

Meera Joshi Commissioner/Chair

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## TLC, RUDIN CENTER & GOOGLE HOST FIRST-EVER TAXI DATA HACKATHON Can Big Data Improve Rush Hour Taxi Availability?

Ever try to find an available yellow taxi during rush hour in Manhattan? Bit of a challenge? WHY is it so hard to find a cab between 4 and 6 pm p.m.!? This is a perennial question among millions of taxi-riding New Yorkers.

A small army of civic hackers came together recently to solve one of the city's most elusive mysteries: how do we make it easier to catch a cab in Manhattan during the afternoon shift change? The New York City Taxi and Limousine Commission (TLC) and the New York University (NYU) Rudin Center for Transportation hosted an all-day Hackathon on April 11, sponsored by Google. Members from government, academia, data enthusiasts, and civic technologists sifted through taxi and for-hire vehicle trip records to address this shift-change issue from technical, economic, logistical and policy angles.

As the data experts dispersed into smaller working groups to attack the problem, five veteran cabbies with more than a century of collective experience brought perspective to the process, representing the human element among the mathematical calculations of taxi drivers' daily experiences.

"This was a perfect storm of intellect and information, and practical insight," said TLC Commissioner and Chair Meera Joshi. "It brought fresh eyes to an issue with which New Yorkers have wrestled for decades and has the potential to result in data-grounded solutions for the over 60,000 individual and corporate owners and drivers of the City's 13,587 medallion taxicabs and their passengers.

"I'd like to thank Director Mitchell Moss and Digital Manager Sarah Kaufman from NYU's Rudin Center, for their shared enthusiasm in this project and Google, for their invaluable support in making it happen. I would also like to thank the taxi drivers, whose insights brought life to the statistics analyzed. Last, but not least, I'd like to thank the TLC staff who worked *so* hard to make this a success, most especially its architect, Rodney Stiles, as well as Jeff Roth, Joanne Rausen, Emily Genser, Justine Johnson, Ben Kurland, Anthony Migliore, Michael Anderson and Greg Gordon."

Commissioner Joshi kicked off the day with welcoming remarks for the data devotees, as did Rudin Center Director Mitchell L. Moss, who put the awesome scale of the New York City taxi fleet into perspective with a reminder that it is larger than the entire public transportation systems of many cities.



TLC Commissioner Meera Joshi welcomed the Hackathon participants.

"At the TLC, we recognize the power of big data," said Rodney Stiles, Director of Research and Evaluation at the New York City Taxi and Limousine Commission. "We have the benefit of a massive dataset of all taxi trips which we use to guide policy based on empirical evidence. But as much as we've learned from the data ourselves, we've also been surprised by the incredible insights provided by the civic technology community using this data. The TLC Hackathon embraced the big data theme of 'power in numbers' by bringing together a group of academics and data enthusiasts to tackle a single problem together."



Hackathon Project Manager and TLC Research and Evaluation Director Rodney Stiles offers an introduction to the taxi dataset.

Said Sarah Kaufman, Digital Manager & Assistant Adjunct Professor of Planning, NYU Rudin Center, "The TLC Hackathon is the first step in what I hope will be a new partnership between City government and civicallyengaged individuals. New York is rife with smart, thoughtful people whose talents should be tapped-into regularly to help solve public issues both large and small.



Sarah Kaufman, Digital Manager & Assistant Adjunct Professor of Planning, NYU Rudin Center, brings the event to a successful close.

"The NYU Rudin Center is proud to have partnered with the TLC in their first data-centered collaboration with the public on a current issue. We are pleased to have fostered this significant step forward by the TLC, in no small part aided by Google's sponsorship and technical assistance."



Left to right, International Association of Transportation Regulators "Taxi Driver of Year" Fred Amoafo, League of Mutual Taxi Owners Managing Director Erhan Tuncel, and longtime expert drivers Cliff Adler and Uppkar Thind brought more than a century of experience and perspective to the TLC Hackathon

Said Erhan Tuncel, a taxi driver and Managing Director of the League of Mutual Taxi Owners, who participated in the event, "We are always happy to see constructive use of the data collected on taxi trips, and the Hackathon was a perfect example of this. We need more such events, where the regulators and stakeholders of the taxi industry partner up to mutually determine the best course of action to resolve industry-related issues in order to optimize the use of taxis and bring the most efficient service possible to the riding public.

"We were glad to be a part of this Hackathon. We would like to thank everyone who was involved, and look forward to working with the TLC in the future."

Jeff Ferzoco, owner of Linepointpath, LLC, commented on the event's importance: "To begin to pull apart this really difficult and \*urgent\* issue – the

dearth of taxis between 4 and 6 p.m. in NYC – it was essential to have the creators of the data (taxi drivers), the managers of the data (TLC team) interacting directly with New Yorkers that specialize in making data useful. With continued access, the data could be parsed deeply and evidence of new directions will emerge."

Below is a sample of some of the preliminary findings, analysis is ongoing:

The chart below, created by Damon Wischik of Urban Engines, shows that taxi drivers who begin shifts at 3 p.m. earn more money per hour than those starting at any other time of day.



The map below, built by NYU Center for Urban Science and Progress student David Marulli, highlights potential taxi shift change locations at gas stations located near subway stations in Manhattan: by relocating taxi handoffs to locations within or close to the high-demand CBD, turnover time will be reduced and taxi drivers would have easy access to transportation.



This map, built by David Marulli, at right, highlighted some potential shift change locations.

Arlene Ducao, of NYU's Interactive Telecommunications Program, and Chris Willard, an independent programmer, calculated that the largest fleets of taxis and their drivers would earn more revenue by converting to three eighthour shifts, instead of the current model of two twelve-hour shifts, which would also eliminate the evening rush-hour service gap.

The civic hackers will continue to hone their projects with the guidance of the Rudin Center; and the TLC will review their submissions.

## About the NYC TLC:

The New York City Taxi and Limousine Commission (TLC) was created in 1971, and is the agency responsible for the regulation and licensing of over 200,000 yellow medallion taxicabs and for-hire vehicles, their drivers, and the businesses that operate and support their industries. It is recognized as the largest and most active taxi and limousine regulatory body in the United States.

To find out more about the TLC, or to review its rules and procedures, we encourage you to visit our official Web site at WWW.NYC.GOV/TAXI or contact 311/311 Online.

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