New York – Inclusive urban development and innovation

Anne van Rießen in dialog with Oscar J. Romero Jr, CIO of the NYC Civic Engagement Commission in New York

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Working to make sure that New Yorkers' voices are heard and that their priorities are at the center of the design of policies and programs across communities, particularly underserved neighborhoods, is Oscar Romero's mission. He works for the New York Civic Engagement Commission. He has already addressed issues of urban inequality in previous projects and activities – for example, in the context of forced displacement, violence prevention in public spaces, protection of housing rights and critical infrastructure. Oscar Jorge Romero Jr. holds an M.A. in International Affairs from The New School, a B.S. in International Studies from the University of Guadalajara, and a degree in Computer and Information Technology from the Center for Industrial Technical Education. In the interview with Anne van Rießen, Professor of Social Work Methods at the Department of Social and Cultural Sciences at the Düsseldorf University of Applied Sciences and Co-Director of the Research Center for Social Space-Oriented Practice Research and Development, whose work focuses among other topics on the macro-practice of social work and user research, Oscar Jorge Romero Jr. provides insights into his experiences with ecologically sustainable development as well as technological innovations that strengthen participatory democracy and address urban inequality in low-income and underrepresented communities in New York City.

Anne: **Oscar, you've been involved in various projects over the past few years that focus on environmentally sustainable development specifically in underserved communities across NYC. Can you tell us more about your work with NYCx Co-Labs? What are the motivations and objectives?**

Oscar: In 2015, in response to the Obama administration's "Smart Cities Initiative".[1] The NYC Mayor's Office of The Chief Technology Officer (now part of the NYC Office

1 (2015, The White House) Fact Sheet: Administration Announces New "Smart Cities" Initiative to Help Communities Tackle Local Challenges and Improve City Services, available

of Tech & Innovation[2]), and The New York City Economic Development Corporation (NYCEDC)"[3] launched the Neighborhood Innovation Labs which later became NYCx Co-Labs. The purpose of NYCx Co-Labs was to support the creation of a community-driven smart city agenda to address pressing urban challenges in low-income and diverse neighborhoods. The fundamental thesis was that a smart city agenda should reflect community needs rather than the "hype" of any given type of technology. In each neighborhood, a Community Technology Board (CTB) was convened to define community priorities, guide field research, build coalitions, launch global innovation challenges, and ultimately implement pilots to address the issues at hand. Our team facilitated public events, workshops, community discussions, and community fairs to bring together local government agencies, elected officials, community-based organizations, universities, local businesses, residents, and foundations. NYCx Co-Labs Outcome Statements are:

- To enable Community members to collaboratively design, influence and challenge investments on urban technology and innovation in their neighborhoods.
- To attract private and public investment to local priorities in communities that experience systemic inequality.
- To implement inclusive, scalable and innovative solutions to local urban development issues through global innovation challenges.
- To build the capacity of local diverse startups and nonprofits through the NYCx Challenge selection and implementation process.
- To increase diversity and inclusion in the NYC tech ecosystem.
- To build feedback loops between government agencies and communities that foster trust (and power) over the application of new and emerging technologies.

Between 2017 and 2021, NYCx Co-Labs launched two community driven participatory consultations in Inwood & Washington Heights in Manhattan and Brownsville in Brooklyn. As a result of those engagements the NYCx team launched two technology training programs for youth, and four global innovation challenges: A) Zero Waste Zero Waste in Shared Space Challenge; B) Safe and Thriving Nighttime Corridors; C) Accessible Mental Health Services; D) Housing Rights Challenge. The program itself had five phases: 1) Community Engagement; 2) Field research; 3) Chal-

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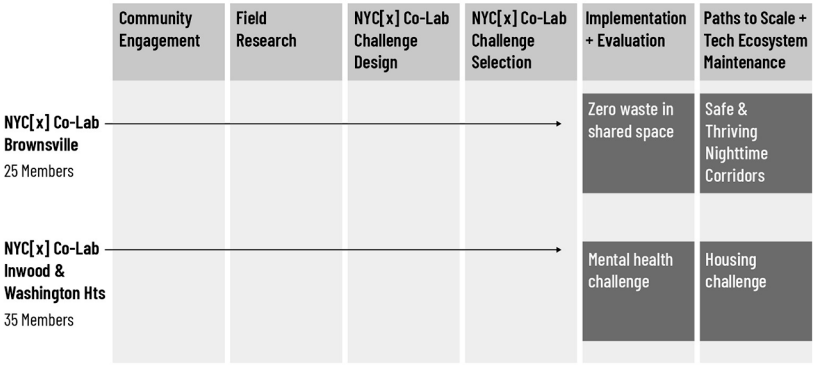
at: https://obamawhitehouse.archives.gov/the-press-office/2015/09/14/fact-sheet-administration-announces-new-smart-cities-initiative-help [last accessed: 21st April 2023]

2 Learn more about The NYC Office of Technology and Innovation at: https://www.nyc.gov/content/oti/pages/ [last accessed: 21st April 2023]

3 Learn more about The NYC Economic Development Corporation at: https://edc.nyc/ [last accessed: 21st April 2023]

lenge design and selection; 4) Pilot implementation and evaluation; and 5) Scaling and tech ecosystem maintenance.

Figure 1: Technology training program phases



Anne: **That sounds comprehensive, especially the focus on the four fields of action. You briefly mentioned the five phases, can you explain the individual phases of the program more precisely? What did you specifically do in the individual phases, who was involved and what were the objectives?**

Oscar:

1. Community engagement

Through a variety of events ranging from one-on-one conversations, to town halls, expert panels, and participatory workshops, community members become directly involved in shaping the NYCx Co-Labs pilot program from the very beginning.

The backbone of the program is the Community Tech Board, composed of service providers, advocates, tech professionals, academia, government agencies, and community leaders at each NYCx Co-Labs site. They channel their expertise to identify and research community priorities – pressing local concerns that may benefit from urban tech solutions – and transform these into Innovation Challenges: an open competition on specific issues the community seeks to tackle with innovative solutions.

2. Field Research

The field research phase brings together community experts, researchers, and government resources to contextualize the priority areas that the community board had selected. The goal of this phase is to identify opportunity areas where technology-enabled solutions could actually have an impact and then explore these aspects in the field.

Figure 2: Challenges to Immigrant Communities in Inwood and Washington Heights Workshop at Zahn Innovation Center of the City College of New York, 2019

3. Challenge design and selection

Throughout the Challenge design and selection phase, we concentrate our efforts on framing the problem identified by the community as a global call to action. While the previous phases have focused on the importance of creating a deep understanding of the issues that the local community faces, we recognize that in the globalized, interconnected world we live in, communities across the globe are facing similar challenges. By encouraging international cooperation, we are able to reach entrepreneurs in other countries, learn from what others have achieved, and identify solutions that can be implemented in NYC and communities around the world.

4. Pilot implementation and evaluation

During the pilot implementation and evaluation phase, we work closely with members of the community to implement solutions and assess their impact.

5. Scaling and ecosystem maintenance

In this phase, we focus on using data gathered throughout the pilot to inform public policy going forward. We work to source lessons learned during the pilot program to create enduring change at scale. Finally, we encourage action on these takeaways for both NYC and internationally. So we develop recommendations for action based on the research results and with people's participation: 'How it could be done differently'.

Anne: **The program is an amazing opportunity for participatory research and multidimensional community engagement. It focuses on both the micro and macro levels, while still considering the challenges in our globalized world today. One of these challenges, which is becoming increasingly important, is environmentally sustainable development. What role does environmentally sustainable development play specifically in New York and beyond in your work at NYCx Co-Labs?**

Oscar: Environment sustainable development has been central to NYC policies. In 2008, under the Bloomberg administration, the New York City Panel on Climate Change was convened – making New York one of the first American cities to organize a group of leading climate and social scientists to develop local climate change projections. The 2013 PlaNYC: A Stronger, More Resilient New York[4] set up a comprehensive plan for sustainable development. In 2017, New York City passed Local Laws 60 and 64 to assess environmental equity issues in the city and develop a plan to incorporate environmental justice into the fabric of City decision-making. In 2019 Local Law 97, one of the most ambitious plans for reducing emissions in the nation, was included in the Climate Mobilization Act, and was passed by the NY City Council as part of the Mayor's New York City Green New Deal.

"The agenda of the city is currently organized around five topic areas:

- **Environmental Justice:** Environmental Justice is the principle that all people, regardless of race, disability status, age, or socioeconomic background, have a

4 Learn more about the *2013 PlanNYC: A Stronger, More resilient New York* at https://www.nyc.gov/site/sirr/report/report.page [last accessed: 21st April 2023]

right to live, work, and play in communities that are safe, healthy, and free of harmful environmental conditions.

- **Energy:** NYC is building a clean, resilient, and equitable energy system, and is committed to transforming our fossil fuel dependent electricity grid into one powered 100% by clean energy resources by 2040.
- **Buildings, Infrastructure and Land:** NYC has over one million buildings, ranging from single family homes and apartment buildings to industrial warehouses and commercial skyscrapers. These buildings release approximately two thirds of NYC's total GHG emissions, making energy efficiency initiatives in buildings a key component of NYC's path toward carbon neutrality. NYC's buildings are also impacted by flooding and heat risks.
- **Transportation:** Transportation is the life blood of the City, enabling 8.8 million New Yorkers to commute, reside, and recreate across the five boroughs. Our vast transit system, coupled with our density, has enabled our sustained growth, advanced health equity, and allowed us to maintain a smaller per capita carbon footprint than any other big city in the United States. Our transportation goals are to avoid trips we don't need, shift those trips we do need to lower-carbon modes, and improve existing infrastructure and technology to enable even greater emission reductions.
- **Social and Economic Opportunities:** Environmental justice recognizes the intersection of economic and social injustice with climate change. To further environmental justice in our city and world, The NYC Mayor's Office of Climate & Environmental Justice[5] is advancing a range of initiatives to ensure New Yorkers can all reap the benefits of a climate adapted future, ensure all City projects and programs advance our climate and environmental justice goals, create and prepare New Yorkers for good green jobs, and transition away from a fossil fueled economy."

The challenges of climate change were highlighted in the NYCx Co-Labs Community Engagement phases e.g., we addressed the challenge in a specific project, how do we get to zero waste and trash and increase recycling in Brownsville's public housing? We looked for solutions that would allow for the following:

- Reduce litter and improper waste disposal in public housing
- Increase resident participation in recycling waste-reduction opportunities
- Promote waste-free common spaces through increased community stewardship

5 Learn more about the NYC Mayor's Office of Climate & Environmental Justice at: https://climate.cityofnewyork.us [last accessed: 21st April 2023]

The testing ground for new ideas to improve multi-unit recycling was Brownsville Houses, a public housing development managed by the NYC Housing Authority, with nearly 3,300 residents distributed in 1,300 units. We provided the applicants with a technical memorandum analyzing waste streams in NYC public housing and evaluated the project. So is it possible to increase recycling rates in public housing?

The pilot project had a time frame of six to nine months. The recycling rate increased by 300%, reaching an average of 7.7% of all 1. 300 units of Brownsville Houses. Recycling bundles collected improved 49.3% over the previous year. Recycling participation was up to 30% in select buildings, which was higher than the original target of 20% for the pilot project. Here, our analyses show that recycling participation is not motivated solely by the convenience of the pilot project's intervention method, but can be achieved specifically through participation and neighborliness. It became clear that recycling habits do not exist in a silo: The results to date confirm that social culture and community norms play a large role in determining an individual's recycling behavior. Through the Ecorich pilot we identified a vast difference in the community awareness of the value of organics composting compared to that of recycling. Practices around the collection and management of organic waste in the household were not as known as recycling practices. However anecdotally through our participant exit surveys we found that action-oriented youth education in school around organics composting had a positive impact and led to behavior change in the participant households.

Anne: **Thank you, Oscar, for the insight. Your comments already show the various topics that will be addressed when it comes to meeting the challenges of climate change – at many different levels. Nevertheless, structures are needed, aren't they? The effects of climate change also appear to be individualized, but they can't just be dealt with on an individual basis. Can you give us some more examples of how you have approached the issue of environmentally sustainable development in your projects in the neighborhood?**

Oscar: In total we launched eight pilots and two training programs out of the four global challenges we launched. For each pilot we developed an outcome oriented logical framework. The nature of each pilot was different, and so what to be sustainable was different as well.

For instance, for our pilots related to increasing safety in public spaces at night, illumination of public spaces is critical, so we identified programmable LED Lights that not only would be energy efficient, but that could also be manufactured and installed at low costs. The LED lights allowed community youth to program interactions based on infrared sensors and to literally play with the built environment as they develop coding skills. Ultimately transforming what traditionally were just light fixtures into interactive assets. Similarly, we installed laser projectors to showcase

content that youth created at night onto the walls of the Brownsville Community Justice Center.

Figure 3: Villuminate the Block Pilot Launch at Osborn Plaza in Brownsville Brooklyn, 2019

Anne: **I am particularly interested in how underserved communities organize to make governments accountable to address the effects of climate change, for example, I know that heat and cooling is a challenge in NYC apartments?**

Oscar: Yes, you're right. Heat and cold is a huge challenge in New York City. In New York City, all landlords are required to provide access to heat in residential apartments during the winter. And yet, each winter the city receives over 200,000 heat-related complaints, concentrated in lower-income neighborhoods throughout Upper Manhattan, the Bronx, and Brooklyn. Although heat is consistently the #1 complaint during the winter, less than 7% of heat complaints result in a violation being issued to the landlord. It can be exceedingly difficult for tenants to receive an official Department of Housing Preservation and Development (HPD) violation for heat because outages are often intermittent, HPD does not schedule inspections directly with tenants, and cold temperatures often occur outside regular business hours. So far tenants have tried to document the insufficient heat in their apartments but tracking real-time data at all hours of the day and night and keeping consistent logs is burdensome. Furthermore, because the temperature logs are produced by the tenant, they are often called into question by landlords and their attorneys who argue

they are inconsistent and unreliable. Until now, the difficulty in changing this was the lack of evidence: it was very difficult for tenants to prove that the apartments had been too hot or too cold for a long period of time.

We have then developed and tested an instrument that allows objective reliable temperatures to be recorded. Heat Seek provides the objective, reliable temperature data tenants need to expose the problem and hold their landlords accountable. Heat Seek was selected as a winner for our housing rights challenge to work closely with tenants, tenant organizers, public interest attorneys, and City officials to document heating violations and track data. Heat Seek distributed 27 temperature sensors across 13 buildings located in Inwood and Washington Heights. The sensors collectively captured 4,355 hours where the temperature was below the legal limit. This revealed that the cold temperatures were unevenly distributed; seventeen of the sensors recorded more than 20 hours of illegally cold temperatures. Of those, 10 registered 100+ hours of illegally cold temperatures. One single sensor in a Washington Heights apartment captured 943 hours (over just 3.5 months) with a temperature below the legal limit; nearly half its readings were below the limit. The coldest temperature recorded by the sensor was 11,6 degrees celsius, 9,4 degrees colder than the minimum daytime temperature required by law.[6] So it was always too cold for the people who had to live there. As a result of the pilot, **the landlord in that building finally agreed to make repairs on a number of apartments based on Heat Seek data**. Previously, the landlord had discounted tenants' heat complaints. Once tenants and organizers presented this data, he agreed to perform an inspection and repair radiators and radiator valves throughout the building. With additional data and advocacy, the landlord later agreed to weatherize windows, replace some old radiators, and ultimately provide new insulation as needed. This is just one example of the kinds of actions tenants can take to demand repairs and ultimately solve their heating issues.

Anne: **Thank you, Oscar, for your valuable information. Maybe you can close by telling us what is important to you in your work, in terms of creating change?**

Oscar: For the program to be successful in terms of sustainable urban development, oriented to the four fields of action, it was important to define a clear set of values and to keep ourselves accountable to them.

Inclusive innovation is not an end but rather the ongoing process of deconstructing discriminatory practices in our operations, policies, and programs. It elevates

6 Between October 1 and May 31, the housing maintenance code requires the indoor temperature to be above 20 degrees between the hours of 6am and 10pm if the outdoor temperature is below 12,7 degrees, and above 16,6 degrees between the hours of 10pm and 6am regardless of the outdoor temperature.

intersectional experiences of marginalized communities to address local development challenges, create collective agency, and increase digital equity. It's about developing technical systems that work for everyone.

Inclusive innovation aims to develop a tech ecosystem that works for all. This includes:

- Technology for equity
- Building for the future
- Digital Accessibility & affordability
- Collective agency & community self-determination

Technology for equity acknowledges that technology is not neutral. The deployment of emerging technologies can exacerbate inequality and have a disproportionate effect on vulnerable communities. Policy, oversight, and regulation are needed to ensure equity. Technology can be a powerful tool for progress, but not a determination solution, or an end in itself.

To build for the future it must be recognized that city challenges can be opportunities for innovation if testing is done responsibly and collaboratively with the public. Addressing change rather than fearing emerging technologies. Taking a critical take on who gets to set a view for the future.

Digital accessibility and affordability can just be reached, if new technologies that challenge inequality are leveraged and designed with and for vulnerable communities. Innovation is not only about technical sophistication. Breakthroughs must also be judged based on their universal accessibility across populations. Digital accessibility does not reinforce the inequities of the physical world.

For collective agency and community self-determination, the focus must be on communities closest to problems since they are best equipped to surface solutions. Communities deserve transparency and engagement that affirms their ability to arrive at independent conclusions and act in their own best interest. All communities have a right to digital self-determination, including deciding what type of information they generate and share online.

More information and publications:

- Tech Enabled Housing Rights: Leveraging innovation and data to empower tenants in Inwood and Washington Heights[7]

7 (2022, NYCx Co-Labs) Tech-Enabled Housing Rights: Leveraging Innovation and data to empower tenants in inwood and Washington Heights full report is available at: https://a860-g

- Community Driven Innovation: Leveraging technology to make mental health services more accessible for Latinx Youth in New York City[8]

NYCx Co-Labs Program Outcomes

Tech Education for Youth in Brownsville: Multimedia AR/VR[9]

- 500 youth participated in workshops.
- 69 young people received paid training on Multimedia/VR/AR.[10]
- 5 products delivered.[11]
- Program received a philanthropic donation from BNY Mellon for $200,000 USD equivalent to five times the public funding for pilot execution.
- 100+ video interviews with Brownsville residents.

Safe and Thriving Nighttime Corridors

- 25 Community partners.
- 8 workshops 3 forums
- 4 agency partners (MOCJ, DOT, NYCHA, NYCEDC)

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pp.nyc.gov/concern/nyc_government_publications/k3569673f?locale=en [last accessed: 21st April 2023]

8 (2021, NYCx Co-Labs) Community Driven Innovation: Leveraging technology to make mental health services more accessible for Latinx Youth in New York City full report is available at: https://mentalhealth.cityofnewyork.us/wp-content/uploads/2022/01/MH_Report_v3.1_pages.pdf [last accessed: 21st April 2023]

9 (2020, NYCx Co-Labs) "Safety at Night: How NYC and Brownsville Youth Created Tech-Enabled Ways to Increase Community Safety", available at: : https://medium.com/nyc-mayors-office-of-the-cto/safety-at-night-how-nyc-and-brownsville-youth-created-tech-enabled-ways-to-increase-community-126421190ed2 [last accessed: 21st April 2023]

10 (2019, Basset & Pilarski) "Co-Creating Fireflies: A Brownsville Story", available at: : https://immerse.news/behind-the-scenes-with-fireflies-a-brownsville-story-ddf43fb6d060 [last accessed: 21st April 2023]

11 (2018, WNYC News) "Seeing the Light in Brownsville, Virtually and In Real Life", available at: https://www.wnyc.org/story/seeing-light-brownsville-not-just-virtually/ [last accessed: 21st April 2023]

- 23 applicants, two selected community led strategies[12] to increase safety.
- Villuminate & Nightlight

Tech Education for Youth in Inwood and Washington Heights: Cybersecurity

- Program received a philanthropic donation from BNY Mellon for $150,000 USD.
- Supported the provision of one year program paid tech education to **150 young students** on Data Science with Python, Web Development & Design, Cyber Security and Networking, and Usability Testing & User Experience Design.

Zero Waste in Public Spaces Challenge

- 25 Community partners.
- 8 workshops 3 forums
- 3 agency partners (DSNY, NYCHA, NYCEDC)
- 13 applicants, two selected community led strategies[13] to improve recycling and organic composting in Brownsville Houses: Inner Green City Team and Ecorich.
- Recycling participation increased 300% during the pilot period to 7.7% across Brownsville Houses' 1,300 units, and recycling bundles collected improved by 49.3% compared to the year before. Select buildings saw up to 30% recycling participation rates.

Accessible Mental Health Challenge

- 35 Community partners.
- 6 workshops 191 direct resident responses[14] on OneNYC challenge survey.[15]
- 2 agency partners (Mayor's Office of Community Mental Health, NYCEDC)

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12 (2019, NYCEC) "New York City Will Pilot Smart Lighting in Brownsville to Illuminate Public Spaces at Night", available at: https://edc.nyc/press-release/new-york-city-will-pilot-smart-lighting-brownsville-illuminate-public-spaces-night [last accessed: 21st April 2023]

13 (2018, NYC Mayor's Office) "NYCHA, DSNY, MOCTO & NYCEDC announce winners of the NYCx Co-lab challenge to reduce waste and increase recycling in brownsville houses", available at: https://www1.nyc.gov/site/nycha/about/press/pr-2018/pr-20180423.page [last accessed: 21st April 2023]

14 (2020, M. Hsieh) See the data visualization of community input for NYCx Co-Labs designed by Elaine Mingsum Hsieh at: https://cto-viz.surge.sh/ [last accessed: 21st April 2023]

15 (2019, NYC Mayor's Office) "ONENYC 2050: Building a Strong and Fair City", available at: https://onenyc.cityofnewyork.us/ [last accessed: 21st April 2023]

- Two solutions were selected:[16]
  - NextStep HealthTech
  - Me,Myself and I
- 3,000 NYC Health Care assets mapped.
- 1 youth-led video platform launched with 48 pieces of content created by youth.
- 36.12% of engaged youth reported health seeking behavior.
- 73 youth outreach through surveys.
- 7 youth workshops.
- 1 interactive comic launched 3 storylines with 3 characters.
- 1 listening session with Congressman Espaillat.

Housing Rights Challenge

- 35 Community partners.
- 6 workshops 191 direct resident responses on OneNYC challenge survey.
- 3 agency partners (MOPT, HPD, NYCEDC)
- Two solutions were selected:[17]
  - Heat sensor
  - Tenant Text

16 (2021, NYC Mayor's Office) "New York City announces winners of civic tech competition to improve and protect mental health of Latinx youth in Upper Manhattan", available at: https://thrivenyc.cityofnewyork.us/news/announcements/new-york-city-announces-winners-of-civic-tech-competition-to-improve-and-protect-mental-health-of-latinx-youth-in-upper-manhattan?utm_source=rss&utm_medium=rss&utm_campaign=new-york-city-announces-winners-of-civic-tech-competition-to-improve-and-protect-mental-health-of-latinx-youth-in-upper-manhattan [last accessed: 21st April 2023]

17 (2020, NYCEDC) "New York City Announces Winners of Civic Tech Competition to Strengthen Tenant Protection Rights in Upper Manhattan" available at: https://edc.nyc/press-release/new-york-city-announces-winners-civic-tech-competition-strengthen-tenant-protection [last accessed: 21st April 2023]