

# ENABLING SMARTER COMMUNITIES:

*The Case of the  
Chattanooga Public Library*



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UNIVERSITY AT ALBANY  
State University of New York

# Enabling Smarter Communities:

## *The Case of the Chattanooga Public Library*

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## INTRODUCTION

This case is part of the IMLS funded project “Enabling Smart, Inclusive, and Connected Communities: The Role of Public Libraries.” For this project, the Center for Technology in Government (CTG UAlbany) and the American Library Association (ALA)’s Center for the Future of Libraries partnered to better understand how public libraries can advance their role as community anchors in smart city initiatives by contributing to the community’s understanding of and participation in such initiatives.

In addition to four in-depth case studies, the four-year project (2018-2021) included a literature and current practices review, which resulted in a current practices report, and two national surveys. The results from these three activities informed the creation of a policy guide and a toolbox with various resources. *The Opportunity Agenda and Roadmap Report*, as the policy guide, identifies areas of opportunity for public libraries to become strategic partners in the development of smarter, more inclusive and more connected cities and communities. The *Libraries in Smart Cities and Communities Toolbox* provides a set of resources for public libraries that seek to strengthen their role in developing a smart city/community.<sup>1</sup>

### About the Case Studies

During late 2018 and early 2019, the project research team conducted four in-depth case studies in Chattanooga, Tennessee; Chicago, Illinois; Ignacio, Colorado; and Saratoga Springs, New York. The four locations were originally identified in the research proposal to IMLS and picked to represent diversity in the size of the public library and the population it served as well as geographical location in the United States. In addition, the project team looked for public libraries that had some publicly documented involvement with smart city or smart community initiatives. Each of the four cases selected met these criteria.

For each location, the project team conducted on site face-to-face interviews with individuals from the public library, local government and other stakeholders from the community. In most cases, the public library director or designee played a critical role in helping the project team identify interviewees.

Interviews for each case covered the following themes: 1) community context; 2) the library’s contribution to developing smart communities; 3) benefits of the program and services; 4) challenges and costs and actions to address them; and 5) main lessons learned. Then, the research team discussed important similarities and differences among the cases and overall insights. The results were used to inform the development of a national survey, the preliminary development of the toolbox and policy guide and four case study reports.

For this case study report it is important to note that the information included and the analyses made by the CTG research team are based on the individuals interviewed and the status of the

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<sup>1</sup> All of the project’s resources available at <https://www.ctg.albany.edu/projects/imls2017/>

programs and services that the library provided during the timeframe of late 2018 through early 2019. Since that time, some of the individuals interviewed have changed jobs and public library programs and services discussed have changed.

## CASE BACKGROUND

CTG conducted interviews for this case study in November 2018 in Chattanooga. Below is a brief description of the Chattanooga Public Library. We also describe the community context in which the library exists.

### The Chattanooga Public Library

Located in the heart of the downtown area, the Chattanooga Public Library (CPL) was constructed in 1976 and includes 108,500 square feet of conditioned space. In 2009, according to an extensive independent assessment (Garcia & Kent, 2009), the CPL was described as “ugly, irrelevant and mismanaged.” In addition, in 2011, due to a lack of an agreement between the city of Chattanooga and Hamilton County on sales tax, the ownership of the library buildings remained joint with the county, but the financing operation became the sole responsibility of the city. As a result, the CPL was under significant pressure and faced great challenges regarding its future development.

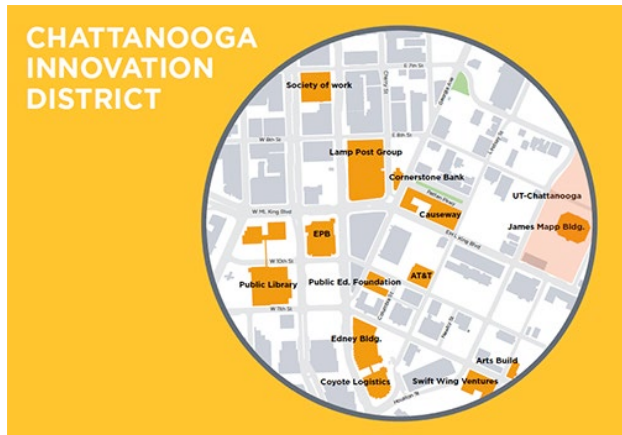


In 2012, the CPL started a strategic planning process aimed at transforming the library into a new and vibrant facility that reflected a culture of change and innovation. The library expanded its service area beyond the Chattanooga residents to include Hamilton County Public School students. It did so through its four branches: the Downtown Library, the Northgate Library, the Eastgate Library and the South Chattanooga Library. The building was renovated to provide a better environment for the patrons and an open space where users could get together, communicate and connect. Connection to the Gig enabled further innovation in space, programs and services to better serve the community. For example, in 2013, a third of the Chattanooga Public Library’s print collection – encyclopaedias, reference articles, unpopular novels – was sold at a public auction to turn an entire floor into a makers’ lab named the 4<sup>th</sup> Floor. Later on, in 2014, the CPL began hosting the city’s open data portal. Since then, the CPL has invested in programs and services aimed at turning a traditionally print-centered institution into a community digital hub.



## The Context

Chattanooga is a growing, mid-sized city located in southeastern Tennessee along the Tennessee River with an estimated population of 179,139 (in 2017). It's the 4<sup>th</sup> largest city in Tennessee. In 2010, Chattanooga became the first U.S. city to roll out a citywide Gigabit network. In 2015, the city-owned fiber Internet run by the Electric Power Board of Chattanooga (EPB) reached 10-Gigabit speeds<sup>2</sup>. The availability of fast and cheap Internet connectivity provides great opportunities for the development of smart city initiatives in Chattanooga.



Right next the downtown branch of the CPL, there is about a quarter-mile walking radius called the Innovation District of Chattanooga. Through public-private partnerships, it helps build the tech sector for the city and facilitates the development of the new knowledge economy and local entrepreneurial ecosystem. Within the Innovation District, there is an innovation hub called The Enterprise Center, which has been working closely with the CPL to provide digital and innovative programs and services to the community that contribute to the development of “smart” Chattanooga.

## City of Chattanooga's Smart Community Strategy

Faced with the challenge of an aging transportation infrastructure in the city, Chattanooga developed the Chattanooga Smart City plan<sup>3</sup> with a focus on building an adaptive and efficient transportation system to increase mobility, improve safety, and better respond to sustainability challenges. The plan has five interconnected priority areas: safer streets, stronger neighborhoods, smarter students and stronger families, high performing government and a growing economy. In 2018, a member of the city transportation department was assigned as the Smart Cities director of Chattanooga to lead the development and implementation of the integrated, smart transportation system.

In 2018, a new initiative named the Chattanooga Smart Community Collaborative was announced. It included Electric Power Board of Chattanooga (EPB), Erlanger Hospital, the University of Tennessee at Chattanooga (UTC), the city and Hamilton County governments,

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<sup>2</sup> <https://www.pcmag.com/feature/360564/gig-city-how-chattanooga-became-a-tech-hub/3>

<sup>3</sup>

[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiQxtrYhuixAhVsEVkFHWvUBLsQFnoECCQAA&url=https%3A%2F%2Fwww7.transportation.gov%2Ffile%2F59866%2Fdownload%3Ftoken%3DYsY4dQ8a&usg=AOvVaw3QTXEy4odJduUKMGd80x\\_k](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiQxtrYhuixAhVsEVkFHWvUBLsQFnoECCQAA&url=https%3A%2F%2Fwww7.transportation.gov%2Ffile%2F59866%2Fdownload%3Ftoken%3DYsY4dQ8a&usg=AOvVaw3QTXEy4odJduUKMGd80x_k)

Co.Lab<sup>4</sup> and the Enterprise Center. The collaboration aimed to continue Chattanooga's role as a leader in technology research with a combination of expertise from different fields.<sup>5</sup>

Besides technology-focused initiatives and strategies, Chattanooga also has other types of non-technology-based smart city initiatives. In 2015, Chattanooga 2.0<sup>6</sup>, a community-wide initiative was raised to work on achieving academic excellence for all students in Hamilton County and to provide an educated workforce to fill the growing job opportunities in the region.

Drawing on this project's *dimensions of smartness*<sup>7</sup> Chattanooga has made important progress, but also has the opportunity to invest in a few specific areas to help make the city an even smarter community. For the *technology deployed throughout the community* dimension, the City of Chattanooga provides the foundational smart technology of high-speed Internet throughout the entire Chattanooga community. From the *innovation (mainly technological innovation)* dimension perspective, as noted above with the Chattanooga Smart Community Collaborative, the city is in the process of deploying other smart city/community initiatives that will be possible due to the available broadband. Chattanooga's strength in both of these areas (broadband availability and a smart technologies investment plan) provides the community with a foundation on which to build innovative services, grow new businesses and enhance the quality of life throughout the entire community.

The *community/stakeholder engagement in city/community matters* dimension in Chattanooga is strong and has been so for years. The Electric Power Board's investment in high-speed broadband Internet and making that available to other community stakeholders was an important catalyst of this engagement and community stakeholders partnered and strategized on how they could leverage the technology to support the overall wellbeing of the city.

While *citizen participation/engagement in city/community matters* is a priority of the city government, there is less evidence supporting this dimension when it comes to engaging the public in the planning, design and implementation of smart city/community initiatives. This is one area that is ripe for improvement, given the role that the library plays in engaging with the public and serving as a place to bring citizens and other community stakeholders together. Finally, as with all of our four cases, the *impact* dimension is one that is the most difficult to assess. In general, cities and public libraries measure outputs, but do not assess long-term impact. Yet, it seems that the smart city/community initiatives in Chattanooga, as well as the programs and services of CPL, are making an impact in the community. For example, the efforts of the city and the Enterprise Center to build an innovation district contribute to the economic development of the area by creating jobs, promoting entrepreneurship and entrepreneurial

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<sup>4</sup> Co.Lab is a nonprofit startup accelerator that supports entrepreneurial growth in southeast Tennessee. More information at <https://colab.co/>

<sup>5</sup> More information at <https://www.utccuip.com/csc>

<sup>6</sup> <https://chatt2.org/>

<sup>7</sup> Technology deployed throughout the city/community, innovation (mainly technological innovation), community/stakeholder engagement in city/community matters, citizen participation/engagement in city/community matters, and impact.

activity, and offering digital services to businesses. Similarly, the many of the programs and services of the CPL have a very important inclusion component (that has sometimes been controversial) that impacts the wellbeing of marginalized residents, such as the homeless.

## LIBRARY CONTRIBUTIONS TO DEVELOP A SMARTER COMMUNITY

Governments in the United States and beyond are investing in a wide range of technologies to make their communities smarter. However, truly smart communities are built by smart citizens. Smart citizens are not only aware of and have the opportunity to benefit from what technology has to offer. Further, they can contribute to smart city/community strategies and help build the city/community they live in. Public libraries recognize this and invest in and design programs and services to help library patrons to become smart citizens by accessing, understanding and purposefully using technology.

Based on our interviews in Chattanooga with individuals from local government, the Chattanooga Public Library and external partner organizations of the library, it is evident that the CPL is contributing to making the community of Chattanooga smarter in several very important ways. The below programs and services specifically are tied to the smart community dimensions of *technology deployed throughout the community* and *innovation*, which is particularly important to develop smart citizens. Taking advantage of the Gig connection of the city, the CPL plays a crucial role in helping Chattanooga residents access and use broadband Internet and other technologies in some very innovative ways. The following programs and services are organized into three categories: *developing smart citizens*, *enabling citizen participation*, and *providing an innovation environment* (Gasco-Hernandez et al, 2021). We briefly explain these categories at the beginning of each section.

### Developing Smart Citizens

This category refers to public libraries' digital inclusion and digital literacy efforts. First, it includes the Internet-enabled services that public libraries offer their communities. These services include free public access to broadband Internet, Internet-enabled computers, wireless Internet access (Wi-Fi), e-books, wireless printers, and more advanced technologies such as 3D printers and other development technologies (Mersand et al, 2019, IPAC, 2014a). In rural and low-income urban neighborhoods, this service is a particularly valuable lifeline for the community, because the lack of broad availability of these technologies in households (Alemagne et al., 2011; Goodman, 2014; Hildreth, 2012).

Second, developing smarter citizens can be enhanced through digital literacy programs and services, which in public libraries include offering training and assistance for patrons on how to effectively use a range of technologies such as computers, tablets, mobile devices, printers and the Internet. Public libraries provide a range of training starting with basic computer skills to more advanced productivity and other software and applications that are commonly available



and in use. In addition to formal training classes, public libraries offer community members the opportunity to schedule or even drop in unscheduled to get help from a librarian on how to use a particular type of technology, computer software, or application (Gorichanaz & Turner, 2017; Jerkov et al, 2015; IPAC, 2014b).

For the Chattanooga Public Library, a Gigabit broadband connection is an essential tool in its efforts to create a library structure that is flexible enough to meet the library's mission to be the community's catalyst for lifelong learning. Connection to the Gig has clearly enabled the offering of free high-speed Internet access to patrons, who cannot enjoy connectivity at home or at work due to a lack of resources. In addition, the CPL provides access and use of hardware, such as public computers, colour and black-and-white printers, scanners and fax machines. As one of our interviewees said: "There are a lot of digital based resources on the first floor; a lot of people who utilize those have low digital literacy skills, and then there is also a lot of people who just don't have enough resources to have the Internet at home."

The library also brings in advanced technology devices and tools to keep up with the latest technology developments and new demands from the patrons. For example, 3D printers, laser cutters, vinyl plotters, and CNC routers (i.e. computer-controlled cutting machines) are available for patrons to explore and experiment with at the 4<sup>th</sup> Floor, the library's makerspace. One librarian told us: "What we get is based on what people want, because otherwise you know... I think it is our job to decide what we're going to buy, but a lot of that input comes from what the community needs. I don't want to put another 3D printer up there if it's just going sit there or it is only going to be used by fifteen percent of the people. But if people are going to be, you know, making T-shirts and need sewing machines, let's get some sewing machines."

#### Computer training at different levels

The CPL offers a variety of training services to help patrons better interact and use the available technologies and technological resources. There are several options for users to engage in this type of training according to their needs and skills level: lessons and tutorials range from basic computer courses (e.g., how to use a mouse or how to set up a smart phone), to advanced training (e.g. how to use photo editing and 3D printers), to application courses (e.g., teaching how to file tax returns or apply to jobs online).

#### 45-minute, one-on-one consultant

The CPL provides 45-minute, one-on-one sessions for patrons to consult librarians about their specific problems. One of the library staff told us that "a lot of it (one-on-one consultation) is things like how to download books. So we'll get, you know, people needing help with their e-books or with their phone or their laptop. We get a lot of like basic stuff, like how I set up my laptop and how I set up my smart phone. I need help applying for jobs... that's a big one and that's a big need."

### Tech Goes Home Chattanooga (TGH CHA)

Partnered with the Enterprise Center, the CPL helps implement the TGH CHA program by offering free courses designed to help residents, who usually belong to low-income and underserved areas of the community and therefore have limited exposure to the Internet, develop skills and habits required for smart technology and Internet use. Participants receive fifteen hours of classroom training to help them understand why the Internet is relevant in their daily lives, have the option to purchase a new Chromebook or tablet for only \$50 (upon completion of the course), and receive assistance in obtaining access to low-cost home Internet. One interviewee from the Enterprise Center told us: “what was beautiful about the Chattanooga library was that they were willing to experiment and to do some other things. In this particular case (TGH CHA), we have worked closely with them in all the digital equity sides... the library was very instrumental in the early days of helping set the program up.”

### Enabling Citizen Participation

Programs and services in this category can also include the role public libraries play in helping citizens engage with government and other stakeholders and participate in the planning for and process of making the community smarter. For example, using the public library and its staff to facilitate a conversation on which technologies and how they will be used will actually benefit the community and its needs (Maxwell, 2018).

### Chattanooga Open Data Portal

In 2014, through a partnership with the City of Chattanooga as well as the Open Chattanooga Brigade, the CPL hosted and managed the city's open data portal<sup>8</sup> given the library's expertise in storing and managing information. More than one interviewee told us that the “library really can be at the forefront for housing the data and housing the information”; “As librarian(s), we (are) good at organization data and make it accessible and understandable.” The Chattanooga Open data portal makes it possible for citizens to access community data for informing, problem-solving and better engaging in community events and discussions.

### Chattanooga Memory Project

The CPL collaborated with the EPB on its Chattanooga Memory Project. In February 2018, the CPL created a platform<sup>9</sup> to collect stories, photos, videos, oral histories and other memorabilia from residents and organizations. Community members can upload their memories as photos, videos, voice recordings, texts or a combination of these. The project helps contribute to citizens' 21st century skills, especially their ability to create media products and to apply technology effectively. Through this activity, citizens get to know more about the history of Chattanooga and also help them develop social and cross-cultural skills. One library staff member shared her experience of promoting the Chattanooga memory project when she visited the senior homes, “Even though they didn't want to (submit)... they were smiling and

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<sup>8</sup> <https://data.chattlibrary.org/>

<sup>9</sup> <https://www.chattanoogaemory.com/>

engaging in talking to each other. It really turned into like a group sharing session about their Chattanooga memories.”

### Providing an Innovation Environment

The programs and services in this category demonstrate how public libraries serve as knowledge hubs and innovation environments where social gathering, interactive learning and creative production, including the development of entrepreneurship and civic innovation, take place (Leorke et al. 2018; Vilariño et al. 2018; Ylipulli and Luusua 2019). In addition, through these programs and services, public libraries offer their communities a safe and inclusive space where technology may be used to improve how citizens, businesses and other groups engage and conduct business with government (Ayre and Craner 2017).

### Makerspace

The CPL’s makerspace provides a great environment that allows patrons to get together and utilize different technologies and resources for creation, innovation and collaboration.

### The 4th Floor Gig Makerspace



In January 2014, an article in National Journal<sup>10</sup> referred to the Chattanooga Public Library as the “library of the 21<sup>st</sup> century.” The designation was not solely the result of the Gigabit connection but, rather, as the article explains, of its culture of experimentation and innovation, which started with the opening of the 4<sup>th</sup> Floor Makerspace. Taking advantage of the Gig connection, the CPL turned this old storage space into a public laboratory and educational facility with a focus on information, design, technology and the applied

arts. Over 12,000 square-foot space hosts equipment, expertise, programs, events and meetings based on patrons’ inquiries. It forms an interactive environment that facilitates patrons’ communication, creation and innovation. Most of our interviewees seemed especially fond of the 4<sup>th</sup> Floor. One of the interviewees stated: “This library is looking towards the future; they bring in the 3D printers, the DHTC5 for virtual reality to foster people’s imagination. There is definitely a change from a place to just come in and check out entertainment/factual information, to a place where you can actually do something.” The 4<sup>th</sup> floor makerspace provides a space and various resources that patron can take advantage and use for their own purposes. One interviewee believes that this is an example of “(the public library) is filling a niche for the community that was not really available.”

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<sup>10</sup>. Available at <https://www.nationaljournal.com/next-economy/solutions-bank/what-library-future-will-look-like/>.

At the 4<sup>th</sup> floor, one-on-one assistance is also available for patrons to better experience the advanced equipment and software. One of the interviewees stated that “the mayor, the library director and external partners all view the library as kind of the front door to help people figure out what it is they want to do. They have an idea, they think they may want to do this, they think they might want to build this, they think this might be a good startup idea, they think this might be a good product development idea, but they really don't know where to begin... so they show up at our doorstep. And so we're able to help (them) figure out this is how you corporate, this is.... you know we give them an opportunity to test out there their product models.” Patrons have taken advantage of the library resources and guidance to build parts and devices that help solve their issues. For example, a father made devices to facilitate the activities of his daughter who has mobility issues, a local business owner made vinyl for their restroom signs. Some people prototype their ideas, sell them to other companies or start their own business. For example, some businesses have designed and printed T-shirts for different events. The CPL also conducts a Small Business Saturday Program to encourage and help business owners spread the word about their goods and work on expanding their businesses.



### The Studio

Located on the 2nd floor of the library, “The Studio” is another popular program that the CPL designed to help inspire, educate and spark creativity among patrons. The professional equipment and training allow patrons to develop or improve music recording techniques or work on their own projects. “We [The CPL] are not competing with the local recording studio. So when someone’s going to pay three hundred dollars an hour they now understand what they’re paying for. But we’re also giving them the ability to come in and try it out and then, you know, hopefully move on,” said one of the library staff.



With the low latency software provided by the EPB, the CPL installed the low-latency audio visual streaming system that allows musicians from different places to remotely play music together with no time delay. The local newspaper, the Chattanooga Time-Free Press, hosted a "Music Wednesday" show on Facebook featuring a live musical performance and discussion. Through a partnership with **Chattanooga. Girls. Rock!**, the CPL also designed a summer program for girls focused on music education training and practice using the studio.

## Future Actions to Contribute to the Development of Smart Communities

Relying on the Gig connection, the CPL has implemented many innovative programs and services to serve as the community's catalyst for lifelong learning. When talking about the plan for its future development, many interviewees believe: "there is a lot of potential for CPL to better serve the community and contribute to the development of a smart community." Here are some things they would like to work on for the development of a smarter Chattanooga in the future:

### Improve patrons' digital literacy and soft skills

The CPL would like to put more efforts on how to make "Internet safety fun." Especially for kids who interact with the Internet and technology devices all the time and make them better aware of "the impact of digital literacy to their future life." They would also like to partner with the school system to create curriculum to help improve the digital literacy for the younger generation. The library also feels there is a need to push the education about soft skills, like interpersonal communication skills. The library would like to "be more involved in and stay relevant to smart city development to help prepare our kids and our adult population for the digital world that we are all moving towards."

### Improve user engagement

From the interviews, some library staff emphasized that "I would like to see more people using this space as a work space or as a creative space... I would like to make the space more interesting for people and engaging, and that's something we really need to work on." In order to fulfill this goal, the CPL is thinking about different methods to refine their programs and services to better serve the community.

First, upgrade network infrastructure. Technology infrastructures are the fundamental resources to guarantee patrons' access to different kinds of information. The CPL plans to upgrade some of its old IT devices to better support its services for the community. Second, design user-centric new programs and services. At the downtown branch, the CPL plans to build a commercial kitchen on the second floor. One interviewee from the library management team believes it is urgent to do so and she said: "when you start looking at health and that the role that plays in quality of life. It's really not about food deserts. It's about people not having the skills, they don't have the confidence and they don't have the time to cook." This program aims to improve the awareness of healthy eating and provide methods to improve their quality of life, especially for kids and the underserved communities. In the Northgate branch, with consideration of patrons' needs, they would like to have more one on one computer training and notary services.



## BENEFITS OF THE PROGRAMS AND SERVICES

From our interviews we learned that CPL staff believe that, “The library is a place that provides equity, provides learning, provides knowledge and provides opportunity through the community.” Through different kinds of programs and services, the CPL has contributed to the development of a smart city in following three aspects:

First, as a technology and information hub, it provides patrons, especially low-income people, with free access to high-speed Internet, various kinds of technological devices and related technology training. It provides citizens with access to updated information, improves their digital literacy and bridges the digital disparity within the community. All of these initiatives help citizens better adapt to the technological development of the society and make them have a better understanding about the role of technology in smart cities. In addition, the library contributes to giving citizens the necessary abilities to take advantage of the technology to build a smart city.

Second, “the library is kind of a natural place to get some socialization.” It provides a safe and public meeting place where people can get together, talk and participate in different kinds of programs and events. It helps network building and community engagement. The interactive environment and various resources in the library also facilitate the civic innovation and development of entrepreneurship, which “is beneficial for the development of the local economy.”

Third, the friendliness and closeness to the community make the CPL become a very popular partner that many other organizations would like to collaborate with. The CPL itself is also very proactive to be involved in the city development. “Anything the library can do to sort of encourage that [smart city development] and foster that [smart city development], the library is on board.” Through partnering with other stakeholders in the community, it helps promote the smart city-related initiatives through different channels: community events, library programs and services, social media promotion messages etc. “They [the CPL] are an imaginative group... Some initiatives and programs will not work if there was no involvement of the CPL.”

## CHALLENGES AND COSTS AND ACTIONS TO ADDRESS THEM

From our interviews in Chattanooga, we identified three major challenges of implementing programs and services that contribute to developing a smart community.

### Budget

Financially, the CPL is solely supported by the city government. They support the city residents and the public school students in Hamilton County and constantly work on building new programs and services to better serve the community. “But the county has not put in any way shape of form, money-wise and dollar-wise to contribute to that success.” The limited budget hinders programs and services development.



In order to address some of the budget challenges, the CPL has been actively applying for funding, doing outreach and building partnerships with other organizations to support innovation in programs and services. “We have a really good relationship with some of our major foundations in town to use so that really helps us.” The library also elaborated a strategic plan to help prioritize their program development and try their best to provide high-quality services to the community.

In sum, with the limited budget, the library takes the approach, “budgeting for outcomes.” They review what they spent the year before and build a new budget every year to improve their effectiveness in budget management. They also work on relieving the budget pressure through grants and partnerships.

### Staff

During the transformation, the CPL has faced issues related to the quantity and skills of the staff. The limited budget leads to limitations in staff and staff time, which makes difficult to support new programs and services. The CPL has been very proactive in building partnerships with external organizations and applying for funding to bring more staff in and support the development of programs.

Besides quantity issues, there are also cultural issues, often related to the lack of skills. Some staff is reluctant to change to adapt to the innovation and transformation of the CPL. Regarding this challenge, the library brings in external experts to train staff to better adapt to the transformation of the CPL. For example, the library director brought in someone from the hotel industry to do customer service training and work on finding motivation for people to do their jobs in different ways.

In some branches, staff lack bilingual skills and have difficulty in communicating with patrons who are non-English speakers. “We have a large Spanish speaking community especially for passport services. So that was a challenge...” Regarding this challenge, the branch director “took Spanish lessons, scripts for different library things,” refined the job description and added the requirement of bilingual skills and hired bilingual staff members. The CPL also worked with the city to speed up the hiring process to get new staff for the library.

## MAIN LESSONS LEARNED

From our analysis of the Chattanooga case study we learned three main lessons that contributed to the Chattanooga Public Library's ability to help make their community smarter. These lessons can be useful to other public libraries interested in understanding how they can play a similar role in their own communities.

### Leadership

The CPL has achieved great success in transformation and innovation since the new director came on board in 2012. “Under the current leadership and new board, there is an openness,

people contribute ideas, and we can consider them.” “The library is sort of becoming the entrepreneur library where someone got an idea, we may not done it before, and sure we will think about it.” Within the library, there is a good relationship and communication among department heads. “Having good communication and setting aside time to meet just for communication purposes like helps more things happen.” The library also had a good delegation in their daily operation. They “hire staff with open mind to new programs and ideas” and “encourage staff to involve in outreach and serving different population and communities.”

### User-Centric Innovation

The library views itself as part of the community. They put efforts in relationship building with the community. They get to know the community and let them know about the library. They are responsive to the community needs, open to anyone with no discrimination and provide good quality services with taking advantage of the Gig and bringing in advanced technology. With its community-minded and innovative spirit, the library has been a pioneer in building innovative user-centric programs and services. The combination of programming and activities that you just don't see anywhere else.

### Successful Partnerships

The library has been actively outreaching and building partnerships with various stakeholders to maintain the relevance to the community and better serve the community. “We've purposely showed up at these meetings so that we are heard, and will show up when we're not supposed to be there you know to just have that voice.” “There is a tradition in the city of working collaboratively.” The library has a “good communication with and support from a well-run local government”... “The city is very supportive of the library which makes our job pretty easy, and the local foundations in town that we trying to get is very philanthropic” ... “It is very fortunate that other stakeholders recognize the role of the library and are willing to collaborate with it to serve the community.”

## FINAL COMMENTS

The City of Chattanooga continues to make significant progress in making its community smarter as evidenced by its ongoing investments in at least three of the five dimensions of smartness: *Technology deployed throughout the city/community*, *innovation (mainly technological innovation)*, and *community/stakeholder engagement in city/community matters*. The Chattanooga Public Library has been a key contributor in helping ensure that that much of the Chattanooga community can take advantage and benefit from these investments through the library’s robust and innovative digital literacy focused programs and services.

As described above, the Chattanooga Public Library provides a significant amount of cutting edge programs and services in the categories of developing smart citizens, enabling citizen participation, and providing an innovation environment to support patron’s business, entertainment, health and overall quality of life. In addition, the Chattanooga Public Library strategically invests in collaborations with other community stakeholders that help the library

stay involved and informed on community issues to include current and future smart technology investments.

We do believe that the library could be a stronger partners on the design and implementation of new smart city/community initiatives and play a larger role in bringing citizens together with government and other community stakeholders who are working on designing and implementing new smart technologies in the community. From our interviews with non-library community stakeholders who were most involved in Chattanooga's current smart city planning, the Chattanooga Smart Community Collaborative, the library wasn't at the table for those types of discussions. Having the library participating in the planning of smart city initiatives that will impact Chattanooga citizens is very important to helping ensure that the citizens who make up the library's diverse patrons are represented. The library brings a unique perspective on citizen digital literacy capabilities and some of their interests and needs based on the information they gather to evaluate current and design new programs and services.

Finally, as the city is planning for various smart technologies throughout Chattanooga, they should consider the library space and its staff as resources to expose citizens to these new technologies and provide the opportunity to answer questions and gather feedback from the community. Such a process will inform design and implementation strategies and ultimately help insure maximum value to as many community members as possible.

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