

TCED Capstone Project

What Is the Chattanooga Innovation District and What Role Does It Play in Economic Development?

Miriam Hamilton

Chattanooga Area Chamber of Commerce

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Introduction

Chattanooga and Hamilton County have achieved great success through traditional economic development programs and are adding a new resource to the toolkit with the formation of an innovation district. In recent years, an innovation ecosystem of funders, mentors, institutions and businesses has emerged that is opening up new economic opportunities. Taken together, these assets are the foundation of the Chattanooga Innovation District, and a coordinating agency is now in place to nurture, sustain and leverage them for greater prosperity.

This paper will explore the economic development opportunities, such as formation of firms, attraction of capital investment and creation of jobs, related to the intentional cultivation of an innovation ecosystem.

Included in the discussion is research which demonstrates the catalytic role startups and innovators play and an examination of how the innovation district model supports and magnifies these impacts using examples from established districts.

Discussion of Chattanooga's approach to the model demonstrates the current ecosystem in place (nonprofits, companies, funders, events, and gigabit network), illustrates the impact it has already produced and considers potential additions.

Innovation districts are often located in or near distressed communities and can spark real estate redevelopment as well as benefit existing populations by creating education and employment opportunities. This paper references other cities' successful strategies that Chattanooga may wish to consider.

Background

In September 2010, Chattanooga's EPB Fiber Optics and Alcatel-Lucent announced the U.S.'s only one gigabit broadband service for residential and business customers.¹ While many in the business and economic development communities were hopeful that the state-of-the-art technology would lead to a surge in new business recruitment and local business expansion, it quickly became evident that enhanced growth from this new asset would not be automatic.

Local organizations began concerted marketing efforts and implemented programs aimed at recruiting innovators who could demonstrate business applications for the technology.

Around the same time, new entrepreneurial funding entities began forming in the community.

Successes continued incrementally.

Then in late 2013 Mayor Andy Berke launched the Chattanooga Forward² strategy, a citizen engagement program aimed at envisioning Chattanooga's long term future. Six citizen task forces were assembled, one of which was the Technology, Gig and Entrepreneurship Task Force (Task Force) charged with building upon the community's efforts to date.

In 2014, the Task Force's recommendations led to the decision to form the Chattanooga Innovation District. The official designation of a quarter mile radius boundary within the city's urban core took place in mid-2015 with plans for The Enterprise Center, the local nonprofit chosen to lead and manage the district, to move into a centrally located hub.

The district presents a new opportunity for the community to intentionally participate in the innovation economy with the anticipated benefit of enhanced growth. Not only is the district making a unique contribution to the community's economy, it is also a resource that traditional economic development practitioners are leveraging for business development purposes.

During the *Tennessee Basic Economic Development Course*, Rob Bencini³ presented a session titled "Trends in Economic Development." He stated that the practice of economic development is changing due to the impact of new forces such as the rise of the global economy, disruption of old models due to technological advances, huge demographic changes and the proliferation of the "proprietor" or "gig" economy.

Bencini advised that successful economic developers should become "entrepreneurial advocates" and "...take a lead role in leading change, in order to connect their community to larger trends."

These predictive insights have become reality and the Chattanooga community is actively pursuing strategies, such as developing the Innovation District, to successfully adapt and fully engage with these new opportunities.

What is an innovation district?

An article by Muro and Wagner (cited in Katz and Bradley, 2013), provides the following framework. "Innovation districts arise in disparate geographies with different economic drivers. But all of them draw from the best innovations in both industry cluster and place-making strategies to create well-defined communities packed with resources for firms, entrepreneurs, innovators, researchers, and residents. The theory behind business clusters is that geographical concentration of interconnected firms and supporting institutions leads to more innovation and production efficiencies, shared inputs, thicker labor markets, and collective problem solving; the

theory behind walkable urbanism is that dense, mixed-use neighborhoods with cultural, recreational, and retail amenities will attract highly educated, innovative, entrepreneurial individuals and benefit the neighborhood’s existing residents. Innovation districts are the physical synthesis of these two ideas, a new nexus between innovation and urbanism.”⁴

This new paradigm incorporates and builds upon traditional entrepreneurial support that continues to play an important role in the innovation economy.

Maureen Collins-Williams provided a comprehensive overview of entrepreneurship during the *Tennessee Entrepreneurship & Small Business Development Course*. One of the topics covered was the entrepreneurial support system which includes four key components: business technical assistance and training, culture and infrastructure, capital, and networks.⁵ In the past and still today, entrepreneurs may have to access these resources in a piecemeal fashion which may include reaching outside the community for assistance.

The innovation district model recognizes the importance of all these resources and intentionally draws them together in close proximity to foster engagement. This concentration intensifies the focus, energy and collaboration by and between the players and thus enhances a sense of community while increasing the frequency and likelihood of interactions both planned and spontaneous.

How are these key components represented in the Chattanooga Innovation District?

| Entrepreneurial Support System within the Chattanooga Innovation District | | | | |
|---|---|-------------------------------------|----------------|-----------------|
| Anchor Institutions | Business Technical Assistance & Training | Culture & Infrastructure | Capital | Networks |
| 701 Cherry - Redeveloped office building (built 1932), renovated in 2015, Key Tenants: national reservations company OpenTable , a wholly owned subsidiary of The Priceline Group, who bought local company Quickcue, and Whiteboard , an interactive design and development firm. The companies wanted to be in the Innovation District and chose this location. ⁶ | | X | | X |
| ArtsBuild - Redeveloped building (built 1911), vacant since 2008, renovated in 2015, now home to ArtsBuild (a nonprofit arts advocacy group), Southern Lit Alliance, SoundCorps, Townsend Atelier and the Chattanooga Film Commission. ⁷ | | X | X | X |
| Causeway (Founded 2010) - Nonprofit, social entrepreneurship company connecting causes to resources. Crowdfunding for local causes has raised \$594K since 2011. In 2015, 2,441 people attended Causeway events; 1,390 people used Causeway workspace. ⁸ | X | X | X | X |
| Chattanooga Area Chamber of Commerce - Nonprofit, business association and economic development organization with 2,250 member companies of all sizes representing more than 79,000 people. ⁹ | X | X | | X |

| Anchor Institutions | Business Technical Assistance & Training | Culture & Infra- structure | Capital | Net- works |
|---|---|---|----------------|-----------------------|
| Chattanooga Public Library - The 4th Floor is a public laboratory and educational facility focused on information, design, technology, and the applied arts. Available equipment includes: 3D printers, a laser cutter and a 4K monitor. “The...space hosts equipment, expertise, programs, events, and meetings that work within this scope...the 4th floor is unique because it supports the production, connection, and sharing of knowledge by offering access to tools and instruction.” ¹⁰ | X | X | | X |
| Coyote Logistics - Logistics service provider which merged with Chattanooga-founded Access America in 2014 and later became a wholly owned subsidiary of UPS in a \$1.8B acquisition in 2015. ¹¹ The company employs 240 and announced expansion plans in 2016 to add 160 jobs. ¹² Founders of Access America are partners in Lamp Post Group. ¹³ | | X | | X |
| The Edney Innovation Center (Headquarters) <ul style="list-style-type: none"> • The Enterprise Center (TEC) - Nonprofit chosen during the Chattanooga Forward process to "focus solely on guiding community efforts related to the innovation economy."¹⁴ Goals include maximizing the economic potential of the Innovation District, Research and Applications, and Digital Equity. TEC has built relationships on behalf of Chattanooga and the Innovation District with, “US Ignite, the National Science Foundation, the Annenberg Innovation Lab, the Mozilla Foundation, the White House Office of Science Technology Partners, the Brookings Institution, Alcatel Lucent and others.”¹⁵ “In the nine months ending in June 2016, 960 events had been held on Floor Five with 15,858 total attendees...[included are] repeat scheduling of...CHA Dev, A Million Cups, Creative Mornings, and Innovation Happy Hour...[and others] out of town delegations, workshops, training sessions, receptions, etc.”¹⁶ | X | X | | X |
| <ul style="list-style-type: none"> • Co.Lab (Founded 2010) - Nonprofit startup accelerator with year-round programs for all startup levels, including: Co.Starters, a 9-week program for aspiring entrepreneurs, Co.Lab Accelerator, a 100-day program for high growth potential startups, GIGTank 365, a boutique accelerator for ultra-high-bandwidth applications (40 companies graduated, 37 specialists engaged, \$4M raised). Pitch Competitions: <i>Will This Float?</i> (47 pitches, 400 attendees, \$5M raised), <i>48Hour Launch</i> (54 projects activated, 150 annual participants, \$3M raised).¹⁷ | X | X | X | X |
| <ul style="list-style-type: none"> • Society of Work (Founded 2013) - Membership-based co-working office space includes community workspace, small offices, a conference room equipped with projector, screen and dry erase board and social events hosted for members. Thirty-six members currently.¹⁸ | | X | | X |
| EPB - One of America's largest publicly owned electric power providers; the first to offer Gigabit Internet speeds, now up to 10 gigs available. ¹⁹ In 2016, Oak Ridge National Laboratories established a local office at EPB’s headquarters which will focus on research and development related to energy, 3D printing and advanced manufacturing applications. ²⁰ | X | X | | X |
| UTC James Mapp Building - Office building purchased by University of TN at Chattanooga, renovated in 2016, which extends the campus footprint into the Innovation District; space has been committed for innovation directed programming. ²¹ | X | | | X |
| Lamp Post Group (Founded 2010) - Venture incubator providing capital and mentorship for startups. Support services include legal, accounting, HR, recruiting, and downtown office space. Current portfolio features 18 companies. ²² | X | X | X | X |
| Public Education Foundation - Nonprofit working to transform public education. A founding member of “ <i>The Teacherpreneur Incubator</i> which offers teachers support, time and space to incubate big ideas and execute them in the best interests of their students and their profession. The Incubator brings together teachers, business people, and community members to launch transformative ideas.” ²³ | | X | | X |

| Additional (business-related) | Business Technical Assistance & Training | Culture & Infrastructure | Capital | Networks |
|---|--|--------------------------|---------|----------|
| Benwood Foundation - Philanthropic foundation focused on the following priority areas: place, culture, talent and competitive advantage. Numerous grants to local organizations including Causeway, Co.Lab (GIGTank Demo Day), and Engage 3D summer coding camp at the library. ²⁴ | | X | X | X |
| Blank Slate Ventures (Founded 2011) - Seed fund designed specifically for pre-revenue startups. First investment - Quickcue, LLC which sold to OpenTable, Inc. for \$11.5M in 2013. ²⁵ | X | X | X | |
| Chattanooga Renaissance Fund* (Founded 2011) - Formalized angel capital fund investing in seed and early-stage companies with funds of \$11M raised and 46 investments in 38 companies. ²⁶ | X | X | X | |
| Dynamo (Established 2016) - \$12M fund ²⁷ , accelerator and mentor-driven programs specializing in logistics, transportation, and supply chain startups. ²⁸ | X | X | X | X |
| Four Bridges Capital* - Middle market investment “boutique” bank. ²⁹ | X | X | X | |
| The JumpFund* (Established 2014) - \$2.5M angel fund ³⁰ investing women’s capital in female-led companies. ³¹ | X | X | X | |
| Lyndhurst Foundation* - Philanthropic foundation focused on “initiatives, institutions, people and programs that contribute to the long-term livability and resilience of the greater Chattanooga region.” ³² Numerous grants to local organizations including Co.Lab, TEC-Tech Goes Home and TechTown Foundation. ³³ | | X | X | X |
| Mayfield Annex - Originally constructed for the Chattanooga Chapter of the Fraternal Order of Elks (built 1907), later became government offices. Purchased by Lamp Post in 2016 to be renovated and repurposed into a technology incubator due to open in 2017. ³⁴ | X | X | X | X |
| River Associates Investments* - Lower middle market private equity fund. ³⁵ | X | X | X | X |
| River City Company - Nonprofit economic development agency focused on downtown Chattanooga – \$700M estimated retail/office/residential space under construction or about to start in the Innovation District. ³⁶ Sponsors a monthly Basecamp event in Miller Plaza (free WiFi) which features co-working space, a speaker series and a happy hour at the end of the day, all designed to foster collaboration and networking. ³⁷ | X | X | | X |
| Spartan Ventures* (Established 2013) - Investment arm of software/product development company. ³⁸ | X | X | X | |
| Swiftwing Ventures (Established 2014) - Venture capital firm seeking to invest in the \$1 million range for mature startups. Seven current investments including TechTown. Swiftwing’s offices are in the redeveloped Fleetwood Coffee building (built 1903) which has been vacant since the 1970s and reopened with mixed use office and residential space in 2016. Principals of Swiftwing are also associated with Noon Development who owns Fleetwood. ³⁹ | X | X | X | |
| TechTown* (Established 2014) - Technology and entrepreneurial learning center related to robotics, circuitry, 3D design software development (coding), and film for ages 7 to 17. ⁴⁰ | | X | | X |
| Tenth Street Capital Advisors - Lower middle market provider of mezzanine debt and equity. Since 2005 investments have been made in more than 100 companies and nearly \$400M has been raised. ⁴¹ | X | X | X | |
| Warehouse Row – (built 1864, Civil War fort ⁴²), redeveloped into an outlet mall that opened in 1989. In 2006 it was sold and redeveloped into a mixed use facility of offices, high-end retail and restaurants. ⁴³ Currently home to: Bellhops (HQ) - Local startup, tech-enabled, on-demand moving company in 85 markets which has raised more than \$22M since launching in 2013. ⁴⁴ Southtree & Legacybox (HQ) - Local startup with an innovative process for digital preservation of aging home movies and photos that was launched in a garage by two college students in 2009. The company, with \$9.6M in revenue, has more than 100 employees in the community and was #353 on <i>Inc.</i> magazine’s 2016 list of top 500 fastest-growing companies. ⁴⁵ Vayner Media - New York based advertising firm, recruited to the Innovation District in 2015 with 10 employees, expansion plans to add 75 employees announced in 2016. ⁴⁶ | | X | | X |

| Additional (quality of life-related) | Business Technical Assistance & Training | Culture & Infrastructure | Capital | Networks |
|--|--|--------------------------|---------|----------|
| 700 Market Street - New \$30M apartment building under construction on lot (vacant since 2000), project will include 125 apartments and space for office, retail and restaurants. Opening in 2017. ⁴⁷ | | X | | X |
| Bessie Smith Cultural Center - Performance hall, educational institution, community event space and African American museum. The facility pays homage to Bessie Smith and honors the many contributions African Americans have made to Chattanooga. ⁴⁸ | | X | | X |
| Bike Chattanooga - Bike transit system with 33 solar powered stations; rides less than 60-minutes are free. ⁴⁹ | | X | | X |
| CARTA - Public transit system operating fixed route bus service featuring free WiFi and a free electric shuttle downtown. ⁵⁰ A new electric car-sharing program (announced 2016) will have stations downtown including in the Innovation District. ⁵¹ | | X | | |
| Chattanooga Choo Choo entertainment complex* - Hotel (built 1908) redeveloped in 2014. Hotel rooms were refurbished and 98 were converted to apartments with free WiFi. New retail, entertainment venues and restaurants were added. ⁵² | | X | | X |
| The Clemons - Redeveloped building (built 1918), converted to 54 apartments with street level retail. ⁵³ | | X | | X |
| Miller Park District - Includes Miller Park, Miller Plaza, Waterhouse Pavilion and Patten Parkway. The area features green space in the heart of the Innovation District with free WiFi. ⁵⁴ Free entertainment is offered throughout the year at Miller Plaza including the Nightfall series of Friday evening concerts from May to August featuring local opening acts and national and international headliners. A \$10M public-private plan to redevelop and improve the area for better connection and pedestrian-friendliness has been approved and will begin construction in winter 2016. ⁵⁵ | | X | | X |
| The Tomorrow Building (A Lamp Post Property project) - Former hotel (built 1888) which later became a restaurant and music venue, vacant since 2013. ⁵⁶ Redevelopment is underway to convert the building into the first micro-apartment, co-living residence in the southeast. Collaborative space will be available on each residential floor with retail targeted for the ground floor. Plans include community programming and workshops with industry experts. Lease levels start at 3, 6 and 12 months. ⁵⁷ | X | X | | X |

*located a few blocks beyond the official quarter mile boundary

As described above, innovation districts blend elements of industry and place-making and include cultural and quality of life amenities that appeal to workers and residents alike. In addition to all the previously listed resources, the dense mix within the quarter mile boundary includes, by sector category (number of businesses), information (16), finance and insurance (68), professional and business (73), leisure and hospitality (48), other and personal services (44).⁵⁸

The *Tennessee Economic Development Finance Course* provided an opportunity to study the capital component of the support system in greater detail. The section on access to capital lending tools included examples of innovation financing, presented in terms of a “capital continuum,” which highlighted the changing financial requirements of entrepreneurs in various stages of business.⁵⁹

As demonstrated in the chart above and discussed during this course, seed and venture funds are an integral part of the entrepreneurial financing landscape. For Chattanooga, the advent and success of such local funders has been a chief building block of the Innovation District.

The course supplemental material also highlighted opportunities to obtain non-local funding including from the National Science Foundation (NSF) which offers the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.⁶⁰ The focus of these funds is well suited for the kinds of innovative businesses Chattanooga is cultivating.

Data show that Chattanooga businesses are tapping into NSF funds but as a percentage of total state awards the share is small. From 2010 through 2016-to-date, \$9M in SBIR awards and \$350K in STTR awards were granted to local companies.⁶¹ These awards represent 11% and 3% respectively of all funds bestowed to businesses within the state of Tennessee and, thus far, have funded local companies situated outside the Innovation District footprint.

Tracking of such awards for comparison among peer districts is currently being evaluated as a potential metric⁶² by the Brookings Institution, Project for Public Spaces and Mass Economics who are collaborating, "...to devise and test an audit tool for assessing innovation districts."⁶³

What impact do start-ups and innovators have on firm formation and job creation?

Recent research demonstrates the significant impact small, young companies and innovators can have on the economy. The Kauffman Foundation has produced a number of studies based upon analysis of the U.S. Government's Business Dynamics Statistics dataset. A 2010 study of the effects startup companies have on net new job creation included the observation, "...startups aren't everything when it comes to job growth. They're the only thing."⁶⁴

In 2013, Kauffman took the analysis a step further by demonstrating the key role that innovative high-tech startups and young firms (less than 5 years old) play in leading net job creation. The study differentiated between private sector companies as a whole and high-tech companies in two categories – high-tech overall and a subset identified as information and communications technology (ICT). High-tech companies were defined as those employing a higher degree of science, technology, engineering, and math (STEM) occupations.⁶⁵

| Findings included: | High-tech | ICT |
|---|------------------|------------|
| Percentage “more likely” than the private sector to witness a new business formation over the last 30 years | 23% | 48% |
| Percentage growth in firm births from 1980 to 2011 Note: private sector as a whole saw a 9% decline for the same period | 69% | 210% |
| High-tech startup growth occurs at such an accelerated pace that job losses due to failures are offset by job creation. | | |
| Access to technology is spreading so rapidly that the formation of high-tech firms is becoming more dispersed across the U.S. | | |

Research conducted by Enrico Moretti, reveals the pervasive impact that innovation jobs have on the wider economy. In *The New Geography of Jobs*, he noted⁶⁶:

| |
|--|
| Salary growth stems from productivity growth. |
| Local service jobs, “are the <i>effect</i> , not the <i>cause</i> , of economic growth,” in part because the productivity related to service jobs changes little over time. |
| Productivity in the innovation sector increases every year due to technological progress. |
| For each new high-tech job in a city, five additional local service jobs are ultimately created outside the high-tech sector in that city, both in skilled and unskilled occupations. |
| Two-thirds of American jobs are in the local service sector. |
| “...what happens to the innovation sector determines the salary of many Americans, whether they work in innovation or not.” |

These research examples show the growth potential of the innovation economy.

What results have established innovation districts produced?

The first officially labeled U.S. innovation district was announced by Boston’s mayor Thomas Menino in 2010 and located in an area of Boston known as the Seaport District.⁶⁷ A 1998 *Boston Globe* article described the area as “...a development orphan – a wasteland of low-rent warehouses, rotting wharves, and windswept parking lots.”⁶⁸ Although some development occurred over the years, in 2010, the description was still largely applicable.

Soon after the district announcement, while Mayor Menino and his team were exploring innovative companies to potentially recruit, they were made aware that MassChallenge, a new local accelerator and competition, was looking for a larger space. The mayor assisted MassChallenge in making the move to the district with an initial rent-free one-year lease (extended to five years total) of 25,000 square feet. The company was the first tenant in an 18-story speculative office building.⁶⁹

The first MassChallenge competition, held in 2010, attracted 450 applicants and graduated 111 finalists that collectively raised funding of more than \$90M and created 500 jobs.⁷⁰ Before the company's lease expired in 2014, a developer enticed the accelerator to move to the district's east side to again act as a magnet for attracting tech companies.⁷¹ In 2014, the company announced a partnership with the Clinton Global Initiative to expand the program to 10 additional cities worldwide.⁷² The MassChallenge 2015 impact report states that to date, 835 startups have completed the program, creating 6,500 jobs, with revenue of \$520M and \$1.1B raised in outside funding.⁷³

Statistics published on the Boston Innovation District's website show that over 200 new companies and over 5,000 new jobs have been generated in the district. Of these jobs, technology companies are responsible for 30%, creative companies (including design and advertising) 21% and green tech and life sciences 16%. Of the new companies, education & nonprofits make up 11%, 40% reside in co-working or incubator space, and 25% have 10 or fewer employees.⁷⁴

In 2016, GE announced that it would move its headquarters from Connecticut to the Boston Innovation District. "In Boston, GE will have...200 corporate staff and 600 digital industrial product managers, designers and developers split between GE Digital, Current, robotics and Life Sciences. A GE Digital Foundry will be created for co-creation, incubation and product development with customers, startups and partners."⁷⁵ Time will tell, but there is great potential for GE to be both a *beneficiary* (workforce and innovative ideas) and a *driver* (mentor and investor) of the innovation ecosystem in Boston.

As Moretti's research indicated, success in the innovation economy ripples through the rest of the economy. A 2016 report published by CBRE | New England⁷⁶ states that the development of the innovation district has turned, "...Boston's decaying industrial waterfront, into the most desired business location in New England – not because of its bricks and mortar, but because it is now a unique nexus of information flow and ideas." Additionally, "Construction activity remains high in all asset types; there are several residential projects...and additional retail amenities...Skanska broke ground in the summer on the first speculative office building in the Seaport since 2008...the remaining 12.5 acres of land in the Seaport Square development [was purchased] for \$359M, one of the largest sales in Boston for an unbuilt site and another example of the strong investor confidence...especially in the Seaport District."

Boston continues to create mechanisms to support the entrepreneurial environment that is generating so much success. In the fall of 2015, Mayor Walsh announced the launch of StartHub, an online tool, "...for entrepreneurs to find programs, events, funding sources, prospective employees, guidance and general support for their startups."⁷⁷

The StartHub site demonstrates the breadth and depth of Boston's innovation ecosystem and brings all of the resources together in one easy-to-navigate space. The site generates excitement with featured success stories and company announcements. It helps locals understand the environment, find business support and jobs and, for those outside the area, advertises the wealth of knowledge and assets available in Boston.

The Chattanooga Innovation District has a web presence that currently functions to educate visitors about the *concept* and highlights national studies featuring Chattanooga and information about activities and resources available at The Edney Innovation Center. The site could be expanded to become an online hub to aggregate and showcase all local resources, as well as job opportunities, and could likewise, serve to entice, assist, and advertise assets to interested entrepreneurs and prospects.

The expanding innovation economy holds much promise for the Chattanooga community and planners were deliberate in including a strategic goal regarding *digital inclusion*. The Task Force report stated that, "Chattanooga will only be successful in this new economy if we focus effective efforts on increasing digital inclusion among all citizens and offering everyone the benefits of an increasingly computer and web based world."⁷⁸

To assist in developing a local initiative, established programs were reviewed and, once again, Boston provided the best example with an innovative digital inclusion program known as *Tech Goes Home* (TGH).⁷⁹ The program prioritizes low-income and underserved populations and addresses three core issues: education, hardware and low cost connectivity. TGH offers a free 15-hour course that includes instruction on computer basics and skills related to accessing information and resources online. After course completion, new laptops may be purchased for \$50 and participants are assisted with choosing a low-cost internet service. Since 2010, TGH has trained more than 20,000 people of which 75% have household incomes under \$25,000 and 51% were unemployed. Since 2013, 400 local entrepreneurs and small businesses have been trained.⁸⁰

The Enterprise Center worked with TGH to build a local pilot program that led to Chattanooga's designation as a "TGH City."⁸¹ Tech Goes Home Chattanooga celebrated a

milestone in spring 2016 with 1,000 program graduates. Graduate surveys taken at 6 and 12 month intervals report: 91% maintain home internet access, 100% use their devices to go online, computer skills rated on a scale of 1 to 10 increased from 4.3 to 7.4, and 72% have taken additional online training. At the end of 2015, the program received the National League of Cities' "Most Promising New Plan" award.⁸²

As evidenced in the examples from Boston, impacts associated with an innovation ecosystem can range from returning vacant and underutilized property to productive use, to providing a key ingredient for the recruitment of a Fortune 100 company, to inspiring creative approaches for disseminating education and tools that enable a wider cross section of the community to participate in the digital economy.

The Cortex Innovation District in St. Louis also offers examples in each of these categories.

Similar to Boston, the St. Louis district is located in an old industrial area described as, "...suffer[ing] from a multitude of physical and economic deficiencies including...deterioration of site improvements...excessive vacant land and buildings...[which] constitutes an economic and social liability...in its present condition and use."⁸³

Over the years, the development of the Cortex campus has included new construction and refurbishment. The Western Electric Telephone Co. building, constructed in 1949, is one example of redevelopment in the district. The renovation of the building, now referred to as "@4240," incorporated both strict adherence to historical preservation guidelines for the exterior and all the criteria to achieve LEED Platinum certification.⁸⁴ The building was completed in early 2014 and by late summer 2015, was 90% occupied with more than 65 tenants and 450 workers.⁸⁵

In April 2014, Boeing Ventures, the startup unit of Boeing's defense, space and security division, announced plans to move into @4240 with about 20 employees. The team manages three to five startup ideas per year coming primarily from Boeing engineers. A Boeing official stated that, "the unit is moving to Cortex to put its employees...around like-minded people concentrated on innovation and entrepreneurship...allow[ing] us to develop new capabilities and develop new processes...[the] collision of ideas and people will be unprecedented." He also explained that the move will help in efforts to, "change the mindset of the entire Boeing company by making it more innovative in its everyday thinking."⁸⁶

The benefits of Cortex’s innovate environment are being tapped by Boeing through the placement of a satellite office within the district. Chattanooga might employ the “satellite office” idea as a recruitment tactic. Local companies might also consider how an outpost in the Innovation District could escalate innovative development.

In terms of community inclusion, the Cortex district has focused on advancing opportunities for a diverse local population through education and jobs (both permanent and construction). In a Brookings Q & A report, Dennis Lower, president and CEO of Cortex, discussed the Collegiate School of Medicine and Bioscience. “Working closely with the school district’s superintendent and...leaders, we have been developing an urban high school centered on one of the major strengths of our Cortex sponsors – bioscience. We recruited our first class in 2013...and in 2015 moved to a permanent location that can support 400 students. The students [represent] the largest spread of zip codes of any regional public school. Currently, 53 percent of the students are African American, 23 percent are Asian, and 22 percent are white...”⁸⁷

Cortex has also taken steps to ensure that contracts are awarded to companies owned by minorities and women. The district is making use of tax increment financing (TIF) for development and eleven distinct areas have been designated within the footprint.⁸⁸ The TIF policy requires that construction projects meet percentage goals for contracts and purchases from minority-owned and women-owned businesses as well as for labor hours worked by minorities, women, St. Louis residents and apprentices.⁸⁹ To create transparency, compliance is monitored by third-party agencies and results are posted on the Cortex website.⁹⁰

In Chattanooga, a new city program called *The Neighborhood Economic Development Tax Rebate* is currently being crafted. Media reports have described, “...a tool for addressing inequalities...to encourage dramatic results by getting businesses to ‘double down on their neighborhoods.’” The program will be designed to “...[encourage] businesses to locate in commercial corridors that have experienced neglect.”⁹¹ This may be an opportunity to consider incorporating guidelines for the use of minority contractors and suppliers as seen in the Cortex example.

The Cortex district anticipates that employment opportunities with resident companies will be available at all education levels. The “Cortex Inclusion Commitments” page states that, “New jobs will include researchers, entrepreneurs, technicians, managers, office support, retail,

restaurant, and property services...”⁹² The Cortex postings portal for district jobs includes links to individual companies and to the St. Louis Agency on Training and Employment.⁹³

Both Boston and St. Louis are assisting job seekers with online access to job postings associated with their districts. As already mentioned, Chattanooga could likewise provide such a service within a more robust website designed to aggregate all resources related to innovation.

Conclusion

The current era, marked by disruptive technologies and open innovation, is changing the business landscape. Successful communities must leverage their unique assets while striving to take their place in the innovation economy.

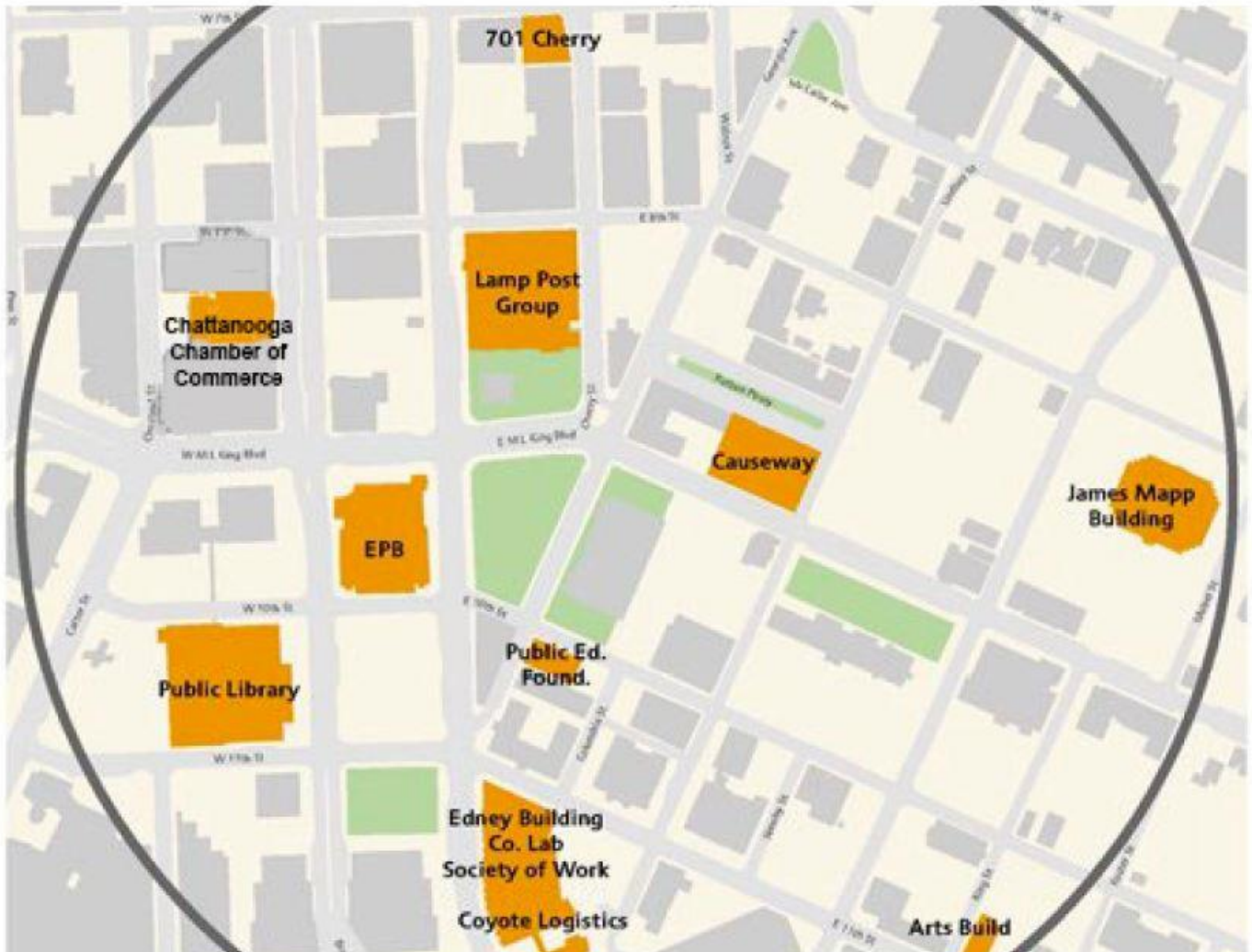
The formation of innovation districts as a means of capitalizing on the information and technology economy is a relatively new phenomenon in the U.S. and has occurred almost exclusively in large metropolitan areas. Chattanooga’s innovation ecosystem, now officially designated an *innovation district*, is the first in a mid-sized city, and a recent addition to local economic development strategies.

As documented throughout this paper, a tremendous amount of economic activity, including firm recruitment and formation and related job growth, has taken place in the district within a very short period of time. The emphasis on both industry and place-making has led to commercial, residential, quality of life and educational investments.

The Chattanooga Innovation District continues to develop and prosper due to the individual efforts of resident businesses, funders, mentors and leaders as well as their collective contributions to the whole. Their investments and accomplishments coupled with efforts to brand, market and establish partnerships have garnered media attention and interest from national scientific, advocacy and public policy agencies.

Not only is the Chattanooga Innovation District making a unique contribution within its boundary, it serves as a resource for the entire community and as a draw for prospective companies, regardless of sector, who recognize that it exemplifies the intentional way in which Chattanooga is setting a course for the future.

The Chattanooga Innovation District - Anchors⁹⁴



RESOURCES

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