Revising the Framework for New York City's Digital Inclusion and Broadband Adoption Initiative In a Post-COVID-19 Era

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July 2020

1. Introduction

1.1 Background & Purpose

Digital inclusion is a strategy that seeks to ensure all households in a given area have access to high-speed broadband Internet and computers in order to create full participation in today's Information Age where there is otherwise a gap in access to digital technologies, the skills to use broadband-enabled tools, and the economic gains that come with them.[1] Without connectivity in a digital divide, people face huge barriers to participate in economic and social networks that contribute to the prosperity of their communities. OneNYC: Building a Strong and Fair City is Mayor de Blasio's long-term strategic plan that includes setting forth an objective to bring affordable, reliable, high-speed broadband access to every resident and business.[2] Due to the ongoing COVID-19 pandemic that in March 2020 turned New York into an epicenter of the coronavirus, the city paused on the digital inclusion initiative in order to refocus its efforts on COVID-19 mitigation and recovery by announcing indefinite closures of key anchor institutions including schools, libraries, computer centers, and senior community centers, leaving those without household access to the Internet technologically and socially disadvantaged. This report may be used to identify the most digitally underserved demographics and neighborhoods across New York City's five boroughs (Manhattan, Brooklyn, Queens, the Bronx, and Staten Island) in the wake of COVID-19. By drawing correlations between the broadband adoption gap and COVID-19 cases, this project aims to inform the City of the dire need for universal broadband and library technology infrastructure innovation in vulnerable communities that are digitally ill-equipped to power through a global health crisis and economic recession.

1.2 Problem

In a Pew Research Center study, 79% of Americans use online resources as their most recent job search and 34% say online resources were the most important tool available

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[1]Beyene, Wondwossen M. "Digital Inclusion in Library Context: A Perspective from Users with Print Disability." *Journal of Web Librarianship,* vol. 12, no. 2, Feb. 2018, pp. 121-140. https://www.tandfonline.com/doi/abs/10.1080/19322909.2018.1427657

[2] https://onenyc.cityofnewyork.us/about/

to them.[3] Due to COVID-19 restrictions such as ridership limitations on public transit, social distancing, and stay-at-home policies, individuals and communities who have relied on libraries and computer centers for Internet access are now cut off from digital resources and information that would otherwise be available in walking distance or a train ride away. As health services, schools, and the workforce shift to online environments, American households without the Internet are left behind. This digital divide is characterized by the low adoption rate of broadband, which exists particularly among older adults, lower-income residents, and racial minorities in New York City. These groups have also been the most vulnerable to COVID-19 with the greatest numbers of positive cases, hospitalizations, and deaths especially among the Hispanic/Latino and Black/African-American demographic.[4]

1.3 Stakeholders

Those who seek to build a smarter, safer city by democratizing Internet access and library technology infrastructure in New York City may be interested in this report. They include OneNYC, New York City Department of Information Technology & Telecommunications (DoITT), New York City Department of City Planning (DCP), New York City Department of Education (NYCDOE), the New York Public Library (NYPL), 5G and broadband technology companies, and the taxpayers and residents of New York City.

2. Data Sources

2.1 Data Sources & Methodology

The Foursquare API and data collected from the NYC OpenData Portal will be leveraged to conduct an exploratory data analysis of libraries, schools, computer labs, LinkNYC kiosk, and senior centers with public access to the Internet in the five boroughs of Manhattan, Brooklyn, the Bronx, Queens, and Staten Island. NYC OpenData Portal - *The Internet Master Plan: Adoption and Infrastructure Data by Neighborhood* dataset includes key indicators of broadband adoption, service, and infrastructure in neighborhoods, defined as Neighborhood Tabulation Areas (NTAs) from the New York City Department of City Planning updated October 2019.
Data cleaning and feature selection of aforementioned datasets and demographic data from the U.S. Census Bureau will be used to evaluate variables and identify barriers to broadband adoption. Simple linear regression analysis will be performed on demographic variables and broadband adoption rate by census tract.

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[3] *Source: Pew Research Center studies from February 2018 and November 2015
[4] https://www1.nyc.gov/site/doh/covid/covid-19-data.page

NYC Department of Health's COVID-19 Data by ZIP Code of Residence will be measured against Percentage of Households with home and mobile broadband internet service subscriptions by neighborhood. This data will be used to evaluate broadband adoption gaps in neighborhoods during a pandemic. Data accuracy is limited as of the date of publication and by the methodology and accuracy of the original sources.