NYC[x] INNOVATION FELLOWS

Catalyzing Digital-era Transformation Using a 10-week Sprint

A CASE STUDY BY THE BEECK CENTER FOR SOCIAL IMPACT + INNOVATION

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About the Beeck Center for Social Impact + Innovation

The Beeck Center is an experiential hub at Georgetown University that trains students and incubates scalable, leading edge ideas for social change. We believe impact at scale requires the courage to think and behave differently. Our work centers on investing in outcomes for individuals and society. We equip future global leaders with the mindset to promote outcome-driven solutions, using the tools of design, data, technology, and innovation. We convene actors across the public, private, and civic sectors to advance new tools, frameworks, and approaches necessary to achieve these outcomes.

About this Case Study

Across the United States, a number of state and local governments are embarking on digital transformation efforts. This case study is part of the Beeck Center's New Digital Service Teams project, which is learning how leading government digital service units are introducing new approaches to service delivery. Beeck Center researchers are documenting work as it happens, including analyzing challenges and opportunities, and disseminating this information to benefit both the people of New York City and collaborators in other governments.

Introduction

As a result of COVID-19, the primary interface between the user and vital city services is often (and increasingly) through a digital medium. To meet surging demand for technologists within the City of New York, in April 2020, the Mayor's Office of the Chief Technology Officer (MOCTO) partnered with U.S. Digital Response to bring in expert volunteer technologists. Initially, this was performed on an ad hoc basis, and later it was developed into a formalized structure: the award-winning NYC[x] Innovation Fellows program.

Background and Structure

Initial pilot projects in the spring of 2020 focused on addressing specific digital needs related to COVID-19 — like tracking personal protective equipment, or consolidating data, and reporting for testing and care for individuals staying in isolation hotels. By August 2020, the first cohort of NYC[x] Innovation Fellows was in place with multi-disciplinary teams of volunteers focused on three projects:

1. Lowering language barriers in government communication with an open source and modular pipeline that enables and accelerates continuous translation.
2. Driving digital equity by mapping existing and potential broadband assets and access.
3. Fighting hate crime by improving and accelerating tracking of bias and discrimination incidents across New York City through dashboards and indexes.

A second NYC[x] Innovation Fellow Cohort launched in November 2020 to work with three NYC agencies: the Department for the Aging, the Department of Finance, and the Department of Small Business Services. The goal was to create a better experience for New York City residents and City employees by dramatically advancing existing digital products within a 10-week sprint.

NYC[x] Innovation Fellows worked with MOCTO and New York City agency staff to scope, define, and build digital solutions. The composition of each NYC[x] Innovation Fellows product team was tailored to each project. However, it generally included a product manager, user researcher, designer, and software developer(s). The immediate goal of the Fellowship was to advance digital services for residents, build digital best practices in City government, and support racial equity and inclusion initiatives that will be critical to New York City's COVID-19 recovery. However, in doing so, this program is particularly notable and worthy of consideration for its

impact in ushering in the culture, processes, and practices of the digital-era into local government, while also creating a framework for collaboration between the private and public sectors on critical digital services for New Yorkers. For Fellows, the placements are an opportunity to apply their digital-era skills to projects in a public sector context that directly impact everyday people, meet leaders in the field of public interest technology, and get insight into how government works.

Image description: Social media assets from the New York City Mayor's Office of the CTO showcasing the NYC[x] Innovation Fellows working on projects.

Projects

Reimagining Online Service Exploration for Older Adults

Until the COVID-19 pandemic, older adults relied on over 200 different senior centers across the City for access to care, entertainment, and social engagement in the form of art, dance, tai-chi, nutrition, group meals, and chronic disease management classes, primarily in person. COVID-19 drastically changed the nature of service delivery, and created a need to make it easier for older adults and their support network to identify the range of services available during COVID-19. For older New Yorkers at risk of being isolated in quarantine, virtual programming delivered by senior service providers offers a key lifeline and source of social interaction with peers.

The City works with hundreds of different service providers for programming and operation of senior centers, making the task — both technical and in terms of governance — of creating a single shared repository of virtual programming and events a challenging one. Recognizing older adults' need for ways to explore available services, events, and programming, the Department for the Aging (DFTA) worked with MOCTO and the fellows to design and build a solution that would be both easy to use for older adults and minimize the operational impact for senior center providers. This tool was specifically designed to both reflect the current temporary context of remote service delivery during COVID-19, while also taking into consideration the consensus between older adults, service providers, and DFTA themselves that, post-COVID-19, a mixed or hybrid model of remote and in-person service delivery will likely become the new normal.

Product Strategy

Ahead of the NYC[x] Innovation Fellows starting work, MOCTO's Design Lab undertook a Discovery project to build a foundational understanding of the ecosystem, and develop an appreciation for the diverse needs of stakeholders and users. The Design Lab team started by interviewing providers and older adults to understand their experiences, priorities, and goals, and used these insights to guide subsequent product definition and development Based on that understanding, the MOCTO team welcomed a cohort of NYC[x] Innovation Fellows who built an event database and API with a standardized data format, like the event title, date, description, and event link. To give richness to the event data, they also ported data in a 10+ year old Service Finder built in Cold Fusion to a modern API, making

previously inaccessible provider data available programmatically. They used those APIs to build a new, mobile-responsive public-facing catalog designed to be easy and intuitive to use specifically for older adults. They also built a provider portal on top of those same APIs to enable providers to add events, or bulk upload them in formats they already use, such as simple spreadsheets.

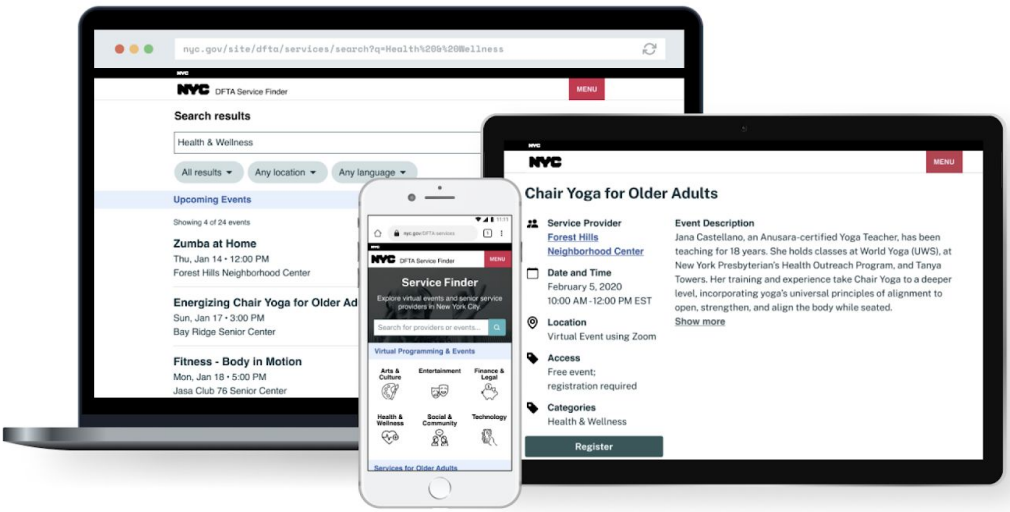


Image description: Design of the proposed Department for the Aging service finder tool

Speaking with older adults, the team found that because of the pandemic's impact on technology usage and uptake, older adults were increasingly comfortable with virtual events and familiar with using platforms like Zoom, which most research participants — including those who did not describe themselves as tech savvy — already had installed on a device. They also learned that older adults were interested in a wide range of events, and in broadening their horizons beyond any senior centers they may have had an existing relationship with. Given the articulated need, appetite, and enthusiasm for online services, Fellows focused work on building a user-friendly and easily navigable tool. Older adults can find and access events through a search field, which is at the top of the page for visibility and easy access, or using different categories as a means to provide a more curated or "guided" experience. In addition, this virtual programming is cross-referenced with a list of providers whose other services are also shown, along with contact details and a map. This creates a foundation that can be built upon when in-person services become available again, and expand to become a holistic service finder for congruent, in-home, and virtual services and programming across the City's network of

providers. For example, details about what meals are offered at a specific center could be integrated into the provider page, giving older adults and their caregivers a richer picture of each provider's offerings.

Throughout the program, fellows made engineering choices allowing for easier integration with DFTA's existing technical infrastructure and systems. After designing, building, and iteratively testing the solution with older adults and providers, Fellows have shared their findings and work with the Department of the Aging, who will continue to collaborate with the MOCTO team to bring digital services to life to improve the lives of older New Yorkers. DFTA stakeholders will also use this work and the digital strategy it embodies to serve as a blueprint for DFTA's digital efforts over the coming year. This work, reimagining how virtual programming can be discovered and accessed, will impact more than 240,000 older adults who benefit from services funded and provided by DTFA both over the remaining course of the pandemic and as the ecosystem re-adjusts and the city recovers.

Who Did It	How They Did It
NYC[x] Innovation Fellows Team Ezra Kurtz, Imani Nichols, Jia Liu, Joey Caffrey, Ethan Lo	**Open Source Code** Following security scans, some code will be made available on Github; please contact cto@cto.nyc.gov to register your interest.

Simplifying Online Payments

Roughly 8 million New Yorkers use the Department of Finance's CityPay portal to make payments for a variety of things including property taxes, permits, birth certificates, and parking tickets. All of those payments resulted in over $21 billion of revenue for the city in 2020. While a large percentage of payments have historically been made in person, in-person payments hit an all-time low last April. In 2020, 85% of all transactions occurred online. The increase in online payments has led the Department of Finance to look at improving the CityPay platform and the payment experience. To do this, the Department of Finance partnered with MOCTO to bring in a team of NYC[x] Innovation Fellows to use data-driven product development

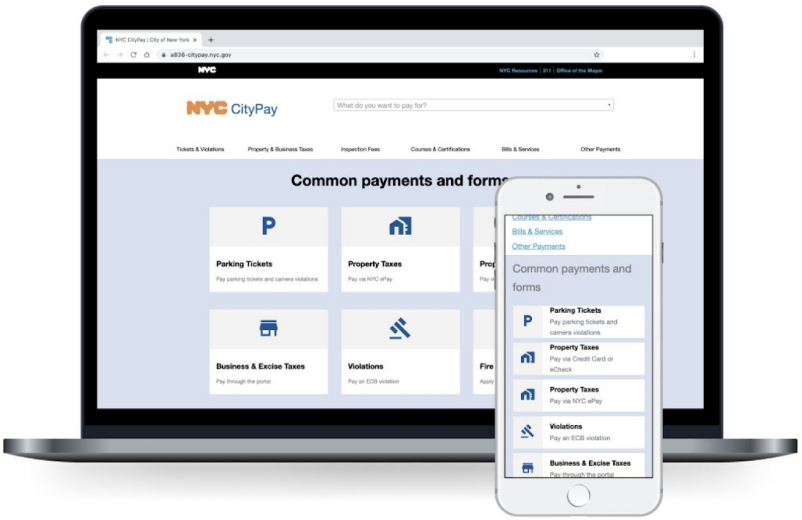
practices to make payments an easier, more seamless process for residents who are no longer able to pay in person.

Fellows began by interviewing a diverse range of residents from different ethnicities, ages, socio-economic backgrounds, and who have different levels of technology access and literacy to understand their experience with making payments to the City. Their goal was to understand what worked for residents, and what made the existing site difficult to use. This user research showed that individuals felt overwhelmed by the amount of information presented since there were so many payment options presented in a text list. Based on that data, the NYC[x] Innovation Fellows created three archetypal personas (core users), and prioritized a range of features that would produce the most impact for those users. Fellows targeted the initial intervention on improving aspects of the landing page, and optimizing the design so both first-time users and repeat users could quickly and easily get to the right payment option.

Product Strategy

To achieve this objective, Fellows focused on targeted interventions to the landing page that made information easier to discover and the experience more user-friendly. The design improvements pushed to production during the Fellowship and currently live on the DOF website include tiles with some of the most frequently sought payment options giving residents easier access to high frequency transactions. Other recommendations, including improvements to the search and navigation, were provided to the DOF team for future implementation and deployment. This included fuzzy matching and multiple synonym matches for each item so that, for example, searching for "parking" would show "traffic violations" or misspelling "trffic" would resolve to "traffic". Some language was also changed to be clearer for residents by focussing on more service-oriented and plain language. To make the landing page more user friendly, fellows made several changes:

1. The translation feature used to change the default language will be made more visually prominent by being moved from the bottom of the page to the top of the page to reflect the fact that translation isn't providing value if it was offered after a person has already read the page.
2. Copywriting on the page was simplified to be aligned with at an elementary reading level.
3. Changing fonts and typographic hierarchy to highlight key information.



nyc.gov/cto

NYC CTO

Image description: revised CityPay website deployed during 10-week NYC[x] Innovation Fellowship

In addition to creating a more seamless and user-friendly landing page, the Fellows also built a dashboard for City staff to measure and benchmark usage before and after new feature changes, including performance metrics monitoring commonly seen in ecommerce applications. The dashboard will help DOF staff identify places and pages on the site that have high drop-off rates or have suboptimal experiences, and need to be redesigned or improved. This type of performance dashboard allows design impact to be included in the data-driven decision making culture at DOF, and provides an evidence base that will provide ongoing value and insights to any subsequent iterations.

Who Did It	How They Did It
NYC[x] Innovation Fellows Team Nilofer Rajpurkar, Hasan Hachem, Melody Quintana, Andrew Cheung, Alex Mendez	**Open Source Code** This project focused on integrations with an existing code base, and therefore does not have an open source code repository.

Helping Employees Contract with Minority and Women Owned Businesses

Some reports estimate that nearly half of Black-owned businesses (41%) will not survive the economic impact of COVID-19, with 32% of Latinx-owned and 26% of Asian-owned businesses similarly impacted. It is clear the pandemic is disproportionately impacting businesses of color, exacerbating existing inequalities, and undoing progress achieved over many years. The Minority and Women-Owned Business Enterprise (M/WBE) program was created to address historic disparities in City contracting, and provide minority and women entrepreneurs increased opportunities to do business with the City. This program impacts the 10,804 different New York City businesses in the current MWBE directory. The Small Business Services (SBS) team managing the M/WBE directory partnered with MOCTO to bring in a team of NYC[x] Innovation Fellows to leverage user-centered design approaches to improve the online directory used by City staff, nonprofits and private companies. The process made it faster and easier to identify minority and women-owned businesses matching different contracting needs.

Interviewing City stakeholders, Fellows found a need for better search functionality, and that employees were pulling down the data so they could format it and augment it in their own ad hoc ways because the current search and display features weren't meeting their needs. To address these issues, while working within the constraints of existing systems and a live service, Fellows began looking at creating a layout and adding functionality, making it easier to navigate, so that City staff and users from outside government can discover and assess M/WBE businesses that meet their needs.

Product Strategy

Based on user research with City staff who use the existing directory in their work, the search function was updated, filtering and refining was made possible directly in result pages, information on the business profile was reconfigured to improve the information hierarchy. The Fellows also ran data analysis on the use of National Institute of Governmental Purchasing Commodity/Services (NIGP) Codes to develop new ways to improve the search experience through autocompletion, recommendations, and similar searches. The team then connected data to the new interface, and worked on search and link behavior to make the database more accessible.

As part of handing over the work outputs on the database to the SBS technologists, Fellows robustly documented their work so that City employees have access to the findings and design decisions for any subsequent work. The NYC[x] Innovation Fellows team also provided City employees with rich and novel insights on disparities in gender and race across industries, and analysis of data from searches of the directory to identify which terms are used more frequently, which areas need to be clarified to make more search effective, and which features are underutilized. The iterative improvements to the search process — coupled with data analysis on the usage and performance of the directory today — have taken significant steps forward in simplifying the experience of identifying an M/WBE vendor.

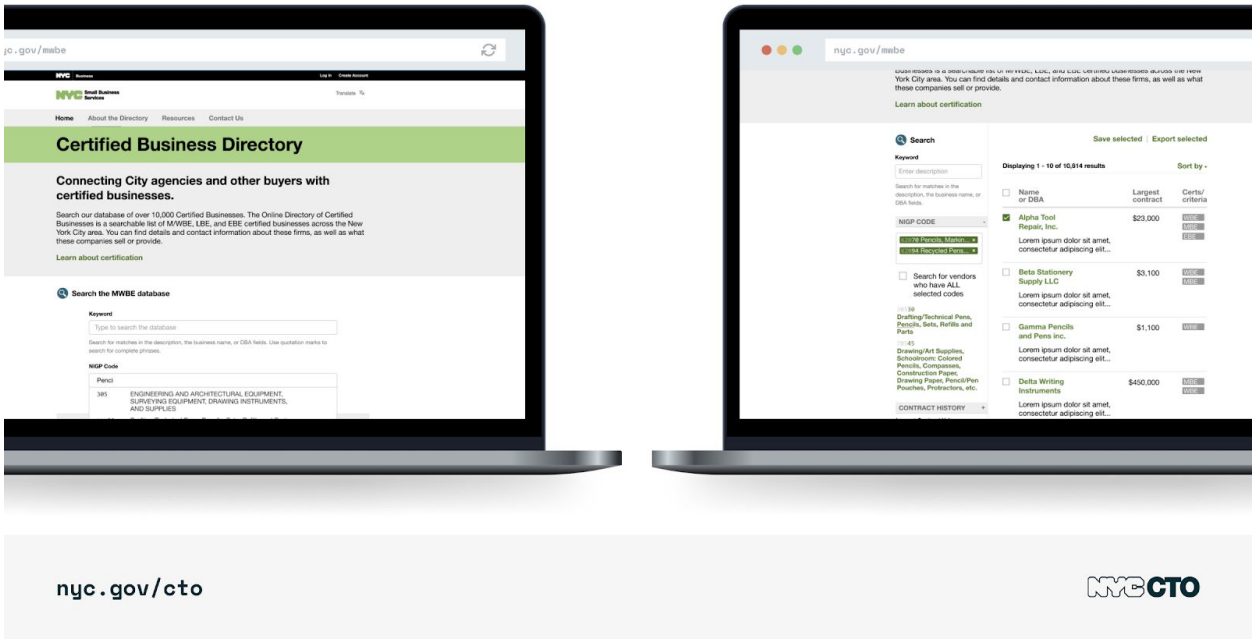


Image description: Design of the proposed updates to SBS M/WBE directory

Who Did It	How They Did It
NYC[x] Innovation Fellows Team Joan Liu, Nick Di Stefano, Tyler Matteo, Vicki Niu, Craig Dermody	**Open Source Code** This project focused on integrations with an existing code base, and therefore does not have an open source code repository.

NYC MOCTO Contributors Across all Projects

Creative Director: Mayo Nissen
UX Researcher/Designer: Elyse Voegeli
Tech Lead: Rapi Castillo.
With support from Justin Isaf Man, Gary Johnson, Shanna Crumley, Katherine Benjamin, and Alexis Wichowski.

Conclusion

Over a period of just 10 weeks the second NYC[x] Innovation Fellows cohort improved user experiences with the power to impact millions of New Yorkers, tens of thousands of businesses, and hundreds of City providers and staff. In addition to updating existing digital services, the NYC[x] Innovation Fellowship exposes agency partners to industry-leading practices in design, data analysis, and development, and centered work around the individuals who are most impacted. The Mayor's Office of the Chief Technology Officer is in the process of recruiting and partnering with other City agencies to begin work on a third cohort, estimated to begin in late spring or early summer of 2021. If you're a technologist who's interested in making government better, contact U.S. Digital Response to volunteer or cto@cto.nyc.gov.

About the Author

Sarah Rodriguez is a Digital Services Team Researcher for the Beeck Center for Social Impact + Innovation at Georgetown University. She is also a Systems and Data Designer for the Office of Design and Delivery at the City of Austin and was previously a Bloomberg i-team fellow at the city's Innovation Office. She has worked on a number of projects including service access, digital transformation, homelessness, and equity in policing technology.

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