

Small Town Chicago

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1. Executive Summary

Do you know which ward you live in? Do you know who your alderman is? What do you do when you need to solve a non-emergency city problem? Small Town Chicago is a solution that increases awareness, transparency and efficiency and allows a two-way communication between residents and their local government. We envision a city in which residents and aldermen can have a close relationship and work together to improve their community. Small Town Chicago wants to bring back the neighborhood feeling to the big city and increase trust between residents and their local government.

2. Introduction

Between August and December 2017, our group worked on a solution to the trust issue among communities, first responders and local government in Chicago. The project is part of the Multidisciplinary Prototyping course offered by the Institute of Design at Illinois Institute of Technology, taught by professor Anijo Mathew and sponsored by Motorola Solutions.

In the first half of the semester, our team focused on researching the channels offered by the government to resolve non-emergency and how residents usually go through the problem-solving process. This phase included secondary research on articles, government portals and benchmarks as well as interviews with residents from different Chicago areas and first responders. On October 5th the team did a mid-review presentation and collected feedback from Motorola Solutions and the professor.

The second part of the semester was focused on synthesis. The team brainstormed on different ideas that would solve the main problem and developed a prototype and a business model. The prototype went through some iterations while the group collected feedback from residents and an alderman.

The following report describes the problem that was given by Motorola Solutions, the research and reframed problem by the team. It also includes the developed solution and business model that supports it.

3. Problem Given

In the beginning of the semester, Motorola Solutions presented the following problem to the Institute of Design: "How can we improve trust between communities and first responders in non-critical situations?"

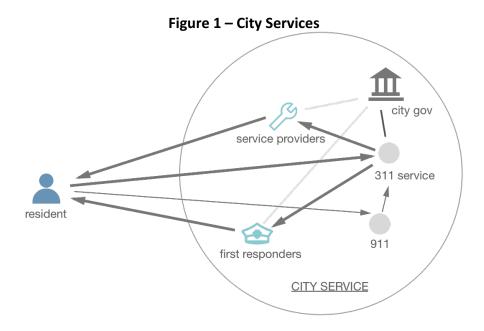
With this first problem statement in mind, the group worked on understanding and defining *trust* and how it is fostered in Chicago communities.

4. Research

To understand *trust* and the relationship between citizens and first responders, it was important to analyze the process a resident goes through when trying to solve an issue.

4.1 Government's Perspective

The city government offers two main channels for Chicagoans to solve an issue. They are divided into emergency and non-emergency situations. Formally, an emergency happens when the offender is still on the scene, such as property trespassing or kidnapping. In these situations, residents should contact 911 and they will immediately send a patrol to the site. Any case in which the offender has left the scene, such as a robbery, or in which there is no citizen fault, for example a pothole in the street, is considered a non-emergency. In this case, residents should contact 311 and they will investigate the case and send the appropriate service provider over to solve the issue.



Although these are the formal definitions of emergency and non-emergency situations, residents do not necessarily have this distinction very clear. Interviewing residents from different Chicago areas, we learned that many of them are not aware of 311 and would contact 911 first, even in situations that do not require immediate in-person assistance.

4.1.1 Chicago's 311 Operation

The 311 call center was launched in Chicago in 1999 and deals with a very wide variety of services. Residents should contact 311 whenever they have non-emergencies such as graffiti removal, pot hole in streets, pest control, ice and snow removal, etc. A full list of services dealt by 311 is presented in the Appendix. Even with its low awareness, the call center is flooded and cannot handle the amount of incoming calls. The center receives an average of 63 thousand calls per week, each one averaging 1.5 minutes. With an average of 32 operators during the week and 23 on weekends, to meet the demand, each operator would have to answer an average of 33 calls per hour. Around 94% of the requests are made through phone calls, while the other 6% are made online. This inefficiency is enhanced when we learn that 40% of all incoming phone calls are about duplicate requests¹.

To try to relieve the call center, 311 has extended its service channels to text, website and phone applications. These have been good efforts to diversify its operations, however are still unsuccessful due to lack of efficiency and awareness of the 311 services.

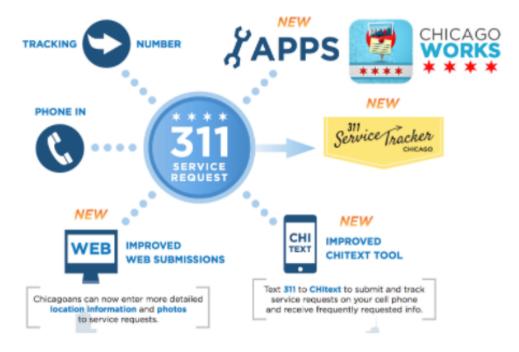


Figure 2 - 311 Service Request Channels

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¹ Chicago Data Portal and Open 311 City of Chicago – Data from 2013 to 2016

4.1.2 Benchmark: Boston 311

To look for interesting solutions to the 311 inefficiencies and lack of awareness, it was relevant to analyze a case of success. In 2015, the city of Boston launched their hot line for non-emergency issues. The launch included an awareness campaign that educated residents about what is considered a non-emergency situation and which channels are available to contact 311. Besides the regular phone call, citizens could submit requests through a mobile app, a website and a Twitter mention (@BOS311). The 311 service became a brand (BOS:311) that was advertised all over the city.²

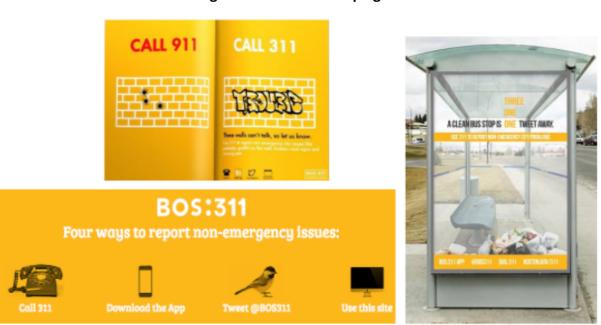


Figure 3 - BOS:311 Campaign

Another interesting tool installed by the Boston city government was the City Score. Key performance indicators were established for each city service and then aggregated into one number that provides an overview of the city's performance. The City Score is a great tool to address transparency and efficiency issues, since it can be accessed by anyone.³

² Boston 311 – City of Boston

³ Boston City Score – City of Boston

1.17 MONTH QTR GRAFFITI ON-TIME % 1.18 0.58 0.65 ED TRASH ON-TIME % 1.22 1.19 PARKS MAINTENANCE ON-TIME % 0.63 0.83 0.99 POTHOLE ON-TIME % 0.89 0.98 SIGNAL REPAIR ON-TIME % 1.25 1.16 1.14 1.19 STREETLIGHT ON-TIME % 0.85 1.21 ON-TIME PERMIT REVIEWS 0.74 0.82 LIBRARY USERS 1.44 1.42 0.98 0.87 0.92 0.91 0.92 1.06 0.89 0.94 1.07 1.06 1.06 PART I CRIMES 2.24 1.66 3.39 3.63 3.02 3.09 2.41 2.05 STABBINGS (TREND) 2.83 1.98 0.96 0.98 1.08 CITY SERVICES SATISFACTION SURVEYS 0.74 0.87

Figure 4 - Boston City Score

4.2 Resident's perspective

The government offers the 911 and 311 channels, and many residents use these resources, if they are aware of them. However, the impression most of them have for government processes is a lot of bureaucracy and many steps and paperwork to get something done.

Talking to Chicago residents, we learned that they use more than these government resources to solve their issues. In reality, residents initially contact their immediate sphere of influence such as neighbors, friends and families. If they do not find an answer, they move on to contacting the city non-emergency services (if they are aware of it). Many residents complain that even if they report their issue to 311, they usually do not get any feedback on the resolution status. Ultimately, if a resolution seems unlikely, they turn to the media. Social media, radio and television are ways that residents can leverage an audience into getting what they need. This might work, but it is a workaround. Ideally, the resolution would be a common goal between residents and city government, and not just a request from a resident and a job for the city.

MEDIA public media social media city gov service providers family, friends 311 service resident landlord (one person or 911 building service) first responders university/ company **CITY SERVICE** neighbors SOCIAL NETWORK

Figure 5 - Residents' resources

4.3 First Responder's perspective

First responders are another key stakeholder in the problem-solving process. The city of Chicago is divided into 25 police districts and sub-divided into 279 beats. The police holds monthly meetings in each beat to exchange information with residents, identify crime and disorder and develop strategies to combat these problems partnering with the community. Although this sounds good in paper, what happens in reality is that most residents do not attend these meetings or only attend when they have a complaint. In the end, the beat meetings usually turn out to be empty and not constructive since they would be most effective if they included a broad range of community stakeholders.

When interviewing members of the police force, we noticed one common point which is the need to approximate the police force to the community. A constant and positive relationship would help residents see the first responder as "more human and less of a blue-headed monster". On the other hand, it is good for policemen to be reminded of who are the good people they are working to defend. This relationship would be more positive if it happened beyond just crisis situations, through community events, for example.

4.4 Alderman's perspective

Chicago's government administration is divided into 50 legislative districts called wards. Each ward is managed by an alderman who is elected for a four-year term. The alderman represents the interests of its ward's residents in the Chicago City Council, a legislative branch of government of the city.

Even though this representative is elected by the people in its ward, we noticed that many residents in the Chicago area are not aware of which ward they live in and who is their alderman. Attending a community meeting in Little Italy, we learned that this neighborhood is actually comprised in three wards. Several things caught our attention in this meeting. Firstly, there was only a small section of the resident population who attended, mostly composed of people over the age of 40 and some business owners. Secondly, the three aldermen were supposed to be present in the meeting, however only one attended. The meeting was about a previous decision for a public housing construction in the neighborhood and residents were complaining that they were not consulted for this project. This gathering showed a certain lack of accountability and transparency from the city government and the low engagement with the community.

4.5 "Black Box" System

Our research revealed that different stakeholders have distinct views on how this problemsolving process currently works and how it should work in the future. Most of all, it showed us that residents submit their requests to 311 or to their alderman but never get official feedback from these channels. On the residents point of view, their opinions and requests go into a "black box" and even if their issue gets resolved, they do not know how or who was responsible for it. This lack of communication among these stakeholders generate a trust problem.

City Gov

Aldermen

Aldermen

Residents

Figure 6 - The "Black Box" system

5. Reframed Problem

After researching the available platforms for problem-solving and speaking to different stakeholders in the system, we could understand what is behind the trust issues between the community and the city government and first responders. Trust is a product of awareness, transparency, two-way communication and performance. Residents do not know who their alderman is and feel they do not have a say in what happens in their community. The lack of transparency and feedback they get from 311 and the alderman's office makes them doubt the system.

6. Design Principles

Based on the research and the reframed problem, the solution must:

- The solution must be multi-channel to be accessible to everyone.
- It should engage different stakeholders in the system.
- It needs to connect various users inside of the platform.
- The process should be streamlined and efficiency should be improved.
- The process should be transparent to residents.
- It should create trust between stakeholders and empower the residents.

7. Product Overview

7.1 Small Town Chicago

When researching how residents face their problems, we noticed one common thing. Most problems they are trying to solve are close, everyday issues, not wide, city issues. Residents' routine is strongly related to their neighborhood. The neighborhoods in Chicago have a lot of cultural background and are also part of a resident's identity. "We do not live in Chicago, we live in our neighborhood", said a resident during an interview. Just like in small towns, people resort to their neighbors and acquaintances for answers.

This gave us the indication that our solution had to be in a local, neighborhood space. Our new service should bring the small town feeling to the big city of Chicago, where residents know their neighbors, first responders and government.

7.2. Welcome Package

The resident's journey begins with a welcome package. When moving into a new neighborhood or ward, each resident will receive a booklet with general information about the surrounding area. This includes a welcome note from the alderman, ward and voting information, a map of the area with hospitals, fire stations, and police stations marked and the contact of the main service providers, such as electricity, water, etc. In addition, they will find a basic description of the Small Town Chicago platform and information on how to access our partners - Chicago Works, Open Grid, Nextdoor, etc - and which hashtags to apply in social media to interact with our business and with the local government.

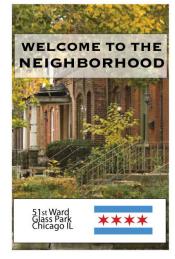


Figure 7 - Cover of the Welcome Package

7.3. Website and Mixed Reality Dashboard

Small Town Chicago also includes an online platform available to all residents, aldermen, first responders, service providers and business owners in Chicago. The website will show a dashboard with information about a chosen neighborhood or ward. Small Town Chicago aggregates data from different social media platforms to show how people are feeling about different topics in their neighborhood. The topics that are most mentioned in social media will be highlighted in the main page and updated weekly. Using a specific key word or hashtag on Twitter, Facebook or Nextdoor, residents can have their post included in the data analysis tool that will feed into the online platform. Knowing what residents are saying about their neighborhood is relevant to the alderman to identify problems that need to be addressed. It can also help citizens who are looking to move into a new neighborhood make their decisions.

SMALL TOWN CHICAGO OPEN, ACTION, TRUST WARD 51 / GLASS PARK W Montana St S Lincoln Hall 9 - Most nagative Snow removal Theft LINCOLPPARK How can I find a snow corp volunteer? Street light out Cafe Ba-Ba-Reeba! @ Assault • Recycling OLD TOWN View More **WEEKLY TREND** CITY SERVICE **PUBLIC SAFETY** CAMPAIGN Boating new! Theft 1 Snow removal 45 posts 41 posts Street light out Manufacturing Facilities new 20 posts Criminal damage Graffiti Access to the river 15 posts 16 posts Recycling 18 posts Burglary 11 posts Food truck court Signage damage new! Robbery Safe routes to school 6 posts 6 posts View More View More View More ? Help

Figure 8 - Initial dashboard page for a neighborhood

When selecting a specific topic, the user will be able to see residents' posts related to it and, recent requests made to 311 and any other city update on the subject. That neighborhood's alderman will also be able to respond to posts on social media through the online platform. That way, everyone who is following that key word on social media will get a response from alderman.



Figure 9 - Topic Dashboard

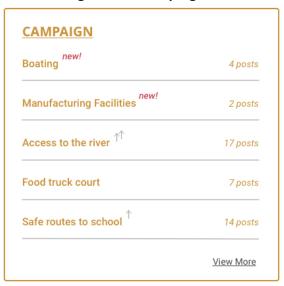
Another feature on each topic page will be a general score. Inspired by the Boston City Score, each topic will be rated on its performance. For example, if a graffiti is not erased in the expected time, it will get a negative score. All posts related to graffiti problems will also be listed and an overall sentiment graph will be displayed. This will allow the local government to be accountable for its services.





Through the Small Town Chicago online platform, residents will be able to showcase their suggestions by creating petitions and campaigns. The alderman's office will see the ideas that come from residents and will be able to post his own projects, campaigns and polls to get feedback from residents before implementing. All the campaigns will be displayed in the tool and in the Municipal website (this partner will be explored in details further in the report).

Figure 11 - Campaigns



To improve the decision making of the alderman, we will also include a mixed reality option for the ward's office use only. By wearing special glasses, aldermen will get a 3D view of the map of their neighborhood in which they will see the location of the main requests in 311 and posts on social media. This will help him plan solutions to problems and allocate resources to improve further services in that area.

We believe this platform will allow a better and more direct communication between residents and alderman. It will also help both residents and alderman in decision making, whether looking for a new place to live or allocating city resources. The fact that it is a free, open tool with a performance rating makes the alderman more accountable for his neighborhood and expects to improve efficiency.

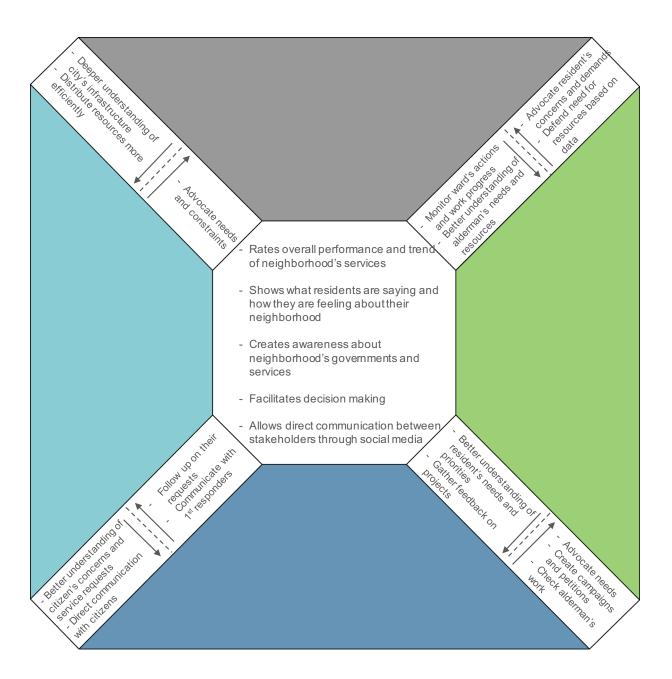
More detailed images of the website and mixed reality can be found in the appendix.

7.4. "Transparent Box" System

We previously identified that the lack of communication between stakeholders created this "Black Box" system in which no one knows what happened to a request for city service. Small Town Chicago will allow stakeholders to exchange values and communication, making the "black box" transparent.

With the online platform, aldermen will have a better understanding of residents needs and priorities for their neighborhood. They will also be able to get direct feedback on ideas and projects and communicate with residents about specific requests. On the other side, residents will be able to advocate their needs and wants and create campaigns and petitions which they know will be heard by the alderman's office. Residents will also be able to check on the alderman's work and progress over time, which may influence their vote for the next ward elections. By providing basic information about the neighborhood and its main contacts, Small Town Chicago will help new residents on a neighborhood be aware and engage with their new community and collaborate on the decision of citizens who are looking for a new place to live. Accessing the tool and posting on social media with key words, residents will also be in contact with first respondents and will follow up on their requests. Service providers and first responders will give direct feedback on these posts and with the sentiment analysis and overview of residents' posts on social media will have a better understanding of citizens' concerns and most common requests. This information will be useful for first responders to advocate these needs and request more resources to the city government. The city government will get a deeper understanding of the city's infrastructure and will allocate resources more efficiently. In the same way, the city council will be able to monitor the wards' actions and work in progress and will understand the alderman's needs and requests for resources. Aldermen will advocate residents' needs and demands to the City Council based on real data.

Figure 12 – Transparent Box Diagram



8. Business Model

The first decision we took related to the business model around our product was that it would initially be a non-profit. After exploring a few ideas of where we could make profit out of this tool, we realized it might cause mistrust from the residents if they saw business ads on a government-sponsored platform. Small Town Chicago is a service that will be offered by the government to its residents and the government should not be making profit out of it. As a non-profit, we are able to get discounts in many resources and are exempt from taxes. The revenue gained from the ward subscriptions and business promotion will be solely used to cover costs.

8.1 Business Model Canvas

To develop, design and challenge our business ideas, we used the Business Model Canvas developed by Alexander Osterwalder and Strategyzer. The complete Business Model Canvas can be found in the Appendix.

8.1.1 Value Proposition

Small Town Chicago is for residents and aldermen who suffer from their lack of communication, awareness and transparency in their neighborhood. It is a physical package that gives residents access to basic information and a platform that shows aggregated data from residents and city in a meaningful way. Small Town Chicago gives access to information, assisting residents and aldermen in decision making, making the local government accountable for their work and empowering the citizens of a neighborhood.

8.1.2 Customer Segments

Alderman

Adding Small Town Chicago platform to his work routine, the alderman will be able to access what residents are saying about the neighborhood on social media. With this information, he will understand which topics are more important to residents now and how they are feeling about it. He might see excitement toward a specific ward project or concerns about a city service. When developing a solution to a neighborhood problem, the alderman will be able to get a quick feedback from the residents and make the necessary alterations. Based on residents' expressions he might prioritize projects that will have a higher impact in his neighborhood and have the data to support his ideas on the City Council.

In our research, we learned that one of the most important things for an alderman is reelection. By following what residents say about his mandate and the feedback he gets from his work, he can develop e a better campaign strategy for reelection.

Residents

The welcome package will give information to new residents about their neighborhood, including important contacts, a list of service providers and local businesses, community event calendar and a map. Citizens looking for a new place to live or to establish a business will see what residents are saying about this neighborhood and will get information about safety, education, businesses, etc. New and current residents will learn through fliers and street visual communications which hashtags and key words to use on social media and will know the alderman's office is listening. They will get direct feedback from their requests and responses on their social media posts. Residents will have their voices heard and will participate in the neighborhood's decisions by submitting petitions, creating campaigns and responding to alderman's polls. Small Town Chicago's welcome package and platform will empower residents to express their needs and wants for their neighborhood and will allow them to have a two-way communication with their local government.

Small Town Chicago's mains customer segments are the residents and the alderman, this latest one being the one who purchases the service. However, city government and first responders/service providers will also benefit from the platform. They will be able to see which are the neighborhood's main needs and concern's and allocate resources to address a specific problem.

8.1.3 Distribution Channels

Alderman

Small Town Chicago aims to become part of the alderman's work routine. It is expected that he will incorporate the service in his decision-making process and will access the website at least once a day. To get a better visual perspective of a certain issue, the alderman will wear glasses that will allow him to see a 3D mixed reality and decide on solutions based on geography.

Residents

Residents will reach out to Small Town Chicago when they have a decision to make or need information about a specific topic on their neighborhood. This type of research is usually planned and not a daily routine activity. Therefore, the best channel for the service to reach its resident audience is a website. We expect residents to do a longer and deeper research accessing the portal through computers and do a quick information check using their mobile phones. Residents

that do not own personal computers will have access to the website through computers or kiosks in public spaces such as libraries and post offices.

One of the main problems identified in the research phase was the lack of awareness of the ward and neighborhood. The welcome package will be a one-time interaction between Small Town Chicago and the new resident. It is a physical booklet so that it is a quick information guide that can be given by the landlord or by mail from the alderman's office.

8.1.4 Customer Relationship

Interaction between Small Town Chicago and its customers will be mostly in customer service and support. The website will have a section with a tutorial video explaining how to use the tool and its main features and an FAQ page will be a quick guide for customers who run into any questions. Customers will be able to contact Small Town Chicago by submitting a request through email or by chatting with a support member online. Aldermen who have questions relating to specific data point or the mixed reality tool will be able to contact the company by phone. Customer service support in the platforms as well as in human resources will be considered in the cost structure.

Residents will also interact with the tool by using the #SmallTownChicago and #STC hashtags and mentions in social media. Posts will be fed into the dashboard and any questions related to the platform will be identified and responded to in the same social media channel.

To become part of the community, Small Town Chicago also plans on having stands at neighborhood events so residents have direct contact with our team and our services.

8.1.5 Key Activities

Data

Small Town Chicago needs to establish which key words and mentions will be captured. The data will be collected through APIs from different social media platforms and stored and managed in a data cloud software. It will be filtered by geographical location (neighborhood/ward) and by relevancy, if it is related to a city service or issue. Data will then be grouped into common themes and displayed in different graphs and diagrams by location and topic. The team will have to decide which are the best visual tools for each information we want to display.

Website

Small Town Chicago's team will define and plan which information will be on the website and design the best way to display it, including an information architecture. It will purchase a domain and construct the website linking all data inside the platform. The marketing and distribution of the link will be done via social media, partners' websites, fliers and street communication

materials. The tracking of traffic, evaluation and periodic maintenance of the website will also be done internally.

Welcome Package

To write the welcome package, Small Town Chicago will need to contact the alderman and business owners. The alderman's office will write a welcome message to be included in the package and business owners will be able to display a small advertisement. The company's team will write the important contact information on the neighborhood including the alderman's office as well as service providers. Once written, in a template and reviewed, a booklet will be printed. These booklets will be stored in the alderman's office and distributed by mail to new residents monthly.

Communication

The platform marketing to residents will be done through street posters and fliers through mail. Small Town Chicago will need to develop and design these posters and fliers, print them and distribute.

To approach aldermen, a more personal communication must be put in place. Sales representatives will call each alderman's office and set up an appointment. A presentation material will be developed to pitch the service platform to its main buyer.

8.1.6 Key Resources

Data

The data will require resources for storage, most likely in a cloud than a physical warehouse. We will need the right APIs and a software to mine the text from different social medias as well as a human resource that has the expertise to mine the right data with the right software.

Human

Small Town Chicago will require human resources mainly in the development of its operations. Designers and website developers will be working on the online platform while a group of salesmen will work on distributing the welcome package and the communication material.

A full-time employee will be responsible for the customer service, answering the phone and online messages that come either by email or chat box. A salesman will be responsible for talking to aldermen and setting up demonstrations and trial users. The number of people in the staff might change as the operations expand.

Material

The welcome package and other communication material will require paper and printing supplies. The staff will be able to work remotely so initially there is no need for a physical office space.

Financial

The initial investment to develop and install Small Town Chicago in 3 wards is estimated at USD 215,340. More details on the first year's costs will be given further in this report.

Software

The analysis and visualization of data will require a software. There are analytical and statistical softwares that aggregate data, do text mining and analysis and create word clouds as well as graphs and sentiment analysis. Having a powerful software that is able to analyze relevant information and turn it into meaningful visuals will be essential for Small Town Chicago's online platform.

8.1.7 Key Partners

Nextdoor

Nextdoor is a social network that connects neighbors in a certain area. After its launch in 2011, it had 10 million users in 100,000 neighborhoods in the United States by 2016. Residents exchange recommendations, concerns, complaints and interact about different interests in their neighborhood. The platform will be Small Town Chicago's supplier of data through APIs. With the marketing campaigns that our company will do, we will encourage residents to use our social networks partners to be heard by their local government. Therefore, we hope to generate more members and traffic to Nextdoor's platform.

Twitter and Facebook

Twitter and Facebook are the most used social media platforms in the U.S. with around 68 million and 214 million users respectively. Small Town Chicago will capture data through APIs from both networks. We do not expect more people to join these networks because of our service but we will encourage them to use the platforms to interact with their local government through keywords and hashtags. We hope to see residents more engaged with certain posts and showing their sense of community online.

311 and Chicago Works

For the alderman to manage requests and follow up with city services in his neighborhood he will need access to the 311 data. Therefore, 311 will supply information to be included in the platform. Users will be able to see data on what is the most requested service, which locations

are they related to and follow up with other stakeholders in resolving the issues. In 2010, as part of the Open 311 project, future alderman Ameya Pawar, of the 47th ward launched the Chicago Works mobile application. Residents could use the app to submit requests to 311, uploading images of the problem and were able to keep track of the request status. Data submitted through the Chicago Works app will also be available to users. Small Town Chicago hopes to help 311 focus on special needs of a neighborhood by aggregating data from a specific neighborhood and showing in a meaningful visual way. Since residents will also have access to this data we hope to contribute to a decrease in number of duplicate requests through 311.

Municipal

Municipal is an online platform which allows residents to submit petitions, create campaigns and organize volunteer projects in their neighborhood. Users can also track and analyze the progress of their campaigns. City staff can use the same platform to learn what their constituents' preferences and interests are and get feedback on planned projects. Although this platform still has a small reach, it will be a great partner of Small Town Chicago and we hope to make residents more aware of its benefits. Through Municipal, alderman can consider residents' campaigns and petitions and can also get feedback on future projects. This tool will be a great ally for the two-way communication Small Town Chicago is trying to establish.

Open Grid, City of Chicago and Chicago Police Department

Small Town Chicago will use both resident input data (from social media) and city input data from 311, Open Grid, City of Chicago and its Police Department. City data will be essential to manage resources to solve residents' issues. Since 2010, the mayor Rahm Emanuel has been working on different ways to make data available to all Chicago residents. The city has made most of its information available through the Chicago Data Portal and Open Grid and lets citizens contribute to its open sources.

"An open and transparent administration makes it easier for residents to hold their government accountable, but it also serves as a platform for innovative tools that improve the lives of all residents," said Mayor Emanuel when he announced his 2012 Executive Order mandating that every city agency contribute data to the Chicago Data Portal⁴.

Small Town Chicago will also create value to the city by joining its data with residents' point of view. Since our platform will be available to everyone in the Chicago area, Police Department and City departments will be able to use our data to plan for events or better allocate its resources.

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⁴ How Chicago Is Growing Its Open Data Economy – Socrata.com

Google Maps

The online platform will show the 311 requests and social media posts by location. The mixed reality option in the alderman's office will also rely on a geographical view of the neighborhood. Therefore, we will need to partner with a company that will supply city maps for the platform to plot data on. Google Maps is the largest web mapping service in the U.S., is easily available and would be the ideal supplier for Small Town Chicago.

Cloud Storage Supplier

Since our platform will be gathering a lot of data, Small Town Chicago will rely on a cloud storage supplier to keep all the information together in one place.

Mixed Reality Supplier

The mixed reality dashboard in the Alderman's office will be supplied by a third party. We have identified a developer, called Fracture, that works with Microsoft HoloLens to supply the technology and expertise to innovative organizations

8.1.8 Cost Structure

The following costs are budgetary estimates for the business implementation and first year operations. Further investigation and negotiation would happen once the business model and product are more refined. Costs will also vary as operations expand.

Data Storage and Management

For the data cloud storage, we used Dropbox as base for the cost estimates. Dropbox offers an advanced package for USD 20.00 per user per month, which includes audit and management tools, as well as unlimited storage space. For this price, there must be at least 3 users, which we will probably have after the first year. Dropbox also offers a 30% discount for accredited non-profit organizations. This cost will change according to the number of users and amount of storage, so it is considered a variable cost. Therefore, we should expect to invest around USD 500 with a data storage service.

Human Resources

Since Small Town Chicago is a non-profit organization, average salaries are below what for-profit companies pay their employees. The online platform will require a website developer which would cost around USD 55,000 a year. A programmer that can manage a data analysis software and perform text mining, sentiment analysis and visualization with the right tools would cost around USD 50,000 a year. The operations would also require a customer service representative that would be answering questions either by phone or online. This representative would get a salary of around USD 38,000 per year. In the first year, it will be extremely relevant to have

someone to pitch the idea and the service to the potential customers. A sales representative would schedule appointments with the aldermen and prepare pitch presentations. He would also help manage the customer service in the first few months of operations, to make sure the first clients are satisfied. A sales manager in Chicago would cost around USD 70,000 per year. All the salary estimates were taken from Glassdoor.com and refer to the Chicago area. The total human resources costs would be 213,000.

Google Maps

Google Maps can be accessed through free programing software, such as R, and will not require any costs.

Stationary Material and Printing

The welcome package and communication materials, including fliers, street banners and mail will require printing and other materials. Small Town Chicago expects to spend around USD 400 for a commercial printer and allocate another USD 400 for other stationary and communication materials.

Website

With Wordpress, a free and open-source content management system, our programmer and website developers will be able to build and design the website and manage its content. Together with hosting the website and the domain name costs on Bluehost, the total website costs per year would add up to USD 100.

Data Analysis Software

Small Town Chicago will need a software to perform its main services such as text mining, sentiment analysis and visualization. There are many softwares with these capabilities such as Tableau and Watson Analytics. We used Tableau to estimate our costs with this type of software. We expect to spend USD 70 per month on a license. In the future, with further negotiations, large discounts can be agreed with these software companies for non-profit organizations.

Mixed Reality

Small Town Chicago will offer an option for the aldermen to see the requests, social media posts and city resources plotted in a 3D map. With augmented reality, he will be able to zoom in a specific area of his ward and make better decisions on projects or resource allocation. For this service, we would count on an open development platform to create AR content for each ward. Comparing prices with a development company named Layar, we expect to spend about USD 34 a year per ward map. Considering that the target for the first year is 3 wards, we would estimate the costs for the mixed reality to be USD 100.

8.1.9 Revenue Stream

Since Small Town Chicago is a non-profit organization, all revenue raised will be re-invested in the company and cover its costs of operation. The main source of income will be in the form of yearly subscriptions from each alderman's office. To cover the costs of the first year, each of the first three wards would invest around USD 70,000 in the tool. More information on the first year's revenue will be given further in this report.

8.2 Industry Analysis

Porter's Five Forces helps understand the industry Small Town Chicago wants to enter. Overall, there is big opportunity for Small Town Chicago to provide a complete understanding of the residents and city services to the alderman. There is small competition and low threat of new entries. Even though suppliers and buyers have high power over Small Town Chicago, we plan to partner with them to create more value to communities and local government.

8.2.1 Competitive Analysis

In a visit to the 43rd Ward Alderman's office, we learned that currently the staff uses a tool called Romulus. This is a software that helps the office centralize and group emails and facilitates the call handling. Romulus is a platform where a staff member can archive all communications with a resident for later reporting and viewing. The 43rd ward is one of the four wards in Chicago that uses this software, so it does not have a big reach. The alderman Michele Smith highlighted that the positive aspect of this tool is not having to record all emails and calls manually. Before this software, staff members would input key aspects of a phone conversation or email on an Excel spreadsheet, and that is likely how all other wards still work. However, she expressed that Romulus is still limiting to emails and phone calls and her office has a hard time using social media to reach and listen to a broader, younger audience of residents. She mentioned that in the next year all wards will be using Salesforce as a communication management tool using cloud storage but does not know if this will be a positive or negative addition to her office's operations. Another aspect that the alderman mentioned was the fact that her residents are divided into voters and non-voters and she has many information and contact with the voters but is not able to establish a close relationship with the non-voters.

8.2.2 Supplier Power

Small Town Chicago's main resource is the access to data. Data will be input from residents through social media and from city services through different government portals. Although data will be accessed for free, Small Town Chicago will rely heavily on its data suppliers and that is why

we are also offering value to these partner organizations. The platform and the communication efforts will encourage residents to use social media more frequently to talk about community and service issues. Small Town Chicago is also offering value to the city and to its different departments by showing what residents are saying and how they feel about services provided by the government.

The cloud storage, maps services, mixed reality and materials suppliers will have less power on the business and would not cost a lot for Small Town Chicago to switch to other companies.

8.2.3 Buyer Power

Our revenues depend completely on the budget the alderman's office is willing to allocate to our platform. Because we only have 50 potential customers in the Chicago Area, the buyer power is high. Our platform is also depending on how much residents are willing to engage with the local government through social media and how big is their interest in general information about their neighborhood. Even though they are not directly paying for the service, residents have a high influence on how Small Town Chicago is used by the aldermen. Residents and alderman can also lead to changes in the service according to their feedback and needs.

8.2.4 Threat of Substitution

All data that Small Town Chicago displays is already available for free. Residents can find information about city services in different data portals and aldermen deal with city services and residents' requests every day. So theoretically, each alderman could build their own text mining tool internally with the help of programmers and developers. However, the fact that they did not create this type of tool before already indicates that it is not so simple to implement it. If each ward created their own tool, it would be very hard to create comparisons and a future combined implementation on a city level. We believe local officials will use our platform to see all relevant data at once because it saves time that they have to go to each separate portal to find a specific information. It also saves cost that the aldermen's office would spend on software and specialists to mine and analyze data from social media.

Because we are a non-profit organization that plans to partner with local governments to supply this aggregated and visual data, we have reasons to believe aldermen will not substitute our tool for other, cheaper, less complete services in the market.

8.2.5 Threat of New Entry

The fact that wards are independent in their purchase decisions and do not have to go through a broader, city level approval makes the market more approachable. A company could sell a product to an individual ward without too many regulations. Of course, as a government office,

there is a limited budget and every decision is carefully made and announced to public. There are not many companies seeking to occupy that space according to Alderman Michele Smith. She sees many opportunities to improve her office's operation, but does not often receive proposals.

8.3 Potential Reach

8.3.1 Total Addressable Market

Small Town Chicago is a product for all local governments in the United States. It allows empowerment of residents their neighborhoods and communities and engagement with the local authorities. The local government will benefit from listening to their residents, helping them create more effective and popular services and policies and continuing through a consecutive mandate.

There are 90,056 local government units in the United States, each of them with their own regulations and elections. To concentrate its business, Small Town Chicago is choosing the state of Illinois to be our first total addressable market.

The state of Illinois is composed of 102 counties, 1,432 townships, 2,729 municipal or town government and 6,963 local government units not including special districts such as libraries, parks, forest preserves, fire protection, sanitation and transportation districts. Its total population is around 12.8M (2012 Census) and 61% percent of the state's residents live under three layers of general purpose local government (municipal, township or county governments). These almost 7,000 local governments could use our product to better understand and engage with their residents. We do realize that each of them have different election processes and respond to different levels of governments, so an expansion will involve a lot of research to understand all the different types of local government units in the state.

8.3.2 Serviceable Addressable Market

The largest city in Illinois is Chicago, with 2.7M residents. The city is divided into 50 legislative districts or wards, each of them with an elected representative called alderman. Together, the 50 aldermen compose the Chicago City Council in which they defend their residents' interests. Small Town Chicago aims to have every alderman in the City using our tool and at least 50% of the 2.7M residents engaging with their local government and participating in the decisions of their neighborhood.

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⁵ IllinoisPolicy.org

8.3.3 Serviceable Obtainable Market

To start Small Town Chicago operations, we selected three wards that might be interested in adopting and investing in our product.

43rd Ward – Alderman Michelle Smith

The 43rd ward is located in the Lincoln Park area and has population of 56,170 residents (2010 Census). The alderman Michelle Smith met our team on December 1st, 2017. In the visit, inquired about current technology solutions being used in the office and what other resources would help the operations. We learned that her office was the first ward to implement Romulus and is usually very open to new technology solutions. However, one of the challenges that Alderman Smith faces is the difficulty to work with social media platforms. She realized how important it is and that it is an opportunity to reach young residents who currently do not engage often with their local government.

We presented the Small Town Chicago platform and received great feedback on how this would help engage with residents through social media and gain more information with different data entries. Therefore, we believe Alderman Smith could be a first adopter of the platform.

47th Ward – Alderman Ameya Pawar

The 47th ward includes sections Lincoln Square, Lake View and Uptown community areas. 55,074 residents live in this ward. Alderman Ameya Pawar launched the Chicago Works app in partnership with software developer 2Pens Media during his campaign in 2010. Changes were made to the app in 2012 after feedback from residents. Now in his second term, alderman Pawar is a great defender of the Open 311 project and has adopted a participatory budget decision along with the ward's residents. Every year he launches online forms as part of the Aldermanic Menu Program through which residents vote on how the budget for the ward should be invested. His efforts with including technology in his work and further engagement with communities makes him a great potential customer for Small Town Chicago.

49th Ward – Alderman Joe Moore

Chicago's 49th Ward is better known as Rogers Park and has 54,633 residents. In 2009, the alderman Joe Moore was the first to hand the budget decisions to his constituents. The participatory budgeting includes neighborhood meetings and vote. As a result, the ward saw a higher engagement with the community, higher attendance and participation in the community meetings and a reelection for Alderman Moore. The efforts to include the residents' opinions in the decision of the local government align with Small Town Chicago's vision, which makes the 49th Ward another important potential first customer.

8.3.4 Roadmap

In 2018, the first year, Small Town Chicago expects to have three wards as customers. The first semester will be dedicated to one ward, focusing all efforts on launching the platform to the 43rd ward. That means the sales team will be setting appointments and demonstrations with the alderman's office while internally, developers will be working on the website and distribution material, including the welcome package and any communication. By the second quarter, the 43rd ward will have received fliers and banners around the neighborhood and the alderman will be using a trial version of the online and mixed reality platforms. After the trial, we hope to collect feedback from the alderman's office to build a second version of the platform, which will be launched in the third quarter. By Q3 we also expect to have the 47th and 49th wards using the tools as well.

We know wards have influence in other neighboring wards, since many partnerships for local projects happen among wards by geography. Aldermen also exchange information and tools on City Council meetings. These are the two main ways Small Town Chicago plans to expand. In the second year of business we hope to be servicing to 6 more wards, most likely neighbors of our first customers. In the third year, we expect a total of 20 wards to be using Small Town Chicago either because they heard it from neighbors or at City Council. By then we will have learned and improved our services and efficiencies, we expect to take less time to reach the other half of the wards. Another 20 wards will be added to the service in the next year. By 2022, in 5 years of business, Small Town Chicago expects to have all wards in Chicago using its services. Figure 13 shows this expansion plan and Figure 14 presents detailed roadmap of Small Town Chicago.



Figure 13 - Small Town Chicago Expansion Plan

Figure 14 – Small Town Chicago Roadmap

SMALL TOWN CHICAGO ROADMAP

2022			Launch to 10 more	wards	Sell and Service to 10 more	Distribute Welcome Packages, Banners and Filers and Customer Service to 10 more wards				
2021			20 more	wards	Sell and Service to 20 more	Distribute Welcome Packages, Banners and Filers and Customer Service to 20 more wards				
2020		Launch to 11 more wards			Sell and Service Sell and Service Sell and Service to 6 more to 11 more to 20 more to 10 more wards wards wards		Distribute Welcome Packages, Banners and Filers and Customer Service to 11 more wards			
2019		Launch to 6 more wards			Sell and Service to 6 more	wards	Distribute Welcome Packages, Banners and Filers and Customer Service to 6 more wards			
	Q4		ard Launch to 47th and 49th Wards		43rd Ward uses Second Version of Small Town Chicago	47th and 49th Wards use Second Version of Small Town Chicago		elcome 7th and rds	anners 17th and rd	Customer Service to 43rd, 47th and 49th wards
	03	43rd Ward	Launch to 43rd Ward		43rd Ward us	Trial Period for 4 47th and 49th Ward		Distribute Welcome Package for 47th and 49th Wards	Distribute Banners and Fliers for 47th and 49th Ward	Custome
2018		Launch to			43rd Ward () uses Small to Town / Chicago	Set Appointment and Demonstration with 47th and 49th Ward	Develop second version of website	Custom Welcome Package for 47th and 49th Wards		
					Collect Feedback/ Satisfactio n Survey		Develo	Custom Package		43rd ward
	0,2				43rd Ward uses Small Town Chicago			Welcome 43rd Ward	Banners for 43rd rd	Customer Service to 43rd ward
					Trial Period for 43rd Ward			Distribute Welcome Package for 43rd War	Distribute Banners and Fliers for 43rd Ward	
	0,1				Set Appointment and Demonstration with 43rd Ward		Develop Website	Custom Welcome Distribute Welcome Package for 43rd Ward Package for 43rd Ward	Develop Banners and Fliers	Train Customer Service
		Product Milestones Go-To Market			Milestones	Internal Activities				

8.4 Financial Analysis

As previously mentioned, the total initial investment to develop and implement the service in the first three wards is USD 215,346. Most of this cost is related to the four employees that we will need to hire to develop the tools, sell and service to customers. To cover these costs for the first year, we would need each of the three wards to invest USD 71,780.

Figure 15 - Initial Costs to develop and implement Small Town Chicago

<u> </u>				•
Туре	Cost per year in USD	Fixed/Variable	Source	Comment
Web Developer	55,000	Fixed	Glassdoor	
Customer Service Representative	38,000	Fixed	Glassdoor	
Sales Manager	70,000	Fixed	Glassdoor	
Programmer	50,000	Fixed	Glassdoor	
Data analysis software	840	Fixed	Tableau	70 per month (Tableau)
Website Total Costs	100	Fixed	Wordpress	
Google Maps	0	Fixed	Google Developer	
Data Storage	504	Fixed	Dropbox	20 dollars per month per user (minimum 3) unlimited storage. 30%
Commercial Printer	400	Once	Google Shopping	
Extra Stationary	400	Variable		
Mixed Reality Supply	102	Variable	LayAr	34 dollars per page. 3 wards = 3 pages in the
Total Costs	215,346			

In our cost estimates, we assumed that fixed costs were all of those that did not change whenever we gain a new client. They might change over time but not are not directly proportional to the number of wards serviced. The variable costs will increase by the same amount for every ward added to the service. In our first budget estimate, the fixed costs highly exceed the variable costs, which means that total costs of operations would not significantly increase with an expansion. Therefore, as a collaborative tool, the more wards adopt it, the lower the cost is for each of them. The first year is a high investment for the first wards because only 3 of them are sharing the expenses. However, the more we expand our business, the less each ward will have to pay for it.



Figure 16 - Cost per Ward as Business Expands

8.5 Marketing Plan

Awareness

Our sales team will approach the first three potential customers by calling the aldermen's office and setting an appointment. They would give a presentation and a demonstration of how the website and mixed reality tool work and how it displays information from social media.

New residents would most likely hear about platform and which keywords to use on social media when they receive the Welcome Package. All other residents would become aware of Small Town Chicago with fliers received in the mail, banners on the street and through social media as well. Sales representatives would also give a quick demonstration of the website to librarians, and the alderman's office staff who would be helping residents to access the platform in neighborhood touchpoints.

Distribution

The business will only need to distribute the fliers and banners for its communication and the Welcome Package to new residents. Fliers will be distributed in mail boxes as well as in local businesses and public spaces. Since the main channel for the platform will be online, no distribution is needed.

The aldermen will get a month's trial of the new tool before subscribing to it. Salesmen will monitor aldermen's experience close to gather feedback and answer questions.

9. Conclusion

To solve a non-emergency situation, residents go through many different processes. The city offers different channels but citizens are either not aware or do not trust them because there is not enough information and communication. Residents then search for answers within their own contacts or turn to the media. The lack of awareness, transparency and communication with their local government keeps residents from trusting the system.

Since problems happen in a local level, Small Town Chicago is a tool that can be used by all members of a community. A resident can decide on a new place to live and get basic information about their new neighborhood once they move. A business can follow up on its request for a city service and create campaigns for a new event in its area. An alderman can prioritize projects based on what residents are saying in social media and can directly respond to posts about it. This improvement in performance, communication, transparency and awareness will generate more trust among all neighbors and the local government.

311 and 911 list of services

MAKE THE RIGHT CALL

- * Police and Fire Emergencies
- * Crime in progress
- * Immediate threat to life/bodily injury
- * Major property damage or loss
- * Dispatch of a squad car
- * * Gang- and Narcotics-related calls can be made anonymously * * *

- Graffiti Removal
- · Pot Hole in Street
- Tree Trim
- Abandoned Vehicle Complaint
 Rodent Baiting/ Rat Complaint
- Building Violation
- Street/Alley Light Out Sanitation Code Violation
- · Garbage Cart New, Damaged, Additional, Stolen
- · Pot Hole
- Alley Sewer Inspection
 Animal Inhumane Treatment
- · Animal in Trap
- City Program and Service
- Brochure Request

 Building Illegal Conversion
- Bungalow Rehab/Purchase Information
- · Cable TV Complaint
- · Clean Vacant Lot
- Clean and Green Program

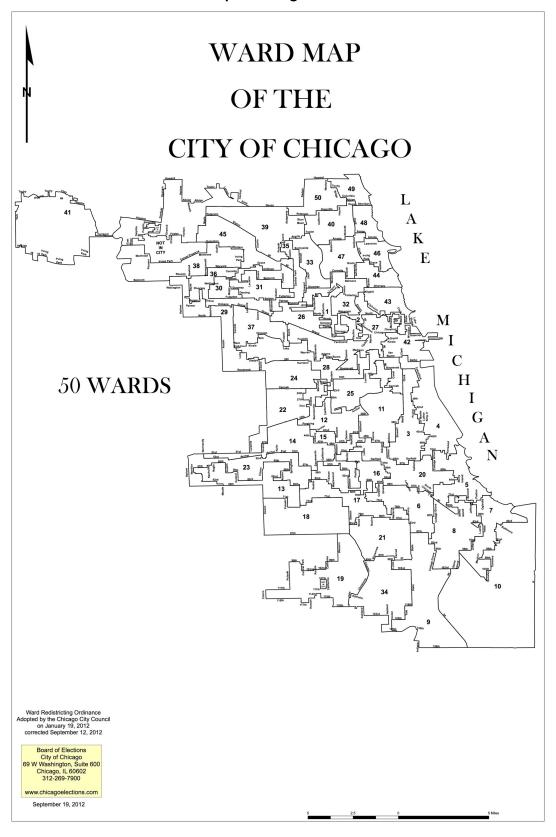
- Consumer Fraud Complaint
- Consumer Retail . Dead Animal Pick-up
- Emergency Food • Extreme Weather Notification
- · Fire Safety Inspection
- Fly Dumping Garbage Pick-Up
- Home Buyer Programs
- Hydrant Damaged
- · Ice and Snow Removal
- · Landlord/Tenant Information
- · Lead Inspection
- · Mail File
- · No Building Permit and **Construction Violations** · No Heat
- Operating Without a Business License
- · Parking Meter, Missing or Broken
- File a Police Report after a crime

- · Porch Inspection
- Private Drain Program
- Pushcart Food Vendor Problem
- Request for Speakers
- · Restaurant Complaint · Senior Information, Literatire,
- and Assistance · Senior Well Being Check
- · Sewer Cleaning Inspection
- · Sidewalks Cracked or Broken · Street or Traffic Signs - Missing or Damaged
- · Stray Animal
- · Street Light Pole Damage or Pole Door Missing
- · Street Lights All Out
- · Street Lights On Days
- Tax Assistance
- Tree Debris
- Tree Planting or Removal
- · Vacant/Abandoned Building
- · Viaduct Cleaning
- Viaduct Lights Out
- · Water Low Pressure · Water in Basement
- · Water on the Street
- Weed Cutting
- · Wire Basket

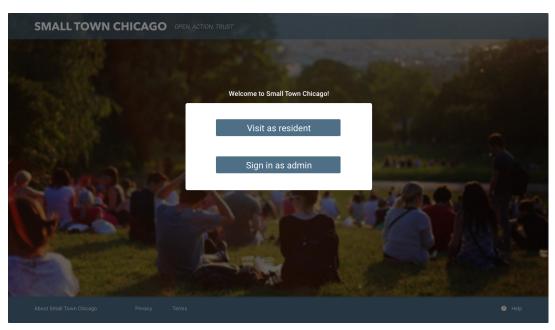
... and more!

Just call 3-1-1 and ask or visit: www.chicagopolice.org

Map of Chicago Wards



Website Overview





WHO IS USING...



ALDERMAN

Constantly checking neighborhood updates



RESIDENTS

Be aware of what is happening in the neighborhood

DATA COME FROM...



NEIGHBORHOOD NETWORKSwhere neighbors post campaigns, events and more



SOCIAL MEDIA where people post requests of city service, petitions and more



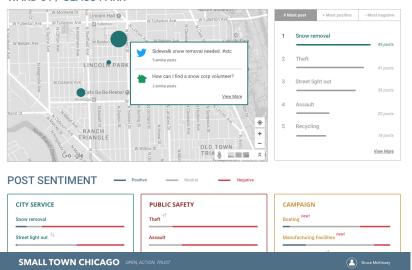
CITY OPEN DATA where city tracks city service performance

About Small Town Chicago Privacy Terms

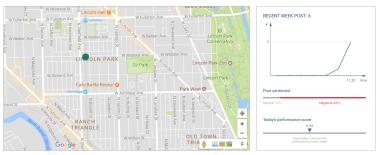
• Help



WARD 51 / GLASS PARK



WARD 51 / GLASS PARK > CITY SERVICE > SIGNAGE DAMAGE



LATEST UPDATES



POST TO PUBLIC

We noticed that a bus stop signage fell down on W Webster Ave and N Sheffield St. 311 is sending out workers to fix it soon. Please be careful when you walk by. Thank you for understanding!



Prototype of Mixed Reality Dashboard





Business Model Canvas

)][Version: First Responders, Service Providers, City of Chicago Chicago Police, **Customer Segments** customers: Aldermen Residents Dec/2017 Secondary Date: Aug -Designed by: Small Town Chicago Hashtags and Keywords Alderman – work routine: access through website on Residents – when in need Access website daily, 3D Neighborhood Events of information: planned Annual subscription from each ward mixed reality option Customer Service: **Customer Relationships** computer or phone **Tutorial Videos** Chat Box FAQ page •Phone Email Channels Revenue Streams who suffer from their lack of decision making, making the and empowering the citizens that shows aggregated data meaningful way. Small Town physical package that gives from residents and city in a accountable for their work communication, awareness information and a platform residents and aldermen in for residents and aldermen and transparency in their residents access to basic Chicago gives access to Small Town Chicago is neighborhood. It is a information, assisting of a neighborhood local government Value Propositions Designed for: Material: welcome package development, distribution Development, printing and customer service and sales Data: Storage, text mining Data: collection, storage, management, analysis, Software: text mining, Human: programmer, Welcome Package: and communication sentiment analysis, website developer, The Business Model Canvas Website: design, Communication: visualization distribution distribution visualization Key Resources Key Activities Financial Data Storage and Management Chicago Police Department B Cloud Storage Supplier Mixed Reality Supplier Human Resources Chicago Works City of Chicago **Google Maps** Cost Structure Open Grid Municipal Key Partners Facebook Nextdoor Twitter 311



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Stationary Material and Printing

Google Maps

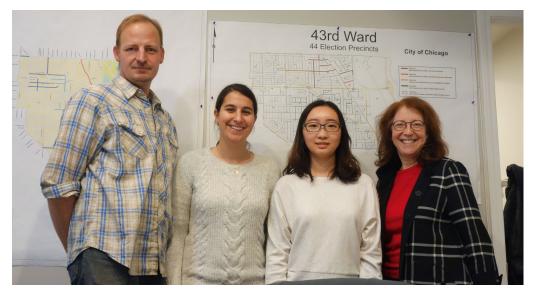
Data Analysis Software

Website

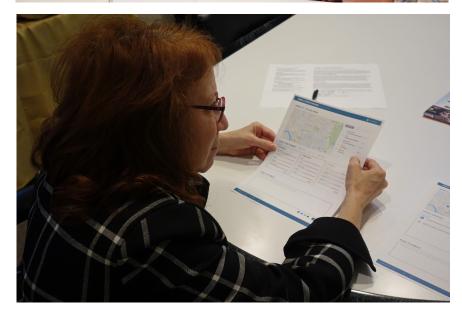
Mixed Reality

DESIGNED BY: Strategyzer AG
The makers of Business Model Generation and Strategyzer

Visit to 43rd Ward and meeting with Alderman Michele Smith







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- https://www.illinoispolicy.org/reports/too-much-government-illinois-thousands-of-local-governments/
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- Boston City Score https://www.boston.gov/cityscore
- Nextdoor https://nextdoor.com
- Twitter https://twitter.com
- Municipal https://www.yourmunicipal.com/
- Facebook https://facebook.com
- Dropbox https://www.dropbox.com/help/business
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- Layar https://www.layar.com/pricing/#/USD
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