leaf, and later use by the Chevy Volt and the Toyota Prius plug-in hybrid electric vehicles. Funding for the study has been provided by a \$99.8 million grant from the Department of Energy to start up the national electric vehicle (EV) initiative, with Chattanooga recently installing the first charging station in its downtown area.

### ***Education Leader***

Advanced manufacturing and technologically innovative companies require a skilled workforce and quality training for workers. Innovation jobs of the future will require training in science, technology, engineering and math. In addition to a number of excellent private institutions of learning, there are three primary public institutions providing education and training to area residents.

Serving 10,000 students, The University of Tennessee at Chattanooga, as its mission states, is an engaged, metropolitan university committed to excellence in teaching, research, and service. It offers undergraduate, masters and doctoral level courses. Currently, UTC's College of Engineering and Computer Science is providing higher education to over 990 students for future careers in technical professions.

Chattanooga State Community College has partnered with EPB to prepare graduates for jobs utilizing Chattanooga's leading broadband infrastructure. The institution has also partnered with Volkswagen to create an Automotive Mechatronics Program that would provide hands-on training in mechanics, electronics, and automation systems through classroom instruction and five semesters of paid, on-the-job training at the plant. A partnership with TVA has resulted in the creation of four power sector programs that educate and train students to fill skill-specific job needs that were identified in TVA's analysis of gaps in their workforce.

Another workforce development initiative that Chattanooga State is engaged in is with the newly recruited Wacker Chemie, a German solar chemical company that is investing \$1 billion to establish a plant in the region. The institution is developing a Chemical Engineering Technology degree and training programs in Electromechanical Technology, Mechanical Engineering Technology, and Electrical and Electronics Technology.

All of Hamilton County's 77 elementary and secondary schools integrate computer and broadband usage into the curriculum, providing over 42,000 students access to computers and broadband. Young students begin with computer basics and educational games, while older, more experienced students have the opportunity to learn computer research techniques and advanced applications for web design, video editing, etc.

## **Conclusion**

As Chattanooga's reputation for technology innovation continues to advance, our economic opportunities will likewise improve. The Enterprise Center will remain steadfast in promoting the city's competitive advantages as a strategic, world-class center for advanced manufacturing, technology innovation, and environmental sustainability. In April, we look forward to partnering with other private-public entities in Chattanooga to show Intelligent Communities Forum Chairman John Jung our

community. In June, we are hopeful that we will be selected as *The Intelligent Community* of the year.

*About The Enterprise Center*

*The Enterprise Center promotes high-tech economic development in the Chattanooga community to create jobs and build wealth. Our mission is to lead the City of Chattanooga's and Hamilton County's technology-based economic development initiatives thereby promoting the advancement of economic transformation in the City of Chattanooga, Hamilton County, and the Tennessee Valley Corridor. Our core initiatives are alternative energy, advanced transportation, technology development and transfer, and community revitalization. For more information, call (423) 425-3770 or visit [theenterprisectr.org](http://theenterprisectr.org).*