THE CITY OF CHICAGO TECHNOLOGY PLAN

TABLE OF CONTENTS

The Chicago Municipal Device.
Created in 1892, this "Y" shaped figure symbolizes the three branches of the river as they come together at Wolf Point. Our version re-envisions the device as a circuit board, capturing the spirit of Chicago's heritage while embracing the promise and potential of tomorrow.

LETTER FROM THE MAYOR

Dear Friends,

Chicago has long been known as a center of innovation. The steel-framed skyscraper was born here, as was the zipper, the automatic dishwasher, and the Ferris Wheel. In 1942, the first-ever man-made nuclear reaction took place at the University of Chicago.

This inventiveness has powered Chicago's growth from a town founded with a mere 350 residents in 1833 to a global city that 2.7 million people now call home.

Innovation continues to fuel Chicago's ambitions. Leaders in the public, private, and nonprofit sectors are working together to build stronger companies and a smarter city, using big data, civic engagement, and technology start-up incubation. We're using cutting-edge technology to accelerate Chicago's economic growth and create jobs, while making the city more efficient and livable.

Technology has the potential to propel Chicago to a future where government is increasingly transparent and effective and business is thriving.

The City of Chicago Technology Plan lays out our comprehensive vision for a future shaped by groundbreaking technology. The strategies and initiatives outlined here provide a roadmap to drive Chicago to its aspirations of opportunity, inclusion, engagement, and innovation for all.

Rahm Emanuel

Rahm Emanuel
Mayor of Chicago

BIG-SHOT TOWN, SMALL-SHOT TOWN, JET-PROPELLED OLD-FASHIONED TOWN, BY OLD-WORLD HANDS WITH NEW-WORLD TOOLS BUILT INTO A PLACE WHOSE HEARTBEAT CARRIES FARTHER THAN ITS SHOUT...

—Nelson Algren

EXECUTIVE SUMMARY

The most vital cities in the world enable their communities with leading-edge technology that engages, informs, and empowers. Mayor Emanuel's vision for achieving this is built on a commitment to modern infrastructure, smart communities, and technological innovation. The initiatives in this plan chart a course to realize Chicago's potential as a city where technology fuels opportunity, inclusion, engagement, and innovation for all.

The following public-private technology plan lays out the path to achieve this vision, highlighting five broad technology-based strategies and identifying current and future initiatives within each of those strategies that together will accelerate economic growth, build educated and digitally-engaged communities and workforce, improve government services, and reduce costs through technology. This plan will:

1. Enable and encourage major stakeholders in the public, private, and nonprofit sectors to focus, prioritize, and coordinate their technology-based efforts to achieve maximum impact for Chicagoans

2. Describe Chicago's plans and opportunities for partnering with private companies, universities, and other organizations to build a world-class broadband infrastructure and increase options for digital access across the city

3. Provide educational guideposts to ensure Chicago's students and workforce have the skills they need to succeed in technology-driven fields

4. Help guide communities as they support residents' digital success and business growth

5. Demonstrate the path Chicago is on to become the most transparent, innovative, effective, and efficient municipal government

6. Highlight how our residents are empowered to help create innovative solutions to big city issues

7. Help guide technology-based investments for entrepreneurs and businesses

Once implemented, the initiatives and programs described in this plan will help accelerate job creation, improve the quality of life for all Chicagoans, generate cost savings in government operations, provide increased digital access and skills, expand Chicago's STEM workforce, and continue to encourage civic engagement.

Potential Economic and Quality of Life Improvements Driven by Implementing the Plan

WHEN THE CITY...

CHICAGO BENEFITS FROM...

WHEN THE CITY...	CHICAGO BENEFITS FROM...
Employs new technology and data to improve government processes and services...	better, smarter, lower-cost government operations, services, and information.
Encourages civic innovation...	the power of an engaged society that helps identify and solve problems, both independently and collaboratively, with city government.
Engages and educates residents and businesses in technology to make every community a smart community...	the quality of life, employment opportunities, and business growth made possible by full participation in the digital economy.
Helps make world-class broadband and Wi-Fi available to business and residential communities, including currently underserved neighborhoods...	a technologically-savvy population that encourages investment, education, and engagement.
Encourages and supports growth in the Technology Sector, including Web/Mobile, Bioscience, and CleanTech...	the creation of new jobs and the expansion of the City's STEM-trained workforce.

THE VISION

Becoming a City Fueled by Technology

The Chicago Technology Plan highlights 28 initiatives within five broad strategies that together will enable Chicago to realize its vision of becoming the city where technology fuels opportunity, inclusion, engagement, and innovation. Two of these strategies are foundational—enabling Chicago's residents and businesses to be digitally-connected and engaged. Three growth strategies then build on this foundation of technological strength. Together, these five technology-focused strategies provide the path to solidifying Chicago's place as one of the world's leading cities.

Foundational Strategies

(A)

Next-Generation Infrastructure

Establish next-generation infrastructure that enables residents and businesses to become more digitally-engaged

High-speed Internet is becoming increasingly essential for both residents and businesses. Chicago is committed to making this resource available by engaging private companies, universities, and other organizations to build a world-class broadband infrastructure, increase options for broadband service in underserved areas, and provide free Wi-Fi access in public spaces across the city. Achieving these goals will support public and private technology initiatives citywide and will help residents and businesses become more digitally-connected and technologically-savvy. Simultaneously, the City is working to implement infrastructure to collect and share data that will help residents and visitors navigate daily city life, allowing them to connect with city data in innovative and meaningful ways.

This strategy lays the foundation for Chicagoans to become more digitally-connected and technologically savvy. An effective citywide broadband infrastructure increases Chicago residents' and businesses' access to technology and creates an opportunity to provide the access points, equipment, and skills training necessary for productive technology use.

(B)

Every Community a Smart Community

Ensure the full participation of all Chicago residents and businesses in the digital economy through training and engagement programs that make technology relevant, useful, and productive

The most efficient way to give Chicago the competitive advantage in a global, technology-driven economy is to strategically invest in developing and deploying the human potential of Chicago's communities by building digital literacy skills, promoting the use of technology for workforce and business development, and using technology as a platform for increased civic engagement.

The City strives to make every community a "smart community" in which everyone is able to fully participate in the digital economy. Increasing the number of digitally-connected and technologically-savvy residents and businesses yields increased job placement, broadband market demand, and business growth opportunities. Through school- and community-based efforts, the City will help make technology relevant to residents' and businesses' needs and interests. The City will partner with community leaders, nonprofits, and businesses to develop best practices from local research and pilot programs.

This strategy leverages and increases the return on infrastructure investments by increasing the relevance and usefulness of technology for Chicagoans. It also focuses on educating and engaging Chicago's youth in technology, positioning them for the jobs of the future.

Growth Strategies

(C)

Efficient, Effective, and Open Government
Leverage data and new technology to make government more efficient, effective, and open

The City of Chicago is working to become more efficient and effective across its departments by leveraging new technology, gathering, analyzing, and publishing data, and utilizing these tools and information to improve government processes and services. Data-driven decision-making is helping the City reduce costs and offer services better tailored to public need. Chicago is utilizing new technology, such as mobile and social media technology, to increase its connection to its residents and provide quality services in a complete and timely manner. Using data science to continually improve and streamline government processes is one way to emphasize and strengthen Chicago's position as a leading global technology hub.

With essential infrastructure in place and residents who are digitally-connected and engaged, Chicago government is held accountable by its residents to provide efficient and effective services through the use of technology.

(D)

Civic Innovation
Work with civic technology innovators to develop creative solutions to city challenges

Civic innovation occurs when individuals work with government to improve the quality of life in urban areas. To encourage civic innovation, Chicago offers a range of tools and initiatives that give Chicagoans a stronger voice in government decisions and empowers them to develop creative solutions to city challenges. The City also harnesses the power of civic innovation to anticipate and identify residents' concerns, allocate the best resources to address these concerns, and respond more effectively when problems arise. Chicago's visionary civic leaders, robust entrepreneurial community, and world-class research universities are using technology to transform civic collaboration and reimagine the relationship between government and its residents.

Using data provided through an open, transparent government, the City is able to engage its residents in innovative ways available only to cities with this foundation of technology strength.

(E)

Technology Sector Growth
Encourage the vibrancy of Chicago's Technology Sector by attracting and retaining STEM professionals and supporting the creation and expansion of technology companies

Chicago is driving economic growth and job creation by encouraging the vibrancy of Chicago's Technology Sector, especially in the areas of Web/Mobile, CleanTech, and Biosciences. With Chicago's mature business sector and world-class universities as a starting point, the City is focusing on attracting and retaining talented STEM-trained professionals and technology firms to Chicago, encouraging existing companies to expand, and supporting the creation of start-up companies.

In support of these goals, the City is telling the story of Chicago's technology strengths and successes to let the world know of the great opportunities that exist here for businesses and individuals alike. The City also works closely with local universities, research and development facilities, and venture capital firms to build on the impact those organizations are having on the success of Chicago's Technology Sector.

Building on its foundational strategies that position Chicago as a technology-friendly city, the City is able to realize Technology Sector growth.

Initiatives by Strategy

(A) Next-Generation Infrastructure

Establish next-generation infrastructure that enables residents and businesses to become more digitally-engaged

Initiative 1
Work with partners to increase speed and availability of broadband in Chicago
Page 28

The City will promote implementation of the infrastructure required to improve the speed, cost, and availability of broadband in Chicago.

Initiative 2
Enable a "Digital Public Way"
Page 30

The City will implement the policies necessary to interconnect the various points of physical interaction residents and businesses have with their city. As public infrastructure and objects become networked (public bikes, transit signage, etc.) the City will seek to require that the hyperlocal data they generate form an open platform for development in a manner that promotes innovation, maintains privacy, and assists local businesses.

Initiative 3
Implement policies and infrastructure to allow for urban technology experimentation
Page 31

The City will implement policies and basic infrastructure that make Chicago friendly to technology experimentation, allowing Chicago to become a global leader in environmental sensing, spectrum research, and wireless connectivity, while enabling researchers to develop solutions to city problems.

(B) Every Community a Smart Community

Ensure the full participation of all Chicago residents and businesses in the digital economy through training and engagement programs that make technology relevant, useful, and productive

Initiative 4
Establish a smart community benchmark and toolkit for broadband access and use
Page 33

As an initiative of the World Business Chicago's Plan for Economic Growth and Jobs, LISC Chicago and the Smart Chicago Collaborative (SCC), working with public and civic partners, including the Chicago Public Library (CPL), will create a profile of a fully connected community that can be used as a benchmark, along with a toolkit of best practices, to help communities reach this standard of broadband access and use.

Initiative 5
Scale up Smart Communities
Page 34

The City and its partners will look for opportunities to continue technology-use demonstrations in the current five Chicago neighborhoods identified for the BTOP Sustainable Broadband Adoption program, and use the benchmark to pilot the toolkit in additional communities.

Initiative 6
Make free Wi-Fi available in public places
Page 35

The City and the Chicago Park District will make free Wi-Fi available in select parks, including parks in communities with limited or no access to Wi-Fi, to increase residents' ability to access the Internet. The City will also reach out to community groups to spread awareness around how they can help increase Wi-Fi availability by establishing access points in their neighborhoods.

Initiative 7
Increase options for low-cost broadband
Page 37

The City will work with private partners to develop new options for low-cost broadband, offering more residents access to low-cost Internet and increasing Internet usage citywide.

Initiative 8
Educate and engage young people in technology
Page 38

The City will partner with Chicago Public Schools (CPS), City Colleges of Chicago (CCC), CPL, and other institutions to educate and engage young people in technology, preparing them for the jobs of the future and building the city's STEM workforce.

Initiative 9
Offer digital training and hands-on technology experience
Page 42

The City, Chicago Housing Authority (CHA), CCC, CPL, and other partners will deliver digital training and create opportunities for hands-on experience with technology to increase residents' digital literacy.

Initiative 10
Promote digital excellence activities
Page 43

The City will help promote and guide public/private efforts to make every community a smart community. To encourage theuse of the benchmark and toolkit, and enable residents to gain maximum benefit from digital technology, the City will help focus and coordinate activities among a large group of committed stakeholders who share this mission.

Initiative 11
Provide public computer access and support
Page 44

The City, CHA, CCC, CPL, and other organizations will continue to run public computer labs to increase residents' access to the Internet and their ability to use the Internet effectively.

Initiative 12
Make educational and creative resources available to residents
Page 45

The City has several opportunities to engage residents in technology-related creative and educational activities, and to use technology to make educational assets available to residents. Making these resources available benefits residents and encourages engagement in technology.

C

Efficient, Effective, and Open Government
Leverage data and new technology to make government more efficient, effective, and open

Initiative 13
Utilize data to drive efficiency and effectiveness
Page 47

The City will continue to undertake projects to gather and analyze data that will allow City leaders to proactively address issues, with the goal of increasing government efficiency and effectiveness.

Initiative 14
Increase and improve City data
Page 49

The City will continue to increase and improve the quality of City data available internally and externally, and facilitate methods for analyzing that data to help create a smarter and more efficient city.

Initiative 15
Leverage technology to improve communications
Page 51

The City will expand and update its mobile, social media, and online technology to increase and improve communication and interaction with its residents.

Initiative 16
Focus on Enterprise implementation of technology
Page 53

The City will implement a shared services model for IT across City departments and agencies that will result in better services at less cost through streamlined processes and the sharing of IT resources.

Initiative 17
Consolidate local government data centers
Page 54

The City is building the Chicago Cloud to consolidate its data centers using state-of-the-art hardware and data management software. Other government entities will be invited to join in the future to further reduce costs and improve efficiency.

Initiative 18
Focus resources on innovative technology solutions
Page 55

The City's Department of Innovation and Technology (DoIT) will partner with the private sector to deliver commoditized technology, allowing staff to focus on developing innovative technology solutions to issues only government can address.

D

Civic Innovation
Work with civic technology innovators to develop creative solutions to city challenges

Initiative 19
Research data-driven solutions to major urban challenges
Page 57

The City's Department of Innovation and Technology (DoIT) will continue to use data analytics to help managers across the City explore—and solve—some of the most vexing problems facing municipalities.

Initiative 20
Bolster transparency and support civic hackers
Page 59

DoIT and Smart Chicago Collaborative will continue to provide a broad range of intellectual and financial resources to help residents and civic technologists use technology to improve urban life.

(E)

Technology Sector Growth

Encourage the vibrancy of Chicago's Technology Sector by attracting and retaining STEM professionals and supporting the creation and expansion of technology companies

Initiative 21
Expand the number of physical incubator and co-working spaces in the city
Page 62

ChicagoNEXT, industry leaders, academia, and others will create a center for Chicago biotech and pharmaceutical start-ups. This incubator, networking, collaboration, and business acceleration space will help increase the number and size of bioscience companies, improve research, and increase opportunities for commercializing research.

Initiative 22
Expand the number of successful networks that exist to connect entrepreneurs with customers, venture capital, and mentorship opportunities
Page 64

The City of Chicago and ChicagoNEXT will create a program to connect start-ups and the business community in various ways to develop partnerships that will provide guidance and funding, and drive synergies and momentum in the technology community.

Initiative 23
Attract and retain a talented, diverse STEM workforce
Page 66

The Mayor and the city's business community will continue to encourage STEM professionals to join Chicago's talented technology workforce by actively recruiting on college campuses and through other activities.

Initiative 24
Showcase "Why Chicago" is a destination technology city through consistent messaging and events
Page 68

The City will partner with the city's many technology stars and other business leaders in a variety of events and other promotional activities to share the narrative of Chicago as a technology destination to attract workers and businesses to locate here.

Initiative 25
Encourage technology firms to promote their ties to Chicago
Page 69

The City will encourage technology firms in Chicago to share their civic pride to demonstrate to the world the many successes in, and vibrancy of, Chicago's Technology Sector.

Initiative 26
Strengthen connections with world-renowned academic research institutions
Page 70

The City will join forces with the academic and business communities and others to establish U of I Labs, enact research friendly policies, and hold forums designed to demonstrate Chicago's place as a major research center, as a means of drawing the best and the brightest to Chicago and increasing commercialization opportunities.

Initiative 27
Foster a business-friendly environment
Page 72

The City will further foster a regulatory and policy-based environment in which businesses can flourish and grow by reviewing current business-related requirements and processes, such as permits and procurement, updating where appropriate.

Initiative 28
Promote ways to increase venture capital and other funding available to start-ups
Page 73

To help attract funding to Chicago-based start-ups, the City and business leaders will work to attract VC firms to Chicago and provide support to existing firms as they reach out to other VC firms worldwide.

Impact

The Plan's 28 initiatives will transform Chicago into a city where technology fuels opportunity, inclusion, engagement, and innovation, benefitting the City and its residents by driving impact in one or more of the following seven areas:

#SAVINGS

Cutting costs/improving taxpayer and government finances

#SERVICES

Improving the type of services/ information provided by the City

#ENGAGEMENT

Bringing Chicagoans together to solve issues through innovation

#ACCESS

Providing access to the Internet, computers, software, and support

#SKILLS

Developing computer skills and a level of comfort in becoming digitally active

#JOBS

Creating new jobs

#STEM

Attracting/retaining Science, Technology, Engineering, Math professionals

THE CITY OF CHICAGO TECHNOLOGY PLAN

Overview

The most vital cities in the world enable their communities with leading-edge technology that engages, informs, and empowers. Mayor Emanuel's vision for achieving this is built on a commitment to modern infrastructure, smart communities, and technological innovation. The initiatives below chart a course to realize Chicago's potential as a city where technology fuels opportunity, inclusion, engagement, and innovation for all.

Starting from a position of strength in technology, including a robust data-science program, world-renowned research centers and universities, and a fast-growing data center industry, the City is well on its way to achieving this vision.

The following public-private technology plan lays out this path, highlighting five broad technology-based strategies and identifying current and future initiatives within each of those strategies. Together, these initiatives will accelerate economic growth, build an educated workforce, digitally engage communities, improve government services, and reduce costs through technology.

This plan will help accelerate job creation, improve quality of life for all Chicagoans, generate cost savings in government operations, provide increased digital access and skills, expand Chicago's STEM workforce, and continue to encourage civic engagement—hallmarks of a city fueled by technology.

Why Technology Matters

Technology is a tool cities use to reach their full potential. It enables residents, businesses, and government to work more efficiently, interact with each other in new and better ways, and increase overall quality of life. A fully connected and interactive city uses networks, sensors, data analytics, and emerging technologies to become more efficient, productive, and livable. Such a city also provides residents and businesses essential information to take advantage of everything the city has to offer.

When city governments apply technology to their operations and services, they become more open, interactive, effective, and efficient— the hallmark of a vibrant democracy. They are able to streamline operations, better monitor city assets, cut costs, improve existing services, innovate new services to better meet residents' needs, and communicate better with residents and businesses. Using online communication tools, cities can more readily provide information to their residents—and in return, allow residents to provide feedback and data to help improve city services and operations.

Additionally, research has shown that when local governments use online technology, residents have higher trust and confidence in government.

Finally, a technology-friendly city allows residents to readily access the Internet and gain the technical knowledge and skills necessary in today's job market. Having a skilled workforce attracts technology sector investments, driving economic development and job creation.[1]

Chicago's Technology Strengths

From reversing the Chicago River to inventing the skyscraper, from splitting the atom to creating the world's first cell phone, Chicago has always pushed the bounds of engineering and applied technology. Today, Chicago enjoys many strengths and advantages that support its goal of becoming one of America's top technology destination cities, including:

Strong and Deep Coalition of Organizations and Talent Dedicated to Achieving Chicago's Technology Vision

Chicago has always been strengthened by its communities. The City's efforts to harness the full potential of technology are led by organizations in the private and nonprofit sectors, as well as by the City's Department of Innovation and Technology (DoIT) and sister agencies. The dedication, resources, and leadership provided by this diverse group contribute greatly to Chicago's ability to accelerate technology advancements. A sampling of these organizations includes:

World Business Chicago (WBC)

Smart Chicago Collaborative (SCC)

Research Universities

Numerous nonprofits, such as LISC Chicago, iBio, Chicago Biomedical Consortium, and The Clean Energy Trust

Core Intellectual/Research Capital

Chicago has a core of intellectual capital that draws STEM professionals and research scientists to the area. This creates an ideal community in which entrepreneurs can interact with a talented workforce and leading researchers. The city is fortunate to be the home of several world-renowned research universities and facilities, and to have several others in close-proximity, including the University of Chicago, Argonne National Laboratory, the University of Illinois-Chicago, the Unversity of Illinois at Urbana-Champaign, Northwestern University, DePaul University, Loyola University, and Illinois Institute of Technology. The soon to be built U of I Labs are also expected to draw the best minds in tech/science to the city to work with students and corporate backers.

Diverse Customer Base

Chicago enjoys a diverse business community and a broad, deep customer base, both of which are major advantages for a successful start-up community. The strength and diversity of Chicago's business community provides a welcome environment for start-ups to sell their products and services to existing businesses.

Physical/Geographical Attributes of Chicago

In addition to being a beautiful city in which to live, Chicago is fortunate to enjoy several physical and geographical advantages that make it an attractive location for businesses, including:

Relatively low incidence of natural disasters, leading to minimal business and personal disruptions

Moderately-priced power and water supply

Located at the convergence of Internet trunk lines

Easy access to the world due to central location

These advantages, along with start-up support provided by City government and ComEd, contribute to Chicago's reputation as being the best location in America to locate data centers, which support companies nationwide.

Civic Innovation

With an Executive Order signed by Mayor Emanuel mandating a robust open data policy, Chicago has already made available more than 400 machine-readable datasets "dedicated to promoting access to government data and encouraging the development of creative tools to engage and service Chicago's diverse community."[2] The amount of data available to the public, "presented in easy-to-use formats about City departments, services, facilities, and performance,"[2] rivals any other city in the world. This information enables not only City government, but also city residents, to develop innovative solutions to city issues and improve the quality of life in Chicago.

THE VISION

Becoming a City Fueled by Technology

The Chicago Technology Plan highlights five broad strategies that together will realize Chicago's vision of becoming the city where technology fuels opportunity, inclusion, engagement, and innovation. Two of these are foundational strategies that enable Chicago's residents and businesses to be digitally-connected and engaged. Three growth strategies build on this foundation of technological strength. Together, these five technology-focused strategies provide the path to solidifying Chicago's place as one of the world's leading cities.

Foundational Strategies

(A) Next-Generation Infrastructure
Establish next-generation infrastructure that enables residents and businesses to become more digitally-engaged

High-speed Internet is becoming increasingly essential for both residents and businesses. Chicago is committed to making this resource available by engaging private companies, universities, and other organizations to build a world-class broadband infrastructure, increase options for broadband service in underserved areas, and provide free Wi-Fi access in public spaces across the city. Achieving these goals will support public and private technology initiatives citywide and will help residents and businesses become more digitally-connected and technologically-savvy. Simultaneously, the City is working to implement infrastructure to collect and share data that will help residents and visitors navigate daily city life, allowing them to connect with city data in innovative and meaningful ways.

This strategy lays the foundation for Chicagoans to become more digitally-connected and technologically savvy. An effective citywide broadband infrastructure increases Chicago residents' and businesses' access to technology and creates an opportunity to provide the access points, equipment, and skills training necessary for productive technology use.

(B) Every Community a Smart Community
Ensure the full participation of all Chicago residents and businesses in the digital economy through training and engagement programs that make technology relevant, useful, and productive

The most efficient way to give Chicago the competitive advantage in a global, technology-driven economy is to strategically invest in developing and deploying the human potential of Chicago's communities by building digital literacy skills, promoting the use of technology for workforce and business development, and using technology as a platform for increased civic engagement.

The City strives to make every community a "smart community" in which everyone is able to fully participate in the digital economy. Increasing the number of digitally-connected and technologically-savvy residents and businesses yields increased job placement, broadband market demand, and business growth opportunities. Through school- and community-based efforts, the City will help make technology relevant to residents' and businesses' needs and interests. The City will partner with community leaders, nonprofits, and businesses to develop best practices from local research and pilot programs.

This strategy leverages and increases the return on infrastructure investments by increasing the relevance and usefulness of technology for Chicagoans. It also focuses on educating and engaging Chicago's youth in technology, positioning them for the jobs of the future.

Growth Strategies

(C) Efficient, Effective, and Open Government
Leverage data and new technology to make government more efficient, effective, and open

The City of Chicago is working to become more efficient and effective across its departments by leveraging new technology, gathering, analyzing, and publishing data, and utilizing these tools and information to improve government processes and services. Data-driven decision-making is helping the City reduce costs and offer services better tailored to public need. Chicago is utilizing new technology, such as mobile and social media technology, to increase its connection to its residents and provide quality services in a complete and timely manner. Using data science to continually improve and streamline government processes is one way to emphasize and strengthen Chicago's position as a leading global technology hub.

With essential infrastructure in place and residents who are digitally-connected and engaged, Chicago government is held accountable by its residents to provide efficient and effective services through the use of technology.

(D) Civic Innovation
Work with civic technology innovators to develop creative solutions to city challenges

Civic innovation occurs when individuals work with government to improve the quality of life in urban areas. To encourage civic innovation, Chicago offers a range of tools and initiatives that give Chicagoans a stronger voice in government decisions and empowers them to develop creative solutions to city challenges. The City also harnesses the power of civic innovation to anticipate and identify residents' concerns, allocate the best resources to address these concerns, and respond more effectively when problems arise. Chicago's visionary civic leaders, robust entrepreneurial community, and world-class research universities are using technology to transform civic collaboration and reimagine the relationship between government and its residents.

Using data provided through an open, transparent government, the City is able to engage its residents in innovative ways available only to cities with this foundation of technology strength.

(E) Technology Sector Growth
Encourage the vibrancy of Chicago's Technology Sector by attracting and retaining STEM professionals and supporting the creation and expansion of technology companies

Chicago is driving economic growth and job creation by encouraging the vibrancy of Chicago's Technology Sector, especially in the areas of Web/Mobile, CleanTech, and Biosciences. With Chicago's mature business sector and world-class universities as a starting point, the City is focusing on attracting and retaining talented STEM-trained professionals and technology firms to Chicago, encouraging existing companies to expand, and supporting the creation of start-up companies.

In support of these goals, the City is telling the story of Chicago's technology strengths and successes to let the world know of the great opportunities that exist here for businesses and individuals alike. The City also works closely with local universities, research and development facilities, and venture capital firms to build on the impact those organizations are having on the success of Chicago's Technology Sector.

Building on its foundational strategies that position Chicago as a technology-friendly city, the City is able to realize Technology Sector growth.

Initiatives

The Plan outlines 28 current and future initiatives that together will help Chicago become the city fueled by technology. While many of these initiatives will be City-led, private, public, and nonprofit leaders are encouraged to contribute to the success of many of these activities.

Impact

The Plan's 28 initiatives will drive many specific benefits for Chicago, city residents, and the business community. These benefits fall into seven broad areas of impact, which are displayed throughout the Plan to indicate which areas each initiative affects:

#SAVINGS

Cutting costs/improving taxpayer and government finances

#SERVICES

Improving the type of services/information provided by the City

#ENGAGEMENT

Bringing Chicagoans together to solve issues through innovation

#ACCESS

Providing access to the Internet, computers, software, and support

#SKILLS

Developing computer skills and a level of comfort becoming digitally active

#JOBS

Creating new jobs

#STEM

Attracting/retaining Science, Technology, Engineering, Math professionals

INITIATIVES BY STRATEGY

(A)

Next-Generation Infrastructure

Establish next-generation infrastructure that enables residents and businesses to become more digitally-engaged:

High-speed Internet is becoming increasingly essential for both residents and businesses. Chicago is committed to making this resource available by engaging private companies, universities, and other organizations to build a world-class broadband infrastructure, increase options for broadband service in underserved areas, and provide free Wi-Fi access in public spaces across the city. Achieving these goals will support public and private technology initiatives citywide and will help residents and businesses become more digitally-connected and technologically-savvy. Simultaneously, the City is working to implement infrastructure to collect and share data that will help Chicagoans and visitors navigate daily city life, allowing them to connect with city data in innovative and meaningful ways.
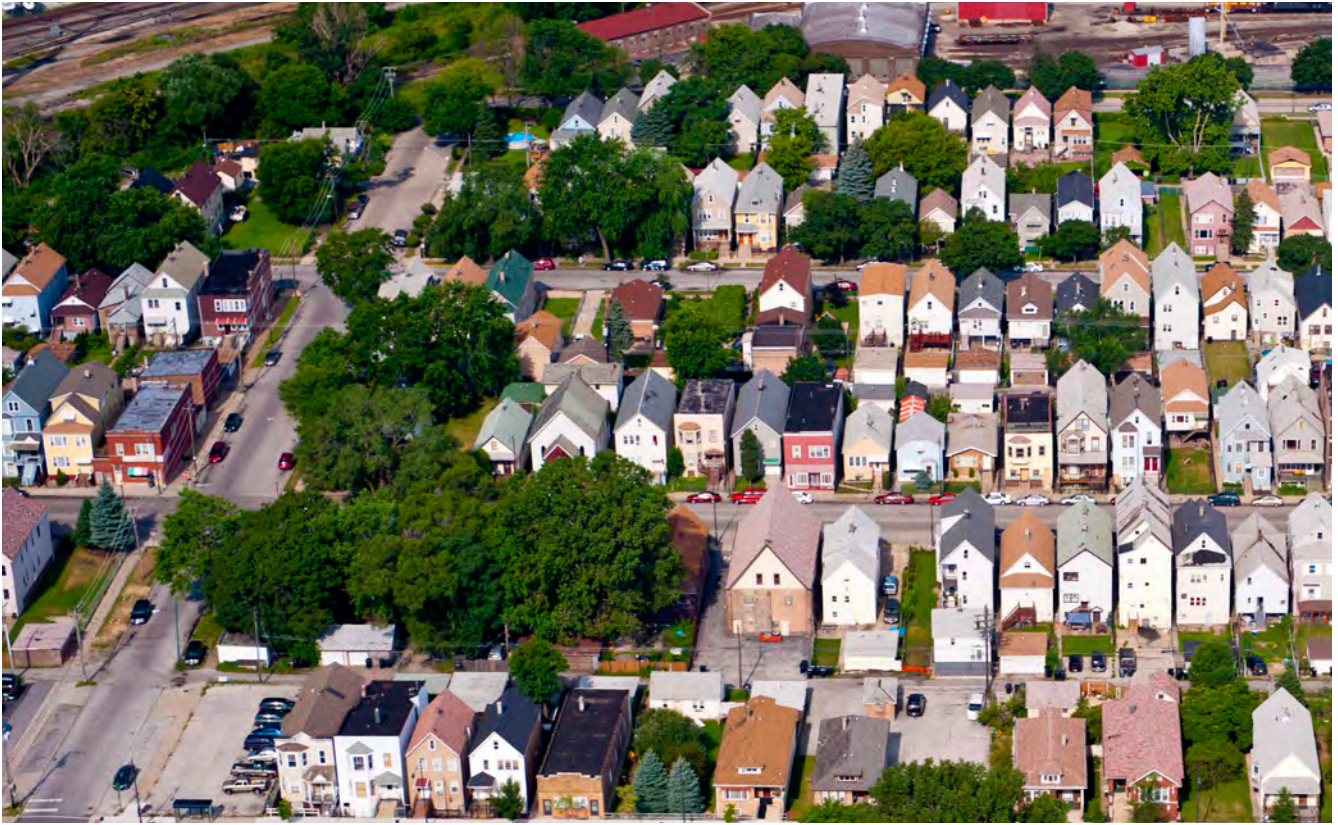
Initiative
1

Work with partners to increase speed and availability of broadband in Chicago

The City will promote implementation of the infrastructure required to improve the speed, cost, and availability of broadband in Chicago.

#Access #Jobs

High-speed access to the Internet is becoming a necessary public resource, similar to water or electricity. While it is crucial for all residents to have Internet access, it is also important for Chicago's commercial and industrial centers to offer the fastest possible Internet connection to attract businesses.

To this end, the City of Chicago is engaging public and private companies, universities, and other organizations as it seeks to accomplish three main goals: building world-class broadband infrastructure for the city; extending broadband service into underserved areas; and providing free Wi-Fi access in select public spaces throughout Chicago.[3]

In the Fall of 2012, Mayor Emanuel announced the Chicago Broadband Challenge. This initiative focuses on identifying the best way to implement a gigabit-speed network in targeted commercial and industrial corridors to foster innovation, drive job creation, and stimulate economic growth.[3]

Simultaneously, Chicago Public Schools is also working to upgrade Wi-Fi networks and finish installing fiber in all schools to address bandwidth issues during testing.
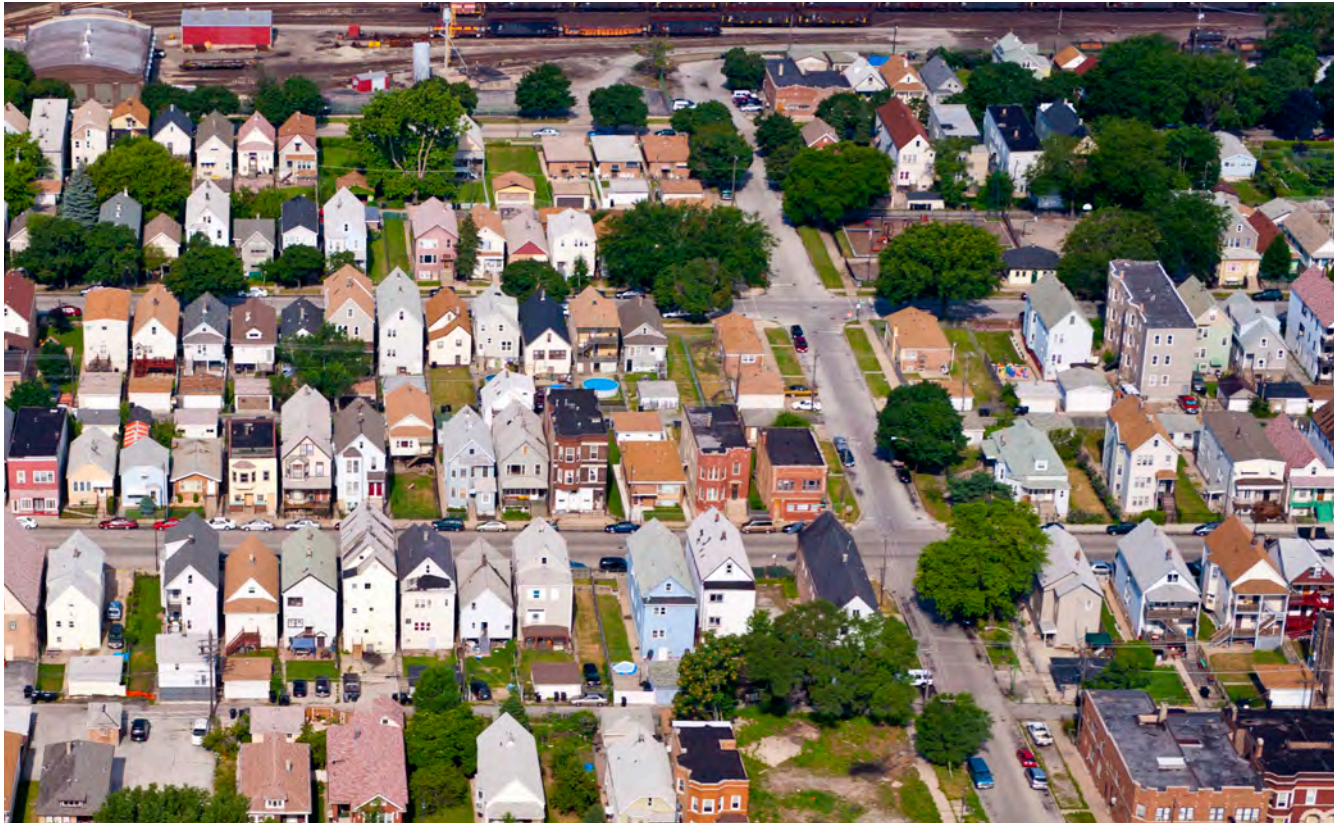
Broadband Download Speed Test (mbps)

	Number of Tests	25th percentile	median speed (mbps)	75 percentile
Home	5,950	2.2		13.3
School, Libraries, Community Centers	271	2.5		50.8
Medium/Large Business	323	4.9		52.7
Small Business	403	1.8		15.4
Mobile	55,950	0.7		5.4
Other	46	1.3		13.6

Source: http://www.broadbandmap.gov/summarize/state/illinois/census-places/chicago
As of December 31, 2012

Initiative 2

Enable a "Digital Public Way"

The City will implement the policies necessary to interconnect the various points of physical interaction residents and businesses have with their city. As public infrastructure and objects become networked (public bikes, transit signage, etc.) the City will seek to require that the hyperlocal data they generate form an open platform for development in a manner that promotes innovation, maintains privacy, and assists local businesses.

#Services #Access #Engagement

Over the next two years, Chicago plans to implement the infrastructure supporting a digital public way that allows residents and visitors to access vital city information and improves the city experience. This will include public displays that can be used to help people plan their journey through the city (maps, bus and train schedules, street closures), discover local businesses, and provide other ambient or hyperlocal data, such as weather information or local events.
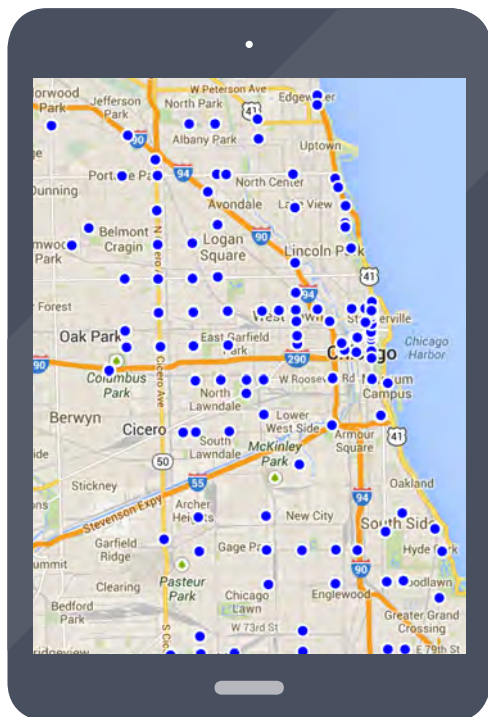
CTA bus stop shelters in digital sign project

This map shows CTA bus stop shelters which are slated to have digital signs added to them to show upcoming arrivals

https://data.cityofchicago.org/Transportation/CTA-System-Information-Map-Showing-Bus-StopShelte/mw4h-s8xu

Initiative 3

Implement policies and infrastructure to allow for urban technology experimentation

The City will implement policies and basic infrastructure that make Chicago friendly to technology experimentation, allowing Chicago to become a global leader in environmental sensing, spectrum research, and wireless connectivity, while enabling researchers to develop solutions to city problems.

#Jobs #Savings #Services #STEM

Urban sensing—collecting and using data from sensors in public urban spaces—is essential to the next generation of data science. By implementing access policies that respect individual privacy and installing basic infrastructure (including platforms with power/connectivity), Chicago will become a leader in this emerging field. In addition, Chicago looks to position itself at the forefront of advanced wireless research and development.

These policies and infrastructure will enable researchers to collect data at little cost to the City, will help attract technology companies and STEM talent, and could increase R&D money spent in Chicago.

Additionally, results from this experimentation can be used to help to solve city problems. Chicago expects to have these policies in place within the next six months, and basic infrastructure will be available to approved researchers shortly thereafter.

Solutions to many endemic urban challenges—from traffic congestion to river contaminants—require that we 'see' at a level of detail that is only available through sensor networks.

Charlie Catlett

Senior Computer Scientist

Argonne National Laboratory and

the University of Chicago

B

Every Community a Smart Community

Ensure the full participation of all Chicago residents and businesses in the digital economy through training and engagement programs that make technology relevant, useful, and productive.

The most efficient way to give Chicago the competitive advantage in a global, technology-driven economy is to strategically invest in developing and deploying the human potential of Chicago's communities by building digital literacy skills, promoting the use of technology for workforce and business development, and using technology as a platform for increased civic engagement.

The City strives to make every community a "smart community" in which everyone is able to fully participate in the digital economy. Increasing the number of digitally-connected and technologically-savvy residents and businesses yields increased job placement, broadband market demand, and business growth opportunities. Through school- and community-based efforts, the City will help make technology relevant to residents' and businesses' needs and interests. The City will partner with community leaders, nonprofits, and businesses to develop best practices from local research and pilot programs.

Initiative 4

Establish a smart community benchmark and toolkit for broadband access and use

As an initiative of the World Business Chicago's Plan for Economic Growth and Jobs, LISC Chicago and the Smart Chicago Collaborative (SCC), working with public and civic partners, including the Chicago Public Library (CPL), will create a profile of a fully connected community that can be used as a benchmark, along with a toolkit of best practices, to help communities reach this standard of broadband access and use.

#Access #Skills #Jobs

The benchmark will serve as the prototype of a "smart community," against which all communities can create an action plan to improve the adoption and use of broadband technology. It will also help communities employ technology strategically across business development and growth, workforce and skill development, education, health care, public safety, civic engagement, and social connectedness. The benchmark will use UIC Professor Karen Mossberger's research on broadband adoption and utilization in Chicago to set appropriate targets for key performance indicators. Additional guidance will come from the FCC's National Broadband Plan and the Institute of Museum & Library Services' "Building Digital Communities: A Framework for Action" blueprint. The work of partner organizations in Connect Chicago—Chicago Housing Authority (CHA), Department of Family and Support Services (DFSS), Chicago-Cook Workforce Partnership (CC-WP), City Colleges of Chicago (CCC), and dozens of independent community technology centers—will also inform this benchmark.

The toolkit will be a collection of best practices developed by LISC and the SCC with 2011-2013 federal stimulus grant awards for the Broadband Technology Opportunities Program (BTOP) Sustainable Broadband Adoption (SBA) and Public Computer Centers (PCC) programs. The SBA program, known as the Smart Communities initiative and run by LISC Chicago, is a demonstration of how investing deeply in technology, education, and content in five Chicago neighborhoods can help achieve digital excellence. The PCC program, known as Connect Chicago, provides broad investments to provide free access to the Internet for people in every area of the city. Incorporating key success and lessons learned from the Smart Communities and Connect Chicago models, the toolkit will be made available for all Chicago communities to help them reach the benchmark's standard of broadband adoption and use.[4]

"Smart Communities" is just the smart thing to do. It is an important step in securing and sustaining Chicago's global leadership, which depends in large measure on the full realization of its human capital, the strength of its business sector and the vitality of its communities—all enhanced through transformative use of new media and the Internet.

Julia Stasch
Vice President, U.S. Programs
The John D. and Catherine T. MacArthur Foundation

Initiative 5

Scale up Smart Communities

The City and its partners will look for opportunities to continue technology-use demonstrations in the current five Chicago neighborhoods identified for the BTOP Sustainable Broadband Adoption program and use the benchmark to pilot the toolkit in additional communities.

#Access #Skills #Jobs

Advancing the City's 2007 technology plan, *The City that Networks,* and leveraging more than $9 million in awards, including the federal BTOP grant, LISC Chicago and its neighborhood partners developed and managed the original five Smart Community demonstration sites (Auburn Gresham, Pilsen, Humboldt Park, Chicago Lawn and Englewood). Evaluation of

demonstration sites by researchers at the University of Illinois and University of Iowa shows significantly higher rates of change in Internet use in the five communities compared to other Chicago community areas. The demonstrations provide evidence that a comprehensive, neighborhood-driven model can positively impact broadband technology adoption and use in low-income communities.[5]

The City and its partners will now seek new investments to continue advancing digital skills in the original five demonstration sites. The City and its partners also hope to use the smart community benchmark to identify another 5-10 communities in which to test the toolkit's ability to mobilize resources and offer pathways to reach the benchmark.

The City's commitment to open government offers the potential for increased government transparency and the development of tools that advance civic engagement and community development. Open government can only leverage the full power of technology for social change if all communities are involved. To engage communities, the City and its partners will look for opportunities to pilot open government engagement in two to five diverse demonstration communities, as well as engage other community leaders in the process through peer learning forums. The City and its partners will engage community leaders in using data to advance solutions to local issues such as violence, foreclosure, and school performance.

Initiative 6

Make free Wi-Fi available in public places

The City and the Chicago Park District will make free Wi-Fi available in select parks, including parks in communities with limited or no access to Wi-Fi, to increase residents' ability to access the Internet. The City will also reach out to community groups to spread awareness around how they can help increase Wi-Fi availability by establishing access points in their neighborhoods.

#Access

Free public wireless Internet access points allow residents to access online resources on their personal devices without requiring a broadband subscription at home. In addition to increasing resident access, establishing free public Wi-Fi hotspots helps elevate Chicago's brand as a tech-friendly city. The CPL currently makes free Wi-Fi available in 80 branches that span every neighborhood across the city. To keep pace with increasing user demand, CPL will continuously upgrade that network. Building upon the Wi-Fi available at CPL locations, the City of Chicago and the Chicago Park District are currently working to establish free wireless Internet in select locations through efforts such as:

Broadband Challenge: Free Wi-Fi in Public Spaces

As part of the Broadband Challenge, the City will seek to make free Wi-Fi networks available in parks and open spaces across the city, beginning in select communities.

Community-Created Wi-Fi

Over the next 6 months, the City will reach out to community groups to spread awareness around how they can establish Wi-Fi access points in their neighborhoods. Successful examples of this are Special Service Area-funded access points in North Halsted, and a community development organization-funded wireless network in Chicago Lawn.
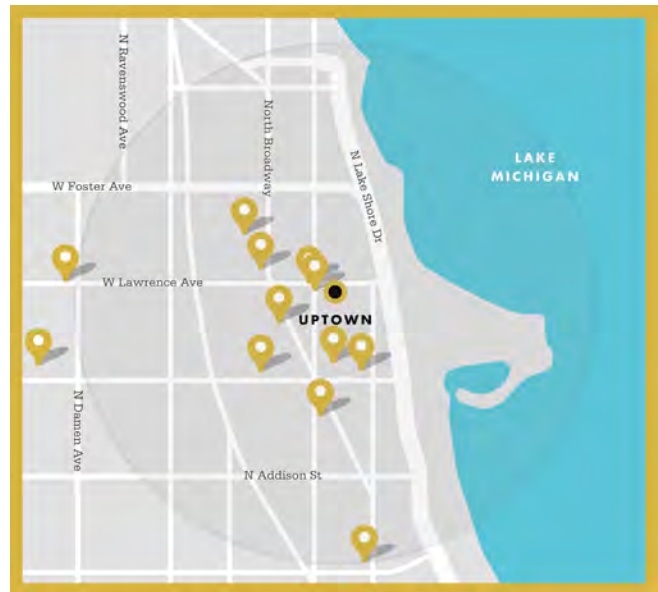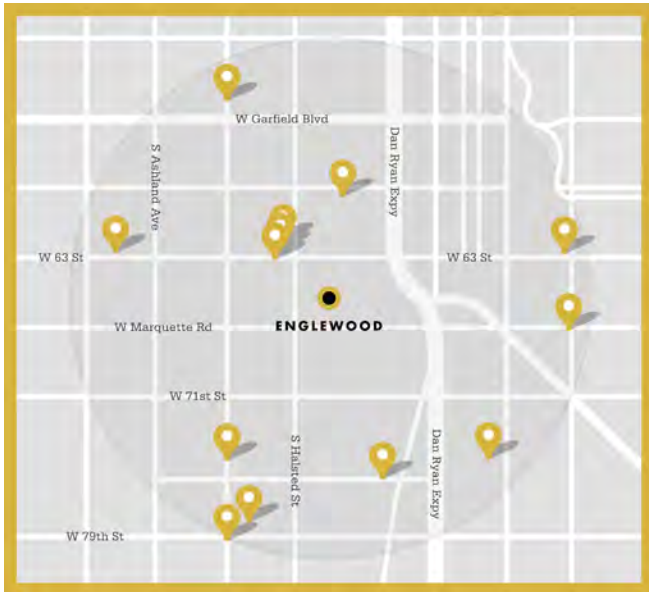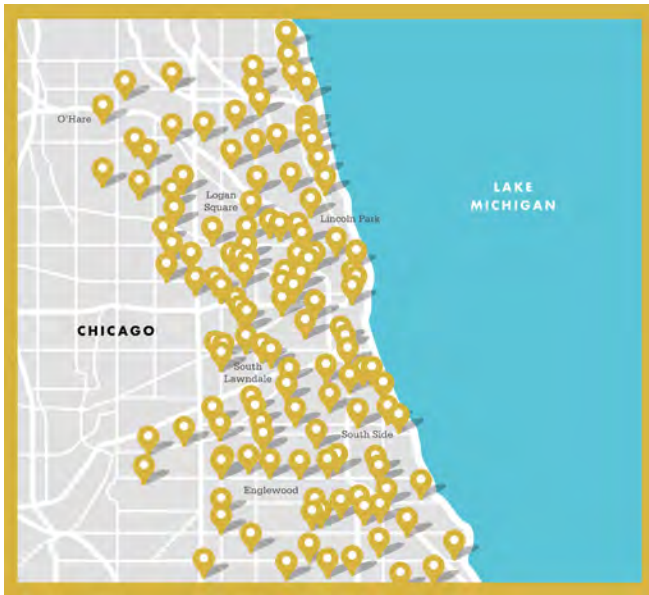
Public Wi-Fi locations in Chicago
These and other Chicago neighborhood Wi-Fi locations may be generated at locations.weconnectchicago.org

Technology Talent That Reflects Chicago's Diversity

Every generation of Chicago's industrial leadership has been built by its immigrant residents. Chicago has long known that a diverse technology workforce makes businesses more resilient, open-minded, and globally competitive. As the City charts a new path to next-generation economies and markets, it will continue this focus on enfranchising and enabling its global population.

Mayor Emanuel's Technology Diversity Council has worked over the past half-year to develop strategies for ensuring that women and minorities have access to the opportunities technology affords. These initiatives occur throughout this document and are noted by the #Diversity tag.

Initiative 7

Increase options for low-cost broadband

The City will work with private partners to develop new options for low-cost broadband, offering more residents access to low-cost Internet and increasing Internet usage citywide.

#Access

Home access to broadband allows residents to engage most conveniently and deeply with online technology. However, high prices for broadband prevent many residents from adopting this technology at home. The City is working with private partners to determine the best approach to ensure residents have access to affordable home broadband, through efforts such as:

Comcast Internet Essentials

The City is working with Comcast to support adoption of Comcast Internet Essentials, a program that offers broadband at $10/month to low-income families with children. Chicago is leading the nation in subscribers, with 15,500 signed up for the service as of March 2013.[6] The City continues to encourage its residents to obtain service through this program, and is also considering other partnership opportunities.

EveryoneOn Campaign

Building on Comcast Internet Essentials, the City is partnering with the national EveryoneOn campaign, making 1.1 million residents eligible for FreedomPop, a new, low-cost wireless option.[7]

Wi-Fi Hotspot Lending

Chicago Public Library is exploring options with various providers to offer a Wi-Fi hotspot lending program at select CPL branches, allowing residents to borrow Internet access for their homes for short periods of time.

Other Low-Cost Options

Long-existing programs like Mobile Citizen allow for nonprofits and education organizations to maintain 4G Internet connections for as low as $120 per year.[8]

Initiative 8

Educate and engage young people in technology

The City will partner with Chicago Public Schools (CPS), CCC, CPL, and other institutions to educate and engage young people in technology, preparing them for the jobs of the future and building the city's STEM workforce.

#Jobs #Skills #STEM

Providing students with technology skills and engaging them to become interested in technology as a career are critical to Chicago's future as a digitally literate, tech-friendly city. To help meet that goal, CPS, CCC, CPL, and other groups are working to ensure that all students have access to Science, Technology, Engineering, and Math (STEM) educational opportunities and other digital skills training that will prepare them for the jobs of the future. Major ongoing efforts supporting this goal include:

Digital Literacy

The City and DePaul University will convene a working group to identify recommended digital literacy standards for CPS students to meet before graduation. DePaul intends to oversee the design of a badge system that will identify and award attainment of the skills, wherever they are earned throughout the city—in libraries, museums, after-school programs, community-based organizations, or online. DePaul will work with the City and other stakeholders to help develop the criteria for assessing the content and quality of programs being considered for participation in the badge program and will consider the badges in the admissions process.

College to Careers

Six of seven colleges in CCC specialize in key industries and are developing College to Career pathways in each industry to equip students for the jobs of the future. One of these colleges, Wilbur Wright College, is the Information Technology College responsible for developing the pathway for its students to be prepared for careers in technology. In addition, CCC offers a wide range of education programs that prepare students in STEM.

Early College STEM Schools (ECSS)

Five CPS schools are partnering with CCC, other post-secondary partners, and private industry to develop a curriculum that trains students for jobs of the future. Students will graduate in six years with a high school diploma and an associate's degree.

STEM Education in Early College Programs

CCC has two programs that offer early college opportunities to Chicago high school students: Dual Credit (CPS students taking classes at their home high schools for CCC credit) and Dual Enrollment (high school students at any Chicago high school enrolling in classes at CCC). Both of these programs offer numerous STEM classes, providing high school students with a path to gain a head start in advanced STEM education.

Career and Technical Education

CPS offers more than 40 different Career and Technical Education (CTE) programs that focus on skills that lead to higher-paying jobs. Courses incorporate rigorous classroom instruction, hands-on training, real work experience and extra student supports. CPS engages businesses to help design the programs.

Civic Innovation Summer

"Civic Innovation Summer is an experimental summer jobs program for teens focused on civics, media, and technology. The teens will be trained to be Change-makers empowered to use the latest digital tools to organize themselves, amplify their voice, and take positive civic action."[9] The program will be implemented by three Chicago organizations, with support from DFSS. The curriculum for this program will be completely open, allowing any organization to download, modify, and use in any way it sees fit.[9]

The opportunity to provide a high-quality technology education citywide is a challenge that we're excited to take on with Mayor Rahm Emanuel through The Starter League. The vision is for Chicago to become one of the greatest cities in the world for technology education. Our training partnership with the City of Chicago puts us on a path for that vision to be realized.

Neal Sales-Griffin
CEO, The Starter League

CCC/CPS/Starter League Partnership
#Diversity

CCC is giving students access to cutting-edge web development skills through a partnership with The Starter League. In the summer of 2013, The Starter League began training CCC and CPS teachers to build tailored web development courses for students.

Computer Science as Core Curriculum
#Diversity

The City and CPS will work to make computer science classes count toward graduation requirements, possibly in exchange for a science or math course. Special effort will be made to increase availability of computer science classes, especially Advanced Placement computer science courses.

CPS Technology Upgrades

CPS is working to set minimum baseline standards for both the number and quality of devices available for use by their students, and is also working to ensure the networks in schools are scaled appropriately to support this technology. CPS will continue to drive towards 1:1 access to a computer or tablet for all students, and a supporting wired and wireless network infrastructure to support the use of this equipment to help prepare them for college and career.
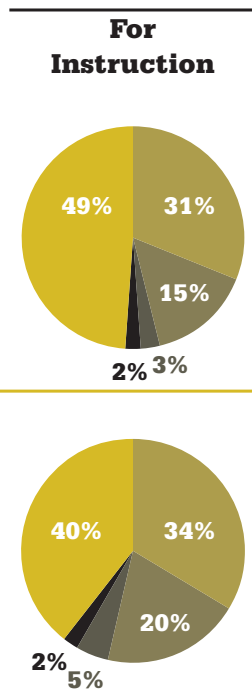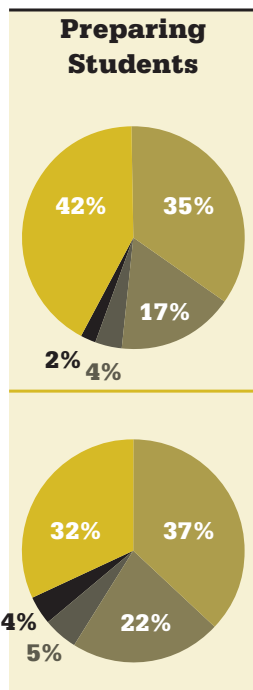
Chicago Summer of Learning

In Summer 2013, the City launched the Chicago Summer of Learning, a first of its kind citywide effort that engaged youth across the system in STEAM (STEM + Arts) learning experiences and recognized that skill development through digital badges. More than 100 organizations across the city signed on. Youth were able to earn badges through more than 1,000 different learning experiences this summer. For the first time, the City had meaningful data about what students were doing over the summer, where students were incentivized to continue learning in their citywide classroom.[10]
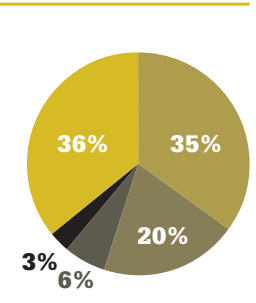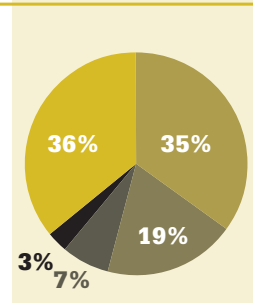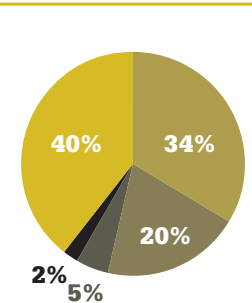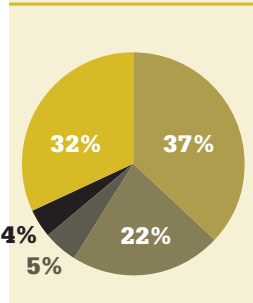
Most teachers feel that their school culture encourages the use of technology

Very Much
Somewhat
A Little
Not at All
No Access
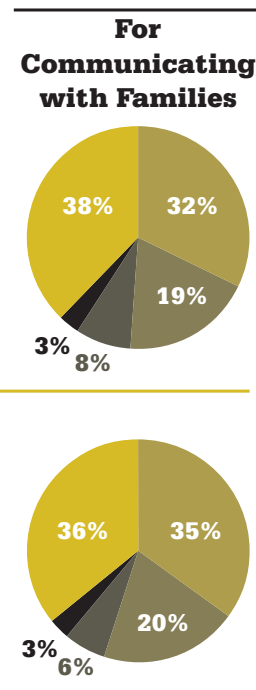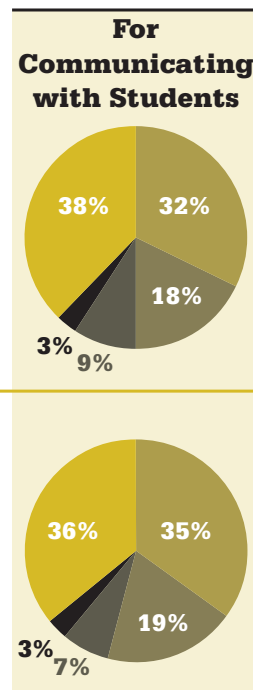
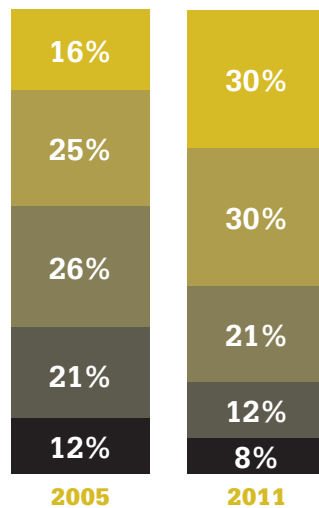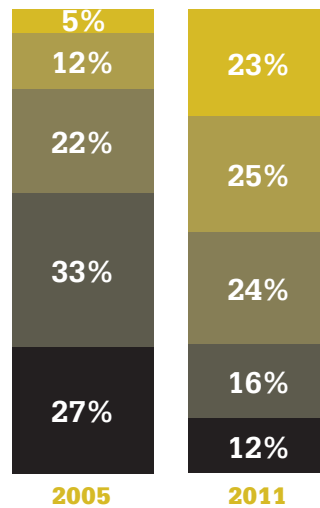|	Preparing Students	For Instruction	For Communicating with Students	For Communicating with Families
Elementary	42% / 35% / 17% / 2% / 4%	49% / 31% / 15% / 2% / 3%	38% / 32% / 18% / 3% / 9%	38% / 32% / 19% / 3% / 8%
High School	32% / 37% / 22% / 4% / 5%	40% / 34% / 20% / 2% / 5%	36% / 35% / 19% / 3% / 7%	36% / 35% / 20% / 3% / 6%

Students' Internet & computer program usage for school has increased since 2005

Almost or Everday
1–2×
per week
1–2×
per month
1–2×
per semester
Never

Internet

	2005	2011
Almost or Everday	16%	30%
1–2× per week	25%	30%
1–2× per month	26%	21%
1–2× per semester	21%	12%
Never	12%	8%

Computer Programs

	2005	2011
Almost or Everday	5%	23%
1–2× per week	12%	25%
1–2× per month	22%	24%
1–2× per semester	33%	16%
Never	27%	12%

Summer Learning Challenge

As part of the Chicago Summer of Learning, CPL engaged over 60,000 kids in STEAM skills through a variety of school activities, including reading, attending programs and field trips, using the Internet, solving engineering challenges, and making artistic connections.[11]

YOUmedia
#Diversity

This innovative learning space for middle school and high school students is housed at the Harold Washington Library Center and four neighborhood branch libraries. Mentors help teens engage in project-based learning with a variety of media, including printed material and technology and digital tools, like 3D printers, still and video cameras, drawing tablets, and video and photo editing software.[12]

Geek Clubs
#Diversity

CPS will create after school and summer "Geek Clubs" in select middle and high schools to expose students to technology and engage them with competitions, field trips, and speakers. The clubs will include a core curriculum taught by educators and volunteers and will attract private sponsorships for resources and volunteers.

Tech-Focused Accelerator Program
#Diversity

CPS will partner with the Network for Teaching Entrepreneurship (NFTE) and similar organizations to create a tech-focused accelerator program for CPS students, running school competitions and involving technology-focused mentors and investors across the city.

Technology Video Campaign
#Diversity

The City will help youth become interested in technology through a video campaign highlighting "technology as an enabler," targeting kids' interests to show them how technology enables popular public figures.

Communities Code and Family Net Centers

In parallel with City-led initiatives, other groups across Chicago are also working to educate and engage youth in technology.

For example, building on the successful Digital Youth Summer Jobs Program led by LISC Chicago and its five Smart Communities demonstration sites, Teamwork Englewood has developed Englewood Codes to teach young people how to write code and build websites.[13]

Another example is FamilyNet Centers, located within LISC Chicago's network of Centers for Working Families (CWFs). FamilyNet Centers provide a continuum of digital skills training embedded in workforce, income support, and financial counseling services. FamilyNet Centers share one data platform and track "digital skills outcomes" against a set of community-led curriculums. LISC Chicago has tracked the positive impact digital skills classes have on participants' employment rates, and will seek to scale up the current five sites across its network of 13 CWFs in the city.[14]
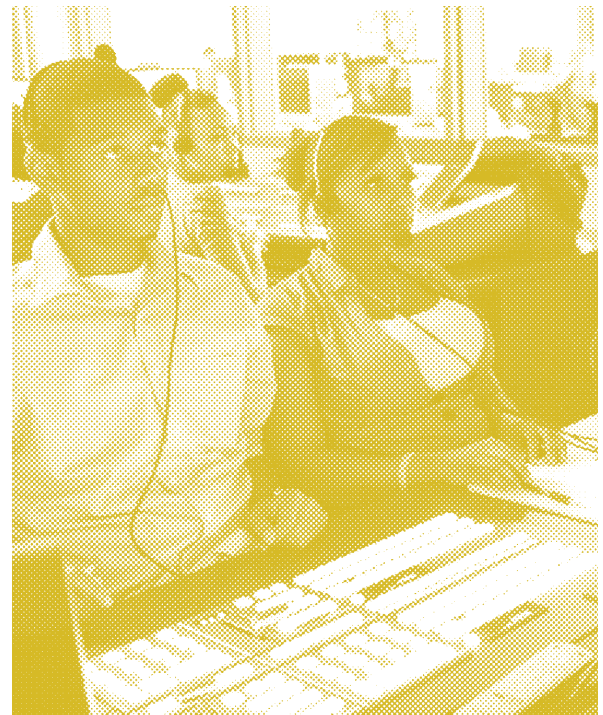
Initiative
9

Offer digital training and hands-on technology experience

The City, CHA, CCC, CPL, and other partners will deliver digital training and create opportunities for hands-on experience with technology to increase residents' digital literacy.

#Skills

For the City to realize the full potential benefits of technology, it is crucial for all residents to become digitally literate through training and opportunities to regularly use technology. In some cases, basic literacy, language barriers, and disability challenges also need to be addressed in order for residents to achieve digital literacy. The City is continuing to pursue some of the digital access initiatives developed in its nationally recognized Smart Communities pilot. During the initial Smart Communities pilot, Internet use increased 15% in the five targeted neighborhoods.[5] BTOP-funded projects that are continuing and other training programs include:

Technology Building Blocks Training Program #Diversity

SCC will facilitate the development of an open-source technology curriculum, designed to be used by anyone, to be taught at Connect Chicago sites. The training program will offer both subject-based and software-based sessions—including sessions on Adobe, CSS, Ruby on Rails, Flash, JavaScript, and Node.js, which will be delivered by colleges, industry experts, professionals, hardware and software product companies, and veteran teachers.

Digital Training in Spanish, Polish, and Chinese #Diversity

The City delivers digital training in several languages through several of its public computer centers and FamilyNet Centers.[15]

CHA Computer Labs

Using the City's BTOP grants, the CHA developed computer labs and trained CHA residents to become lab managers. CHA will continue the lab manager program to train more residents in digital skills.

Maker Lab

CPL operates a Maker Lab through which adults and teens are learning to use digital production and manufacturing tools, such as design software, 3D printers, milling machines, and laser cutters to design and create products.

CPL Public Computers

In 2013 over 2,500 CPL public computers across 80 neighborhood branch libraries will give residents access to Microsoft Office 2013, Windows 7, and increased memory so they can pursue career, educational, and other interests. Future projects include identifying and installing software applications to support users in their digital literacy needs. Examples include: print and web design software tools, 2D and 3D graphic software applications, etc.

Initiative
10

Promote Digital Excellence Activities

The City will help promote and guide public/private efforts to make every community a smart community. To encourage the use of the benchmark and toolkit, and enable residents to gain maximum benefit from digital technology, the City will help focus and coordinate activities among a large group of committed stakeholders who share this mission.

#Access #Skills #Engagement

The City will help promote and coordinate efforts citywide around digital inclusion, expansion of broadband access, increased adoption and use, technology-enabled learning, and skills training. Donors, community groups, civic and cultural organizations, businesses, and nonprofits will work with the City to ensure effective focus and consolidation of various related endeavors.

Initiative 11

Provide public computer access and support

The City, CHA, CCC, CPL, and other organizations will continue to run public computer labs to increase residents' access to the Internet and their ability to use the Internet effectively.

#Access #Engagement #Skills

Public computer centers are one way of providing access to computers, software, and the Internet at no cost to residents. Public computers are offered at 80 locations of the CPL, which is the city's largest provider of public computers and free wireless Internet access.

The City also created public computer centers using BTOP PCC grant funding, some of which were set up at CHA locations and CCC campuses. In addition to providing digital and online access, public computer centers serve as a crucial entry point for residents who are beginning to develop technical skills by providing point-of-contact training and support in developing digital skills through programs such as:

Cyber Navigators
CPL provides "Cyber Navigators" to help residents develop computer skills and digital literacy so that they can carry out online tasks, such as job searches.[15]

CHA Lab Managers
Using Federal stimulus funds, CHA trained residents to manage its computer labs. CHA will continue funding this program to train more residents.

Connect Chicago
Connect Chicago is a loose network of more than 250 places in the city where Internet and computer access, and digital skills training are available free of charge. It is part of the City's BTOP PCC grant, administered in part by SCC, as a joint project of the City, the John D. and Catherine T. MacArthur Foundation, and the Chicago Community Trust. Partnering organizations include CCC, CHA, CPS, DFSS, Smart Health Centers, and CC-WP. Connect Chicago is expected to continue through alternative funding post BTOP.[16]
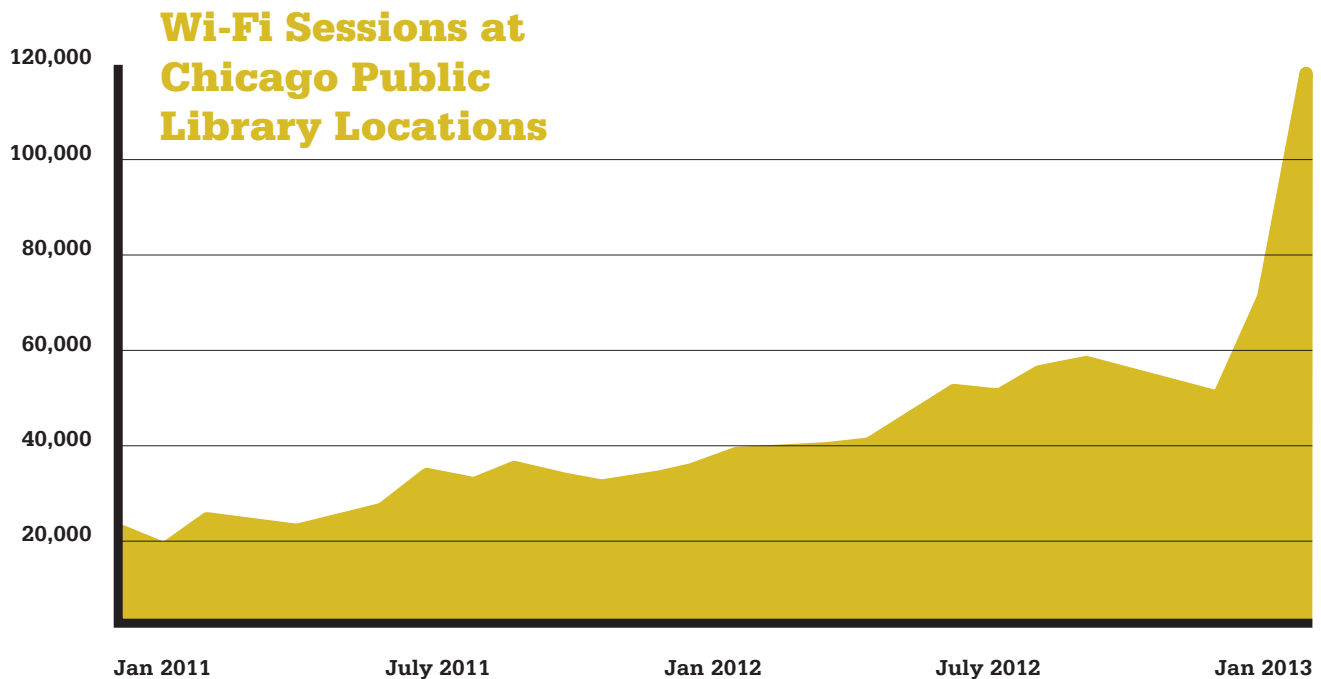
Wi-Fi Sessions at Chicago Public Library Locations

Initiative 12

Make educational and creative resources available to residents

The City has several opportunities to engage residents in technology-related creative and educational activities, and to use technology to make educational assets available to residents. Making these resources available benefits residents and encourages engagement in technology.

#Access #Engagement #Skills

CPL will use technology to make educational and creative resources available to residents, increasing residents' use of technology. Examples of these resources include:
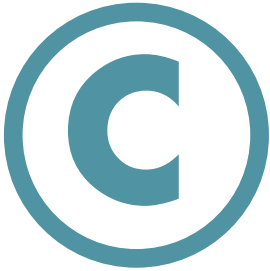
Digitize Assets
CPL is digitizing assets related to Chicago's neighborhood history, putting historical resources in the hands of residents and communities.

Maker Lab
CPL's Maker Lab will give residents access to do-it-yourself software and tools like 3D printing and vinyl cutting, and an opportunity to engage in small-scale product development in a public space.

Efficient, Effective, and Open Government

Leverage data and new technology to make government more efficient, effective, and open:

The City of Chicago is working to become more efficient and effective across its departments by leveraging new technology, gathering, analyzing, and publishing data, and utilizing these tools and information to improve government processes and services. Data-driven decision-making is helping the City reduce costs and offer services better tailored to public need. Chicago is utilizing new technology, such as mobile and social media technology, to increase its connection to its residents and provide quality services in a complete and timely manner. Using data science to continually improve and streamline government processes is one way to emphasize and strengthen Chicago's position as a leading global technology hub.

Initiative
13

Utilize data to drive efficiency and effectiveness

The City will continue to undertake projects to gather and analyze data that will allow City leaders to proactively address issues, with the goal of increasing government efficiency and effectiveness.

#Savings #Services #Engagement

Data science helps organizations identify operational problems and make better decisions based on past results. The City is taking advantage of this growing field to improve its internal processes and better serve residents.

By using existing data to target specific issues, the City is identifying opportunities to improve many aspects of its operations, such as:

Determining the cause of safety hazards and increasing public safety by reviewing transportation data.

Proactively detecting billing errors and fraud to save costs by analyzing financial and billing data.

Optimizing City services such as tree trimming services to save costs and improve customer satisfaction such as by analyzing route data.

The City is also reviewing data on how residents use City services to help improve and expand the services offered. By analyzing available data, such as the number of individuals patronizing City events and the type of events they attend, the City can work to optimize City events to ensure maximum participation

and utility for residents. Similarly, by analyzing residents' use of technology-based City services, such as those offered on www.cityofchicago.org, the City can streamline processes and help Chicagoans more easily access information and services.

Chicago's Department of Innovation and Technology (DoIT) is planning a number of these studies in the coming years, using available data to identify root causes of and solutions for City service and process issues. Some of the projects expected to be completed within one year and operationalized shortly thereafter include:

Data Science Collaborative Research Projects

The City is pursuing a portfolio of data science research, including the previously mentioned opportunities, as well as:

Developing predictive analytics to improve food inspections

Identifying delays in fulfilling 311 service requests

Detecting companies that attempt to skirt procurement rules

WindyGrid

The City is currently using WindyGrid, a geospatial analytics system that delivers a range of government data in real time, to support cross-department collaboration. The City is planning to develop further applications for the use of this information.

Energy Tracking

The City will track and report energy consumption at its facilities to improve energy efficiency and promote clean energy.

Youth Data Warehouse

With support from Strive, a nonprofit that aims to coordinate services across agencies and organizations at every stage of a young person's life, the City will develop a Youth Data Warehouse shared by multiple departments, sister agencies, and nonprofits. Using aligned metrics and goals, these organizations will use the data warehouse to individually tailor and improve the effectiveness of their programs for youth.

Inspection Streamlining

CDOT is investing in technology to streamline and improve the inspection process in the field, such as allowing inspections to be conducted with smartphones or GIS tagging.[17]

Initiative
14

Increase and improve City data

The City will continue to increase and improve the quality of City data available internally and externally, and facilitate methods for analyzing that data to help create a smarter and more efficient city.

#Savings #Services

Releasing data is a crucial component of creating an open and transparent government. Chicago is currently a leader in open data, capturing and publishing more than 400 machine-readable datasets to date. In 2012, Mayor Emanuel issued an executive order ensuring that the City continues to release new data, and empowering the Chief Data Officer to work with other City departments and agencies to develop new datasets. The City is following an aggressive schedule for releasing new datasets to the public and updating existing sets. It is also working to facilitate ways the City and others can use data to help improve City operations.
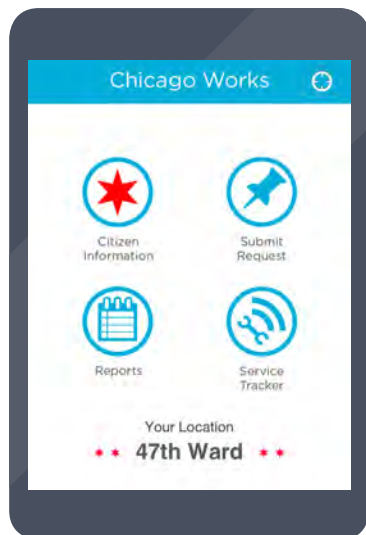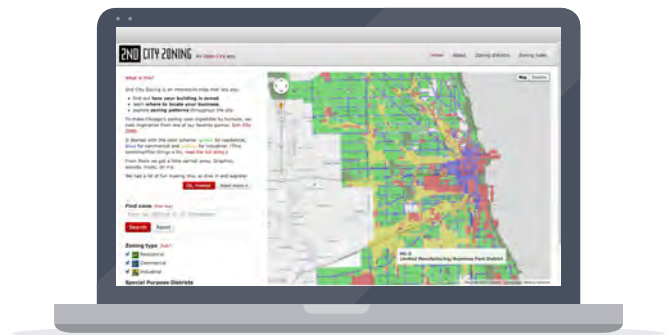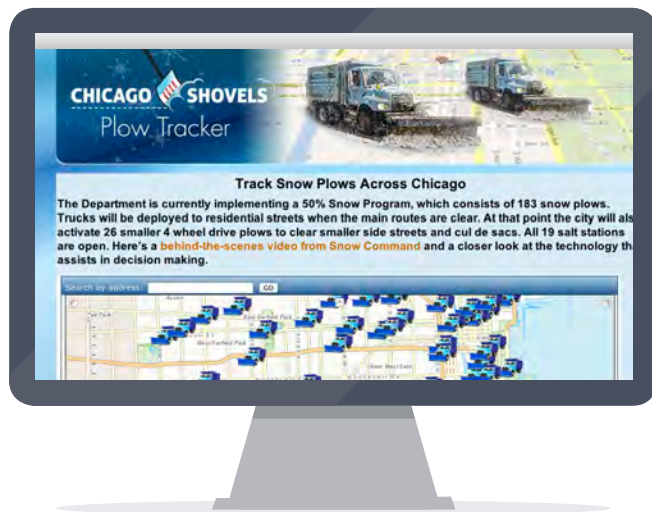
Source: http://www.cityofchicago.org/city/en/depts/mayor/iframe/plow_tracker.html

Source: http://www.chicagoworksapp.com/

Source: http://opencityapps.org/#projects

Open Data Success Story: ChicagoWorks

A collaboration between Alderman Ameya Pawar and local graphic design company 2pensmedia, ChicagoWorks is a free app that is changing the way Chicagoans interact with government. Using the app, residents can submit service requests directly to 311 and track the progress of reported issues. So far, more than 3,000 residents have downloaded the app.[18]

Open Data Success Story: OpenGov Hack Night

Chicago boasts a community of "civic hackers" who are passionate about using technology to improve the city. An example of this passion in action is the OpenGov Hack Night. Organized by Open City, an organization that builds web apps and other tools using open government data, the Hack Night attracts civic hackers and curious residents eager to explore the intersection of open government data, smart cities, and technology. Every week, the Hack Night provides a collaborative environment for residents to learn about open data, working on cutting-edge projects and networking with passionate civic technologists.[20]

Open Data Success Story: SpotHero and Techstars Chicago

The app SpotHero makes residents' lives easier by helping them find and reserve parking spots online. Developed in Chicago, the app had its start at Excelerate Labs, a Chicago start-up accelerator, now Techstars Chicago, that provides mentorship, training, and networking opportunities to 10 selected start-ups each year. After graduating from the program, ranked as one of the top 3 accelerators nationally, SpotHero attracted $2.5 million in VC funding. With this funding, the company is hiring new staff working to expand to other cities.[19]

Chicago is an absolute leader in the provision of open government data. We're now building an ecosystem of sustainable companies that use this data, mixed with other valuable data and services, to help people live better lives.

Daniel X. O'Neil
Executive Director
Smart Chicago Collaborative

Initiative 15

Leverage technology to improve communications

The City will expand and update its mobile, social media, and online technology to increase and improve communication and interaction with its residents.

#Savings #Services #Engagement

Online technology allows the City to communicate with residents and gather valuable information. The ubiquity of mobile devices and the reach of social media allows the City to gather frequent feedback that drives service improvements and supports transparency in City operations. The City will continue to invest in and create new technologies to continue to improve and deepen this two-way communication.

The City currently provides its residents with vital information and communications regarding City services and resources. By increasing engagement through existing social media outlets, the City will better be able to provide Chicagoans with a wide range of information, from bus and train times to beach water quality information. Some of the projects that will utilize new technology and social media to provide Chicagoans with vital information about City services and resources planned for the coming year include:

Beach Updates on Social Media
The City will begin using social media and new technology in order to provide faster, more accurate information about beach water quality to the public, including real-time weather and water data.[21]

Website Improvements
The City is working to make its website friendlier and easier to navigate to provide easy access to the information Chicagoans need.

Traffic-Related Technology Enhancements
The City will continue improving its traffic tracker tool with even better information on current traffic conditions, live video from available traffic cameras, and opportunities to receive updates through email or text message alerts.[17]

Technology also allows Chicagoans to interact more directly with the City, readily requesting services or information and providing data that will improve and focus an array of City services. Apart from current social media accounts run by the City, DoIT is developing capabilities that will transform the way the City listens to its residents. The ability to communicate freely and quickly with residents and the ability to gather input and data from the public will enable the government to improve operations and deliver high quality, valuable information and services.

The City will also look into the following, and other longer-term projects, to allow Chicagoans to interact with the City and allow them to request and provide data to improve or focus City services:

Bibliocommons
Chicago Public Libraries (CPL) will utilize Bibliocommons, a cost-effective product to turn the CPL website into an online community around reading and other cultural experiences.

Immigrant Resource Portal
The City will create an online portal to connect immigrants with resources available to them (e.g., City services, business workshops, and community-based organizations).[22]

The City's presence on social media

| Platform	Number of accounts
Twitter	30
Facebook	25
YouTube	12
Instagram	4
Flickr	3
Tumblr	2

City's engagement with residents on social media

|	Office of the Mayor	Chicago Police Department	Chicago Park District	Chicago Transit Authority
Facebook	11,498 likes	37,119 likes	13,012 likes	10,069 likes
Twitter	28,206 followers	14,789 followers	14,543 followers	25,513 followers
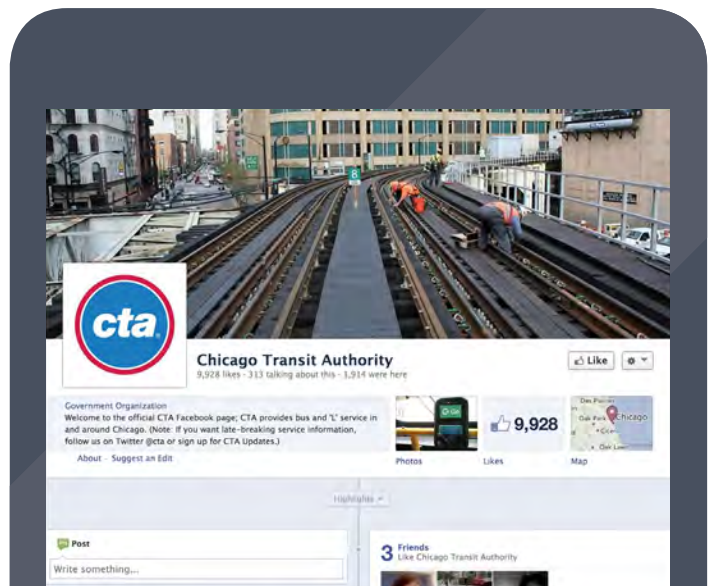
Initiative 16

Focus on Enterprise implementation of technology

The City will implement a shared services model for IT across City departments and agencies that will result in better services at less cost through streamlined processes and the sharing of IT resources.

#Savings #Services #Engagement

Chicago currently operates multiple IT departments across the City that deliver redundant support services to different departments. Merging these departments and standardizing IT practices across business units will result in best practices, lower costs, easier integration, and enhanced cybersecurity.

In the coming years, the City will continue to review other areas of its operations to identify additional opportunities to adopt a shared services model.
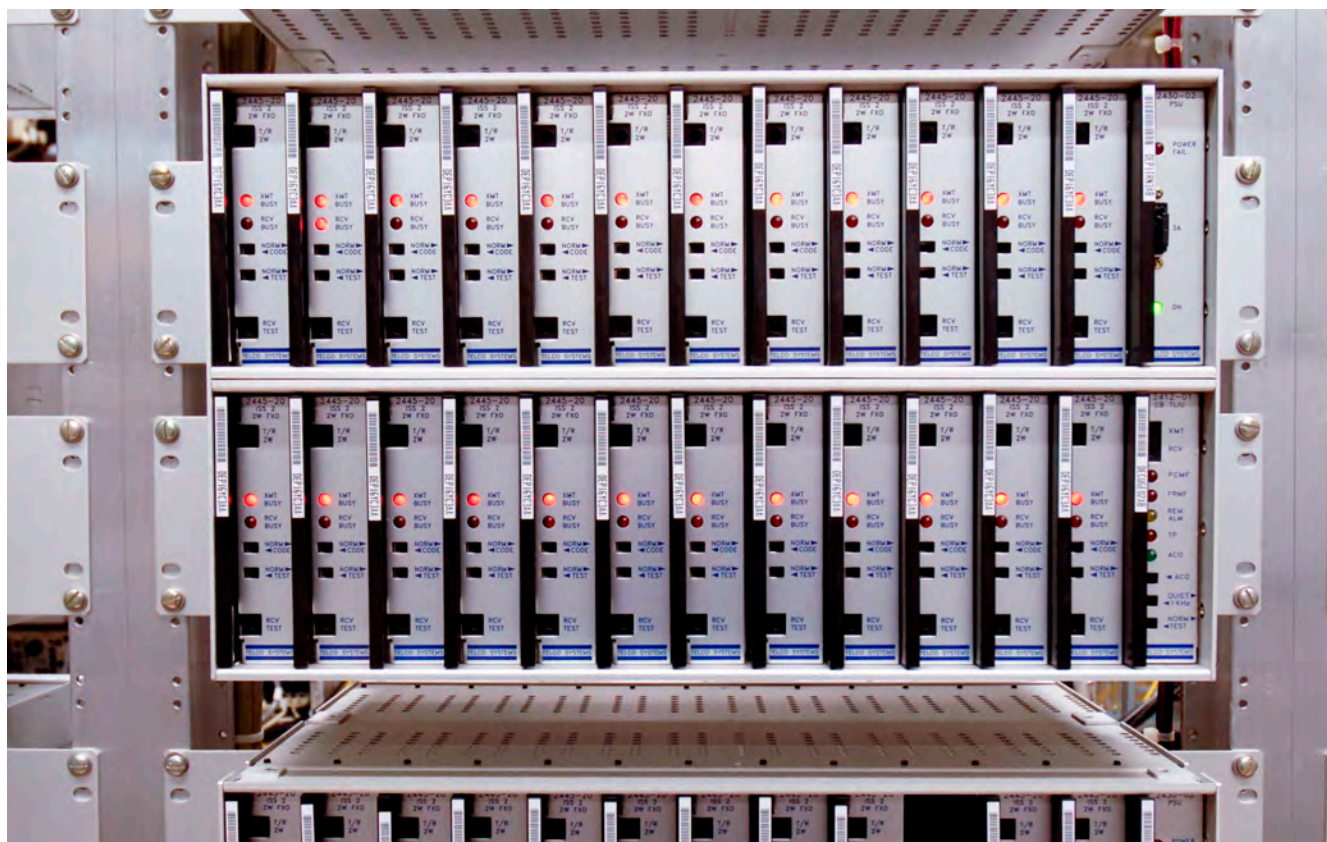
Initiative
17

Consolidate local government data centers

The City is building the Chicago Cloud to consolidate its data centers using state-of-the-art hardware and data management software. Other government entities will be invited to join to further reduce costs and improve efficiency.

#Savings

The City and sister agencies are joining forces to consolidate their data centers into a "Chicago Cloud," a shared database stored on cutting-edge servers. This groundbreaking collaboration, expected to be completed over the next year, will reduce operating costs, increase productivity, increase the security of sensitive data, and make data management more effective across government.

By sharing data centers, the City and sister agencies will have fewer physical sites to maintain, which will increase data center energy efficiency, make it easier to upgrade system infrastructure, allow for better integration of systems, and reduce costs. Over time, other government entities will be invited to join the Chicago Cloud, which will further reduce costs and improve efficiencies.

Initiative 18

Focus resources on innovative technology solutions

DoIT will partner with the private sector to deliver commoditized technology, allowing staff to focus on developing innovative technology solutions to issues only government can address

#Savings

The City's technology workforce spends too much time on functions that are more efficiently delivered by private sector companies, preventing the City from focusing on developing innovative solutions to longstanding challenges. For example, City staff spend an inordinate amount of time overseeing City email and other business applications. Chicago aims to "work smarter" by partnering with the private sector to handle these functions more efficiently.

To deliver on this strategy, the City has started to implement a cloud computing strategy, moving email and applications to the cloud. When this transition is completed by the end of 2013, City employees will be able to do their jobs more effectively while saving taxpayer dollars. As new technology emerges, DoIT will continually review the portfolio of operations it performs and the ways those functions are provided to ensure optimal use of resources.

By partnering with the private sector to deliver commoditized services, the City is able to shift its efforts to developing opportunities to use technology as a tool for improving the effectiveness and efficiency of existing internal processes. By investing in innovative technology solutions to streamline and improve processes the City will be able to reduce process time and improve efficiency. New technology will also be used to make City services more readily available to residents by reducing the number of manual steps needed to access or apply for a range of City services.

Civic Innovation

Work with civic technology innovators to develop creative solutions to city challenges:

Civic innovation occurs when individuals work with government to improve the quality of life in urban areas. To encourage civic innovation, Chicago offers a range of tools and initiatives that give Chicagoans a stronger voice in government decisions and empowers them to develop creative solutions to city challenges. The City also harnesses the power of civic innovation to anticipate and identify residents' concerns, allocate the best resources to address these concerns, and respond more effectively when problems arise. Chicago's visionary civic leaders, robust entrepreneurial community, and world-class research universities are using technology to transform civic collaboration and reimagine the relationship between government and its residents.

Initiative 19

Research data-driven solutions to major urban challenges

The Citiy's Department of Innovation and Technology (DoIT) will continue to use data analytics to help managers across the City explore—and solve—some of the most vexing problems facing municipalities.

#Services

Innovation begins by asking the right questions, especially when the answers—and sometimes even the questions—are not obvious.

Every day, the City of Chicago collects millions of data points on everything from potholes to building permits. These data contain powerful insights about how the city works, without revealing personally-identifiable information. But in order to distill these insights and translate them into meaningful action, City leaders need a systematic approach for exploring, interrogating, and ultimately using these data.

DoIT maintains a comprehensive research agenda to guide these explorations. By engaging departments and agencies across the City government, DoIT helps managers ask important questions and helps them use City data to develop innovative solutions to better serve residents. Example projects include:

Examining Medical Emergency Hotspots

The City will continue to study areas that experience high concentrations of Emergency Medical Service (EMS) calls, analyzing potential explanatory factors and developing new strategies to prevent emergencies and respond more effectively when they do arise.

Visualizing Patterns in Social Phenomena

DoIT is developing a large-scale, high-resolution 3D visualization of time-varying data on EMS calls, vacant and abandoned buildings, and other social concerns.

Building the Nation's Most Comprehensive Energy Use Database

Through a collaboration with partners in academia, technology, and the energy sector, the City has developed a one-of-its-kind database[23] and three-dimension visualization to show energy usage at the census-tract level throughout Chicago.[24] Residents can use the database to reduce energy consumption in their neighborhoods, while policymakers can use it to design citywide incentives for reducing building-level energy usage.

Completed Pothole Repair Requests
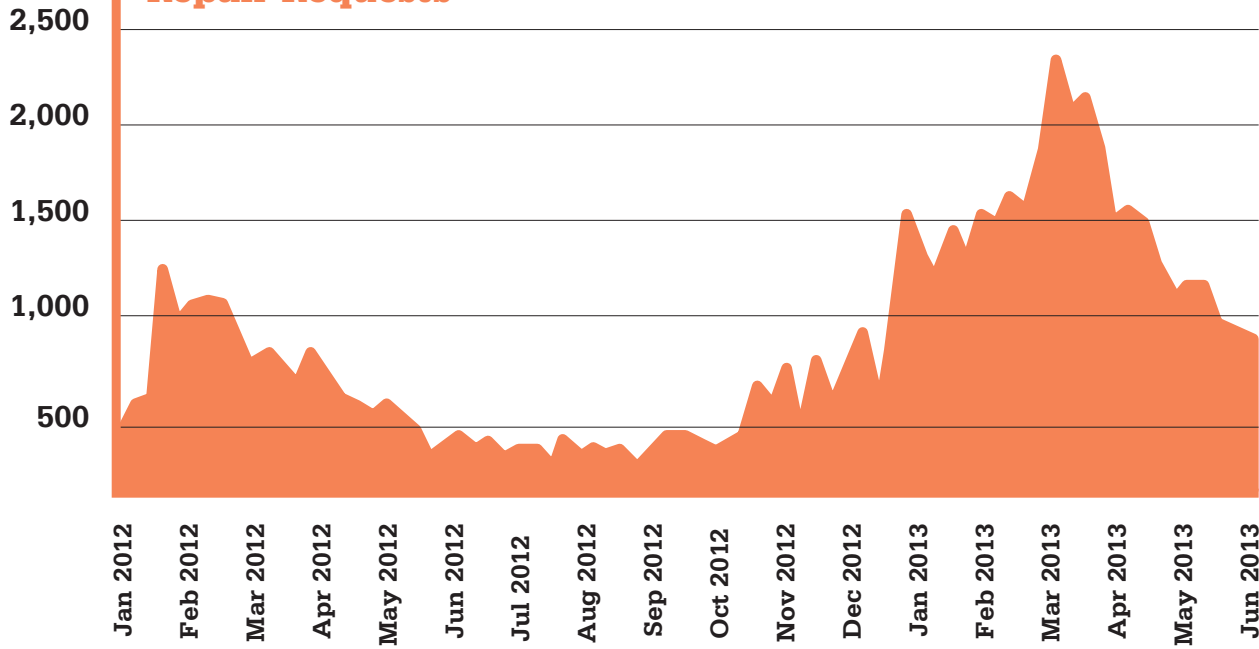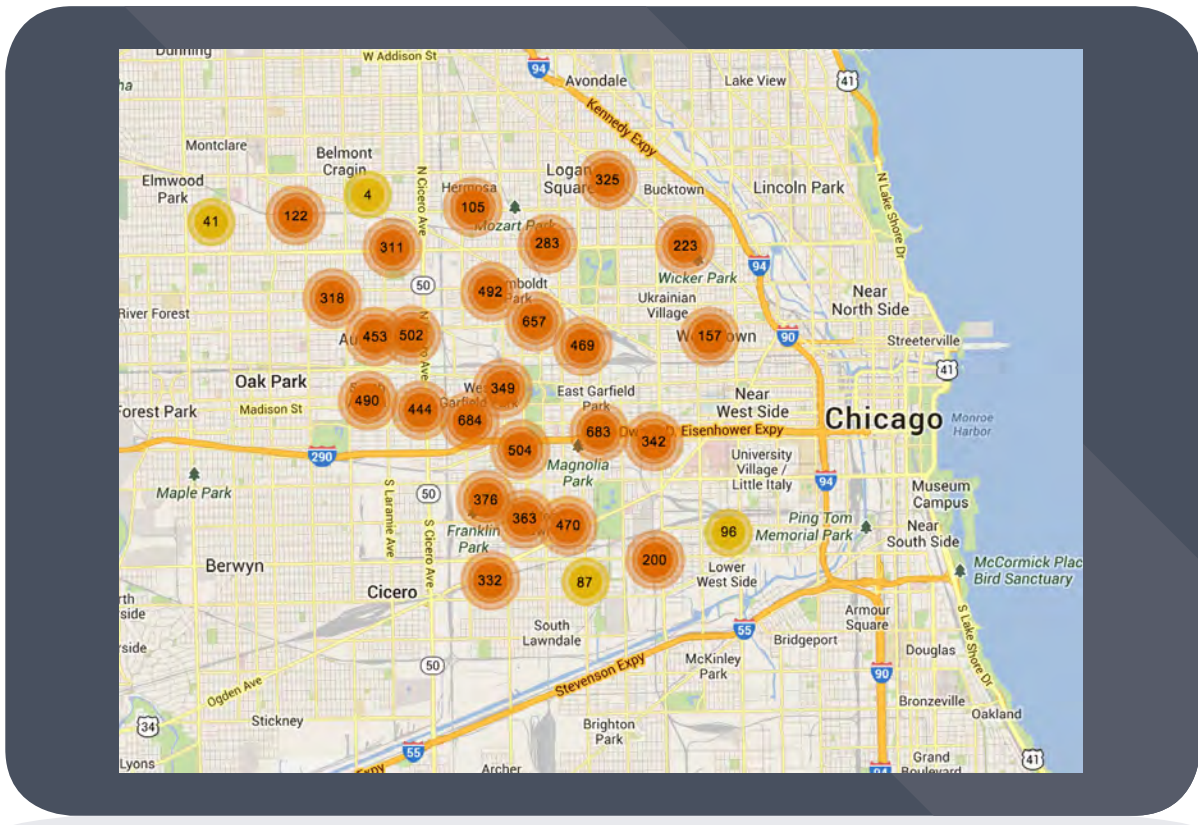
311 Service Requests and Abandoned Buildings Reported

Initiative 20

Bolster transparency and support civic hackers

DoIT and Smart Chicago Collaborative (SCC) will continue to provide a broad range of intellectual and financial resources to help residents and civic technologists use technology to improve urban life.

#Engagement #Services

Much of Chicago's technology-based civic innovation bubbles up from its robust community of civic-minded coders, developers, and entrepreneurs. The City of Chicago continues to release hundreds of machine-readable datasets, charts, maps, and APIs for public use, collaborating closely with the "civic hacker" community using these tools to generate creative solutions to improve urban life. The City and its affiliates also support these civic innovators by providing them with space and other resources. Resources that will continue to be made available to civic innovators include:

GitHub
The City uses GitHub, (https://github.com/Chicago) an online code-sharing platform, to share innovations that other cities and civic hackers can replicate. The City's GitHub projects can be accessed at www.github.com/chicago.

OpenGovChicago(-land) Meetup
SCC helps support the OpenGovChicago(-land) Meetup, a monthly meeting of local innovators focused on solving civic problems by examining the policy and practice around data.[25]
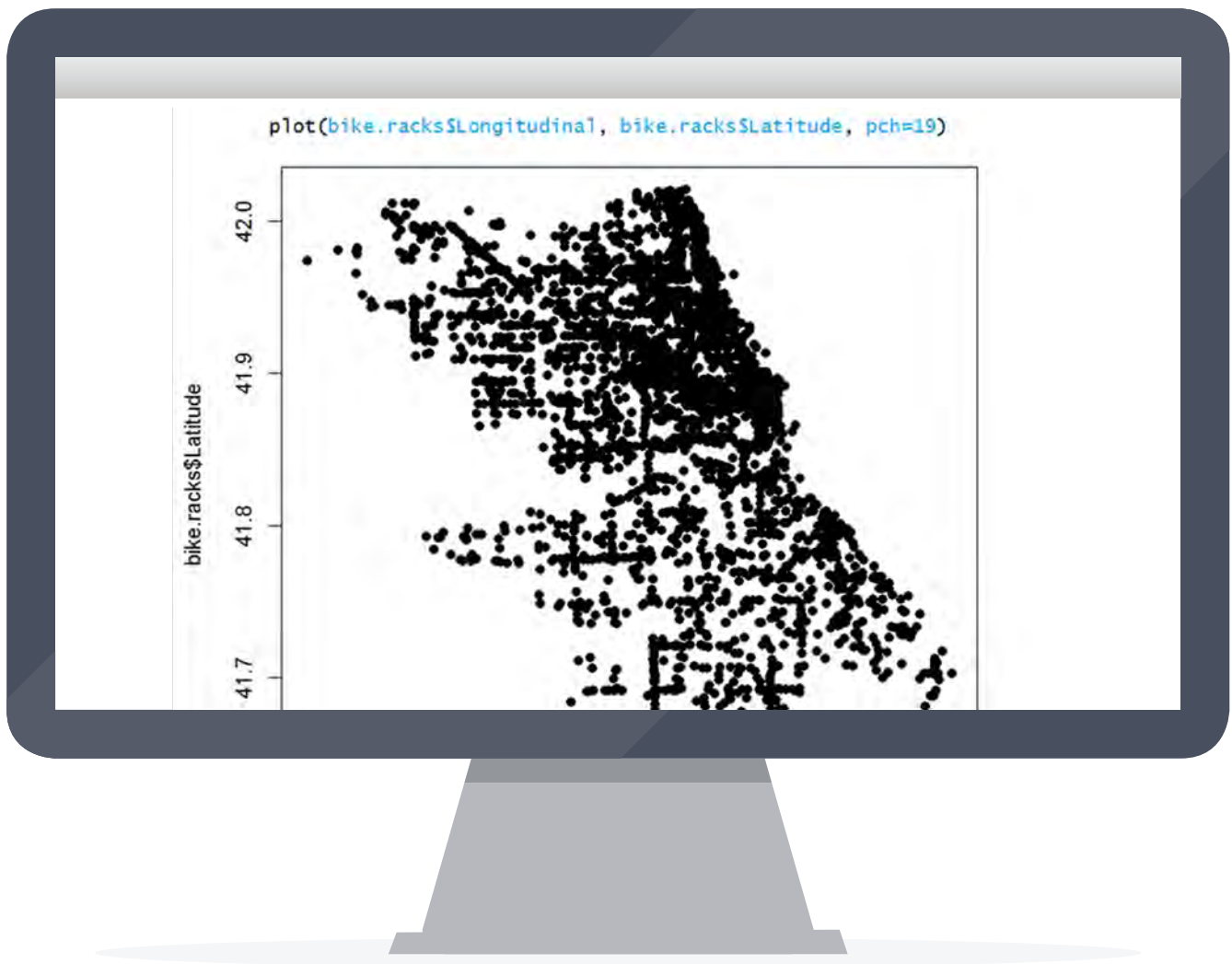
Civic User Testing Group
SCC has developed a Civic User Testing Group, a project that pays residents to test civic applications and other tools.[26]

Shared Web Space for Civic Developers
SCC hosts a shared web space to host projects and applications that use open City data to improve life in Chicago.

```
plot(bike.racks$Longitudinal, bike.racks$Latitude, pch=19)
```

GitHub is a software platform that allows developers to share their code with others

Chicago put five datasets on GitHub in February 2013 (street locations, building footprints, bike routes, pedway routes, bike rack locations)

Anyone can download the datasets, make changes, and suggest that Chicago incorporate these changes into the original dataset (e.g. if the original dataset contains an error)

On the left is a visualization of bike rack locations in Chicago based on the GitHub data

Source: https://github.com/chicago/osd-bike-racks

Source: https://github.com/chicago/osd-bike-racks

Technology Sector Growth

Encourage the vibrancy of Chicago's Technology Sector by attracting and retaining STEM professionals and supporting the creation and expansion of technology companies:

Chicago is driving economic growth and job creation by encouraging the vibrancy of Chicago's Technology Sector, especially in the areas of Web/Mobile, CleanTech, and Biosciences. With Chicago's mature business sector and world-class universities as a starting point, the City is focusing on attracting and retaining talented STEM-trained professionals and technology firms to Chicago, encouraging existing companies to expand, and supporting the creation of start-up companies.

In support of these goals, the City is telling the story of Chicago's technology strengths and successes to let the world know of the great opportunities that exist here for businesses and individuals alike. The City also works closely with local universities, research and development facilities, and venture capital firms to build on the impact those organizations are having on the success of Chicago's Technology Sector.

Initiative
21

Expand the numbers of physical incubator and co-working spaces in the city

ChicagoNEXT, industry leaders, academia, and others will create a center for Chicago biotech and pharmaceutical start-ups. This incubator, networking, collaboration, and business acceleration space will help increase the number and size of bioscience companies, improve research, and increase opportunities for commercializing research.

#Engagement #Jobs #STEM

The innovative center for digital technology entrepreneurs, 1871, provides unique support for technology entrepreneurs. Chicago will expand its support of the technology community by helping establish additional technology incubator/networking spaces. Within the next year, ChicagoNEXT, industry leaders, academia, and others are planning to establish a physical networking/incubator center for pharmaceutical and biotech industries. Other centers may be added in the future, depending on need. In addition to facilitating collaboration, acceleration, and interaction, these spaces will demonstrate the cohesiveness of Chicago's technology community.

Sampling of Current Incubators in Chicago

Techstars Chicago

Launched 30 companies, which raised over $30 million in capital since January 2013

Created over 150 net new jobs

Out of 100's of applications the 10 best are selected

Ranked by Forbes as one of the 10 hottest start-up incubators

Source: http://exceleratelabs.com/

Specifically for life sciences/biotech/ engineering/materials/ chemical research/ and other start-ups

19 wet labs, 9 dry labs, 6 offices

Can house 30 start-up companies

Features sophisticated lab space & equipment

Source: http://www.universitytechnologypark.com/overview/incubator.shtml

Launched in January 2012

Empowers healthcare entrepreneurs

16-week program

Entrepreneurs receive $50,000 in funding

Source: http://tcrn.ch/rILhTA
http://www.sandboxindustries.com/about/healthbox/

ChicagoNEXT

ChicagoNEXT, a council established by World Business Chicago, represents a dedicated effort to drive growth and opportunity in the business climate related to science, technology, innovation and entrepreneurship. ChicagoNEXT seeks to positively impact new venture formation in Chicago and to accelerate the growth and/or expansion of established businesses. While the council will focus broadly on tech and science-based pursuits, there will be a particular emphasis on:

CleanTech

Bioscience

Web/Mobile

Core goals of this council consist of:

Attract talent

Engage alumni (university and corporate)

Increase level of available venture capital

Raise Chicago's tech profile both domestically and abroad

Connect entrepreneurs and corporate Chicago

Provide voice for broader technology community

Improve data collection and reporting[27]

Initiative 22

Expand the number of successful networks that exist to connect entrepreneurs with customers, venture capital, and mentorship opportunities

The City of Chicago and ChicagoNEXT will create a program to connect start-ups and the business community in various ways to develop partnerships that will provide guidance and funding, and drive synergies and momentum in the technology community.

#Engagement #Jobs #STEM

Chicago enjoys a mature business community and strong customer base, both of which help make the city an attractive location for start-ups. Current grant making, networking, and incubator organizations in the region provide innovators and entrepreneurs' access to business expertise, resources, and technology sector workforce.

To further economic growth and development, the City and its partners will implement additional programs to expand networking opportunities by engaging Chicago's mature business community in providing direct support to the start-up community.

ChicagoNEXT, in partnership with the City and business community, will launch one such program, a corporate mentor/match-up program, in the next six months. This start-up matching program will connect entrepreneurs to large brand companies through prize-style challenges and other engagements to develop and strengthen partnerships that will provide guidance and funding and opportunities to pilot test new strategies that drive synergies and momentum in the technology community.

The City is also looking into ways for Chicago to engage with the international technology community, including networking opportunities and other opportunities beneficial to Chicago's global economy.

The tech sector in Chicago is still so young, we have a real opportunity right now to consciously shape the culture of this community to be inclusive. And the more inclusive we show ourselves to be, the more that Chicago will become a beacon for people with creativity and ideas who aren't interested in a culture of "brogramming" and "booth babes."

I am committed to the work of the Technology Diversity Council both for myself—because I have vested interest in creating a community where my company can thrive—and for the city I love—because I want the Chicagoland region to benefit from the untapped talent, ideas and enterprises that are locked up inside our people, waiting to be given an opportunity to thrive.

Sharon Schneider
Co-founder and CEO, Moxie Jean

Blue 1647

#Diversity
What is it?
1647 South Blue Island
Chicago

BLUE1647 is a next generation tech and entrepreneurship incubator, supporting all forms of entrepreneurship from events, filmmakers, artists, engineers, and designers. BLUE1647 has the camaraderie of a purposeful lifestyle club, the technology of a wired office, and the resources of the best private schools. As a beacon of resource through physical space and curated programming, BLUE1647 is a place where diverse people working for a better world can quickly access relationships and support to bring their ideas to life.

LEARN
Explore a future in entrepreneurship through relevant workshops and classes focused on personal and professional development.

LAUNCH
Through a holistic approach to incubation, the application of ideas and the process of innovation you have access to advice, resources, and a curated community to get your venture off the ground.

GROW
Creative incubator space to scale your business and shared services for cost savings. [28]

Initiative 23

Attract and retain a talented, diverse STEM workforce

The Mayor and the city's business community will continue to encourage STEM professionals to join Chicago's talented technology workforce by actively recruiting on college campuses and through other activities.

#Skills #Jobs #STEM

A talented, diverse STEM workforce is essential to successfully developing Chicago's technology sector. Technology firms—from start-up to mature companies— all require highly trained workers that reflect a diversity of perspectives and background essential to competing in a global economy.

To help attract and retain a highly-trained, diverse STEM workforce in Chicago, the Mayor and the city's technology and other business leaders are joining forces to conduct city-focused recruiting efforts at targeted universities, along with other activities that facilitate identifying, attracting, and hiring these professionals. As Mayor Emanuel recently stated, "Making Chicago a top destination for the most talented young people in the country is a key goal of my administration, and I am relentlessly focused on showing the country Chicago's quality of life, cultural amenities, and business environment."[29]

Some of the ongoing activities include:

Recruiting Efforts

Chicago is supplementing company-specific recruiting at major universities with a city-focused recruiting effort led by the Mayor, Chicago business leaders, and local technology alumni and luminaries. These campus visits highlight the strength and opportunities within Chicago's talented and diverse technology community, as well as the personal benefits of living in Chicago.

In August 2013, the City hosted ThinkChicago: Lollapalooza as another opportunity to "introduce the city's fast-growing technology industry and one of the country's most popular musical festivals to 100 of the nation's top technology and computer science students from across the country."[29]

Mayoral Diversity Recognition Program
#Diversity

Leveraging the power of the Mayor's Office, the City will highlight individuals and businesses that embody and promote diversity in the technology sector. "Rockstars" of the technology field who come from underrepresented communities will be positioned as role models for young Chicagoans, and companies will be recognized for implementing best practices for diversity.

Programming and Development Competition

The City supports programming and development competitions to attract STEM professionals to town, where they can see firsthand the advantage of becoming part of our technology community.

Tech Diversity Council: Chicago as a "G-E-E-K" city

Chicago's technology ecosystem has grown rapidly, supporting start-ups and later-stage growth companies alike. In response to this unprecedented growth, the Mayor's Council on Technology Diversity was tasked to help ensure that leadership and job opportunities are available for all Chicagoans and that Chicago's technology community reflects the diversity and vitality of the city itself.

Over the course of six months, the committee worked to imagine what it would take to:

Increase the percentage of minority employees for technology firms

Increase the percentage of minority-owned and operated technology firms

Help create a pipeline through which Chicago Public Schools and City Colleges of Chicago students can transition into the technology economy

Interviews and working sessions with 100+ stakeholders involved with technology, community development, and education raised the following issues as critical to the success of changing the status quo:

1
Exposure to technology and technology education is sparse: Computer science is not readily available in Chicago Public Schools. Furthermore, formal school-based programs are insufficient for keeping students engaged; after school and enrichment opportunities are needed as well. Talented students don't know the pathways required for employment or the diversity of opportunities that might be available.

2
There is an acute need for role models and proactive local mentorship at every level of development—from middle school through high school and well into post-secondary and professional life.

3
Information about technology education programs, such as how to recruit, hire and retain diverse candidates, as well as baseline data about the diversity of employees in the technology industry in Chicago, is hard to come by. Despite many high-caliber projects, there is not enough recognition for industry leadership or innovative programs that could serve as models or be brought to scale.

4
There is a deep-seated and genuine desire by members of the technology community to be meaningfully involved in solving the issues Chicago faces in increasing diversity and opportunities to a better life the technology industry can create. Many companies are willing to support volunteer work in the community or to host interns.

Accomplishing the goals envisioned by the committee requires a comprehensive approach to connecting the dots. Initiatives need to happen within an overall ecosystem that welcomes, facilitates and celebrates diversity. Chicago will need to make intentional investments to ensure Chicagoans from underrepresented populations have access to social capital as well as financial capital. Activities need to happen in under-connected neighborhoods as well as in the well-connected center.

In short, Chicago will need to become a GEEK city: **GET-EQUIP-EMPLOY-KEEP.**

GET
initiatives attract and enable everyone—in particular individuals from the most vulnerable populations—to access and make use of technology and ensure not just digital literacy but fluency.

EQUIP
efforts provide skills and experiences needed to become involved in the technology industry: technical skills, certification and advanced coursework, "real life" and out of school experiences (such as internships and first-time jobs), and meaningful and structured relationships with role models and mentors.

EMPLOY
efforts bolster hiring strategies and contracts; recruiting diverse candidates makes good business sense.

KEEP
activities attract talent from elsewhere as well as retain homegrown talent, develop local leadership; highlight beacons and local models.

A "GEEK approach" to increasing diversity in technology not only enables the technology sector to thrive; it ensures the development of social and economic mobility for all Chicagoans, now and into the future.

Initiative 24

Showcase "Why Chicago" is a destination technology city through consistent messaging and events

The City will partner with the city's many technology stars and other business leaders in a variety of events and other promotional activities to share the narrative of Chicago as a technology destination to attract workers and businesses to locate here.

#Engagement #Jobs #Skills #STEM

In the coming year, Chicago will focus on a variety of messaging events and other activities designed to tell the world "Why Chicago" is an ideal destination city for technology. Sharing the story of Chicago's technology strengths and successes will help entrepreneurs and professionals alike become aware of the great opportunities that exist for them in our city. The message of Chicago's unique strengths will focus on three key themes:

Core intellectual capital due to the many world-renowned universities and research centers in proximity to the City

Highlights of Chicago's many technology successes

The many benefits of living and working in Chicago, including diversity and affordability.

While the messaging will be delivered primarily through an awareness campaign aimed at the business community, including venture capital firms and entrepreneurs, the major themes will also be incorporated into all of the City's technology-related activities, such as workforce recruiting efforts and industry events.

Other activities the City and business community will undertake in the coming year and beyond—designed to amplify the message "Why Chicago" and demonstrate commitment to the technology industry—will include:

Special appearances by the Mayor, business leaders, and technology luminaries at certain technology incubators and start-up firms to demonstrate support and commitment to Chicago firms as well as the industry overall.

Special appearances by the Mayor, business leaders, and technology luminaries at VIP/special events tied to major technology conferences and events held in Chicago, including:

2013 BIO International Convention

WindPower 2013

Solar Power International 2013

Big Data Week 2013

Data Science Leadership Summit

Efforts by the City in partnership with Choose Chicago to attract additional tech-focused conferences/conventions by amplifying "Why Chicago" from a technology perspective in recruiting efforts.

Initiative
25

Encourage technology firms to promote their ties to Chicago

The City will encourage technology firms in Chicago to share their civic pride to demonstrate to the world the many successes in, and vibrancy of, Chicago's Technology Sector.

#Engagement #Jobs #STEM

Though many successful technology firms got their start here in Chicago, this narrative is not as widely known as it should be. To spread awareness of the strength of Chicago's technology sector, the City will encourage Chicago firms to share their civic pride. For example, firms could:

Mention their Chicago ties when presenting at talks or conferences

Refer to their Chicago location as a benefit when recruiting at universities
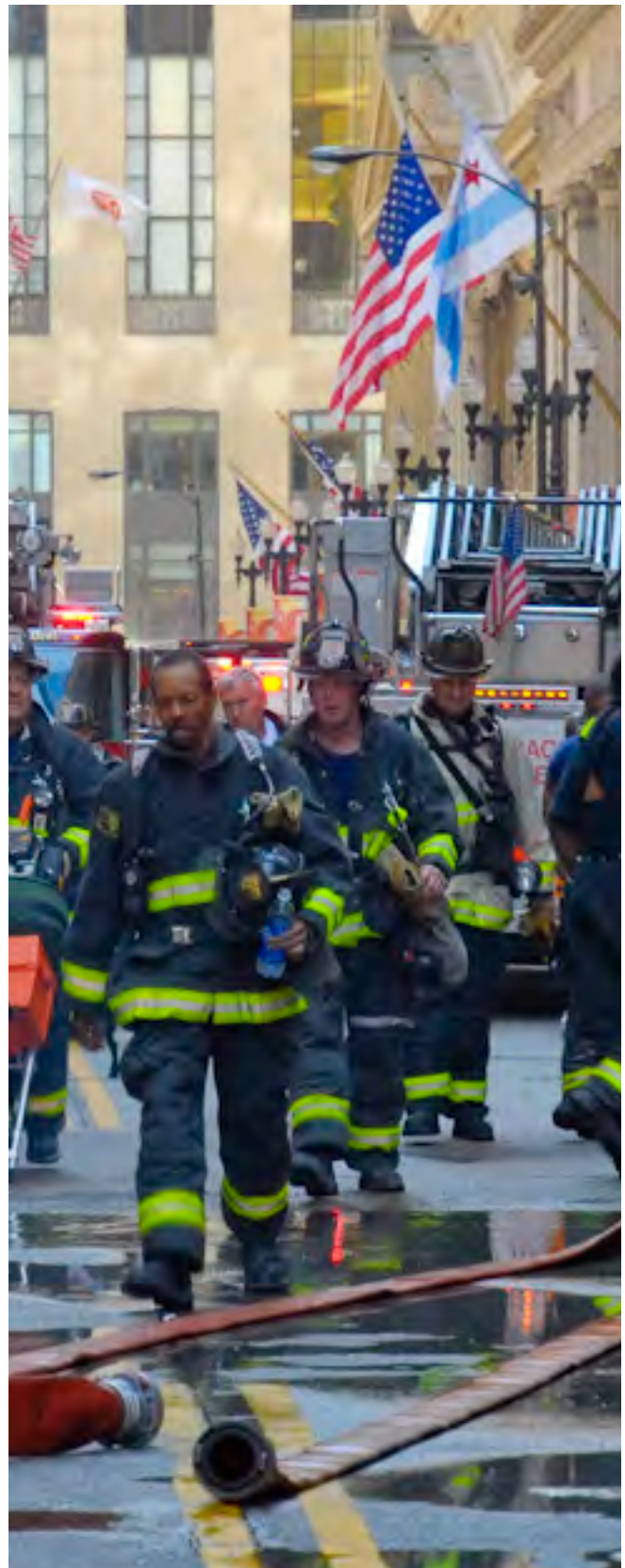
U OF I LABS
Privately funded, nonprofit research labs

Top engineering and computer science professionals in the city will work with scientists/future scientists and corporate backers

EVENTUAL BUDGET OF
$100M
Per year

ORGANIZERS HOPE TO HAVE ROUGHLY
250
faculty fellows over next three years

ANTICIPATING MORE THAN
1000
students—graduate and undergraduate—studying there within five years [30]

Initiative 26

Strengthen connections with world-renowned academic research institutions

The City will join forces with the academic and business communities and others to establish U of I Labs, enact research friendly policies, and hold forums designed to demonstrate Chicago's place as a major research center as a means of drawing the best and the brightest to Chicago and increasing commercialization opportunities.

#Engagement #Jobs #Services #Skills #STEM

The City has strong ties to the many world-renowned universities and research facilities located in the area. Further strengthening these relationships and support will firmly establish Chicago as a leading center for research and will help increase industry-driven research, development, and commercialization opportunities. Chicago, ChicagoNEXT, and the business community will join forces on a number of priority projects designed to achieve these goals, including:

U of I Labs
Privately funded research labs will be established in Chicago in the next 18 months. U of I Labs are expected to draw top engineering and computer science professionals to the city to work with scientists/future scientists and corporate backers. These research labs will help retain STEM professionals and attract new entrepreneurs, particularly in the fields of CleanTech, Biosciences, and Web/Mobile, solidifying Chicago as a major technology player.

The City as a Living Research Lab

Given Chicago's proximity to, and relationships with, several major research centers and universities, there may be opportunities for the City to offer itself as a "lab" for research that will improve the lives of our residents and solve big-city problems for very low investments.

City/Academia Partnership on City Technology Initiatives

The City of Chicago Department of Innovation and Technology (DoIT), and other departments in the City, regularly partner with academia to bring cutting-edge research together with government leaders to develop innovation solutions. Data science is an example of this partnership. These partnerships will continue to play an important role not only in developing technology solutions, but also as a way to further strengthen the relationships between the City and its academic community.

Urban Sensing

With a small investment by the City in physical platforms, protected from the weather and containing a power source and network connectivity, the City can offer itself as a place for researchers to conduct studies that will ultimately drive solutions to big city problems at extremely low costs to the City.

Spectrum Testing

The City will research efforts to become the easiest, most friendly city for development and testing of next generation wireless Spectrum.

Municipal Technology Testing

The City will offer entrepreneurs and research facilities opportunities to test new technologies in municipal buildings and on public property.

City/Business/Academia Roundtables

The City and/or business community will sponsor roundtables that will include representatives from all areas talking about grand challenges as a way to bring issues to light by having the right people at the table to solve problems.

Chicago-Area Research Institutions Fuel Innovation

One of Chicago's many strengths as a center for technological innovation is the large concentration of renowned research institutions in the region. A team led by one of these institutions, the Argonne National Laboratory, was recently granted an award of up to $120 million over five years to create a battery and energy storage hub, which will aim to revolutionize battery performance. This technology will be crucial for expanding the use of electric and hybrid cars, reducing dependence on oil, and lowering energy costs nationally.[31]

The Chicago region is also home to leading universities that are furthering technological innovation, including:

The University of Chicago, which, along with Argonne National Laboratory, hosts the Data Science for Social Good summer fellowship, as well as the Urban Center for Computation and Data

DePaul University, which hosts the DePaul Center for Data Mining and Predictive Analytics

CHICAGO'S CURRENTLY HOME TO

29

DATA CENTERS
More are already
scheduled to be built [32]

Initiative
27

Foster a business-friendly environment

The City will further foster a regulatory and policy-based environment in which businesses can flourish and grow by reviewing current business-related requirements and processes, such as permits and procurement, updating where appropriate.

#Jobs #Savings #Services

Chicago is committed to supporting business development and economic growth. In doing so, the City will undertake a comprehensive review of policies and regulations in the coming year to ensure they promote an environment in which businesses can flourish and grow. Areas of particular focus will include:

Promote Data Center Relocation to Chicago

The City continues to support efforts to increase the number of data centers that relocate to Chicago. The effort will include leveraging Chicago's geographic strengths, as well as expediting the relocation process.

Support Renewable Energy and Smart Grid Technology

The City will look for ways to use policy to support renewable energy and Smart Grid technology.

CHICAGO RECEIVED
$545.7M
in venture capital funding, with 71 deals in 2012; ranked **9th** in U.S. metro areas [33]

SOME OF THE VC FIRMS INVESTING IN CHICAGO'S TECH SECTOR INCLUDE:

Hyde Park Angels

New World Ventures

OCA Ventures

Lightbank

Sandbox Industries

New Enterprise Associates, Inc.

Initiative 28

Promote ways to increase venture capital and other funding available to start-ups

To help attract funding to Chicago-based start-ups, the City and business leaders will work to attract VC firms to Chicago and provide support to existing firms as they reach out to other VC firms worldwide.

#Jobs

Although Chicago entrepreneurs have access to a significant amount of venture capital for technology opportunities, particularly in certain sectors, total investments are at sub-optimal levels. The City will work with the business community to help increase VC opportunities in Chicago and also help identify and secure opportunities for other funding sources where possible to help entrepreneurs. These activities include:

Attracting VC Firms
The Mayor and Chicago's business and VC community will be integral to recruiting VC firms to the area, including early/growth stage bioscience funds, through organized events and targeted recruiting efforts

Supporting Local VC Firms' Leverage Efforts
The City will support local VC firms in their efforts to secure additional funding from both national and international sources

Research Funding/
Tech-Sector Start-up Support

Chicago Biomedical Consortium (CBC) fosters collaboration among scientists at Northwestern University, the University of Chicago, and the University of Illinois at Chicago that will transform research at the frontiers of biomedicine by:

Stimulating research and education that bridge institutional boundaries

Enabling collaborative and interdisciplinary research that is beyond the range of a single institution

Recruiting and retaining a strong cadre of biomedical leaders and researchers in Chicago

Promoting the development of the biomedical industry in Chicago

Executing a plan capable of improving the health of citizens of Chicago and beyond

CBC also offers several funding opportunities to advance biomedical research in Chicago.[34]
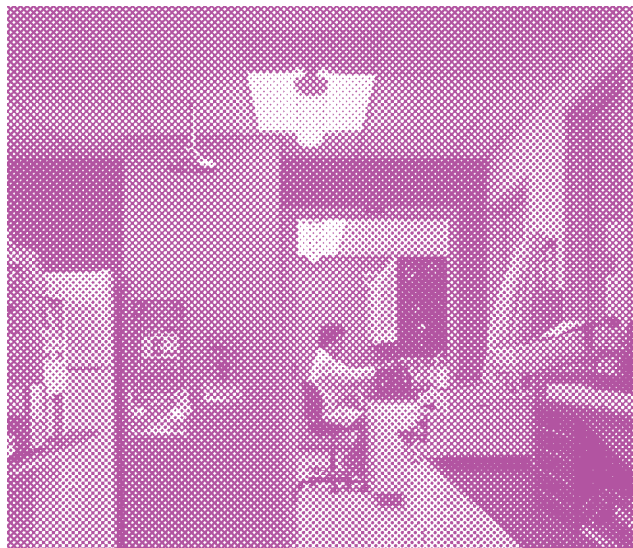
iBIO® Institute's PROPEL® Center helps guide the development of formation-stage and early-stage life sciences companies by providing entrepreneurs access to specialized resources and expertise. PROPEL programs include workshops on investor expectations, creating successful federal funding applications, preparing for due diligence, and many others; assistance with company descriptions and investor slides; one on one coaching; and grants for targeted company-building activities. PROPEL was a co-founder of Chicago Innovation Mentors (CIM) and sits on CIM's board of governors.[35]

The Clean Energy Trust accelerates the development of Midwest clean energy businesses by connecting entrepreneurs, researchers and early stage companies with the expertise and capital needed to become sustainable. The Trust leverages the region's world-class research institutions, corporations and financial firms to cultivate a clean energy ecosystem, attracting top researchers and entrepreneurs to invigorate the region's economy. [36]

The more we can continue to encourage the flow of risk capital into Chicago—through both locally-based funds and those from outside of the region—the more fuel our technology companies will have to continue their growth.

J.B. Pritzker

INITIATIVES BY IMPACT

#Savings

Initiative 3
Implement policies and infrastructure to allow for urban technology experimentation
Page 31

The City will implement policies and basic infrastructure that make Chicago friendly to technology experimentation, allowing Chicago to become a global leader in environmental sensing, spectrum research, and wireless connectivity, while enabling researchers to develop solutions to city problems.

Initiative 13
Utilize data to drive efficiency and effectiveness
Page 47

The City will continue to undertake projects to gather and analyze data that will allow City leaders to proactively address issues, with the goal of increasing government efficiency and effectiveness.

Initiative 14
Increase and improve City data
Page 49

The City will continue to increase and improve the quality of City data available internally and externally, and facilitate methods for analyzing that data to help create a smarter and more efficient city.

Initiative 15
Leverage technology to improve communications
Page 51

The City will expand and update its mobile, social media, and online technology to increase and improve communication and interaction with its residents.

Initiative 16
Focus on Enterprise implementation of technology
Page 53

The City will implement a shared services model for IT across City departments and agencies that will result in better services at less cost through streamlined processes and the sharing of IT resources.

Initiative 17
Consolidate local government data centers
Page 54

The City is building the Chicago Cloud to consolidate its data centers using state-of-the-art hardware and data management software. Other government entities will be invited to join to further reduce costs and improve efficiency.

Initiative 18
Focus resources on innovative technology solutions
Page 55

DoIT will partner with the private sector to deliver commoditized technology, allowing staff to focus on developing innovative technology solutions to issues only government can address.

Initiative 27
Foster a business-friendly environment
Page 72

The City will further foster a regulatory and policy-based environment in which businesses can flourish and grow by reviewing current business-related requirements and processes, such as permits and procurement, updating where appropriate.

#Services

Initiative 2
Enable a "Digital Public Way"
Page 30

The City will implement the policies necessary to interconnect the various points of physical interaction residents and businesses have with their city. As public infrastructure and objects become networked (public bikes, transit signage, etc.) the City will seek to require that the hyperlocal data they generate form an open platform for development in a manner that promotes innovation, maintains privacy, and assists local businesses.

Initiative 3
Implement policies and infrastructure to allow for urban technology experimentation
Page 31

The City will implement policies and basic infrastructure that make Chicago friendly to technology experimentation, allowing Chicago to become a global leader in environmental sensing, spectrum research, and wireless connectivity, while enabling researchers to develop solutions to city problems.

Initiative 13
Utilize data to drive efficiency and effectiveness
Page 47

The City will continue to undertake projects to gather and analyze data that will allow City leaders to proactively address issues, with the goal of increasing government efficiency and effectiveness.

Initiative 14
Increase and improve City data
Page 49

The City will continue to increase and improve the quality of City data available internally and externally, and facilitate methods for analyzing that data to help create a smarter and more efficient city.

Initiative 15
Leverage technology to improve communications
Page 51

The City will expand and update its mobile, social media, and online technology to increase and improve the government's communication and interaction with its residents.

Initiative 19
Research data-driven solutions to major urban challenges
Page 57

DoIT will continue to use data analytics to help managers across the City explore—and solve—some of the most vexing problems facing municipalities.

Initiative 20
Bolster transparency and support civic hackers
Page 59

DoIT and SCC will continue to provide a broad range of intellectual and financial resources to help residents and civic technologists use technology to improve urban life.

Initiative 26
Strengthen connections with world-renowned academic research institutions
Page 70

The City will join forces with the academic and business communities and others to establish U of I Labs, enact research friendly policies, and hold forums designed to demonstrate Chicago's place as a major research center as a means of drawing the best and the brightest to Chicago and increasing commercialization opportunities.

Initiative 27
Foster a business-friendly environment
Page 72

The City will further foster a regulatory and policy-based environment in which businesses can flourish and grow by reviewing current business-related requirements and processes, such as permits and procurement, updating where appropriate.

#Engagement

Initiative 2
Enable a "Digital Public Way"
Page 30

The City will implement the policies necessary to interconnect the various points of physical interaction residents and businesses have with their city. As public infrastructure and objects become networked (public bikes, transit signage, etc.) the City will seek to require that the hyperlocal data they generate form an open platform for development in a manner that promotes innovation, maintains privacy, and assists local businesses.

Initiative 4
Establish a smart community benchmark and toolkit for broadband access and use
Page 33

As an initiative of the World Business Chicago's Plan for Economic Growth and Jobs, LISC Chicago and SCC, working with public and civic partners, including the CPL, will create a profile of a fully connected community that can be used as a benchmark, along with a toolkit of best practices, to help communities reach this standard of broadband access and use.

Initiative 5
Scale up Smart Communities
Page 34

The City and its partners will look for opportunities to continue technology-use demonstrations in the current five Chicago neighborhoods identified for the BTOP Sustainable Broadband Adoption program, and use the benchmark to pilot the toolkit in additional communities.

Initiative 12
Make educational and creative resources available to residents
Page 45

The City has several opportunities to engage residents in technology-related creative and educational activities, and to use technology to make educational assets available to residents. Making these resources available benefits residents and encourages engagement in technology.

Initiative 13
Utilize data to drive efficiency and effectiveness
Page 47

The City will continue to undertake projects to gather and analyze data that will allow City leaders to proactively address issues, with the goal of increasing government efficiency and effectiveness.

Initiative 15
Leverage technology to improve communications
Page 51

The City will expand and update its mobile, social media, and online technology to increase and improve communication and interaction with its residents.

Initiative 20
Bolster transparency and support civic hackers
Page 59

DoIT and SCC will continue to provide a broad range of intellectual and financial resources to help residents and civic technologists use technology to improve urban life.

Initiative 21
Expand the number of physical incubator and co-working spaces in the city
Page 62

ChicagoNEXT, industry leaders, academia, and others will create a center for Chicago biotech and pharmaceutical start-ups. This incubator, networking, collaboration, and business acceleration space will help increase the number and size of bioscience companies, improve research, and increase opportunities for commercializing research.

Initiative 22
Expand the number of successful networks that exist to connect entrepreneurs with customers, venture capital, and mentorship opportunities
Page 64

The City of Chicago and ChicagoNEXT will create a program to connect start-ups and the business community in various ways to develop partnerships that will provide guidance and funding, and drive synergies and momentum in the technology community.

Initiative 24
Showcase "Why Chicago" is a destination technology city through consistent messaging and events
Page 68

The City will partner with the city's many technology stars and other business leaders in a variety of events and other promotional activities to share the narrative of Chicago as a technology destination to attract workers and businesses to locate here.

Initiative 25
Encourage technology firms to promote their ties to Chicago
Page 69

The City will encourage technology firms in Chicago to share their civic pride to demonstrate to the world the many successes in, and vibrancy of, Chicago's Technology Sector.

Initiative 26
Strengthen connections with world-renowned academic research institutions
Page 70

The City will join forces with the academic and business communities and others to establish U of I Labs, enact research friendly policies, and hold forums designed to demonstrate Chicago's place as a major research center as a means of drawing the best and the brightest to Chicago and increasing commercialization opportunities.

#Access

Initiative 1
Work with partners to increase speed and availability of broadband in Chicago
Page 28

The City will promote implementation of the infrastructure required to improve the speed, cost, and availability of broadband in Chicago.

Initiative 2
Enable a "Digital Public Way"
Page 30

The City will implement the policies necessary to interconnect the various points of physical interaction residents and businesses have with their city. As public infrastructure and objects become networked (public bikes, transit signage, etc.) the City will seek to require that the hyperlocal data they generate form an open platform for development in a manner that promotes innovation, maintains privacy, and assists local businesses.

Initiative 4
Establish a smart community benchmark and toolkit for broadband access and use
Page 33

As an initiative of the World Business Chicago's Plan for Economic Growth and Jobs, LISC Chicago and SCC, working with public and civic partners, including the CPL, will create a profile of a fully connected community that can be used as a benchmark, along with a toolkit of best practices, to help communities reach this standard of broadband access and use.

Initiative 5
Scale up Smart Communities
Page 34

The City and its partners will look for opportunities to continue technology-use demonstrations in the current five Chicago neighborhoods identified for the BTOP Sustainable Broadband Adoption program, and use the benchmark to pilot the toolkit in additional communities.

Initiative 6
Make free Wi-Fi available in public places
Page 35

The City and the Chicago Park District will make free Wi-Fi available in select parks, including parks in communities with limited or no access to Wi-Fi, to increase residents' ability to access the Internet. The City will also reach out to community groups to spread awareness around how they can help increase Wi-Fi availability by establishing access points in their neighborhoods.

Initiative 7
Increase options for low-cost broadband
Page 37

The City will work with private partners to develop new options for low-cost broadband, offering more residents access to low-cost Internet and increasing Internet usage citywide.

Initiative 10
Promote digital excellence activities
Page 43

The City will help promote and guide public/private efforts to make every community a smart community. To encourage the use of the benchmark and toolkit, and enable residents to gain the maximum benefit from digital technology, the City will help focus and coordinate activities among a large group of committed stakeholders who share this mission.

Initiative 11
Provide public computer access and support
Page 44

The City, CHA, CCC, CPL, and other organizations will continue to run public computer labs to increase residents' access to the Internet and their ability to use the Internet effectively.

Initiative 12
Make educational and creative resources available to residents
Page 45

The City has several opportunities to engage residents in technology-related creative and educational activities, and to use technology to make educational assets available to residents. Making these resources available benefits residents and encourages engagement in technology.

#Skills

Initiative 4
Establish a smart community benchmark and toolkit for broadband access and use
Page 33

As an initiative of the World Business Chicago's Plan for Economic Growth and Jobs, LISC Chicago and SCC, working with public and civic partners, including the CPL, will create a profile of a fully connected community that can be used as a benchmark, along with a toolkit of best practices to help communities reach this standard of broadband access and use.

Initiative 5
Scale up Smart Communities
Page 34

The City and its partners will look for opportunities to continue technology-use demonstrations in the current five Chicago neighborhoods identified for the BTOP Sustainable Broadband Adoption program, and use the benchmark to pilot the toolkit in additional communities.

Initiative 8
Educate and engage young people in technology
Page 38

The City will partner with CPS, CCC, CPL, and other institutions to educate and engage young people in technology, preparing them for the jobs of the future and building the city's STEM workforce.

Initiative 9
Offer digital training and hands-on technology experience
Page 42

The City, CHA, CCC, CPL, and other partners will deliver digital training and create opportunities for hands-on experience with technology to increase residents' digital literacy.

Initiative 10
Promote digital excellence activities
Page 43

The City will help promote and guide public/private efforts to make every community a smart community. To encourage the use of the benchmark and toolkit, and enable residents to gain the maximum benefit from digital technology, the City will help focus and coordinate activities among a large group of committed stakeholders who share this mission.

Initiative 11
Provide public computer access and support
Page 44

The City, CHA, CCC, CPL, and other organizations will continue to run public computer labs to increase residents' access to the Internet and their ability to use the Internet effectively.

Initiative 12
Make educational and creative resources available to residents
Page 45

The City has several opportunities to engage residents in technology-related creative and educational activities, and to use technology to make educational assets available to residents. Making these resources available benefits residents and encourages engagements on technology.

Initiative 23
Attract and retain a talented, diverse STEM workforce
Page 66

The Mayor and the city's business community will continue to encourage STEM and other talented professionals to join Chicago's talented technology workforce by actively recruiting on college campuses and through other activities.

Initiative 24
Showcase "Why Chicago" is a destination technology city through consistent messaging and events
Page 68

The City will partner with the city's many technology stars and other business leaders in a variety of events and other promotional activities to share the narrative of Chicago as a technology destination to attract workers and businesses to locate here.

Initiative 26
Strengthen connections with world-renowned academic research institutions
Page 70

The City will join forces with the academic and business communities and others to establish U of I Labs, enact research friendly policies, and hold forums designed to demonstrate Chicago's place as a major research center as a means of drawing the best and the brightest to Chicago and increasing commercialization opportunities.

#Jobs

Initiative 1
Work with partners to increase speed and availability of broadband in Chicago
Page 28

The City will promote implementation of the infrastructure required to improve the speed, cost, and availability of broadband in Chicago.

Initiative 3
Implement policies and infrastructure to allow for urban technology experimentation
Page 31

The City will implement policies and basic infrastructure that make Chicago friendly to technology experimentation, allowing Chicago to become a global leader in environmental sensing, spectrum research, and wireless connectivity, while enabling researchers to develop solutions to city problems.

Initiative 4

Establish a smart community benchmark and toolkit for broadband access and use

As an initiative of the World Business Chicago's Plan for Economic Growth and Jobs, LISC Chicago and SCC, working with public and civic partners, including the CPL, will create a profile of a fully connected community that can be used as a benchmark, along with a toolkit of best practices to help communities reach this standard of broadband access and use.

Initiative 5

Scale up Smart Communities

The City and its partners will look for opportunities to continue technology-use demonstrations in the current five Chicago neighborhoods identified for the BTOP Sustainable Broadband Adoption program, and use the benchmark to pilot the toolkit in additional communities.

Initiative 8

Educate and engage young people in technology

The City will partner with CPS, CCC, CPL, and other institutions to educate and engage young people in technology, preparing them for the jobs of the future and building the city's STEM workforce.

Initiative 21

Expand the number of physical incubator and co-working spaces in the city

ChicagoNEXT, industry leaders, academia, and others will create a center for Chicago biotech and pharmaceutical start-ups. This incubator, networking, collaboration, and business acceleration space will help increase the number and size of bioscience companies, improve research, and increase opportunities for commercializing research.

Initiative 22

Expand the number of successful networks that exist to connect entrepreneurs with customers, venture capital, and mentorship opportunities

The City of Chicago and ChicagoNEXT will create a program to connect start-ups and the business community in various ways to develop partnerships that will provide guidance and funding, and drive synergies and momentum in the technology community.

Initiative 23

Attract and retain a talented, diverse STEM workforce

The Mayor and the city's business community will continue to encourage STEM professionals to join Chicago's talented technology workforce by actively recruiting on college campuses and through other activities.

Initiative 24

Showcase "Why Chicago" is a destination technology city through consistent messaging and events

The City will partner with the city's many technology stars and other business leaders in a variety of events and other promotional activities to share the narrative of Chicago as a technology destination to attract workers and businesses to locate here.

Initiative 25

Encourage technology firms to promote their ties to Chicago

The City will encourage technology firms in Chicago to share their civic pride to demonstrate to the world the many successes in, and vibrancy of, Chicago's Technology Sector.

Initiative 26

Strengthen connections with world-renowned academic research institutions

The City will join forces with the academic and business communities and others to establish U of I Labs, enact research friendly policies, and hold forums designed to demonstrate Chicago's place as a major research center as a means of drawing the best and the brightest to Chicago and increasing commercialization opportunities.

Initiative 27
Foster a business-friendly environment

The City will further foster a regulatory and policy-based environment in which businesses can flourish and grow by reviewing current business-related requirements and processes, such as permits and procurement, updating where appropriate.

Initiative 28
Promote ways to increase venture capital and other funding available to start-ups

To help attract funding to Chicago-based start-ups, the City and business leaders will work to attract VC firms to Chicago and provide support to existing firms as they reach out to other VC firms worldwide.

#STEM

Initiative 3
Implement policies and infrastructure to allow for urban technology experimentation

The City will implement policies and basic infrastructure that make Chicago friendly to technology experimentation, allowing Chicago to become a global leader in environmental sensing, spectrum research, and wireless connectivity, while enabling researchers to develop solutions to city problems.

Initiative 8
Educate and engage young people in technology

The City will partner with CPS, CCC, CPL, and other institutions to educate and engage young people in technology, preparing them for the jobs of the future and building the city's STEM workforce.

Initiative 21
Expand the number of physical incubator and co-working spaces in the City

ChicagoNEXT, industry leaders, academia, and others will create a center for Chicago biotech and pharmaceutical start-ups. This incubator, networking, collaboration, and business acceleration space will help increase the number and size of bioscience companies, improve research, and increase opportunities for commercializing research.

Initiative 22
Expand the number of successful networks that exist to connect entrepreneurs with customers, venture capital, and mentorship opportunities

The City of Chicago and ChicagoNEXT will create a program to connect start-ups and the business community in various ways to develop partnerships that will provide guidance and funding, and drive synergies and momentum in the technology community.

Initiative 23
Attract and retain a talented, diverse STEM workforce

The Mayor and the city's business community will continue to encourage STEM professionals to join Chicago's talented technology workforce by actively recruiting on college campuses and through other activities.

Initiative 24
Showcase "Why Chicago" is a destination technology city through consistent messaging and events

The City will partner with the city's many technology stars and other business leaders in a variety of events and other promotional activities to share the narrative of Chicago as a technology destination to attract workers and businesses to locate here.

Initiative 25
Encourage technology firms to promote their ties to Chicago

The City will encourage technology firms in Chicago to share their civic pride to demonstrate to the world the many successes in, and vibrancy of, Chicago's Technology Sector.

Initiative 26
Strengthen connections with world-renowned academic research institutions

The City will join forces with the academic and business communities and others to establish U of I Labs, enact research friendly policies, and hold forums designed to demonstrate Chicago's place as a major research center as a means of drawing the best and the brightest to Chicago and increasing commercialization opportunities.

TECHNOLOGY TALENT THAT REFLECTS CHICAGO'S DIVERSITY

Every generation of industrial leadership enjoyed by Chicago has been built by its immigrant residents. Chicago has long known that a diverse technology workforce makes businesses more resilient, open-minded, and globally competitive. As the city chart's a new path to next-generation economies and markets, it will continue this focus on enfranchising and enabling its global population.

Mayor Emanuel's Technology Diversity Council has worked over Tthe past half-year to develop strategies for ensuring that women and minorities have access to the opportunities technology affords. The following are initiatives included in The Plan that help improve diversity in Chicago's workforce:

CCC/CPS/Starter League Partnership – CCC will give students access to cutting-edge web development skills through a partnership with The Starter League. In the summer of 2013, The Starter League began training CCC and CPS teachers to build tailored web development courses for students.

YOUmedia – This innovative learning space for middle school and high school students is housed at the Harold Washington Library Center and four neighborhood branch libraries. Mentors help teens engage in project-based learning with a variety of media, including printed material and technology and digital tools, like 3D printers, still and video cameras, drawing tablets, and video and photo editing software.[12]

Computer Science as Core Curriculum – The City and CPS will work to make Computer Science classes count toward graduation requirements, possibly in exchange for a science or math course. Special effort will be made to increase availability of Computer Science classes, especially Advanced Placement Computer Science courses.

Geek Clubs – CPS will create after school and summer "Geek Clubs" in select middle and high schools to expose students to technology and engage them with competitions, field trips, and speakers. The clubs will include a core curriculum taught by educators and volunteers and will attract private sponsorships for resources and volunteers

Tech-Focused Accelerator Program – CPS will partner with the Network for Teaching Entrepreneurship (NFTE) and similar organizations to create a tech-focused accelerator program for CPS students, running school competitions and involving technology-focused mentors and investors across the city.

Technology Video Campaign – The City will help youth become interested in technology through a video campaign highlighting "technology as an enabler," targeting kids' interests to show them how technology enables popular public figures.

Technology Building Blocks Training Program – SCC will facilitate the development of an open-source technology curriculum designed to be used by anyone, and in particular to be taught at Connect Chicago sites. The training program will offer both subject-based and software-based sessions—including sessions on Adobe, CSS, Ruby on Rails, Flash, Javascript, and Node.js, which will be—delivered by colleges, industry experts, professionals, hardware and software product companies, and veteran teachers.

Digital Training in Spanish, Polish, and Chinese – The City delivers digital training in several languages through several of its public computer centers and FamilyNet Centers.[15]

Mayoral Diversity Recognition Program – Leveraging the power of the Mayor's Office, the City will highlight individuals and businesses that embody and promote diversity in the technology sector. "Rockstars" of the technology field who come from underrepresented communities will be positioned as role models for young Chicagoans, and companies will be recognized for implementing best practices for diversity.

MEASURING SUCCESS

To enable Chicago to fully benefit from the opportunities, engagement, inclusion, and innovation associated with a city fueled by technology, the City will work with the business community, academia, nonprofits, and others to fully implement the initiatives highlighted in this Plan, as well as other actions that may evolve over the next three years. While these collaborative efforts will require significant investments of resources, the payoff will be even greater.

The following sample performance indicators by area of impact may be considered in tracking and evaluating the success of each of the Plan's initiatives over time:

Savings

Percentage of cost savings associated with:
—Government services related to projects
—Operations due to shared resources
—Technology procurement
—Infrastructure upgrades (energy, staff, etc.)

Increased revenue generated by:
—Leasing fiber and other infrastructure
—Digital public way sponsorship related initiatives

Services

City-produced data and tools
—Number of available internal and external data sets
—Number of available City-related apps
—Number of urban sensing platforms
—Number of urban sensing data sets

Increased quality of services
—Percentage increase in customer satisfaction levels related to projects, as measured by surveys
—Amount of response time decreases for city services

Outcomes of better services
—Number of public safety incidents
—Number of questions or issues resolved over social media
—Percentage increase in use of digital public way related city services (bike share, etc.)

Engagement

Opportunities for engagement
—Number of open data sets
—Number of projects posted to GitHub
—Number of available City-related apps

Individual's digital engagement with government
—Number of open source businesses incubated locally
—Number of tools, apps, etc. created using open data as tracked on data.cityofchicago.org
—Number of residents using services on City website
—Number of social media interactions with the City (tweets, Facebook posts, etc.)
—Number of website hits
—Other metrics related to user tracking on website (such as average number of clicks/pages navigated)
—Percentage increase in resident and visitor satisfaction levels with City's digital offerings, as measured by surveys

City partnerships
—Number of projects completed between the City and other leaders
—Amount invested on these projects

Access

Free Internet access
—Number of free public Wi-Fi hotspots
—Number of public computer centers
—Number of residents using public computer centers
—Number of residents using City-provided Wi-Fi

Low-cost Internet (broadband or wireless) access
—Average price of Internet at home
—Number/Percentage of residents with access to Internet below $20/month
—Number/Percentage of residents with Internet at home

Internet quality
—Average citywide speed of broadband (residential/business)

Access to technology
—Number/Percentage of residents with personal access to a computer
—Number/Percentage of residents with personal access to a mobile device
—Number/Percentage of CPS students with personal access to a computer
—Number/Percentage of CPS students with personal access to a mobile device
—Number/Percentage of CPS students with access to technology classes at school
—Number/Percentage of CPS students involved in STEM extracurricular activities
  —Geek clubs
  —Summer Learning Challenge

Number of residents accessing CPL's educational and creative resources using technology, such as:
—CPL digitized assets
—Makerspace

Skills

Digital skills
—Number of digital trainings available/performed
—Number of residents receiving digital skill trainings
—Number/availability of trainings performed in Spanish
—Number of public computer center locations with on-site support
—Number of Smart Communities neighborhoods

Use of digital technology
—Number of residents using computers at home
—Number of social media accounts in Chicago
—Number of tweets in Chicago

Jobs

Employment
—Unemployment rate as correlated
—Number of CCC graduates in jobs after graduation

Quality of jobs
—Average salary

Start-ups
—Number of start-ups
—Amount of specific technology-sector VC investments

Economic health of region
—GRP

STEM Workforce

Home-grown STEM workforce
—Number of CCC graduates entering STEM fields
—Number of CPS graduates entering STEM fields

Total STEM workforce
—Number of residents with jobs in STEM fields

CONCLUSION

There has been a lot of talk in recent years about "smarter" cities, cities that apply technological solutions to become more effective and more efficient. This Technology Plan lays out a vision for a Chicago which is just that, more effective, more efficient—in a word, smarter. But a city doesn't become smart based on just the reach of its broadband network or the detail of its data sets.

In Chicago, we believe that the power of technology is driven by the power of the people who use and benefit from that technology. Empowering people to work together, to pursue opportunity, to make the city a better place to live and work—that's what makes a city *smart*.

And that's where you come in.

This document lays out Mayor Emanuel's initiatives to enable Chicagoans to use their individual technology skills and tools to together build the smartest city in the world.

Building it starts with you. How can you use your skills, your capabilities, and your resources to help build a smarter Chicago? Whether it's helping to create expanded public Wi-Fi access in underserved neighborhoods, mining the City's data sets to determine where to deploy scarce resources, or providing mentorship to a young technology entrepreneur, we need your help to make our city smart.

The foundational strategies of Chicago's Tech Plan revolve around extending digital access to residents and business throughout the city. All of our communities must become smart communities. We envision technology fueling opportunity, inclusion, engagement, and innovation for all Chicagoans.

And that is why this document is not the final word, but the start of a rich, spirited, passionate discussion on how to build a smarter Chicago. We invite you to use the Tech Plan as a jumping off point for adding your voice to the conversation. Join the discussion. Share your ideas. Dream big, and offer your expertise and your energy to push this initiative even further. Please send your comments and ideas to techplan@cityofchicago.org.

Technological excellence is woven inextricably into Chicago's history, and technological innovation will fuel an even brighter future. Together, we can make Chicago the smartest city in the world.

John Tolva
Chief Technology Officer

Brenna Berman
Commissioner & Chief Information Officer

APPENDIX

Acknowledgements

Pro Bono Support

Thank you to the multiple partners who worked with the Office of the Mayor on a pro bono basis for a number of months, through partnership with the Civic Consulting Alliance. These pro bono partners included:

KPMG, who provided a Civic Fellow, **Jeffrey Ceretto.**

KPMG

KPMG International's Trademarks are the sole property of KPMG International and their use here does not imply auditing by or endorsement of KPMG International or any of its member firms.

Private Bank, who provided two Civic Fellows, **Allison Sackett,** and **Shawn Bradley.**

The PrivateBank

Chicago Architecture Foundation, who in conjunction with DSM Desotech and Columbian Model & Exhibit works, provided access to a beautiful full scale model of the City of Chicago used for imagery throughout the plan.

CHICAGO ARCHITECTURE FOUNDATION

Civic Consulting Alliance, who staffed this project, including **Allyson Laackman, Kristen Uyemura, Christian Hines,** and **Avani Patel.**

Civic Consulting alliance

And finally, a special thank you to **DigitasLBi,** who so generously dedicated a team of creative talent that designed and created the final electronic, mobile, and print versions. They helped the City bring this Plan to life in a way that was especially fitting to the topic—technology—as well as the culture, energy, and excitement of Chicago.

DigitasLBi

Andrew Foust, Andy Gregg, Alex Mcleland, Aravinda Tota, Bill Moore, Blair Douglass, Camilo Medina, David Latsaras, David Shih, Donna Biernadski, Doug Ryan, Ethan Machado, Grace Hamann, Jacqueline Fraher, Kirsten Kuhlmann, Kristen Miller, Lukas Pleva, Matthew Jacobson, Pat Doran, Pat Piserchia, Rick Walter, Roland Phillips, Scott Reinhard, Sujal Patel, Ted Burkhardt, Tony Weisman, and **Trish Garcia.**

References

1 Karen Mossberger, Caroline J. Tolbert, and William W. Franko *Digital Cities: The Internet and the Geography of Opportunity* (Oxford Studies in Digital Politics)

2 The City of Chicago's Data Portal: http://www.cityofchicago.org/city/en/narr/foia/CityData.html

3 Request for Information (RFI) Broadband Infrastructure Expansion: http://www.cityofchicago.org/content/dam/city/depts/dps/ContractAdministration/Specs/2012/Spec111304.pdf

4 Current Smart Chicago Collaborative projects through the City's BTOP grants: http://www.smartchicagocollaborative.org/projects/broadband-technology-opportunities-program/

5 Caroline Tolbert, University of Iowa, Karen Mossberger, University of Illinois at Chicago, and Chris Anderson, University of Iowa *Measuring Change in Internet Use and Broadband Adoption: Comparing BTOP Smart Communities and Other Chicago* Neighborhoods http://www.broadbandillinois.org/uploads/cms/documents/chicagosmartcommunitiespcireport4.pdf

6 *Comcast program helps close the "digital divide"* from The Inquirer, Philly.com: http://articles.philly.com/2013-03-07/business/37503350_1_internet-essentials-comcast-program-comcast-corp

7 FreedomPop option, Everyone On program: http://www.everyoneon.org/?s=Chicago

8 Mobile Citizen program: http://mobilecitizen.org/

9 Smart Chicago Collaborative Civic Innovation Summer program: http://www.smartchicagocollaborative.org/projects/civic-innovation-summer-2/

10 Chicago Summer of Learning: http://chicagosummeroflearning.org/about

11 Chicago Public Library 2013 Summer Learning Challenge: http://www.chipublib.org/eventsprog/programs/kids_sumread.php

12 Chicago Public Library YOUMedia: http://youmediachicago.org/2-about-us/pages/2-about-us

13 Englewood Codes: http://www.smartchicagocollaborative.org/opengov-hack-night-majuro-js-and-englewood-codes/

14 FamilyNet Centers: http://www.smartcommunitieschicago.org/Our-Programs/FamilyNet-Centers.html

15 Digital training programs: http://weconnectchicago.org/learn/

16 Connect Chicago http://weconnectchicago.org/

17 Chicago Forward, Department of Transportation Action Agenda: http://www.cityofchicago.org/dam/city/depts/cdot/Admin/ChicagoForwardCDOTActionAgenda.pdf

18 Chicago Works App: http://www.chicagoworksapp.com/

19 *SpotHero pulls in $2.5 million in VC funding*, Crain's Chicago Business: http://www.chicagobusiness.com/article/20121213/NEWS08/121219898/spothero-pulls-in-2-5-million-in-vc-funding

20 OpenGov Hack Night: http://opencityapps.org/#open-gov-hack-night

21 Sustainable Chicago 2015 Action Plan: http://www.cityofchicago.org/content/dam/city/progs/env/SustainableChicago2015.pdf

22 Chicago New Americans Plan: http://www.cityofchicago.org/content/dam/city/depts/mayor/Office%20of%20New%20Americans/NewAmericanBookletfullplan.pdf

23 Energy Usage dataset: https://data.cityofchicago.org//Environment-Sustainable-Development/Energy-Usage-2010/8yq3-m6wp

24 Chicago Energy Data Map: http://chicagoenergy.datascopeanalytics.com/

25 OpenGovChicago(-land) Meetup: http://www.meetup.com/OpenGovChicago/

26 Civic User Testing Group: http://cutgroup.smartchicagoapps.org/

27 http://www.worldbusinesschicago.com/chicagonext

28 Blue 1647: www.blue1647.com

29 *Mayor Emanuel Announces ThinkChicago: Lollapalooza 2013 to Bring 100 Top Engineering and Computer Science Students to Chicago*:

http://www.worldbusinesschicago.com/new/
think-chicago

30 *U of I unveils big Chicago tech institute*, Crain's
Chicago Business: http://www.chicagobusiness.
com/article/20130123/
BLOGS02/130129886/u-of-i-unveils-big-chicago-
tech-institute

31 *Team Led by Argonne National Lab Selected as
DOE's Batteries and Energy Storage Hub*: http://
energy.gov/articles/team-led-argonne-national-lab-
selected-doe-s-batteries-and-energy-storage-hub

32 *The South Side's New Industry: Data Centers*:
http://chicagopatterns.com/the-south-sides-
new-industry-data-centers/

33 *Which metro areas got the most venture capital
in 2012*, Crain's Chicago Business: http://www.
chicagobusiness.com/article/20130119/
ISSUE01/301199985/which-metro-areas-got-the-
most-venture-capital-in-2012

34 Chicago Biomedical Consortium: http://www.
chicagobiomedicalconsortium.org/about/index.php

35 iBio Institute's Propel Center http://ibiopropel.
org/about/index.html

36 The Clean Energy Trust: http://www.
cleanenergytrust.org/

All links current as of August 23, 2013

Photography

Definitions of Key Acronyms

Though key acronyms are generally defined the first time they are used within each section, the following is a reference guide of all acronyms used throughout the Plan.

Broadband Technology Opportunities Program	**BTOP**
BTOP Public Computer Centers	**BTOP PCC**
BTOP Sustainable Broadband Adoption	**BTOP SBA**
Chicago Public Schools	**CPS**
Chicago Public Library	**CPL**
Chicago Housing Authority	**CHA**
Chicago-Cook Workforce Partnership	**CC-WP**
City Colleges of Chicago	**CCC**
City of Chicago's Department of Innovation and Technology	**DoIT**
City of Chicago's Department of Family and Support Services	**DFSS**
Smart Chicago Collaborative	**SCC**
Science, Technology, Engineering, Math	**STEM**
Science, Technology, Engineering, Arts, Math	**STEAM**

Contact us
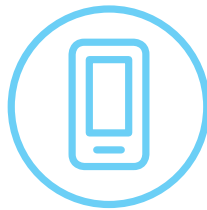
By Mail:

City Hall
121 N. LaSalle Street
Chicago, Illinois 60602

By Phone:

Dial 311 (within Chicago)
If calling from outside of
Chicago, call: 312.744.5000

Online:

Fill out the City of Chicago
feedback form found at:
http://www.cityofchicago.org/
city/en/general/contact.html
or email us at
techplan@cityofchicago.org