



# DATA-SMART CITY SOLUTIONS



HARVARD Kennedy School  
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HEALTH & HUMAN SERVICES

IMPLEMENTING A DATA-DRIVEN APPROACH TO TA...

## Understanding The Ecosystem of Solutions

BY **AMEN RA MASHARIKI** • DECEMBER 19, 2018

**A**s the winter season nears, bringing with it the seasonal issue of overflowing homeless shelters, many cities face the reality that for yet another year they have not made a dent in the critical issue of homelessness. To the everyday urban citizen, the problem of homelessness may seem never-ending and never-changing. However, it is changing, and in most places it's for the worse. Today, homelessness in New York City and Los Angeles **has reached crisis levels**. New York has 78 percent more people sleeping in shelters than 10 years ago. Los Angeles saw its numbers rise 20 percent in 2017.

I was born and raised in Brooklyn. I have seen and engaged in New York City's

homelessness problem at the grassroots and neighborhood level. When I became a White House Fellow in 2012, I learned a great deal about applying data-driven policy initiatives. In 2014, as the Chief Analytics Officer for NYC, I began to build practical solutions to complex city problems at the operational and policy level. I know the role that data, analytics, and algorithms should play in providing support to citywide efforts.

In order to build a true data-driven solution that can be utilized for solving the problem of homelessness, we must first build a methodology to understand, model, simulate and ultimately re-think where needed the ecosystem of solutions aimed at ameliorating homelessness in a city. A mechanism that allows us to understand, design and view an ecosystem of solutions will be able to give us as near as possible an exhaustive view of all of the organizations, programs, people and technology that are currently in play, presumably interacting with each other to solve a particular problem. Defining such a system of interactions would be done with a focus on developing an abstract process and methodology that could be used in a city of any size, complexion, complexity, or geography. The end goal of this assessment is to build an accurate model that simulates how siloed homeless solutions in a city interact, operate, and lead to desired outcomes. This allows for the ecosystem of solutions' impact on the homeless population to be understood, measured and modified as needed.

To understand what an ecosystem of solutions looks like in practice, let's look at New York City as an example. Over the years, the city as a whole, which includes the government, private sector, NGOs, non-profits, philanthropic institutions, academia, and residents, has invested treasure, blood, sweat and tears into funding research, developing programs, building shelters, standing up advocacy organizations, and investing in initiatives. Yet homelessness has precipitously gotten worse in NYC. Are these siloed investments, initiatives, and programs working in concert with each other to solve the problem? How often is academic data and research translated into action in the field? How many government-funded institutions actually share data with each other or, for that matter, talk to each other? How many shelter providers work with churches, schools, and other community entities in order to provide advocacy to the homeless? Are low-income housing developments built at the pace and in the geography needed based on real-time data from shelter providers? A properly-defined ecosystem of solutions would answer

these questions and many more.

Each individual solution is targeted towards a specific symptom of homelessness. I contend that in this ecosystem of solutions there are some entities that work on their own and independent of the whole, some entities that work together but are woefully misaligned, and some entities that just don't work at all. In order to build a citywide data-driven strategy for tackling homelessness, the ecosystem should function in a cohesive manner towards completing tasks and initiatives that will help to bring down the homeless count in a city.

New York City's mayor, Bill de Blasio, recently **unveiled an ambitious plan** to place 90 new homeless shelters in and around New York City. The plan, as proposed, is designed to reduce the homeless population by 2,500 people over the next five years. I believe we owe our homeless men, women, and children in New York City more than a one percent reduction per year solution. What's missing from the mayor's plan is an urban analytics approach that methodically addresses the many factors of this complex problem. Urban analytics empowers us to convert layers of data on poverty, unemployment and affordable housing into action. We can also look at physical or mental health, substance abuse, family and relationship breakdown, and domestic abuse to make certain we provide a safety net for these underlying issues before individuals find themselves on the streets. Through data we can look at the city overall, at each neighborhood, and at each individual case.

Analytics can detect, diagnose, and monitor problems in the same way an MRI scan helps doctors. Through visualization of data, it provides a common language to center efforts around a common goal. It underwrites the capacity to micro-target solutions for specific problems or individuals to provide precision on decisions where low investments can yield high impacts.

Central to the mayor's current proposal is the question of where to place homeless shelters to have the greatest impact. With urban analytics, you can run simulations and see, depending on location, how each of the 90 shelters would affect the overall problem. Diving a little deeper, you can optimize the placement of the 90 shelters and know in

advance what resources will be required at each location.

Urban analytics provides a framework to look at homelessness in a new light. It underpins decision making on individual initiatives, and provides the glue to integrate insights from each initiative for overall understanding. In order to build a data-driven solution to homelessness, we must understand the data that makes up the problem space as well as the data that is created by the solution space. By simulating the current solution space, we will be able to better align the ecosystem of solutions to address the deeper fundamental challenges of homelessness and not just solve the symptoms.

Like the best of technologies, urban analytics provides a force multiplier in the effort to gain ground on the still-mushrooming problem of homelessness in New York City and beyond. Homelessness cannot be solved without the capable leadership of a city, input and involvement from the people in our communities, and the insight and experiences of the homeless families and children who are looking to us for a solution.



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Dr. Amen Ra Mashariki is an Innovations Fellow at the Ash Center for Democratic Governance and Innovation and leads urban analytics at Esri. He served as the Chief Analytics Officer at the Mayor's Office of Data Analytics (MODA) for the NYC Office of the Mayor from 2014 to 2017, where he led a team of data scientists to leverage New York City's data to substantially improve city initiatives. He also was a White House Appointee in Washington, D.C from 2013-2014. At the White House, Amen held two established positions: Chief Technology Officer, Office of Personnel Management (OPM) and White House Fellow, Office of Personnel Management (OPM). Dr. Amen Ra Mashariki received his Doctorate of Engineering, Information Engineering from Morgan State University in 2008. He also holds his Master of Science, Computer Science from Howard University and his Bachelor of Science, Computer Science from Lincoln University.



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