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THE COUNCIL

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COMMITTEE ON TECHNOLOGY
Hon. Peter Koo, Chairperson

April 4, 2019

OVERSIGHT: UPDATE ON LOCAL LAW 49 OF 2018 IN RELATION TO AUTOMATED DECISION SYSTEMS USED BY AGENCIES

I. Introduction

On April 4, 2019, the Committee on Technology, chaired by Council Member Peter Koo, will hold a hearing to receive an update on Local Law 49 of 2018, in relation to automated decision systems used by agencies. The Committee expects to receive testimony from representatives of the Mayor's Office of Operations, the Mayor's Office of Data Analytics, advocacy groups and other interested members of the public.

II. Background

The Oxford English Dictionary defines an algorithm as "a procedure or set of rules used in calculation and problem-solving."[1] The term originally meant nothing more than basic arithmetic. Now, with the advent of more advanced computers and the ability to collect, compute, and compare ever-larger amounts of data, algorithms have become more complex and powerful. Significantly, algorithms represent the promise and peril of social engineering on a scale larger, yet more precise, than ever before.[2]

The use of mathematical principles to solve social problems is not new. Currently, the Social Security Administration uses algorithms to aid its agents in evaluating benefits claims; the Internal Revenue Service uses them to select taxpayers for audit; the Food and Drug Administration uses algorithms to study patterns of foodborne illness; the Securities and Exchange Commission uses them to detect trading misconduct; local police departments employ algorithms to help predict the emergence of crime surges; courts use them to help sentence defendants; and parole boards use them to predict who is least likely to reoffend.[3] Currently, New York City uses

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[1] *Algorithm*, OXFORD ENGLISH DICTIONARY (3d ed. 2012), http://www.oed.com/view/Entry/4959?redirectedFrom=algorithms.

[2] *See* Sonia K. Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 62, 63 (2019).

[3] Sonia K. Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 64–65 (2019).

algorithms to assist officials in predicting where crimes may occur, placing students in public schools and scheduling building inspections, among other things.[4]

Benefits of Algorithms

Algorithms hold tremendous value. Their data promises significant benefits to the economy, allows consumers to find and sort products more quickly, which in turn lowers search costs. Artificial Intelligence (AI), among other things, can aid the detection of financial mismanagement, identity theft and credit card fraud.[5]

Algorithmically informed decision making promises increased efficacy and fairness in the delivery of government services. As demonstrated in the medical profession, actuarial prediction is sometimes measurably better than clinical prediction: formalized analysis of datasets can result in better assessments of risk than less formal professional determinations developed over years of experience in practice.[6] Data analysis can reveal patterns not previously noticed, recognized or precisely quantified. For example, systematic tracking of Yelp restaurant reviews can inform city health inspectors about food-borne illnesses emerging from the restaurants in their jurisdictions.[7] Integrating data across siloed administrative domains, such as education and general welfare, and then using that data to prioritize families in need of government help, can improve social service delivery.[8]

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[4] Benjamin Freed, *New York City's Algorithm Task Force to Hold First Public Meetings Nearly a Year After Creation*, STATESCOOP, March 29, 2019, https://statescoop.com/new-york-citys-algorithm-task-force-to-hold-first-public-meetings-nearly-a-year-after-creation/.

[5] Sonia K. Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 65 (2019).

[6] Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103, 115–16 (2018).

[7] Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103, 115–16 (2018) (citing *See* Edward L. Glaeser et al., *Big Data and Big Cities: The Promises and Limitations of Improved Measures of Urban Life* (Harv. Bus. Sch. NOM Unit, Working Paper No. 16-065, 2015), http://dash.harvard.edu/bitstream/handle/1/24009688/16-065.pdf).

[8] Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103, 115–16 (2018).

Risks Associated with Algorithms

Although some of the benefits that can be offered by algorithmic decision-making include speed, efficiency and fairness, there is a common misunderstanding that algorithms automatically result in unbiased decisions.[9] While the effects of algorithms' predictions can be troubling in themselves, they become even more problematic when government agencies use them to distribute resources or impose retribution. For example, an individual can be denied parole or credit, fired, or not hired for reasons they will never know and which cannot be articulated.[10]

Most developers neither disclose their predictive models or algorithms[11] nor publish the source code for their software, making it impossible for the consumer to inspect the system. Therefore, many criticize the "black box" as the result of those systems may be discriminatory, erroneous, or otherwise problematic.[12]

Generally, a limited disclosure of an algorithm tells you very little, because its effects cannot be interpreted by a simple reading of the code. A source code disclosure is just a partial solution to the problem of algorithmic accountability. It is hard to know, as a general matter, whether something is potentially unlawful, particularly given the grey areas of legal

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[9] Simson Garfinkel, Jeanna Matthews, Stuart S. Shapiro, Jonathan M. Smith, "Toward Algorithmic Transparency and Accountability," Communications of the ACM, Vol. 60 No. 9, Page 5, https://cacm.acm.org/magazines/2017/9/220423-toward-algorithmic-transparency-and-accountability/fulltext.

[10] *See* Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103 (2018).

[11] An algorithmic process will typically involve (1) the construction of a model to achieve some goal, based on analysis of collected historical data; (2) the coding of an algorithm that implements this model; (3) collection of data about subjects to provide inputs for the algorithm; (4) application of the prescribed algorithmic operations on the input data; and (5) outputs in the form of predictions or recommendations based on the chain of data analysis. Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103, 107–08 (2018).

[12] Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103, 107–08 (2018).

interpretation.[13] The Arnold Foundation, developer of Public Safety Assessment ("PSA"),[14] has disclosed its relatively simple algorithms to the public. PSA can be implemented without a computer by tallying up points for various factors, and then applying a conversion formula to obtain the final risk assessment. However, the Arnold Foundation provided next to nothing about its development process,[15] it has not revealed how it generated the algorithms, or whether it performed pre- or post-implementation validation tests and, if so, what the outcomes were. Nor has it disclosed, in quantitative or percentage terms, what "low risk" and "high risk" mean.[16]

Bias generally can result from one of two cause during the development of an algorithm. The first is largely internal to the process of data collection--when errors in data collection, like inaccurate methodologies, which lead to inaccurate depictions of reality.[17] The second type, however, comes from an external source. It happens when the underlying subject matter draws on information that reflects or internalizes some forms of structural discrimination and thus biases the resulting data.[18]

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[13] Sonia K. Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 137 (2019).
[14] Public Safety Assessment (PSA) is a pretrial risk assessment tool developed by the Laura and John Arnold Foundation, designed to assist judges in deciding whether to detain or release a defendant before trial. PSA includes three different risk assessment algorithms, which are intended to assess the risks that a released defendant will, respectively, fail to appear for trial; commit a crime while on release; or commit a violent crime while on release. The three algorithms operate by assigning points based on nine facts about the defendant's criminal history; some facts are used for only one or two of the algorithms, while others are used for all three. For the failure-to-appear and commission-of-crime assessments, the raw point scores are converted to a six-point scale, in which one signifies lowest risk and six signifies highest risk. For the commission-of-violent-crime assessment, the raw score is converted into a binary yes/no answer; a crime committed is either likely to be violent, or likely not to be violent.
[15] Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103, 137 (2018).
[16] Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103, 138 (2018).
[17] Sonia K. Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 141 (2019) (citing Kate Crawford et al., *The AI Now Report: The Social and Economic Implications of Artificial Intelligence Technologies in the Near-term*, 6-7 (2016), https://ainowinstitute.org/AI_Now_2016_Report.pdf.
[18] *See* Joanna Bryson, *Three Very Different Sources of Bias in AI, and How to Fix Them*, Adventures NI (July 13, 2017), http://joanna-bryson.blogspot.com/2017/07/three-very-different-sources-of-bias-in.html. [https://perma.cc/B77S-46DY] (demonstrating that bias is introduced to artificial intelligence when there is poor quality data that is tainted with human biases and/or when the formal models behind AI are not well reasoned);Sonia K. Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 141 (2019).

Imagine, a situation where data on job promotions might be used to predict career success, but the data was gathered from an industry that systematically promoted men instead of women. While the first kind of bias can often be mitigated by "cleaning the data" or improving the methodology, the latter might require interventions that raise complex political ramifications because of the structural nature of the remedy that is required. Hence, bias can surface during the input phase (when the source data is biased because it may lack certain types of information), during categorization (when bias appears in the categorization of the baseline data), or through programming bias (when bias occurs from a smart algorithm learning and modifying itself from interaction with human users or incorporating new data).[19]

Transparency

In the public sector, the obscurity of algorithmic decision-making is particularly problematic to governmental decisions which may have significant variables and because democratically elected governments have special duties of accountability.[20] Therefore, it is essential that the public knows how an algorithm was chosen, developed, and tested. Government oversight bodies should be able to ask for information about how a new policy was devised and implemented. However, with the use of algorithms and AI, such information could become practically unavailable for the general public.

In order to promote governmental transparency several jurisdictions, including New York, made substantial steps to promote transparency in the automated decision making process. For example, Idaho's House Bill 118 requires that the algorithms are free of bias before they are used.

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[19] Sonia K. Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 141 (2019) (citing Nizan Geslevich Packin & Yafit Lev-Aretz, *Learning Algorithims and Discrimination, in* Research Handbook on the Law of Artificial Intelligence 9 (Woodrow Barfield & Ugo Pagallo eds., 2018)).

[20] *See* Robert Brauneis, Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J. L. & TECH. 103 (2018).

Even more important, it calls for making the data behind them open-source. This will have a profound effect across the country, as it will allow researchers to conduct bona fide analyses as to whether these ubiquitous tools truly work and whether or not they address the glaring problem of racial bias in our criminal justice system.[21] H-118's call for nationwide transparency echoes recommendations made more than two years ago by New York University's AI Now Institute, which declared, "Core public agencies, such as those responsible for criminal justice, healthcare, welfare, and education (e.g., 'high stakes' domains) should no longer use 'black box' AI and algorithmic systems."

In New York City, in order to examine automated decision systems (ADS) and to promote governmental transparency, the City enacted legislation[22] that requires the creation of a task force that provides recommendations on how information on agency automated decision systems may be shared with the public and how agencies may address instances where people are harmed by agency automated decision systems. Local Law 49 of 2018 (LL 49/2018) requires that task force to issue a report 18 months after the task force is established, recommending procedures for reviewing and assessing City algorithmic tools to ensure equity and fairness.[23]

The ADS task force consists of 18 members[24] and three co-chairs including Jeff Thamkittikasem, Director of the Mayor's Office of Operations, and co-chaired by Kelly Jin, Chief

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[21] Jeff Clayton, *The Black Box of Bail Algorithms: One Sensible Solution*, March 14, 2019, https://www.jurist.org/commentary/2019/03/jeff-clayton-bail-algorithm/.

[22] Local Law 49 of 2018 (LL 49/2018).

[23] Press Release, *Mayor de Blasio Announces First-In-Nation Task Force to Examine Automated Decision Systems Used by the City*, May 16, 2018, https://www1.nyc.gov/office-of-the-mayor/news/251-18/mayor-de-blasio-first-in-nation-task-force-examine-automated-decision-systems-used-by.

[24] Solon Barocas, Assistant Professor, Cornell University; Shelby Chestnut, National Organizing and Policy Strategist, Transgender Law Center, Khalil Cumberbatch; Chief Strategist, New Yorkers United for Justice, Howard Friedman; General Counsel, NYC Department of Education; Judith H. Germano, Esq., Founder, GermanoLaw LLC; Senior Fellow on Cybersecurity, NYU Center on Law & Security Senior Fellow, NYU Center for Cybersecurity and NYC Center on Law & Security; Dan Hafetz, Special Counsel to the First Deputy Commissioner, NYC Department of Social Services; Tanya Meisenholder, Assistant Commissioner for Strategic Initiatives, New York City Police Department; Afaf Nasher, Esq., Executive Director, Council on American-Islamic Relations – New York; Michael Replogle, Deputy Commissioner for Policy, NYC Department of Transportation; Jennifer Rodgers, Esq., Former

Analytics Officer and Director of the Mayor's Office of Data Analytics, and Brittny Saunders, Deputy Commissioner of Strategic Initiatives at the NYC Commission on Human Rights.[25] The ADS task force consists of representatives from various government agencies and advocates from private entities, nonprofit organizations and research organizations, including NYC Department of Social Services, New York City Police Department, Mayor's Office of Criminal Justice, NYC Administration for Children's Services[26]

The ADS task force will be holding its first public meeting on April 30, 2019 to allow the public to engage with and be updated on the progress of the ADS task force. The meeting will address the development of the criteria for choosing which systems fall under the task force purview, the process for determining whether an algorithm has a disproportionate impact on the basis of race or gender and how to address those impacts if they're found to exist.[27] The meeting will also allow advocates and experts to provide testimony in an effort to assist the ADS task force as it develops its recommendations that will be included in the report that is due in December of this year.[28] Another public meeting is scheduled for May 30, 2019.[29] In addition to the public

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Executive Director, Center for the Advancement of Public Integrity at Columbia Law School; Julie Samuels, Esq., Executive Director, Tech:NYC; Susan Sommer, General Counsel, Mayor's Office of Criminal Justice; Vincent Southerland, Esq., Executive Director, Center on Race, Equality, and the Law at NYU Law School; Julia Stoyanovich, Assistant Professor of Computer Science and Engineering, Assistant Professor of Data Science, New York University; Andrew White, Deputy Commissioner for Policy and Planning, NYC Administration for Children's Services; Meredith Whittaker, Co-Founder and Co-Director, AI Now Institute at NYU; Distinguished Research Scientist at NYU; Founder of Google's Open Research Group; Maya D. Wiley, Esq., Senior Vice President for Social Justice, The New School; Co-Director, Digital Equity Laboratory at The New School; Jeannette M. Wing, Avanessians Director of the Data Science Institute and Professor of Computer Science at Columbia University, https://www1.nyc.gov/site/adstaskforce/members/members.page.

[25] *See,* NYC Automated Decision Systems Task Force at https://www1.nyc.gov/site/adstaskforce/index.page.

[26] *Id.*

[27] Benjamin Freed, "New York City's Algorithm Task Force to Hold First Public Meetings Nearly a Year After Creation," StateScoop, March 29, 2019, https://statescoop.com/new-york-citys-algorithm-task-force-to-hold-first-public-meetings-nearly-a-year-after-creation/.

[28] Press Release, "Automated Decision Systems Task Force Announces Spring Public Forums." March 27, 2019, https://www1.nyc.gov/assets/operations/downloads/pdf/news/ADS-Press-Release-032719.pdf.

[29] Benjamin Freed, "New York City's Algorithm Task Force to Hold First Public Meetings Nearly a Year After Creation," StateScoop, March 29, 2019, https://statescoop.com/new-york-citys-algorithm-task-force-to-hold-first-public-meetings-nearly-a-year-after-creation/.

meetings, the ADS task force will also hold a number of summertime community meetings where task force members will engage in discussions with members of the public to gain further insight and feedback on algorithms.[30]

III. Conclusion

The Committee looks forward to testimony from the Administration and advocates to discuss the progress of the ADS task force established by Local Law 49, and to understand the challenges faced by the ADS task force to review whether algorithms used by City agencies are fair and just.

[30] Press Release, "Automated Decision Systems Task Force Announces Spring Public Forums." March 27, 2019, https://www1.nyc.gov/assets/operations/downloads/pdf/news/ADS-Press-Release-032719.pdf.

Automated Decision Systems Task Force

TESTIMONY OF JEFF THAMKITTIKASEM,
DIRECTOR OF THE MAYOR'S OFFICE OF OPERATIONS
BEFORE THE NEW YORK CITY COUNCIL COMMITTEE ON TECHNOLOGY
APRIL 4, 2019

Good afternoon Council Member Koo and members of the Committee on Technology. My name is Jeff Thamkittikasem, and I am the Director of the Mayor's Office of Operations and Chair of the Automated Decision Systems Task Force. I am joined by my fellow co-chairs, Kelly Jin, the City's Chief Analytics Officer and Director of the Mayor's Office of Data Analytics, and Brittny Saunders, Deputy Commissioner for Strategic Initiatives at the NYC Commission on Human Rights. I am here to testify today about the Task Force's work to date and our upcoming work and engagements.

I'll start with some background and basics about the Task Force. As you know, the Automated Decision Systems (ADS) Task Force was established by Local Law 49 of 2018, sponsored by then-Council Member Vacca. To our knowledge, the City's ADS Task Force is the first of its kind in the country in local government.

This law mandates the Task Force to issue recommendations specifically related to the following:

- A process for publicly disclosing information about agency ADS systems, where appropriate;
- A procedure for individuals to request and receive information about decisions affecting them that are made using an ADS;
- A procedure for the City to determine any disproportionate impact based upon an individual's protected status, and for addressing any instances of harm under such circumstances;
- Criteria for identifying which agency ADS systems should be subject to one or more of the above procedures; and
- A feasibility analysis of archiving agency systems and the associated data.

As you know, the Task Force's mandate is a new frontier for City government, and one that we are thankful for the opportunity to lead. Our recommendations will spur continued, important conversations surrounding the complex field of ADS.

Local governments have always made decisions based on information and data. But, today, governments increasingly rely on data and technology to improve the way they deliver services to, and engage, with residents. Automated decision systems are instruments that can help improve fairness, streamline workflows, and increase data-driven decision making. These positive outcomes of using ADS

are why they are becoming more prevalent in government—they can help better connect New Yorkers with City programs, improve service delivery, and, in some cases, can help make decisions fairer and more equitable. However, we also know that, unfortunately, ADS have the potential to perpetuate bias and disproportionately impact certain people or populations. We applaud our partners on the City Council for bringing attention to ADS through the creation of this Task Force, and for making space for the important and challenging discussions around the development and use of ADS tools in City decision making.

One of our goals is that the Task Force's recommendations will provide much needed clarity to City agencies and the public about the nature, purpose, and management of ADS in the local, New York City government context. As part of our mandate, we strive to develop clear recommendations that allow for continued research, dialogue, and encourage ongoing insights and comment from the public and advocates.

Now I would like to discuss the work the Task Force itself is undertaking. The Mayor's Office of Operations, the Mayor's Office of Data Analytics, and the City Commission on Human Rights serve as the co-chairs of this Task Force, reflecting our dedication to bringing different and balanced perspectives, project management, and analysis to the work ahead.

The Task Force has 18 additional members, 12 of whom work outside of City government and have rich backgrounds and expertise in the private sector, academic research, social justice advocacy, and technology. The other six members represent City agencies: the Administration for Children's Services, the Mayor's Office of Criminal Justice, the Department of Education, the New York City Police Department, the Department of Social Services, and the Department of Transportation. You can find a full listing of members and their biographies on the ADS Task Force website.

As required by the law, the Task Force was first convened in May 2018, and has met regularly since then to discuss strategy, deliverables, processes, research, and legal interpretations. As you can imagine, our discussions have at times been challenging. This is an emerging and continually evolving field about which many people—including many experts on our Task Force—have strong, differing opinions and keen lines of inquiry. These challenges, however, highlight exactly why a Task Force like ours is so important. When it comes to discussing the best practices around the use of ADS in government, the conversation must start somewhere.

That brings me to our progress to date. So far, our Task Force has met on a regular basis—both as a full group and in smaller groups—to work through the deliverables required by Local Law 49 of 2018. We've worked hard to develop processes to make sure all members of the Task Force have room to be heard, and as such have had many engaging and important discussions. We have also developed and refined processes that will keep our public engagement and research work streams on track, and have been working diligently on preparing forums and sessions for the public engagement upon which our work is critically dependent.

Since it was first convened, the Task Force has also devoted a substantial amount of time to clarifying which systems and tools may fall under the Law's definition of what constitutes an ADS. As you can

imagine, this has been a challenging but essential step in the Task Force's work. The Law requires the Task Force to develop criteria to determine which ADS systems and tools should be subject to procedures it recommends. Because the Law's definition of ADS is broad, many of our Task Force members flagged early on that the Task Force's purview could very well include a vast array of computerized models along the spectrum of automation, to include elements as generalized as calculators, search engine results, or using Excel. Logically, we must therefore clarify what types of systems and tools qualify as ADSs before we can create criteria to evaluate those which should—or should not—be subject to the Task Force's recommendations. To address this, we are currently developing factors and considerations to help identify what constitutes an ADS tool or system, from which the recommended criteria and procedures can follow. To be clear, the ADS Task Force is not going to produce a list of algorithms in use by the City, but will develop and issue the recommendations and criteria mandated by Local Law 49.

Finally, that brings me to the vital role the public will continue to play in the work of the ADS Task Force. Later this month, the Task Force will be kicking off its public engagement efforts, which will include two large, public forums at New York Law School on April 30th and May 30th, and a series of community-based events throughout the summer. Because a large part of the Task Force's mandate focuses on disclosing information, improving transparency, and addressing any disproportionate impact or harm to individuals and populations, it is vital that the Task Force hear not only from technical and subject-matter experts, but also members of the public who are impacted by these systems. Without such insights, our analysis would be incomplete.

Using our own research and insights from the public, per the local law, the Task Force plans to release its recommendations later this year. However, we know that our recommendations will not be the end of the discussion. We look forward to continuing the conversation around ADS, and know the Task Force's efforts will inform continued work on this important subject.

Thank you for the opportunity to testify today. I welcome any questions you may have.

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Oral Testimony of Jordan Kroll, Director, State & Local, Information Technology Industry Council before the New York City Council Committee on Technology

Chairman Koo and members of the Committee on Technology, on behalf of the members of the Information Technology Industry Council,[1] or ITI, thank you for the opportunity to share our perspective on the New York City Automated Decision Systems Task Force. ITI's public sector work represents more than 80 of the most innovative companies offering hardware, software, services, and solutions of information and communications technologies to state and local governments like New York City. We appreciate the work of this Committee, in conjunction with the Task Force, to study the responsible use of automated decision-making and algorithms in city government.

Many of our member companies actively provide services to New York City, and several of them rely on automated decision-making systems to provide more efficient and cost-effective services to constituents. While the potential benefits of these systems and artificial intelligence broadly are wide-ranging, we are all still working to determine the future impact of these technologies. Stakeholders globally, including this Committee and the Task Force, are aware of and working to address the main challenges. For instance, there is recognition from all stakeholders that they must find ways to mitigate bias, inequity, and other potential harms in automated decision-making systems. As AI is constantly evolving and improving, so too are the tools to address the challenges around explainability, bias, and fairness. We believe technology and further research can help address some of the fairness and interpretability challenges that result from the use of these systems. The most effective way for New York City to maximize its use of automated decision-making is to collaborate across the public and private sectors to explore solutions to address these challenges.

As leaders in the AI field, our members recognize their important role in making sure that technology is built and applied for the benefit of everyone. While we are supportive of New York City's focus on embedding transparency and oversight in the use of artificial intelligence, we remain concerned by the lack of public engagement by the Task Force thus far and lack of balance in Task Force representation across the private and public sector. We strongly urge the Task Force and this Committee to promote sustained engagement

[1] **About ITI.** ITI is the global voice of the tech sector. Our members represent the entire spectrum of technology: from internet companies, to hardware and networking equipment manufacturers, to software developers. With a focus on federal, state, and local levels of government, as well as on educational institutions, ITI's public sector work advocates for improved procurement policies and practices while identifying business development opportunities and sharing market intelligence with our industry participants. Visit itic.org to learn more. Follow us on Twitter @ITI_TechTweets

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across public and private stakeholder groups as they to explore the solutions to challenges presented by these technologies. This includes, but is not limited to, the upcoming public forums that have been scheduled. In the European Union, the Artificial Intelligence High-Level Expert Group (AI HLEG) is composed of 52 experts from academia, industry, and civil society and helps to guide and support the implementation of the European Strategy on Artificial Intelligence through recommendations on societal, ethical and legal issues as it relates to AI. This group further interacts with the European AI Alliance to help gather additional feedback from outside stakeholders.[2] We strongly urge the Task Force to promote a similar multi-stakeholder engagement approach. ITI, and our member companies, stand ready to partner with New York City, the Task Force, and the City Council in promoting further transparency and oversight in automated-decision making.

To close, the technology sector supports the work of the Task Force to advance the benefits and responsible use of automated decision-making. We are at the early stages of the commercialization of AI, and we think it's imperative that society, governments, and the technology sector work together to begin to solve some of the most complex issues. Any time you are driving innovation that is transformative, there are going to be points of tension, and we understand the concerns that are being raised. We look forward to collaborating with the Task Force, the Committee, and the general public on the exciting road ahead. I am happy to answer your questions at the appropriate time and thank you again for the opportunity to share our perspectives.

[2] High-level Expert Group on Artificial Intelligence
Smuhana - https://ec.europa.eu/digital-single-market/en/high-level-expert-group-artificial-intelligence

Testimony of Julia Stoyanovich and Solon Barocas before New York City Council Committee on Technology, regarding Update on Local Law 49 of 2018 in Relation to Automated Decision Systems (ADS) Used by Agencies

April 4, 2019

Dear Chair Koo and members of the Committee:

We, Prof. Julia Stoyanovich and Prof. Solon Barocas, are jointly entering this testimony. We both are appointed members of a Task Force established in response to Local Law 49 of 2018 in Relation to Automated Decision Systems Used by Agencies (the ADS Task Force).

Julia Stoyanovich holds a Ph.D. in Computer Science from Columbia University. She is an Assistant Professor of Computer Science and Engineering at New York University's Tandon School of Engineering, and an Assistant Professor of Data Science at the Center for Data Science. In her research and teaching,[1] she focuses on responsible data science — on incorporating legal requirements and ethical norms, including fairness, accountability, transparency, and data protection, into data-driven algorithmic decision making. Prof. Stoyanovich is a recipient of a National Science Foundation CAREER award. Her extensive project portfolio includes a collaborative NSF-funded project "Foundations of Responsible Data Management."[2]

Solon Barocas holds a Ph.D. in Media, Culture, and Communication from New York University. He is a Researcher at Microsoft Research New York, an Assistant Professor in the Department of Information Science at Cornell University, and a Faculty Associate at the Berkman Klein Center for Internet & Society at Harvard University. Prof. Barocas co-founded the annual workshop on Fairness, Accountability, and Transparency in Machine Learning (FAT/ML)[3] and later established the ACM Conference on Fairness, Accountability, and Transparency (ACM FAT*).[4]

In our testimony, we would like to express our concerns with the direction of the work of the ADS Task Force.

The intent of Local Law 49 of 2018 is to uphold two important principles in the use of ADS in City agencies: to enable greater government transparency and accountability,

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[1] DS-GA 3001.009 Responsible Data Science, all course materials are publicly available at https://dataresponsibly.github.io/courses/spring19/

[2] See https://dataresponsibly.github.io/ for information about this work, funded by the National Science Foundation through the BIGDATA program (NSF Award #1741047).

[3] http://www.fatml.org/

[4] https://www.fatconference.org/

and to ensure fairness and equity.[5] Yet, the work of the Task Force so far has failed to fully satisfy these principles.

Despite numerous requests, Task Force members have not been given any information about ADSs used by the City. To date, the City has not identified even a single system. Task Force members need to know about relevant systems used by the City to provide meaningful recommendations. A report based on hypothetical examples, rather than on actual NYC systems, will remain abstract and inapplicable in practice. The Task Force cannot issue actionable and credible recommendations without some knowledge of the systems to which they are intended to apply. The need for examples has been raised by several of us on numerous occasions, but remained unaddressed until yesterday, just one day before this hearing, with the City suggesting that two examples *might* be forthcoming, at some unspecified future date.

The City has cited concerns with privacy and security in response to our requests, but these cannot be used as blanket reasons to stand in the way of government transparency. Privacy and security considerations must be thoughtfully addressed as part of the process of formulating recommendations for transparency and accountability. However, we can only determine how to navigate these tensions if basic details about actual ADSs—and specific concerns that justifiably counsel against transparency—are shared with the Task Force. These cannot be negotiated in the abstract.

Despite these challenges, the Task Force was able to make some meaningful progress in developing a methodology for eliciting relevant information about ADSs, using so-called "ADS Cards" that ask developers and operators to provide specific details about the system in question (see attached). ADS Cards built on an emerging body of academic research on transparency and accountability for automated systems,[6] and we viewed them as a worthwhile and promising effort. Unfortunately, the City had the Task Force abandon ADS Cards at the start of the year for reasons that remain unclear.

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[5] In the press release from Office of the Mayor regarding the ADS Task Force, available at https://www1.nyc.gov/office-of-the-mayor/news/251-18/mayor-de-blasio-first-in-nation-task-force-examine-automated-decision-systems-used-by, "As data and technology become more central to the work of city government, the algorithms we use to aid decision making must be aligned with our goals and values," said Mayor de Blasio. "The establishment of the Automated Decision Systems Task Force is an important first step towards greater transparency and equity in our use of technology."

[6] Ke Yang, Julia Stoyanovich, Abolfazl Asudeh, Bill Howe, H. V. Jagadish, Gerome Miklau: A Nutritional Label for Rankings. SIGMOD Conference 2018: 1773-1776. http://demo.dataresponsibly.com/rankingfacts; Margaret Mitchell, Simone Wu, Andrew Zaldivar, Parker Barnes, Lucy Vasserman, Ben Hutchinson, Elena Spitzer, Inioluwa Deborah Raji, Timnit Gebru: Model Cards for Model Reporting. ACM FAT* 2019: 220-229; Timnit Gebru, Jamie Morgenstern, Briana Vecchione, Jennifer Wortman Vaughan, Hanna M. Wallach, Hal Daumé III, Kate Crawford: Datasheets for Datasets. CoRR abs/1803.09010 (2018).

The problems described above are exacerbated by the lack of transparency in the City's decision-making about the Task Force structure and operation. Not only do Task Force members lack the information about ADSs that they need to execute the mandate of the Law, but they lack information as to how and why these decisions are being made.

In light of these concerns, we make the following recommendations:

1. The City Council should urge the City to provide Task Force members with sufficient information and examples to develop well informed, concrete, and actionable recommendations. Should the City fail to be forthcoming, the City Council should amend the Law to give Task Force members legal authority to make such requests.
2. If it is determined that additional time is needed to identify and collect information about ADSs, the City Council should amend the Law to allocate additional time to the work of the Task Force. It is more important to do this work right than to do it quickly.
3. The City Council should play a more active and consistent role in overseeing the Task Force, with the goal of ensuring that the City works with Task Force members to fulfill the mandate of the Law.

The apparent lack of commitment to transparency on the part of Task Force leadership casts doubt on the City's intentions to seriously consider or enact the report's recommendations—recommendations largely about transparency. We hope that the City Council will take deliberate and decisive action to address the concerns we raise in our testimony. Otherwise, we worry that this highly visible, much anticipated effort—the first such effort in the United States—will be a missed opportunity.

ADS Card - Allegheny Family Screening Tool (AFST)

Agency: Allegheny County's Department of Human Services (DHS)

Agency's goals: Improve overall health, safety, and well-being of County residents

Time of ADS use in current form: August 2016 to present

Previous versions of ADS: None

Population:

- *Who/what are decisions made about:* Families
- *How do they enter that population:* Referral calls to the County

Population's role in ADS development: Research team met with community groups and families in the welfare system

Decision space:

- "Screen in": investigate
- "Screen out": do not investigate

(Stated) reasons for individualized decisions, rather than a population-level policy:

- Limited County resources for investigations
- Concern about burdening families with investigations

Ideal target: *(ideally, who/what would you target?)*

Families where a DHS investigation would reduce maltreatment

Proxy target: *(given data limitations, what/who will you target?)*

Families where the child would be removed from home if investigated

Assumption	Justification
• Home removal if investigated is a proxy for maltreatment	• ?
• Home removal stops maltreatment	• ?

Proxy target data:

Data on home removals are available for *past* screened-in cases, need to *predict* at decision-time

Data analysis (predictions, calculations, algorithms): see reverse

Overall metrics: area under the curve (AUC = 0.74); true positive rate (TPR = 0.54) and false positive rate (FPR = 0.21) using a threshold of top 25% highest scores

Group-specific metrics: calibration (probability of home removal at each score), AUC, TPR, and FPR all differ by race

(Stated) reasons for data analysis:

- Efficiency: decision-making with less human-hours [Who/what gets the saved resources?]
- Consistency across decision-making
- Accuracy: base decisions on the best possible predictions

Users: call screening staff

Use of data-analytic output (or raw data) in decision-making:

Call staff use the AFST score and the allegation content (which is not included in the score) to make the decision. Scores above a 16/20 are labeled "mandatory screen-ins" and only supervisors are allowed to screen them out.

Appeals process: None

Concern	Mitigation
• AFST scores could influence investigations (confirmation bias)	• scores are not shared with workers who investigate cases
• AFST scores could be stigmatizing	• ?

Discovery: *(how was this metadata obtained?)*

http://proceedings.mlr.press/v81/chouldechova18a/chouldechova18a.pdf

Prediction function
Built by: researchers from four universities, with DHS **Target** *("proxy target" above)*: home removal (after screened-in for investigation) **Methods used to build:** • *Considered:* ? • *Selected:* logistic regression [*Code public?* Yes/No] • *Selection Process:* ? **Input variables:** • *Considered:* 800 variables (demographics, welfare interactions, imprisonment...) [*List of variables public?* Yes/No] • *Selected:* 71 of the above [*List of variables public?* Yes/No] • *Selection Process:* ? **Data used to build:** [*Data public?* Yes/No] • *Sample:* 46,503 screened-in referral calls • *Train/test split:* 32,086 train / 14,417 test • *Sources:* administrative data **Extrapolation:** [Research question: how to summarize multidimensional overlap] • *Range of input data used to build:* ? • *Range of input data during deployment:* ? **Output:** scores estimating probability of home removal, given a set of features [*Data public?* Yes/No] **Prediction performance metrics:** area under the curve (AUC = 0.74); true positive rate (TPR = 0.54) and false positive rate (FPR = 0.21) using a threshold of top 25% highest scores

ADS Card - Indiana Welfare Eligibility

Agency: Indiana Family and Social Services Administration (FSSA)

Agency's goals: Reduce fraud, curtail spending, improve access to services, move clients off the welfare rolls

Time of ADS use in current form: 2007-2009

Previous versions of ADS: Indiana Client Eligibility System (ICES)

Population:

- *Who/what are decisions made about:* People
- *How do they enter that population:* Applying for Medicaid/SNAP/TANF

Population's role in ADS development: None

Decision space:

- Mark eligible: person can access Medicaid/SNAP/TANF
- Mark ineligible: person receives a generic "failure to cooperate" notice

(Stated) reasons for individualized decisions, rather than a population-level policy:

- Eligibility laws
- Limited resources for giving everyone Medicaid/SNAP/TANF

Ideal target: *(ideally, who/what would you target?)*

People who are eligible for Medicaid/SNAP/TANF

Proxy target: *(given data limitations, what/who will you target?)*

People whose applications meet certain criteria…

Assumption	Justification
•	•

Proxy target data:

Submitted applications

Data analysis (predictions, calculations, algorithms): see reverse

Overall metrics: For SNAP: false negative rate (FNR = 0.12), number of households receiving SNAP dropped 7% in Delaware County...

Group-specific metrics: ?

(Stated) reasons for data analysis:

- Efficiency: decision-making with less human-hours [Who/what gets the saved resources?]
- Consistency across decision-making
- Accuracy: less human error

Users: Caseworkers

Use of data-analytic output (or raw data) in decision-making:

Caseworkers receive *tasks* from the Workflow Management System (WFMS), rather than a caseload of *clients*.

Appeals process: Eubanks describes a backlog of 32,000 appeals cases during 2006-2008

Concern	Mitigation
• Loss of face-to-face help	• ?
• FSSA workers frustrated, or lose their jobs	
• False negative rate (FNR): marked ineligible, when truly eligible. Disparity across groups?	• ?

Discovery: *(how was this metadata obtained?)*

Eubanks, Virginia. Automating inequality: How high-tech tools profile, police, and punish the poor. St. Martin's Press, 2018.

Workflow Management System
Built by: IBM and Affiliated Computer Services (ACS) ????