

DS-GA 3001.009: Responsible Data Science

Legal and Regulatory Frameworks

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Computer Science and Engineering at Tandon

@stoyanoj

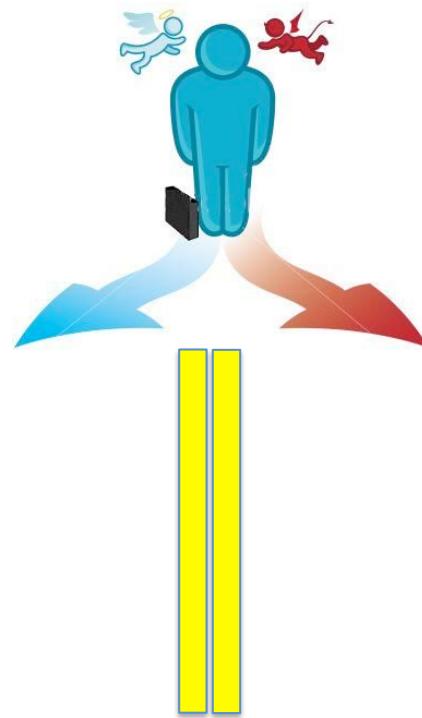
<http://stoyanovich.org/>
<https://dataresponsibly.github.io/>

taking responsibility

Personalized medicine

Analysis of a person's medical data, genome, social data

personalized medicine
personalized care and
predictive measures

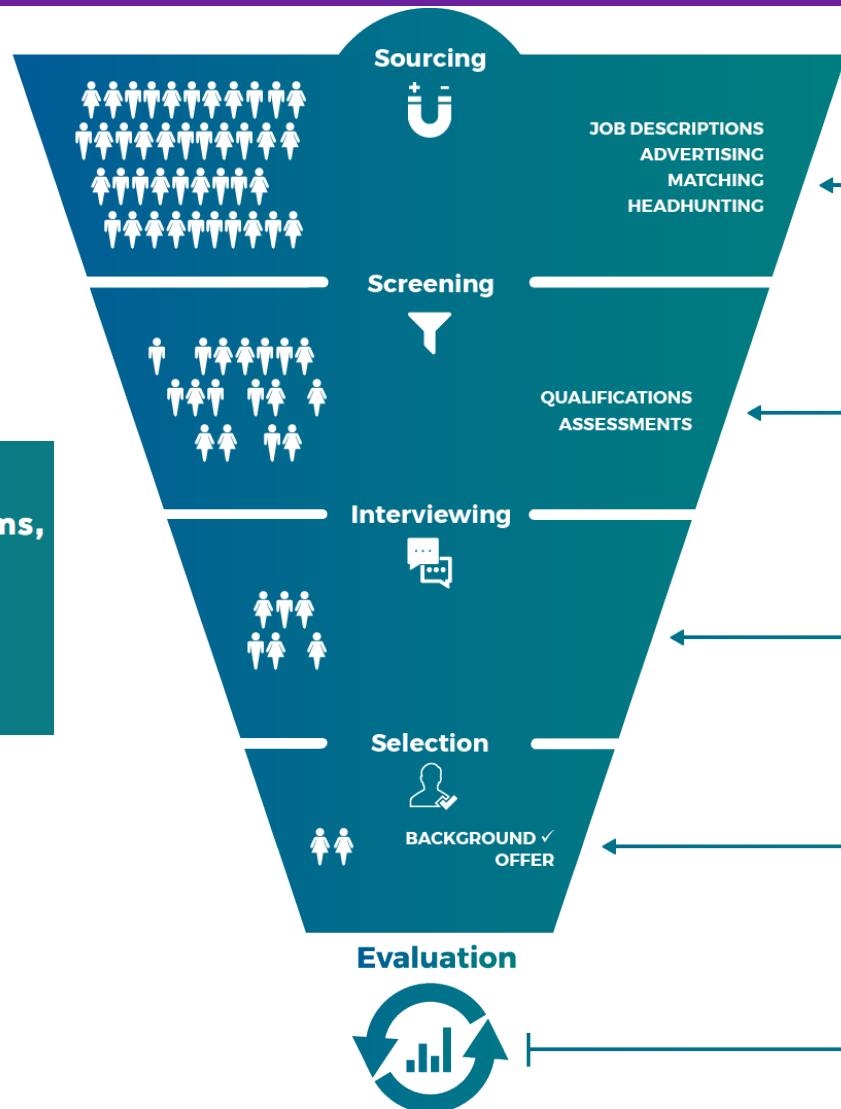


personalized insurance
expensive, or unaffordable,
for those at risk

the same technology makes both possible!

should both uses be legal?

Predictive tools across the hiring funnel



Help Wanted:
An Examination of Hiring Algorithms,
Equity, and Bias
December 2018
Upturn

<https://www.upturn.org/reports/2018/hiring-algorithms/>

Applying existing law

February 5, 2020

“... employers should understand how AI models work, including the validation studies supporting screening systems, the variables leading to decisions, and the steps vendors have taken to de-bias algorithms. Ultimately, **employers bear legal responsibility for discrimination in their employment practices, even when using a third-party tool developed by a vendor.** Although vendors may contend that information on the validity and operation of the system are proprietary and confidential, employers cannot rely on vague representations of validity; nor can employers rely on a vendor’s promise of indemnification because multiple large cases could render a vendor unable to satisfy this promise. “

Jenny R. Yang, Esq., Senior Fellow, Urban Institute

<https://edlabor.house.gov/imo/media/doc/YangTestimony02052020.pdf>

Racially identifying names

[Latanya Sweeney; CACM 2013]



Ads by Google

[Latanya Sweeney, Arrested?](#)
1) Enter Name and State. 2) Access F
Checks Instantly.
www.instantcheckmate.com/

[Latanya Sweeney](#)
Public Records Found For: Latanya S
www.publicrecords.com/

[La Tanya](#)

LATANYA SWEENEY
1420 Centre Ave
Pittsburgh, PA 15219
DOB: Oct 27, 1959 (53 years old)

CERTIFIED

Personal
Name, aliases, birthdate, phone numbers, etc.

Location
Detailed address history and related data, maps, etc.

Criminal History
Rate This Content: ★★★★★
This section contains possible citation, arrest, and criminal records for the subject of this report. While our database does contain hundreds of millions of arrest records, different counties have different rules regarding what information they will and will not release.
We share with you as much information as we possibly can, but a clean slate here should not be interpreted as a guarantee that Latanya Sweeney has never been arrested; it simply means that we were not able to locate any matching arrest records in the data that is available to us.

Possible Matching Arrest Records

Name	County and State	Offenses	View Details
No matching arrest records were found.			

Racism is Poisoning Online Ad Delivery, Says Harvard Professor

Google searches involving black-sounding names are more likely to serve up ads suggestive of a criminal record than white-sounding names, says computer scientist

racially identifying names trigger ads suggestive of a criminal record

<https://www.technologyreview.com/s/510646/racism-is-poisoning-online-ad-delivery-says-harvard-professor/>

Response

<https://www.technologyreview.com/s/510646/racism-is-poisoning-online-ad-delivery-says-harvard-professor/>

In response to this blog post, a **Google** spokesperson sends the following statement:

“AdWords does not conduct any racial profiling. We also have a strict violence policy which states that we will not allow ads that discriminate against an organisation, person or group of people. It is up to individuals to choose which keywords they want to choose to trigger their ads.”



Instantcheckmate.com sends the following statement:

“As a point of fact, Instant Checkmate would like to state we have never engaged in racial profiling in Google AdWords. **We have the technology in place to even connect a name with a race** but we have no desire to do so. We have no desire to do any attempt to do so. The very idea is contrary to our company principles and values.”



Online job ads

the guardian

Samuel Gibbs

July 2015

Wednesday 8 July 2015 11.29 BST

Women less likely to be shown ads for high-paid jobs on Google, study shows

Automated testing and analysis of company's advertising system reveals male job seekers are shown far more adverts for high-paying executive jobs



One experiment showed that Google displayed adverts for a career coaching service for executive jobs 1,852 times to the male group and only 318 times to the female group. Photograph: Alamy

The AdFisher tool simulated job seekers that did not differ in browsing behavior, preferences or demographic characteristics, except in gender.

One experiment showed that Google displayed ads for a career coaching service for “\$200k+” executive jobs **1,852 times to the male group and only 318 times to the female group**. Another experiment, in July 2014, showed a similar trend but was not statistically significant.

<https://www.theguardian.com/technology/2015/jul/08/women-less-likely-ads-high-paid-jobs-google-study>

What are the legal ramifications?

[A. Datta, A. Datta, J. Makagon, D. Mulligan, M. Tschantz; *FAT* 2018*]

- Each actor in the advertising ecosystem may have contributed inputs that produced the effect
- **It is impossible to know, without additional information, what the different actors - other than the consumers of the ads - did or did not do**
- In particular, impossible to asses intent, which *may* be necessary to asses the extent of legal liability. Or it may not!
 - **Title VII of the 1964 Civil Rights Act** makes it unlawful to discriminate based on sex in several stages of employment. It includes an **advertising prohibition** (think sex-specific *help wanted* columns in a newspaper), which does not turn on intent
 - **Title VII does not directly apply here** because it is limited in scope to employers, labor organizations, employment agencies, joint labor-management committees
 - **Fair Housing Act (FHA)** is perhaps a better guide than Title VII, limiting both content and activities that target advertisement based on protected attributes

Online ad delivery

POLICY \ US & WORLD \ TECH

THE VERGE

83

Facebook has been charged with housing discrimination by the US government

'Facebook is discriminating against people based upon who they are and where they live,' says HUD secretary

By Russell Brandom | Mar 28, 2019, 7:51am EDT

This is the first federal discrimination lawsuit to deal with racial bias in targeted advertising, a milestone that lawyers at HUD said was overdue. "Even as we confront new technologies, the fair housing laws enacted over half a century ago remain clear—discrimination in housing-related advertising is against the law," said HUD General

POLICY \ US & WORLD \ TECH

HUD reportedly also investigating Google and Twitter in housing discrimination probe

By Adi Robertson | @thedextriarchy | Mar 28, 2019, 3:52pm EDT

<https://www.theverge.com/2019/3/28/18285899/housing-urban-development-hud-facebook-lawsuit-google-twitter>

Personal responsibility?

NATURE | NEWS

Italian seismologists cleared of manslaughter

Appeals court says six scientists did not cause deaths in 2009 L'Aquila earthquake and cuts sentence of a government official.

Alison Abbott & Nicola Nosengo

10 November 2014

The screenshot shows the top navigation bar of the Nature journal website. It features the 'nature' logo with the subtitle 'International weekly journal of science'. Below the logo are several links: Home, News & Comment, Research, Careers & Jobs, Current Issue, Archive, Audio & Video, and For Authors. A secondary navigation bar below these includes 'Archive', 'Volume 515', 'Issue 7526', 'News', and 'Article'.

November 2014

Six seismologists accused of misleading the public about the risk of an earthquake in Italy were cleared of manslaughter on 10 November. An appeals court overturned their six-year prison sentences and reduced to two years the sentence for a government official who had been convicted with them.

The magnitude-6.3 earthquake struck the historic town of L'Aquila in the early hours of 6 April 2009, killing more than 300 people.

Personal responsibility?

NATURE | NEWS

Italian seismologists cleared of manslaughter

Appeals court says six scientists did not cause deaths in 2009 L'Aquila earthquake and cuts sentence of a government official.

Alison Abbott & Nicola Nosengo

10 November 2014



The image shows the header of the Nature journal website. The word "nature" is written in a large, lowercase serif font, with "International weekly journal of science" in a smaller, sans-serif font below it. A horizontal navigation bar follows, containing links for Home, News & Comment, Research, Careers & Jobs, Current Issue, Archive, Audio & Video, and For Authors. Below this is a breadcrumb navigation showing the path: Archive > Volume 515 > Issue 7526 > News > Article.

November 2014

The finding by a three-judge appeals court prompted many L'Aquila citizens who were waiting outside the courtroom to react with rage, shouting “shame” and saying that the Italian state had just acquitted itself, local media reported. But it **comes as a relief to scientists around the world who had been following the unprecedented case with alarm.**

“We don’t want to have to be worried about the possibility of being prosecuted if we give advice on earthquakes,” says seismologist Ian Main of the University of Edinburgh, UK. “That would discourage giving honest opinion.”

GDPR

GDPR

Chapter 1 (Art. 1 – 4)	▼
General provisions	
Chapter 2 (Art. 5 – 11)	▼
Principles	
Chapter 3 (Art. 12 – 23)	▼
Rights of the data subject	
Chapter 4 (Art. 24 – 43)	▼
Controller and processor	
Chapter 5 (Art. 44 – 50)	▼
Transfers of personal data to third countries or international organisations	
Chapter 6 (Art. 51 – 59)	▼
Independent supervisory authorities	
Chapter 7 (Art. 60 – 76)	▼
Cooperation and consistency	
Chapter 8 (Art. 77 – 84)	▼
Remedies, liability and penalties	
Chapter 9 (Art. 85 – 91)	▼
Provisions relating to specific processing situations	
Chapter 10 (Art. 92 – 93)	▼
Delegated acts and implementing acts	
Chapter 11 (Art. 94 – 99)	▼
Final provisions	

<https://gdpr-info.eu/>

General Data Protection Regulation GDPR

Welcome to gdpr-info.eu. Here you can find the official [PDF](#) of the Regulation (EU) 2016/679 (General Data Protection Regulation) in the current version of the OJ L 119, 04.05.2016; cor. OJ L 127, 23.5.2018 as a neatly arranged website. All Articles of the GDPR are linked with suitable recitals. The European Data Protection Regulation is applicable as of May 25th, 2018 in all member states to harmonize data privacy laws across Europe. If you find the page useful, feel free to support us by sharing the project.

Quick Access

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GDPR: scope and definitions

Article 2: Material Scope

- This Regulation applies to the processing of personal data wholly or partly by automated means and to the processing other than by automated means of personal data which form part of a filing system or are intended to form part of a filing system.

Article 4: Definitions

- ‘**personal data**’ means any information relating to an identified or identifiable natural person (‘**data subject**’); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person;
- ‘**processing**’ means **any operation** or set of operations which is performed on personal data or on sets of personal data, **whether or not by automated means**, such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction;

GDPR: scope and definitions

Article 4: Definitions

- ‘**controller**’ means the natural or legal person, public authority, agency or other body which, alone or jointly with others, **determines the purposes and means of the processing** of personal data; where the purposes and means of such processing are determined by Union or Member State law, the controller or the specific criteria for its nomination may be provided for by Union or Member State law;
- ‘**processor**’ means a natural or legal person, public authority, agency or other body which **processes personal data on behalf of the controller**;
- ‘**consent**’ of the data subject means any **freely given, specific, informed and unambiguous** indication of the data subject’s wishes by which he or she, by a statement or by a clear affirmative action, **signifies agreement to the processing of personal data relating to him or her**;

Art. 7 GDPR

Conditions for consent

1. Where processing is based on consent, the controller shall be able to demonstrate that the data subject has consented to processing of his or her personal data.

2. ¹If the data subject's consent is given in the context of a written declaration which also concerns other matters, the request for consent shall be presented in a manner which is clearly distinguishable from the other matters, in an intelligible and easily accessible form, using clear and plain language. ²Any part of such a declaration which constitutes an infringement of this Regulation shall not be binding.

Art. 7 GDPR

Conditions for consent

3. ¹The data subject shall have the right to withdraw his or her consent at any time.
²The withdrawal of consent shall not affect the lawfulness of processing based on consent before its withdrawal. ³Prior to giving consent, the data subject shall be informed thereof. ⁴It shall be as easy to withdraw as to give consent.
4. When assessing whether consent is freely given, utmost account shall be taken of whether, *inter alia*, the performance of a contract, including the provision of a service, is conditional on consent to the processing of personal data that is not necessary for the performance of that contract.

Chapter 3

Rights of the data subject

Section 1 – Transparency and modalities

- Article 12 – Transparent information, communication and modalities for the exercise of the rights of the data subject
-

Section 2 – Information and access to personal data

- Article 13 – Information to be provided where personal data are collected from the data subject
-

- Article 14 – Information to be provided where personal data have not been obtained from the data subject
-

- Article 15 – Right of access by the data subject
-

Chapter 3

Rights of the data subject

Section 3 – Rectification and erasure

Article 16 – Right to rectification

Article 17 – Right to erasure ('right to be forgotten')

Article 18 – Right to restriction of processing

Article 19 – Notification obligation regarding rectification or erasure of personal data or restriction of processing

Article 20 – Right to data portability

Removing personal data

[S. Abiteboul and J. Stoyanovich; *ACM JDIQ 2019*]

The right to be forgotten (Article 17)

- Similar laws exist in other jurisdictions, e.g., Argentina (since 2006)
- Resulted in many dereferencing requests to search engines
- Often seen as controversial: **reasons?**
- May conflict with other legal requirements, or with technical requirements

Also, just technically challenging:

- have to re-engineer the data management stack, **what are the issues?**
- what about models?

Chapter 3

Rights of the data subject

Section 3 – Rectification and erasure

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Article 17 – Right to erasure ('right to be forgotten')

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Article 19 – Notification obligation regarding rectification or erasure of personal data or restriction of processing

Article 20 – Right to data portability

Moving personal data

[S. Abiteboul and J. Stoyanovich; *ACM JDIQ 2019*]

The right to data portability (Article 20)

- Aims to prevent vendor lock-in
- What are some technical difficulties?
 - Suppose you want to move your photos from Service A to Service B?
 - What about moving your social interactions from Service A to Service B?
- Can we look at this from the point of view of **inter-operability** rather than moving data?

About us

The Data Transfer Project was launched in 2018 to create an open-source, service-to-service data portability platform so that all individuals across the web could easily move their data between online service providers whenever they want.

The contributors to the Data Transfer Project believe portability and interoperability are central to innovation. Making it easier for individuals to choose among services facilitates competition, empowers individuals to try new services and enables them to choose the offering that best suits their needs.

Current contributors include:



What is the Data Transfer Project

Data Transfer Project (DTP) is a collaboration of organizations committed to building a common framework with open-source code that can connect any two online service providers, enabling a seamless, direct, user initiated portability of data between the two platforms.

[Learn More](#)



<https://datatransferproject.dev/>

Chapter 3

Rights of the data subject

Section 4 – Right to object and automated individual decision-making

Article 21 – Right to object

Article 22 – Automated individual decision-making, including profiling

Recital 58

The principle of transparency*

¹ The principle of transparency requires that any information addressed to the public or to the data subject be concise, easily accessible and easy to understand, and that clear and plain language and, additionally, where appropriate, visualisation be used. ² Such information could be provided in electronic form, for example, when addressed to the public, through a website. ³ This is of particular relevance in situations where the proliferation of actors and the technological complexity of practice make it difficult for the data subject to know and understand whether, by whom and for what purpose personal data relating to him or her are being collected, such as in the case of online advertising.

⁴ Given that children merit specific protection, any information and communication, where processing is addressed to a child, should be in such a clear and plain language that the child can easily understand.

<https://gdpr-info.eu/recitals/no-58/>

from data to impacts:
algorithmic impact
statements

Setting the stage: “Big Data Policing”

[Andrew Selbst; *Georgia Law Review 2017*]

“Despite its growing popularity, predictive policing is in its relative infancy and is still mostly hype. Current prediction is akin to early weather forecasting, and, like Big Data approaches in other sectors, mixed evidence exists about its effectiveness.

Cities such as Los Angeles, Atlanta, Santa Cruz, and Seattle have enlisted the predictive policing software company PredPol to predict where property crimes will occur. Santa Cruz reportedly “saw burglaries drop by 11% and robberies by 27% in the first year of using [PredPol’s] software.” Similarly, Chicago’s Strategic Subject List—or “heat list”—of people most likely to be involved in a shooting had, as of mid-2016, predicted more than 70% of the people shot in the city, according to the police.

But two rigorous academic evaluations of predictive policing experiments, one in Chicago and another in Shreveport, have shown no benefit over traditional policing. **A great deal more study is required to measure both predictive policing’s benefits and its downsides.** “

what are the potential benefits?

what are the potential downsides?

How to regulate “Big Data Policing”

[Andrew Selbst; *Georgia Law Review 2017*]

“While policing is just one of many aspects of society being upended by machine learning, and potentially exacerbating disparate impact in a hidden way as a result, it is a particularly useful case study because of how little our legal system is set up to regulate it.”

The Fourth Amendment: *The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.*

[...] the Fourth Amendment’s reasonable suspicion requirement is inherently a “small data doctrine,” rendering it impotent in even its primary uses when it comes to data mining.”

new legal strategies are needed

How to regulate “Big Data Policing”

[Andrew Selbst; *Georgia Law Review 2017*]

“ Regarding predictive policing specifically, society lacks basic knowledge and transparency about both the technology’s efficacy and its effects on vulnerable populations. Thus, this Article proposes a regulatory solution designed to fill this knowledge gap—to make the police do their homework and show it to the public before buying or building these technologies.”

Main contribution: Algorithmic Impact Statements (AISs)

“Impact statements are designed to **force consideration of the problem at an early stage**, and to document the process so that the public can learn what is at stake, **perhaps as a precursor to further regulation**. The primary problem is that no one, including the police using the technology, yet knows what the results of its use actually are.”

Algorithmic Impact Statements (AISs)

[Andrew Selbst; *Georgia Law Review* 2017]

- Modeled on the Environmental Impact Statements (EISs) of the 1969 National Environmental Policy Act (NEPA)
- GDPR requires “data protection impact assessments (DPIAs) whenever data processing “is likely to result in a high risk to the rights and freedoms of natural persons”
- Privacy impact statements (PIAs) are used to assess the risks of using personally identifiable information by IT systems

The gist:

- Explore and evaluate all reasonable alternatives
- Include the alternative of “No Action”
- Include appropriate mitigation measures
- Provide opportunities for public comment

Canadian ADS directive



Government
of Canada

Gouvernement
du Canada



[Home](#) → [How government works](#) → [Policies, directives, standards and guidelines](#)

Directive on Automated Decision-Making

The Government of Canada is increasingly looking to utilize artificial intelligence to make, or assist in making, administrative decisions to improve service delivery. The Government is committed to doing so in a manner that is compatible with core administrative law principles such as transparency, accountability, legality, and procedural fairness. Understanding that this technology is changing rapidly, this Directive will continue to evolve to ensure that it remains relevant.

Date modified: 2019-02-05

- Took effect on April 1, 2019, compliance by April 1, 2020
- Applies to any ADS developed or procured after April 1, 2020
- Reviewed automatically every 6 months

<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32592>

Definitions

Appendix A: Definitions

- **Administrative Decision** Any decision that is made by an authorized official of an institution as identified in section 9 of this Directive pursuant to powers conferred by an Act of Parliament or an order made pursuant to a prerogative of the Crown that affects legal rights, privileges or interests.
- **Algorithmic Impact Assessment** A framework to help institutions better understand and reduce the risks associated with Automated Decision Systems and to provide the appropriate governance, oversight and reporting/ audit requirements that best match the type of application being designed.
- **Automated Decision System** Includes any technology that either assists or replaces the judgement of human decision-makers. These systems draw from fields like statistics, linguistics, and computer science, and use techniques such as rules-based systems, regression, predictive analytics, machine learning, deep learning, and neural nets.

Objectives

Section 4: Objectives and Expected Results

- **4.1** The objective of this Directive is to ensure that Automated Decision Systems are deployed in a manner that **reduces risks** to Canadians and federal institutions, and **leads to more efficient, accurate, consistent, and interpretable decisions** made pursuant to Canadian law.
- **4.2** The expected results of this Directive are as follows:
 - Decisions made by federal government departments are data-driven, responsible, and complies with procedural fairness and due process requirements.
 - Impacts of algorithms on administrative decisions are assessed and negative outcomes are reduced, when encountered.
 - Data and information on the use of Automated Decision Systems in federal institutions are made available to the public, when appropriate.

Requirements

Section 6.1: Algorithmic Impact Assessment (excerpt)

- 6.1.1 Completing an Algorithmic Impact Assessment prior to the production of any Automated Decision System.
- 6.1.2 ...
- 6.1.3 Updating the Algorithmic Impact Assessment when system functionality or the scope of the Automated Decision System changes.
- 6.1.4 Releasing the final results of Algorithmic Impact Assessments in an accessible format via Government of Canada websites and any other services designated by the Treasury Board of Canada Secretariat pursuant to the Directive on Open Government.

Requirements

Section 6.2: Transparency

- providing notice before decisions
- providing explanations after decisions
- access to components
- release of source code, unless it's classified Secret, Top Secret or Protected C

Impact Assessment Levels

Decisions classified w.r.t. impact on:

- the rights of individuals or communities,
- the health or well-being of individuals or communities,
- the economic interests of individuals, entities, or communities,
- the ongoing sustainability of an ecosystem.

Level I: no impact: impacts are reversible and brief

Level II: moderate: impacts are likely reversible and short-term

Level III: high: impacts are difficult to reverse and ongoing

Level IV: very high: impacts are irreversible and perpetual

higher impact levels lead to more stringent requirements

regulating ADS in
NYC

New York City Local Law 49

January 11, 2018

Local Law 49 of 2018 in relation to automated decision systems used by agencies

 THE NEW YORK CITY COUNCIL Sign In
Corey Johnson, Speaker LEGISLATIVE RESEARCH CENTER

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Details Reports

File #: Int 1696-2017 Version: A ▼ Name: Automated decision systems used by agencies.
Type: Introduction Status: Enacted Committee: [Committee on Technology](#)
On agenda: 8/24/2017
Enactment date: 1/11/2018 Law number: 2018/049
Title: A Local Law in relation to automated decision systems used by agencies
Sponsors: [James Vacca](#), [Helen K. Rosenthal](#), [Corey D. Johnson](#), [Rafael Salamanca, Jr.](#), [Vincent J. Gentile](#), [Robert E. Cornegy, Jr.](#), [Jumaane D. Williams](#), [Ben Kallos](#), [Carlos Menchaca](#)
Council Member Sponsors: 9
Summary: This bill would require 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.
Indexes: Oversight
Attachments: 1. [Summary of Int. No. 1696-A](#), 2. [Summary of Int. No. 1696](#), 3. [Int. No. 1696](#), 4. [August 24, 2017 - Stated Meeting Agenda with Links to Files](#), 5. [Committee Report 10/16/17](#), 6. [Hearing Testimony 10/16/17](#), 7. [Hearing Transcript 10/16/17](#), 8. [Proposed Int. No. 1696-A - 12/12/17](#), 9. [Committee Report 12/7/17](#), 10. [Hearing Transcript 12/7/17](#), 11. [December 11, 2017 - Stated Meeting Agenda with Links to Files](#), 12. [Hearing Transcript - Stated Meeting 12-11-17](#), 13. [Int. No. 1696-A \(FINAL\)](#), 14. [Fiscal Impact Statement](#), 15. [Legislative Documents - Letter to the Mayor](#), 16. [Local Law 49](#), 17. [Minutes of the Stated Meeting - December 11, 2017](#)

The original draft

Int. No. 1696

August 16, 2017

By Council Member Vacca

A Local Law to amend the administrative code of the city of New York, in relation to automated processing of **data** for the purposes of targeting services, penalties, or policing to persons

Be it enacted by the Council as follows:

1 Section 1. Section 23-502 of the administrative code of the city of New York is amended

2 to add a new subdivision g to read as follows:

3 g. Each agency that uses, for the purposes of targeting services to persons, imposing

4 penalties upon persons or policing, an algorithm or any other method of automated processing

5 system of **data** shall:

6 1. Publish on such agency's website, the source code of such system; and

7 2. Permit a user to (i) submit **data** into such system for self-testing and (ii) receive the

8 results of having such **data** processed by such system.

9 § 2. This local law takes effect 120 days after it becomes law.

MAJ
LS# 10948
8/16/17 2:13 PM

How I got involved

October 16, 2017



By Julia Powles December 20, 2017

ELEMENTS

NEW YORK CITY'S BOLD, FLAWED ATTEMPT TO MAKE ALGORITHMS ACCOUNTABLE



Automated systems guide the allocation of everything from firehouses to food stamps. So why don't we know more about them?

Photograph by Mario Tama / Getty



https://dataresponsibly.github.io/documents/Stoyanovich_VaccaBill.pdf

Julia Stoyanovich

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Summary of Local Law 49

January 11, 2018

An **Automated Decision System (ADS)** is a “computerized implementation of algorithms, including those derived from machine learning or other data processing or artificial intelligence techniques, which are used to make or assist in making decisions.”

Form task force that surveys the current use of ADS in City agencies and develops procedures for:

- requesting and receiving an **explanation** of an algorithmic decision affecting an individual (3(b))
- interrogating ADS for **bias and discrimination** against members of legally-protected groups (3(c) and 3(d))
- allowing the **public** to **assess** how ADS function and are used (3(e)), and archiving ADS together with the data they use (3(f))

The ADS Task Force

May 16, 2018

Visit alpha.nyc.gov to help us test out new ideas for NYC's website.

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Mayor de Blasio Announces First-In-Nation Task Force To Examine Automated Decision Systems Used By The City

May 16, 2018

NEW YORK— Today, Mayor de Blasio announced the creation of the Automated Decision Systems Task Force which will explore how New York City uses algorithms. The task force, the first of its kind in the U.S., will work to develop a process for reviewing “automated decision systems,” commonly known as algorithms, through the lens of equity, fairness and accountability.

“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.”

New York City's algorithm task force is fracturing

Some members say the city isn't being transparent

April 15, 2018

By Colin Lecher | @colinlecher | Apr 15, 2019, 8:43am EDT



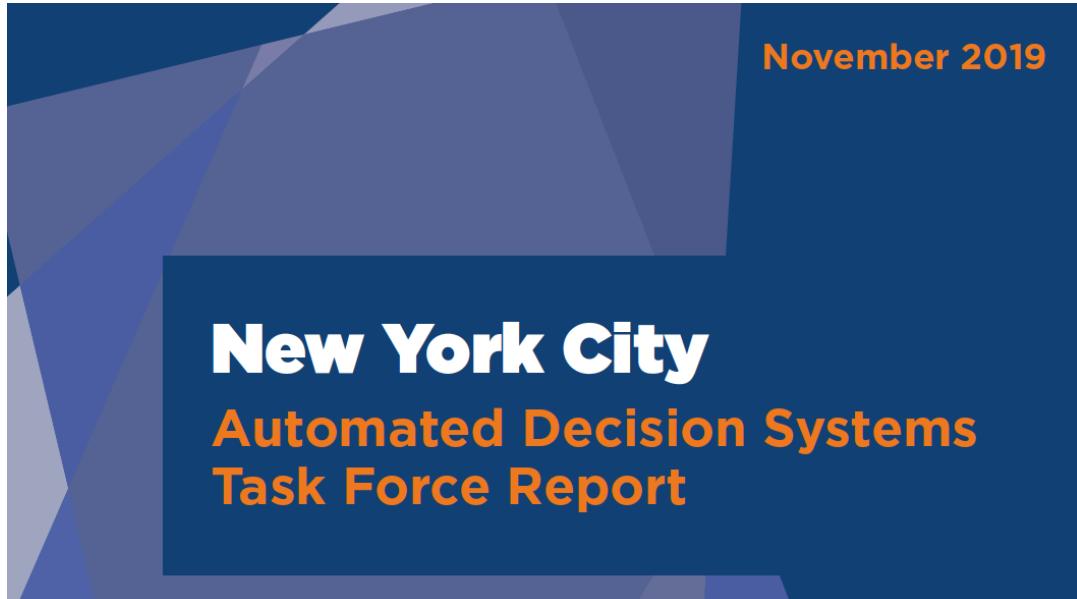
With nothing to study, critics say, the task force is toothless and able to provide only broad policy recommendations ...

New York University assistant professor and task force member Julia Stoyanovich told *The Verge* that **if no examples are forthcoming, “then there was really no point in forming the task force at all.”**

https://dataresponsibly.github.io/documents/StoyanovichBarocas_April4,2019testimony.pdf

The outcome (so far)

November 19, 2019



THE CITY OF NEW YORK
OFFICE OF THE MAYOR
NEW YORK, N.Y. 10007

EXECUTIVE ORDER No. 50

November 19, 2019

ESTABLISHING AN

ALGORITHMS MANAGEMENT AND POLICY OFFICER

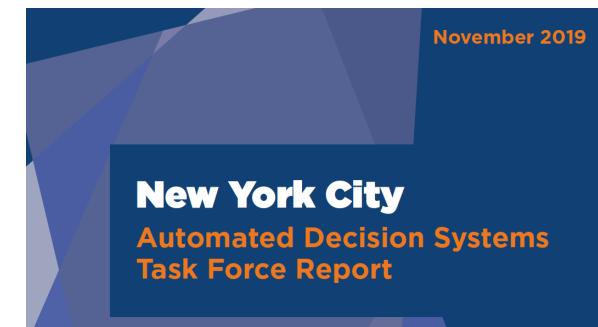
<https://www1.nyc.gov/site/adstaskforce/index.page>

<https://www1.nyc.gov/assets/adstaskforce/downloads/pdf/ADS-Report-11192019.pdf>

<https://www1.nyc.gov/assets/home/downloads/pdf/executive-orders/2019/eo-50.pdf>

Principles

- using ADS **where** they promote innovation and efficiency in service delivery
- promoting fairness, equity, accountability, and transparency in the use of ADS
- reducing potential harm **across the lifespan** of ADS



Recommendations

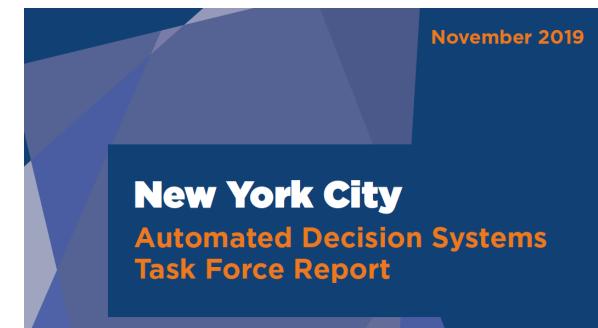
- build the City's ADS management capacity
- broaden public discussion on ADS
- formalize ADS management functions



Rec.1: Build capacity

Develop and centralize an **organizational structure for ADS management** within City government

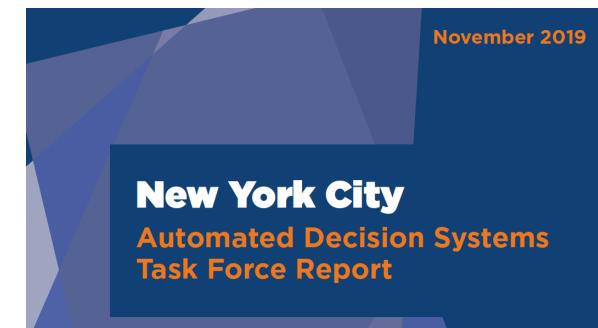
- to uphold the principles
- to give technical advice
- to advise on legal compliance



Rec.1: Build capacity

Adopt a **phased approach** to developing and adopting ADS management practices

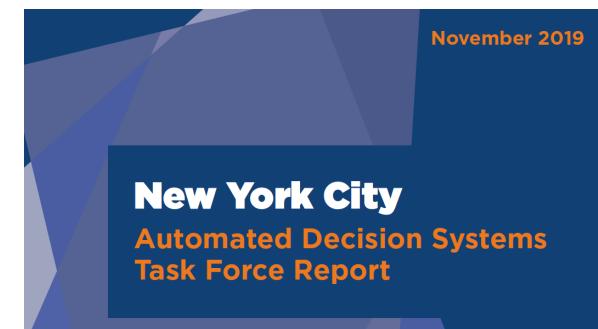
- Create an **ADS prioritization framework** that informs disclosure requirements, based on explainability, impact, cost-benefits
- Incorporate **flexibility** into management processes



Rec.1: Build capacity

Build capacity within the City:

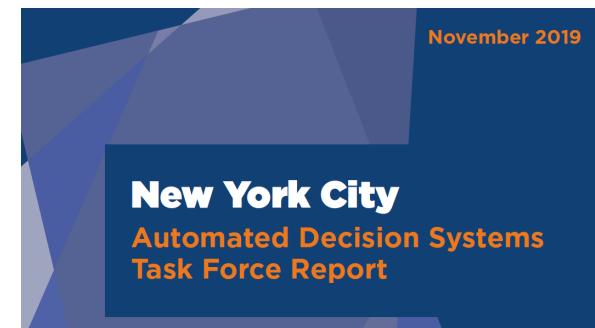
- Provide agencies with **funding** and **staffing** for ADS management
- Build on existing **policy expertise** within agencies as input to centralized policy
- Create **best practices** on procurement, data retention, data sharing



Rec.1: Build capacity

Build capacity within the City:

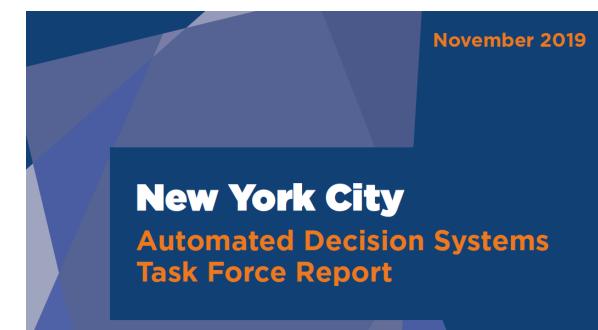
- ...
- **Educate agency staff on ADS**, and on communication about ADS with the public
- Enable input of **expertise external to the City**



Rec.2: Broaden public discussion

Facilitate public education & engagement

- **educational materials** about ADS in general
- help individuals **request information** about specific ADS
- **report** to the public on ADS management
- **engage** the public in making decision about ADS management oversight



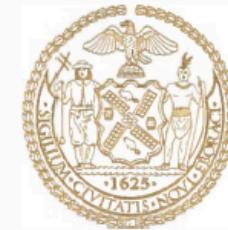
Executive order

Algorithms Management & Policy Officer

Steering Committee: City agency representatives

Advisory Committee: 7 external members =

4 appointed by Mayor + 3 appointed by Speaker



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My perspective

cannot make tangible progress until we take the magic, and the fear, out of ADS — **education is paramount**

independent validation and oversight are important — think quality assurance in software engineering

definitions, prioritization schemes should be developed **based on examples** — a data science exercise

it's more expensive to do things right than to just do them — need **significant resource investment**

Racial bias in health-care algorithms

The New York Times

ECONOMIC VIEW

Biased Algorithms Are Easier to Fix Than Biased People

Racial discrimination by algorithms or by people is harmful — but that's where the similarities end.



Tim Cook

<https://www.nytimes.com/2019/12/06/business/algorithm-bias-fix.html>

By Sendhil Mullainathan

Dec. 6, 2019

In one study published 15 years ago, **two people applied for a job**. Their résumés were about as similar as two résumés can be. One person was named Jamal, the other Brendan.

In a study published this year, **two patients sought medical care**. Both were grappling with diabetes and high blood pressure. One patient was black, the other was white.

Both studies documented **racial injustice**: In the first, the applicant with a black-sounding name got fewer job interviews. In the second, the black patient received worse care.

But they differed in one crucial respect. In the first, hiring managers made biased decisions. In the second, the culprit was a computer program.

Fixing bias in algorithms?

The New York Times

Biased Algorithms Are Easier to Fix Than Biased People

Racial discrimination by algorithms or by people is harmful — but that's where the similarities end.



Tim Cook

By Sendhil Mullainathan

Dec. 6, 2019

Changing algorithms is easier than changing people: software on computers can be updated; the “wetware” in our brains has so far proven much less pliable.

[...] In a 2018 [paper](#) [...], I took a cautiously optimistic perspective and argued that **with proper regulation, algorithms can help to reduce discrimination.**

But the key phrase here is “proper regulation,” which we do not currently have.

We must ensure all the necessary inputs to the algorithm, including the data used to test and create it, are carefully stored. * [...] **We will need a well-funded regulatory agency with highly trained auditors to process this data.**

* my 2 cents:

<https://ai.shorensteincenter.org/ideas/2018/11/26/follow-the-data-algorithmic-transparency-starts-with-data-transparency>

My perspective



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"ADS management and oversight are difficult," said [JS]. "The Mayor's executive order is a necessary step towards making the recommendations from the ADS TF concrete and actionable.

I am particularly looking forward to seeing evidence of a strong commitment on the part of the City to a broad education effort. Educating the public on ADS is essential to **moving beyond the harmful extremes of techno-optimism and techno-bashing, and into a thoughtful and productive conversation about the role of technology in society.**"

<https://www1.nyc.gov/office-of-the-mayor/news/554-19/mayor-de-blasio-signs-executive-order-establish-algorithms-management-policy-officer>

codes of ethics



Association for
Computing Machinery

Advancing Computing as a Science & Profession

2018

The Code

ACM Code of Ethics and Professional Conduct

Affirming our obligation to use our skills to benefit society

Computing professionals' actions change the world. To act responsibly, they should reflect upon the wider impacts of their work, consistently supporting the public good. The ACM Code of Ethics and Professional Conduct ("the Code") expresses the conscience of the profession.

<https://www.acm.org/binaries/content/assets/about/acm-code-of-ethics-booklet.pdf>

The ACM Code (2018)

General ethical principles

- Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing
- Avoid harm
- Be honest and trustworthy
- Be fair and take action not to discriminate
- Respect the work required to produce new ideas, inventions, creative works, and computing artifacts
- Respect privacy
- Honor confidentiality

<https://www.acm.org/binaries/content/assets/about/acm-code-of-ethics-booklet.pdf>