2018

Branding the Unbrandable: A Solution to Rebranding the MTA

Sydney McGinn
Pace University

Branding the Unbrandable:
A Solution to Rebranding the MTA

Sydney McGinn
Advertising & Integrated Marketing

Advised by: Vishal Lala
Marketing Department

Presentation Date: 10 May 2019
Graduation Date: 23 May 2019

Abstract

The purpose of this paper is to determine why customers have lost trust in the New York City Subway system and how to most optimally communicate to customers in order to regain said trust that has been gradually lost over the past couple of years and to ultimately boost ridership. The New York City Subway system officially opened in 1904 and many components of it today are antiquated and in desperate need of upgrades or repair. Since the Transit Crisis of 2017, the Metropolitan Transportation Authority has put a number of plans in place to improve the subway system, yet in the customer's minds, the damage has been done. Now it is a matter of simultaneously continuing to make improvements while launching a comprehensive rebranding plan to win back the trust of riders. An in-depth analysis of Twitter data has been conducted that gives insight into the mind of the average subway rider. Over 15,000 Tweets to the @NYCTSubway Twitter account were analyzed to identify frequently used keywords that exhibit riders' everyday concerns. From the large sample size of concerns, a plan with recommendations to rebrand the MTA and improve the customer experience was developed.

Table of Contents

Introduction and Background

Over the past couple of years, NYC subway ridership has begun to drop,

despite the population of the city increasing. Just from casual observations made over

this time, it seems to be that consumers are lacking trust in the system. Many believe

that more often than not, the train will not get them where they need to go in a timely

manner, or even at all. Once a company has lost the trust of a customer, it has to work

much harder to gain it back. This paper is going to analyze some of the reasons that

consumers may be choosing alternatives over the New York City Subway and will also

propose some strategies to regain said trust from the public and foster an increase in

ridership. Throughout this paper, the term "customer Tweets" will be used when

discussing Tweets sent to @NYCTSubway, @MTA, or various hashtags that have been

analyzed. Using these key insights, potential solutions and quick wins will be

developed in order to bring customers back as regular riders.

The Metropolitan Transportation Authority is a public agency that oversees all

rapid transit, commuter rail, and the maintenance of bridges and tunnels within New

York City and some surrounding areas. The MTA is comprised of: New York City

Transit, Long Island Rail Road, Metro-North Railroad, and Bridges & Tunnels. With its

average weekday ridership of 1,923,993 people in 2017, the New York City Subway

division of NYCT tends to be a hot topic of conversation ("Introduction to Subway

Ridership").

In order to understand some of this current issues that are plaguing the New

York City subway system, it's important to know the history behind the agency that led

it to the state that it's in today. Before the New York City subway system became the New York City Transit Authority, it was built and owned by three separate companies. The first official subway system in New York City opened by the Interborough Rapid Transit Company on October 27, 1904, with 28 stations running from City Hall station in lower Manhattan all the way to 145th St on the Upper West Side. Today, these 28 stations are part of the numbered lines 1 – 6 and the Times Square shuttle. Over the next decade, the IRT expanded to the Bronx, Brooklyn, and finally to Queens in 1915 via the 7 line.

The Brooklyn Rapid Transit Company, which once operated both passenger and freight railroads, expanded into Manhattan in 1908 with a single terminal at Essex St and Delancey St under the Williamsburg Bridge. In 1923, the BRT was acquired by the Brooklyn-Manhattan Transit Corporation; original BMT routes include today's J/Z, L, M, N, Q, R, and W trains. The two subway systems above were both privately owned and operated; it wasn't until 1932 that a city-owned subway system came about. Originally known as the Independent City-Owned Subway System and later the Independent Subway System, or IND, the first city-owned subway system opened on September 10, 1932 from Inwood – 207th St all the way to Chambers St in Lower Manhattan via Eighth Avenue. Later that year the system expanded to the Bronx via Concourse, Brooklyn via the Cranberry Tubes and Queens via Queens Blvd shortly after. Upon its completion, it comprised of today's A, B, C, D, E, F, G, M, and R lines. Less than 10 years after its birth, the Independent Subway System merged with the BMT and the IRT to become the New York City Subway System.

In 1940, both the Interborough Rapid Transit System and the Brooklyn-Manhattan Transit Company were purchased by the city of New York. The Brooklyn – Manhattan Transit Company and the Independent Subway System both used train cars that were about 10 feet wide while the Interborough Rapid Transit Company used train cars that were about a foot narrower. This meant that the BMT and IND could combine resources and share rolling stock; it also meant that when the companies merged, connections were built between IND tunnels and BMT tunnels. Today, the BMT and IND are together known as the B Division. The IRT is known today as the A Division; technically A Division cars can run on B Division track, but the gap between the platform and the train would be unsafe for passengers. Therefore, when the city updates and places orders for new rolling stock, they must purchase a different type of car for each division, which can result in additional design costs. While these three companies unified in 1940, they did not officially become the New York City Transit Authority until 1953 and later the Metropolitan Transportation Authority in 1968. Today, New York City Transit, under the MTA, operates 36 train lines in 4 different boroughs ("Moving the Millions").

Research Problem

The research problem that I want to examine is how the New York City Transit Metropolitan Transportation Authority can better brand themselves by conducting an analysis of some current initiatives that the MTA is undertaking to improve service. The examination of current public MTA materials will be conducted in the literature review.

Those materials will then be used to make informed decisions when developing

strategic initiatives and proposals.

Research Questions

1. How do you sell a mass transportation system to a city that has lost confidence in it?
2. Why have people lost confidence in the New York City subway system?
3. What is the best way to communicate incidents and delays to customers?
4. How do we communicate improvements to customers if they're not willing to listen?

Method

The primary method that I want to use in order to determine if these tactics have

been successful or unsuccessful is through an analysis of Twitter data. The analysis

will be conducted with the @NYCTSubway and @MTA Twitter accounts. Some notable

hashtags that will also be analyzed for usage are #CuomosMTA and #MTASucks.

Using a program we are able to see the frequency of Tweets to and from an account

over the period of one month. Twitter APIs now allow developers to pull data from only

up to nine days in the past. On days with peaks in Tweets, we can then calculate the

frequency of certain categories of works. Then we can ask, what kinds of incidents

occurred on these days and did the MTA do a sufficient job communicating the

incident? Based on the insights from this data collection, we will be able to see what

customers want/need during times of incidents. The secondary method used, is case

study of current documents and literature published by the MTA and Transit think

tanks. From the data and literature, I will be able to develop a protocol and campaign

for the MTA that helps them better attend to the needs of the customers and then

demonstrates to the customer that the agency is listening to their needs.

Literature Review

Transit Crisis of 2017

In early July of 2017, the New York City Comptroller released the results of a survey entitled "The Human Cost of Subway Delays: A Survey of New York City Riders". The study combines survey data from 1,227 riders that use 143 different stations, and use every line during the AM and PM rush-hour. The purpose of the study is to show that the debilitating delays in the New York City Subway System aren't just numbers, they represent real people that are late to meetings, graduations, birthday parties, and work nearly every single day. In 2017, on-time subway performance hit an extreme low of 63% compared to 84% in 2012. The on-time performance for New York City Transit has been consistently declining since 2012. Riders were asked how subway performance in 2017 compared to 2016, and 46% of people stated that it was "Slightly" or "Far" worse. This, of course, does not necessarily mean that they themselves experienced worse service, but that they may have also observed worse service than in previous years (Stringer).

According to an article in the New York Times entitled "How Politics and Bad Decisions Starved New York's Subways", the sudden decline of subway service can be attributed to an extreme lack of funding for decades. In 2017 alone, two trains derailed, there was a track fire that resulted in nine passengers going to the hospital, and an F train stalled in a tunnel during the middle of summer causing passengers to be trapped in a packed train without air conditioning. After an investigation by the New

York Times in 2017, it was revealed that after inflation the MTA budget has pretty much

remained the same for almost 3 decades. As a result of the lack of funding to maintain

the 100-year-old infrastructure, signal problems and equipment mechanical problems

have doubled over the past decade. From the early 1990s up until 2016, subway

ridership experienced an increase of nearly 80%; however, that is paired with a

massive decrease in spending on maintenance of 20% until the late 1990s and in 2012

spending on maintenance was only up 6% from 1992. This, of course, resulted in a

consistent decrease in on-time performance (Rosenthal et al). In recent decades, 2016

was the first year that the subway ridership decreased. In the two years following, it

has continued to decrease. In 2018, ridership decreased 2.1% from the previous year

(*Ridership Trends: 2012 - 2018*).

The Summer of Hell

Regarded by many as the "Summer of Hell", the Summer of 2017 was a

breaking point for many subway riders. The phrase "Summer of Hell" was coined by

Cuomo in reference to commuter rail systems such as NJ Transit, Metro-North

Railroad, Long Island Rail Road, and Amtrak (Fitzsimmons). It bled over to the New

York City Subway after a series of incidents that ended with a bang on the Upper West

Side when an A train derailed at 125th St on Tuesday, June 27, 2017. The cause was

not a track defect as one would assume, but an improperly secured rail left by MTA

employees. The method of storing rails near the tracks is a common occurrence, but

these rails had not been spiked down, which caused the fourth and fifth cars of the

uptown A train to come off the tracks and crash into the tunnel wall. Nearly 30 people

were injured in this incident and thousands had to be evacuated from the train (Kapp et al.). The derailment in Harlem was the culmination of the Transit Crisis of 2017 and the finale to the Summer of Hell. On June 29, 2017, Governor Andrew Cuomo declared a state of emergency for the Metropolitan Transportation Authority. He mandated that Joe Lhota, the then-new chairman of MTA, present a plan that addresses the cause of the deteriorating system and presents a solution within 30 days.

Subway Action Plan July 2017

In August of 2017, the Subway Action Plan was announced; the goal of the plan was to stabilize and then modernize the subway system. The SAP would be rolled out in two phases, the goals of the first phase revolved around the NYC Subway Customer and were to: improve the reliability of the system and increase capacity; enhance infrastructure in stations and improve safety; and improve communications by providing clear and accurate announcements and information. In years prior to this, the MTA had not admitted to struggling financially and operationally. This was intended to be the start of a transition to transparency for the customer. The SAP was set to "Stabilize and improve the system by attacking the key drivers of 79% of major incidents causing delays on the system" (*Subway Action Plan*).

The key drivers mentioned in phase 1 of the plan are: Signal & Track Maintenance, Car Reliability, System Safety & Cleanliness, Customer Communications & Critical Management Group. Many of the signals in the subway system are over half a century old and are constantly breaking down, causing over 30% of delays. One of the root causes of track-related delays is water on the tracks so the goal is to prioritize

drain cleaning and water management on the track bed. Other track-related delays include accelerating the replacement of rail joints and installation of continuous welded rail in order to reduce the wear on trains and decrease the number of track defects.

Car reliability involves increasing the yearly scheduled maintenance of train cars in order to increase the mean distance between failures. This also involves stationing Road Car Inspectors around the system in order to provide quick on-site repairs in order to keep trains moving in the event of a mechanical problem. The plan proposed the addition of train cars on lines such as the C; it should be noted that nearly two years after this plan was proposed, this has yet to happen. It's important to note that the empty promises of the Subway Action Plan have only added to the distrust that New Yorkers have in the MTA.

The next key driver that was noted was System Safety & Cleanliness. This component of the plan called upon New York City to increase the number of police officers that were stationed within the system to reduce violence, panhandling, and fare evasion. It also proposed increasing the number of EMTs within stations to decrease the response times for sick customers that must remain on the train until they can be treated, which can result in a number of delays and service changes. In order to improve cleanliness in stations and reduce litter, the agency launched a campaign to inform riders of the impact that litter has on track fires. The agency also increased the frequency of station repairs by 30% to improve the customer experience and improve accessibility.

The Customer Communications unit would be revamped under this phase of the SAP. Digital communications protocol would be changed so that customers would receive more detailed information in a more timely manner. Employees would receive training on the new protocol so that there was consistency across the board. The installation of countdown clocks in all stations on the B Division would be accelerated so that each station would have a countdown clock by the end of 2017. Finally, in addition to providing retraining for Customer Communications personnel, the management staff would be restructured in order to provide better solutions in a more timely manner. Personnel would also be deployed to monitor service and incidents in real time to be able to aide in a quicker recovery. The long-term goal of the Subway Action Plan ideally would have been carried out in Phase II. The original goal of Phase II was to modernize the system, but as of the Summer of 2018, the Subway Action Plan has been considered by many to have been a failure. This paper will go into details about what made the initial Subway Action Plan a failure in the eyes of the customer and how it resulted in further distrust from riders.

Fast Forward Plan

In the Fall of 2017, the MTA announced that Andy Byford was named the new President of New York City Transit effective January 1, 2018. Byford began his career at the London Underground, but he was most known for rehabilitating and modernizing the Toronto Transit Commission ("Andy Byford Named New President of New York City Transit"). During Byford's first few months as the President of New York City Transit, he spent extensive time learning the system. Byford stated that the Subway

Action Plan would stabilize the system, but the subway needed something much more

ambitious to save the system. In May 2018, Byford announced Fast Forward: The Plan

to Modernize New York City Transit. The plan requires substantial investment -

investment that had been diverted from the MTA for nearly two decades.

The Fast Forward Plan was the first real effort of the MTA to be completely

transparent with customers, delivering quarterly updates via social media and the

MTA's website. The Plan opens with the quote, "Getting there will require short-term

sacrifices for long-term gains." The plan makes customers aware immediately that

things must get worse before they get better in the system; modernizing New York City

Transit will not be an easy task. Going forward, there will be night and weekend line

closures and station closures, but these are a necessity for the system to improve in

the long-term and keep costs down. The Fast Forward Plan makes a steep promise: to

do in 10 years what was supposed to take 40 years to complete.

The proposal includes adding a new signaling system on 5 segments of lines

within the first 5 years of the plan and 6 additional ones in the following 5 years. In

addition to new signals, the proposal includes the addition of new car equipment,

nearly 700 cars in the first 5 years and almost 3,000 in the following five years. These

components alone will help decrease delays by ideally increasing the mean distance

between failures for car equipment with the addition of new cars. The idea behind the

new signaling system known as CBTC, or Communications Based Train Control, is that

trains will be able to run more closely together thus increasing train frequency and

capacity. These are all important components, but the most relevant pieces for this

paper are the enhancements to the customer experience and customer service and communications. The plan most recently introduced the Group Station Manager initiative which is a model that plants nearly 25 people around the subway system and holds them accountable for the state of their group of stations. This includes safety, cleanliness, signage, and customer service. This model gives power directly to the hands of the customer by providing them with direct points of contact to enhance the experience in their station. This paper will go into detail about the quarterly reports that keep NYCT accountable for maintaining transparency with customers regarding the Fast Forward Plan (*Fast Forward: The Plan to Modernize NYCT*).

Customer Commitment

In conjunction with the Fast Forward Plan, New York City Transit launched a Customer Commitment plan. The Customer Commitment began with the addition of Sarah Meyer, Chief Customer Officer, to the team at NYCT. Each quarter, the Strategy & Customer Experience team releases goals to the public to show what their priorities will be over the next three months. At the end of each quarter, a report is released that notes each goal that was met and to what extent and each goal that was not met within a timely manner. When a mistake is made or a goal was too ambitious, the quarterly report lets customers know why it was too ambitious and what the agency did to meet as much of the goal as they could. The first Customer Commitment (Q3) was announced in May 2018 with the release of the Fast Forward Plan and the first Customer Commitment Report was released in September 2018. This paper will make an effort analyze the effectiveness of the Customer Commitment Reports to determine

if there is a better way to deliver these reports to customers or a better way to reach customers (*Our Customer Commitments*).
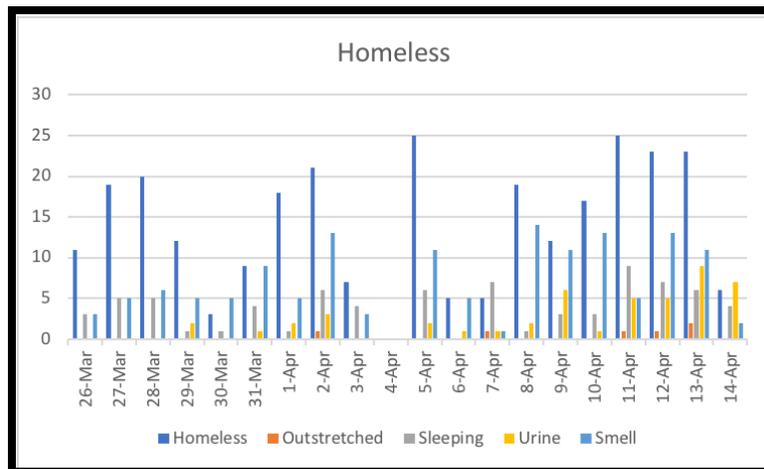
Key Insights & Results

In order to get information about customer needs and wants, an analysis of Twitter data must be conducted. This is the platform where the most customers engage with the MTA in real time. From an in-depth analysis of customer Tweets, the results have been segmented into 5 key insights. These 5 segments and their subsegments seem to be some of the root problems in the minds of New Yorkers. This Key Insights & Results section will give an overview of each segment and introduce the language that is used by customers to refer to each one. Spikes in Tweets from each of the segments will also be compared to other data in an attempt to discover the root cause. Identifying the root cause for issues such as the ones below will help improve the customer experience in an efficient manner.

Homelessness

Since the early days of the New York City subway system, beggars have been ubiquitous. Many New Yorkers turn their heads when the panhandler walks through the subway car with an elaborate story that usually ends with "I just need two more dollars to [x], [y], or [z]." However, in recent months, the number of homeless people "setting up camp" in train cars has seemed to increase immensely. According to a New York Times article from January of this year, there are over 3,500 homeless people on the streets, parks, and subways on a winter night. Of that 3,500 people, nearly half of the people were found on the subways. Though the MTA has a contract with the Bowery

Residents' Committee to help move homeless persons out of the subway system and

in to shelters, the problem of homeless people outstretched in subway cars and on

platforms seems to persist. During the winter period, the MTA increased the number of

homeless outreach workers in major stations and extra compensation for beds for

homeless people (Pager). However, this does not seem to be helping with the problem

of outstretched people on trains, which drives ridership away from the system.

Five keywords that are commonly used by customers when referring to

homeless people in stations or on the train are: "Homeless", "Outstretched",

"Sleeping", "Urine", and "Smell". After creating a pivot chart using these keywords as

filters, we can determine that Tweets to @NYCTSubway, @MTA or using #CuomosMTA

that pertain to homelessness amount to over 2.5% of all daily Tweets. The average is

steady, never dropping below 1%. In the chart below, we can see the magnitude of

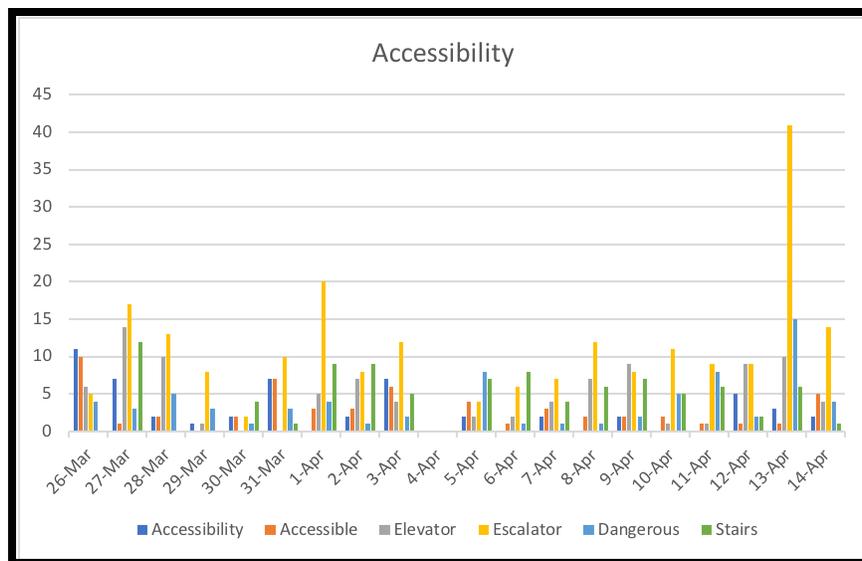daily activity from customers using the 5 keywords identified above.

This number has spiked as high as 3.99% of daily Tweets. Now, what

contributory factors can cause this spike in Tweets? When compared to historical

weather data, it can be seen that both temperature and precipitation are positively correlated to the number of customer Tweets regarding homelessness. On both March 31 and April 5 of this year, where customer Tweets about homelessness spiked to over 3.5% each day, there was corresponding precipitation in the form of rain and a low temperature of below 40 degrees. In the Discussion section of this paper, some potential solutions to this consistent problem will be proposed.

Accessibility

The MTA is always a hot topic for New Yorker's, but in recent years the lack of accessible stations in the system has particularly become a major point of contention among many. A recent study conducted by TransitCenter in 2017, entitled "Access Denied", surveys the entire New York City subway system and came to the conclusion that only 23% of all stations have an elevator. According to the article, the MTA made an agreement in 1994 to make 100 "key stations" accessible by 2020. This goal is on track to be completed by the promised deadline, but that still leaves less than 25% of stations as fully accessible ("Access Denied"). Of course, the 23% of all stations with elevators is only effectively a true 23% if perfect reliability of elevators is assumed. Elevators regularly experience outages, often being out of service for weeks at a time. Since 2016 when disability advocate groups sued the MTA for lack of elevators and a lack of elevators in working condition, coverage related to accessibility has spiked (Barron). When elevators or escalators are out of service, especially for a long period of time, it is a legitimate safety concern. According to data from 2014 - 2015, there are up to as many as 25 elevator outages per day in the subway system. This consistent lack

of attention to a crucial need has caused an outrage among many New Yorkers. One

customer Tweeting, " @NYCTSubway 86th Street Q line 86th street entrance no

elevator service two **escalators** broken. Impossible for a disabled person or person

with a stroller to take the train. Shame on you for being ableist and stealing [our]

money. This station hasn't been open for 5 years even." In order to get an insight into

rider's concerns, Twitter data was analyzed for the use of the following words, which

are most used when it comes to accessibility complaints. Some of the most commonly

used words are: "Stairs", "Dangerous", "Elevator", "Escalator", "Accessible", and
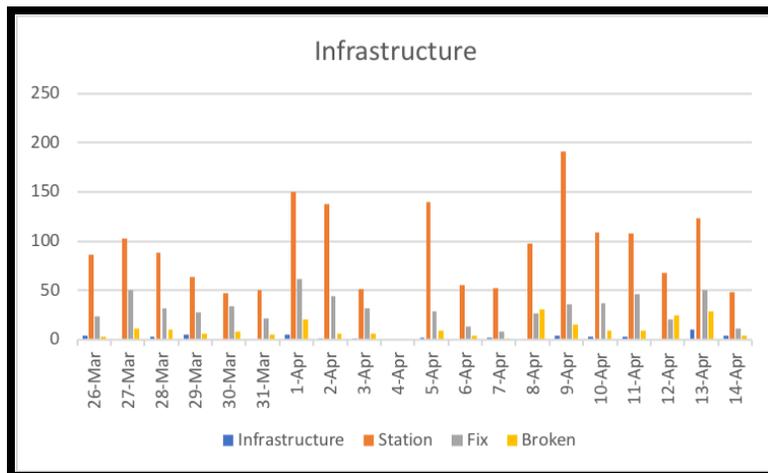
"Accessibility".

A protocol must be developed to better hold the agency accountable for such

accessibility issues. The lack of prioritizing accessibility is partially why many New

Yorkers have lost trust in the subway system because it does a disservice to the nearly

10% of New Yorkers that are disabled. Furthermore, the pervasiveness of the

perceived elevator unreliability issue further decreases customer confidence in the

system. According to the study by TransitCenter, "A person who can navigate stairs can travel from any subway station in the city to the 471 other stations - a total of 222,312 possible station-to-station trips. Bus someone requiring an elevator…can reach 109 stations from any particular accessible station - 11,990 possible point-to-point trips" ("Access Denied"). In the Discussion section of this paper, a protocol for handling out of service escalators and elevators will be proposed in addition to some rebranding proposals that could make traveling on the subway for disabled New Yorkers less cumbersome.

Infrastructure

As previously discussed in the background, the much of the infrastructure that the subway relies on dates back to the early 1900s, with some elevated infrastructure dating back to the late 1800s. Deteriorating infrastructure of the subway is not a new phenomenon. For decades, the agency has been starved of critical operating and capital funds both by New York governors and mayors. According to the article in the New York Times entitled, "How Politics and Bad Decisions Starved New York's Subway", "They stripped a combined $1.5 billion from the M.T.A. by repeatedly diverting tax revenues earmarked for the subways and also by demanding large payments for financial advice…" (Rosenthal). Because of this and the nature of the New York City subway system (it operates 24 hours a day/7 days a week), it is not easy to perform necessary overhaul and maintenance. As a result, there has been a steady decline in service quality, and now, a decline in ridership. Since 2007, the on-time performance of trains has decreased by nearly 20% in 2017. This astronomical drop

has caused an immense decrease in the trust of riders, likely contributing to the decline

in ridership. However, since Andy Byford joined the New York City Transit team in

2018, there has been a steady rise once again in on time performance. Yet, from an

analysis of customer Tweets, they are hesitant to believe that service is improving.

Common words that customers use when tweeting about infrastructure include, but

are not limited to: "Station", "Infrastructure", "Fix", and "Broken". Each day, Tweets

about infrastructure can add up to as much as 16% of all customer Tweets. The table

below shows the frequency those words are used each day in customer Tweets.

In an article from CBS News entitled "How Customer Complaints Can Improve

Business", a study showed the 4% of customers that were wronged by a company

tend to complain, while the rest of the 96% choose to not do business with that

company. Now, of course, this is not the case with customers of the MTA, but it is

likely that many have reached a breaking point and have decided to "stop buying"

(Kalb). For example, Twitter user @T3DDY347 Tweeted, "@MTA stop spending money

on stupid shit and use that money to fix the infrastructure of the fucking crumbling train

system!" For these infrastructure-related improvements that have been made, a

solution to regaining customer trust will be proposed in the Campaign section.

According to an article in Layer's Blog, a group of digital consumer experts, a key step

in gaining back customer trust is to "Own up to Your Mistakes" (Greeves).
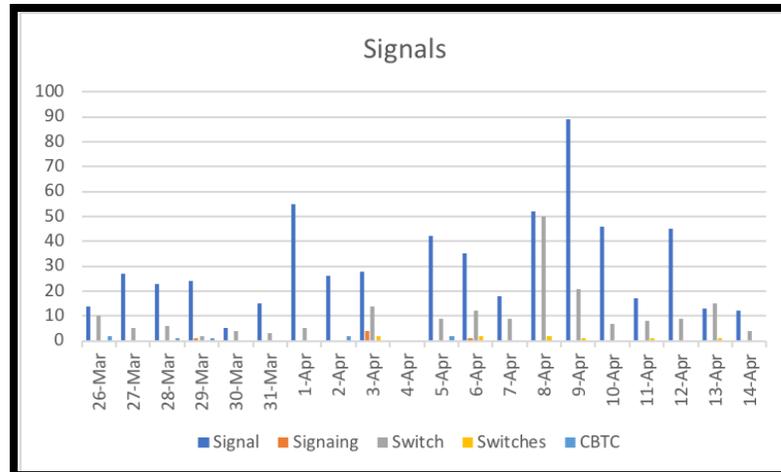
Signals

While it is commonly understood in technical circles that signals are in fact a

part of the infrastructure, for the sake of this paper and in the eyes of the customer, the

two are different things. "Signal Problems" is probably the phrase that New York City

subway customers hear the most in their nightmares. For one to understand why the

system results in so many delays, one must understand that the underlying logic

behind most of the NYC subway's signals has not changed since 1904. The legacy

signaling scheme of the New York City subway is perfectly functional and fail-safe.

However, the operation of the signal system at high levels of throughput is contingent

on the critical assumption that train operators will operate safely.

There are several locations in the subway system where the legacy signal

system did not vitally enforce speed limits on curves, and in some locations, it does

not fully prevent rear-end collisions under specific edge cases. While this generally

provided an adequate signal system that maintained high levels of train throughput, it

also did not provide adequate protection in all cases against various safety risks, such

as overspeed on curves and switches, and in some cases, rear-end collisions. A series

of train crashes in the 1990s that were due to train operator inattention led MTA

management to revise signaling standards to ensure that collisions and derailments

due to overspeed were vitally prevented by the signaling system in all locations. The legacy signal system was modified to implement these new standards, which entailed dramatically increasing the enforced separation between trains, and increasing the amount of signals that restrict train speed. While this ensured that accidents were prevented from occurring in the future, it also significantly reduced train throughout and capacity. Furthermore, the design of this system entails that its common failure modes have a high delay impact. The engineering principles that underlie relay-based automatic block signals on railroads ensure that any anomaly occurring in a signal system component forces the signal system to display the most restrictive signal to a train operator. As a result, there are many points of failure in the legacy signal system that can cause delays (Gordon).

It is clear from customer tweets to @NYCTSubway that customers do not completely understand how the signaling system works. A recent Tweet from @davidedm_91 epitomized how many New Yorkers are feeling about signal problems. "@NYCTSubway Signal Problems 24/7? #MTA @NYGovCuomo are you enjoying your 25k dinner?" The data below shows how frequently customers Tweet about signal related topics such as "Signals", "Signaling", "Switch", "Switches", and "CBTC".

Customers believe that it is the signals themselves that tend to cause the

delays. In reality, most signals in the system get replaced every 40 to 50 years; very

few signals from earlier than the 1950s remain in use. The underlying design of the

signal system needs to be revised to increase capacity while keeping train movements

safe. This is being done with the implementation of Communications Based Train

Control, which both increases train speeds and ensures full safety requirements are

met. It is important for the MTA to help shed some light on the "Signal Problems" issue

by both helping customers understand in more detail the actual reason for delays and

help customers understand that improvements and upgrades are being made at an

expedited rate to the current signals.

Communication

Communications in the New York City Subway System is an all-encompassing

term for the proactive and real-time messaging from the agency. It can be broken up

into four segments, including Announcements (both in stations and on the train),

Signage (planned work/service changes), Web Status, and Countdown Clocks.

Communication that falls under these four categories seems to be included in the vast majority of customer inquiries, often adding up to hundreds each week.

Clear and timely announcements are vital to keeping New Yorkers moving efficiently and safely. It is not necessarily *how* something is being said, but rather what is being said. Passengers want to be informed about incidents as quickly and transparently as possible. In an article from the New York Times in late 2018 entitled, "Subway Announcements Are Changing (Not That You Can Hear Them Anyway)" Sarah Meyer, the Chief Customer Officer for MTA New York City Transit states that nearly 50% of train riders are using their headphones or are otherwise tuned out of announcements (Barron). The vast majority passengers of do not hear announcements, that means that the MTA must find another way to be able to reach them. Potential solutions will be proposed in the Discussion Sections.

The MTA uses paper signs in stations in order to inform riders about upcoming Planned Work and service changes. Digital screens in stations are also utilized to provide nearly identical information. The signs provide information about the affected lines, the type of work being conducted, the date and time, and alternative service options during the planned work. While this may provide some insight to customers, it is not sufficient, as they have to use additional resources such as mta.info to plan their trips. These paper signs are just that, paper, and they are rather temporary, rendering them easily removable especially by vandals. A more dynamic and permanent solution to communicating service changes must be implemented in order to provide the most consistent and clear customer service.

New Yorkers never stop moving, so getting information to them in a timely manner is crucial. This is where the issue of Web Status comes in. Web Status can be defined as any form of real-time messaging that the MTA puts out regarding the service status of a train line. These updates are sent via @NYCTSubway's Twitter account, mta.info, and the MYmta app. For third party apps and developers, there is a publicly available API. One of the biggest issues that customers have in regards to Web Status is that it is not updated in a timely manner and it does not accurately reflect the service that they are experiencing on the line that they are riding. Some minor solutions that may more accurately communicate the service status in the system via the MTA's Web Status are outlined in the Discussion Section.

Countdown Clocks first arrived in the New York City subway system on the L line in 2006. Shortly after beginning in 2008, the NYC Transportation Authority installed countdown clocks on the 1 - 7 lines. Arrival time information for these lines is populated by using the signaling system on these lines. In 2017, the agency announced that countdown clocks would be available by the end of the year on *all* B Division lines (Lettered Lines). The MTA was able to meet this goal, but even in 2019, there are many bugs that result in perceived inaccuracies on B Division Countdown Clocks. The technology that is present in B Division Countdown Clocks and Rolling Stock is a bluetooth "Beacon". A beacon is a physical device that is attached to trains and a receiver that is present in all B Division stations. When a beacon gets "clocked" at a station the estimated time that is should take to get to the next station is reflected on the following station's countdown clock. A major issue with this system, as

opposed to track circuit (signal system) based countdown clocks, is that there is often a proximity issue. When a train is fairly close to two stations, the train may get clocked at both, which could result in incorrect arrival times of 2 - 3 minutes. This issue is especially prevalent on elevated lines. In the Discussion section, a solution to this issue that can easily be integrated with the Planned Work solution will be proposed.
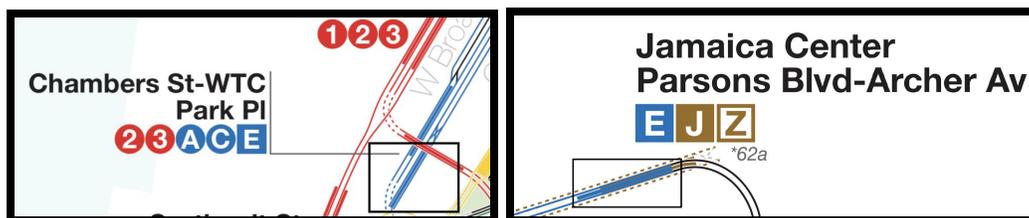
Limitations

Historical data from Twitter is no longer publicly available for Developers. Using an Application Programming Interface (API), data on Tweets can only be pulled from the past 6 - 9 days. With a fairly short-term study, this makes it nearly impossible to predict past historical trends using incident and delay data as the trends cannot be confirmed or refuted due to the lack of available Twitter data. Therefore, this paper must work backward by pulling customer Tweets from the past 6 - 9 days, analyzing spikes, and then looking at recent incidents and delays to determine whether that impacted the spike. While it would also be helpful to compare spikes in Tweets with daily ridership data, that is also not possible as ridership numbers are only released to the public on a monthly and yearly basis.

Discussion

Homelessness: Proposed Solutions

From the customer Tweets we can see that there is a growing problem of homeless people outstretched on the E train. "It's cold in #nyc which means the E

Train Homeless Shelter is back. @mta I got to watch a guy pee into a @snapple bottle during my commute." - Twitter User @GlaserDisc. What makes the E train such an attractive place for homeless people? The E is the only line in the entire system that has two underground terminals, or final destination points, and does not require trains to be discharged (cleared of passengers) at either the northern or southern terminal station. At these terminals, trains do not need to go around a loop to turn around or perform a relay move. A loop is exactly what it sounds like. It is a stretch of continuous track in which a train can arrive at a terminal station heading in one direction, discharge, and then continue around the loop and arrive at that same station heading the other direction to make a return trip. A relay move is when a train must leave a station, move forward to a smaller track, or spur track, then switch directions and come into the station from the opposite end. For these moves, trains are completely discharged. As mentioned above, E trains do not have to be discharged at either its northern or southern terminals due to the nature of the track layout at each terminus. The diagram below to the left shows the E's track layout at World Trade Center, the Southern terminus and the diagram on the right shows the E's track layout at Jamaica Center, the northern terminus.

Because of this condition that is exclusive to E trains, something must be done at those terminals and possibly other major stations and lines that tend to see high
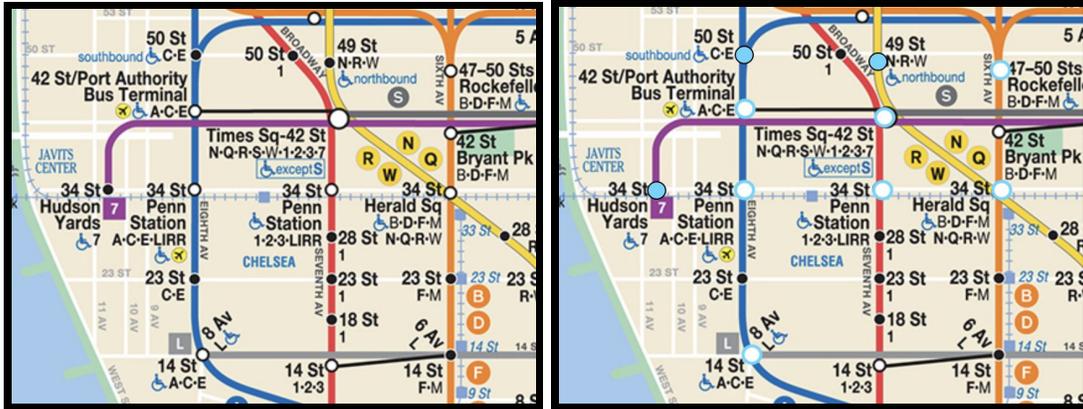
amounts of homeless populations. The best way to measure the efficacy of this initiative would be to start a pilot program along major stations on the E line, such as Queens Plaza, Jackson Heights - Roosevelt Avenue, Kew Gardens, and the terminal stations World Trade Center and Jamaica Center. This pilot program would involve utilizing the partnership that the MTA has with the Bowery Residents Committee. By utilizing this partnership, rather than using transit staff to simply remove homeless people from trains, the MTA would be working to find homeless people shelter. The pilot program would last 6 months and success would be measured based on an analysis of customer Tweets regarding homelessness from the beginning to the end of the program. It would also be measured by surveys before, after, and during the pilot to measure customer perception of the initiative. Should the initiative prove to be successful, it could be expanded to additional train lines that tend to experience higher than average levels of homelessness such as the A and 2 lines.

Accessibility: Proposed Solutions

It is clear that the entire New York City Subway system will not be fully accessible in the near future, with just over 20% of stations in the system being ADA compliant now. This means that messaging for the MTA's fully accessible bus fleet is necessary, in addition to emphasizing the tools that one could use to plan an accessible trip on both the subway and bus fleet. When planning a trip, the MYmta app displays a check-box to plan an accessible trip. However, the home screen already has a tab for "Access-A-Ride", a car service that helps disabled customers get around the city. Because of this tab's prominence, people will most likely select that first when

attempting to plan an accessible trip. A more effective layout that could help place necessary emphasis on accessibility would be to have a tab that simply says "Plan an Accessible Trip". Under said tab, there would be the same accessible trip planner in addition to the information about Access-A-Ride and how to sign up. This would simplify the app and could potentially eliminate a few clicks; it also demonstrates the priority and focus that is being put on accessibility.

Because there are only around 100 stations in the subway system that are ADA compliant, it's important that they can be identified just as quickly as a non-ADA compliant station. In order to do this, there are some changes that need to be made to the current system map. In the map below to the left, we can see that the Accessibility symbol gets lost in the map. There needs to be a way that one can glance at the map and *immediately* be able to identify something as an accessible station. The best way to do so, it seems, would be to change the color of the station circle to light blue if it is accessible. For an express station, the circle would be white with a thick blue outline. For a local station, the circle would be filled in blue with a thin black outline. This allows both the accessible stations and express stations to be easily identified. See the revised map below to the right with the proposed suggestions.

Communication (Announcements): Proposed Solutions

As discussed in the Key Insights Section, *most* people that are riding the train are not tuned in to announcements from the conductor or announcements in stations. In order to alert customers that an announcement being is made on the train from the conductor, as opposed to the automated announcement system, there must be a visual queue to alert passengers. A potential solution would be to install indicator lights along the ceiling of each car that flash red when the conductor is giving important travel information. In order to not desensitize people to the sensor, it will not light up if generic announcements are being made. Similarly, in stations, since they are all already equipped with countdown clocks, announcement indication can be displayed on those. When important travel advisories or service changes are being announced in stations, an overlay can appear on the countdown clock that states "Announcement in Progress. Please remove headphones." These changes show that the MTA is adapting to the changing consumer lifestyles in simple, but notable ways with the limited amount of resources that the agency has.

Communication (Signage): Proposed Solutions

A major solution to providing better travel and wayfinding information to customers during planned work and service changes is to utilize the digital screens that are currently being installed in stations to display dynamic line maps. A line map is a exactly what it sounds like. It is a single line that displays the entire route of one train. This is an extremely helpful way for one to visualize the exact route that their train will take. Some recently enhanced stations such as Broadway and 30 Av on the BMT Astoria line have static line maps in the mezzanines and on the platforms. The photo below is an example of a static line maps.

The idea behind implementing dynamic line maps using these screens is that when there are service changes that can be reflected in the line map. So for example, if the N train is running via the D line in Brooklyn between 36 St and Coney Island for weekend planned work, the line map would be yellow from Ditmars Blvd in Astoria, through Manhattan, up to 36 St in Brooklyn. Then after 36 St, the line would be orange and all D train stops would be displayed. These dynamic line maps would immediately alert customers that there is a service change due to the contrast in color. They also

minimize the amount of time that the customer needs to engage with auxiliary wayfinding material such as mta.info, the MYmta app, and Google Maps. For stations where different trains arrive on the same platform, the line map should cycle through each of the trains that arrive on the track. When a train is arriving at the station the line map for that train should then be visible on the display.

Communication (Countdown Clocks): Proposed Solutions

Compared to the above communications solutions, this one would be the lowest priority, but that's not to say that it wouldn't come in handy for customers. In order to circumvent the problem of countdown clocks occasionally displaying incorrect times, the MTA can integrate a real-time train tracking system within the dynamic line map displays. These displays would use lights to indicate when a train is in a station and where it is along the line. It would also light up to indicate when a train is between stations. This helps customers visualize gaps in service and it gives them an idea of where trains *really* are even if the countdown clock is not indicative of that.

Infrastructure and Signals: Campaign

After the Transit Crisis of the 1970s and 1980s, a series of capital plans were implemented to rebuild the physical infrastructure of the subway system. However, despite continued capital investments, sustained deficiencies in labor and resource management, as well as a lack of investment in operational maintenance led to a degradation of infrastructure (including signals) performance. In order to regain the trust of customers, the Metropolitan Transportation Authority needs to be completely open about the mistakes that it has made in the past. Over the past couple of years,

the agency has been trying to rebrand itself as forward-thinking, proactive, and modern. But it still struggles with a widespread public perception of mismanagement and inefficiency. In order to regain the trust of customers and bring them back as regular riders, there must be an increase in honesty, not just about the infrastructure issues, but also the causes behind them.

A solution to this would be a system-wide campaign in subway cars and in stations. The tone of the campaign would be apologetic, honest, and accurate. It would be a modern revamp on the vintage "We're Coming Back" TV Commercials from the MTA in the late 1980s ("We're Coming Back"). The campaign would be a complete digital redesign of the campaign. The premise and the tagline would be the same, but with completely new content relevant to the MTA's current issues. For example, a digital ad could show MTA workers cleaning a clogged drain. The heading would be "We Know We Let You Down…" with the tagline near the bottom of the image with the text "...But We're Coming Back". The body copy of the ad would relate to the image by showing *how* the MTA is coming back and would give concrete numbers for what actions have been taken. For example "X number of drains have been cleaned since 2018. Flooding had been reduced by X%". See below for a sample version of the ad.

Conclusion

The Metropolitan Transportation Authority has steadily been making improvements over the past few years, but the key is to shift focus to the customer in order to make their commutes easier and more bearable. There are some quick wins and simple fixes outline in the paper above such as dynamic line maps, a homeless outreach program, a focus on accessibility, and an improved announcement system. Tying together all of these quick wins would be a campaign that shifts focus toward fostering a more honest relationship between the MTA and customers. One of the first steps in regaining trust in a consumer is to be open about wrongdoings.

Works Cited

"Access Denied." *TransitCenter*, 2017,

transitcenter.org/publications/access-denied/#the-plague-of-unreliability.

"Andy Byford Named New President of New York City Transit." *Mta.info/News*, 21 Nov. 2017,

www.mta.info/news/2017/11/21/andy-byford-named-new-president-new-york-city-transit.

Barron, James. "For Disabled Subway Riders, the Biggest Challenge Can Be Getting to the Train." *The*

New York Times, The New York Times, 26 July 2018,

www.nytimes.com/2018/07/26/nyregion/disabled-subway-riders-elevators.html.

-- "Subway Announcements Are Changing (Not That You Can Hear Them Anyway)." *The New York*

Times, The New York Times, 8 Nov. 2018,

www.nytimes.com/2018/11/08/nyregion/subway-announcements-are-changing-not-that-you-ca

n-hear-them-anyway.html.

Byford, Andy. *Fast Forward: The Plan to Modernize NYCT*. Metropolitan Transportation Authority, 2018,

Fast Forward: The Plan to Modernize NYCT.

Fitzsimmons, Emma G. "Cuomo Declares a State of Emergency for New York City Subways." *The New*

York Times, The New York Times, 29 June 2017,

www.nytimes.com/2017/06/29/nyregion/cuomo-declares-a-state-of-emergency-for-the-subway.

html.

Gordon, Aaron. "Meet the Century-Old Technology That Is Causing Your Subway Delays." *Village Voice*,

7 Sept. 2017,

www.villagevoice.com/2017/09/07/meet-the-century-old-technology-that-is-causing-your-subw

ay-delays/.

Greeves, Mike. "4 Ways to Regain a Customer's Trust After Losing It." *Layer*, Layer, 11 July 2018,

layer.com/regain-customers-trust/.

"Introduction to Subway Ridership." Metropolitan Transportation Authority: New York City Transit, 2018.

Kalb, Ira. "How Customer Complaints Can Improve Business." *CBS News*, CBS Interactive, 23 June

    2011, www.cbsnews.com/news/how-customer-complaints-can-improve-business/.

Kapp, Trevor, et al. "Over 30 People Hurt After A Train Derails Near 125th Street, Officials Say." *DNAinfo*

    New York, DNAinfo New York, 27 June 2017,

    www.dnainfo.com/new-york/20170627/columbus-circle/subway-service-disruption-mta-fdny/.

Lhota, Joseph J. *Subway Action Plan*. Metropolitan Transportation Authority, 2017, *Subway Action Plan*.

Metropolitan Transportation Authority. "We're Coming Back." 1989.

Meyer, Sarah. *Our Customer Commitments*. New York City Transit, 2018, *Our Customer Commitments*.

"Moving the Millions." New York Transit Museum, Brooklyn, 4 July 1976.

Pager, Tyler, and Annie Correal. "Homeless Find Refuge in the Subway as New York Copes With Deep

    Freeze." *The New York Times*, The New York Times, 31 Jan. 2019,

    www.nytimes.com/2019/01/31/nyregion/cold-weather-polar-vortex-nyc.html.

"Past Weather in New York, New York, USA - Yesterday and Last 2 Weeks." *Timeanddate.com*, 2019,

    www.timeanddate.com/weather/usa/new-york/historic.

Ridership Trends: 2012 - 2018. Metropolitan Transportation Authority, 2018, *Ridership Trends: 2012 -*

2018.

Rosenthal, Brian M, et al. "'How Politics and Bad Decisions Starved New York's Subways.'" *New York*

    Times, 18 Nov. 2017.

Stringer, Scott M. *The Human Cost of Subway Delays: A Survey of New York City Riders*. New York City

    Comptroller, 2017, *The Human Cost of Subway Delays: A Survey of New York City Riders*.