EVENT NOTE

Workshop
Algorithmic Power and Accountability in Black Box Platforms
25 January 2016

The workshop was held under the Chatham House rule. Participants were experts across many fields, including law, philosophy, sociology, media, communications, cultural studies, big data and computer systems engineering, and included practitioners as well as academics. This note was prepared by the LSE Media Policy Project as a record of the points raised in the discussion. It is not a verbatim summary nor is it a statement of a consensus position.

General

The workshop was convened to discuss appropriate ways to assess and challenge algorithmic authority in platform services. It comes as the UK Parliament is reviewing the benefits, problems, and degree of transparency of online platforms. The starting premise of the workshop was the potential weakness of any single intervention or mechanism designed to hold algorithmic systems to account. Platform services are dynamic social spaces, where choices made by platform providers have complex network effects that impact private and public decision making of individuals and collectives.

Discussion focused on three topical areas: legal remedies, technical developments and social research. Each topic opened with a short provocation by a scholar or practitioner and was followed by group discussion. This summary synthesises the discussions into major themes, rather than presenting the individual provocations and responses.

The challenges

The conversation resulted in consensus on a few challenges worthy of continued investigation. When speaking of Big Data and algorithms and the reasoning behind how an automated computer system functions, questions arose about how the functions can be examined and contested. The participants generally agreed that the answers and challenges of interest can be found in the back end of a system, rather than the front end. Systems and algorithms can be extremely complex, but that is not sufficient reasoning to avoid investigating how they operate, or for denying access to how they function for regulation or audit.

Ways of addressing algorithmic power

Improving transparency of algorithms is one potential approach for addressing the asymmetrical power afforded to algorithms. Transparency tools may involve restricting the use of inputs; demanding accountability and auditing outputs; or requiring access to "the black box". Some advocate for embracing algorithms and their different transparencies: to engage with them, to understand them and use them for research.

Legal measures and transparency

Participants discussed the possibility of using legal measures to build an appropriate and adequate framework for the protection of consumers' data. Some legal reforms could address the complex process of machine learning - a process which could be defined as above and beyond the scope of human understanding. Steps could be taken to improve the transparency of algorithms and the data fed into them, or restrictions could be placed on the context in which sensitive data are used.

Policymakers could also insist that companies using decision-making algorithms disclose how decisions are made, including information on the data used and the code for the algorithm itself.

A discussion of the forthcoming EU Data Protection framework outlined some steps which could significantly improve transparency efforts. The proposed framework will require three things from data controllers:

1. disclose profiling;
2. give meaningful explanations, in non-technical language and language that does not reveal intellectual property or trade secrets, regarding the meaning of algorithms and about what information is taken into consideration in computations; and
3. provide information on the envisaged consequences of the profiling.

In addition, this framework will give consumers a right to object to how their data is being used.

One unintended consequence of this framework for transparency and the right to contest could be an increased administrative burden on companies. Another concerns undue burden on consumers: it is difficult for the end user to take on the responsibility of constant watchdog. Rather than thinking of ways for consumers themselves to redress problems of automated decision making, a higher-level structural approach to the question of algorithmic power was also suggested. A third consequence of this framework and from transparency measures more broadly is the problem of consumer gaming and manipulating data that is provided for profiling.

Technical measures for auditing
Rather than thinking of privacy as a data flow issue, it was suggested that there are formal ways within systems design for auditing software in automated decision making. This systems design approach could guard against pragmatic challenges, such as intellectual property concerns or consumers gaming the system. The approach would create an *ex post* regime for reviewing the integrity of automated decision making, making it possible to discover whether outcomes, for example, were arrived at in the same way for protected classes of information (for example with regard to racial or ethnic populations) as for general populations. If principles of fairness can be designed into law, then they can also be designed into operations of computer systems.

It is also possible to design guarantees into a system *ex ante*, for example to ensure that particular data are not used for particular purposes if they are known in advance. This is the same as saying that the system can be designed to function to a purpose, as indeed all engineered objects are.

Considering agency of users and the technology
Discussion of users, technology and algorithms provided an interesting challenge to conventional conceptions of agency. With respect to machine learning and AB testing, one needs to consider the agency of the technology itself, which could be interpreted as mindless, distributed, polymorphous. However, systems are also designed by humans and express the agency of designers, also in cases where machine learning systems are not directly supervised. Users, also, have some agency in the context of AB testing: ultimately they use and receive benefits from technology. Individuals must interact with algorithms and technology, and some participants suggested people could be better informed in order to interact with automated systems. Some participants felt that society must learn to embrace and interact with these systems and understand how they work. Engaging with or "playing" with the algorithms was also suggested as a possible route forward for confronting algorithmic power. Such play could help users understand the outcomes, ask informed questions about the fairness of outcomes, and engage in debate about fairness of outcomes.

Trust and fairness: revisiting old issues
The discussion around transparency and regulation led to a discussion about fairness and trust. Machine learning is dynamic. It can sometimes be difficult or impossible to retrace how specific algorithmic processes link data inputs. This is significant considering the problems of error-filled datasets and inferred categorisations. Another key point is that is it often believed that data have *a priori* value. This can be debated as a standalone claim. The value of data could increase through

various means, the linking of data sets and expansion of data over time. At the same time, the value of inferences is often unpredictable and can be much greater than the value of the individual data sets alone. The asymmetrical power in automated systems and the lack of fairness that results from the disparate treatment of people resulting from decisions made by algorithms raises social concerns.

Some felt that asymmetry is not the problem; it's just that we don't know enough about the algorithms to know how asymmetry occurs and how to avoid disparate treatment. Do metrics help? What are the appropriate metrics? We should recognise that there are legitimate needs for opaqueness at times, including trade secrets protection and security purposes. However, proper respect for human dignity demands a legal system that treats the classification, sorting, and imposition of actions upon humans as categorically different to the same processes with respect to 'things'. The US legal regime's propertisation of trade secrets fails to recognise this distinction; the GDPR's emphasis on disclosure of the logic of decision making is a step toward recognising it. Partial transparency of systems is possible and algorithms can be designed to ensure random outcomes are fair. Oversight and accountability can be designed into systems, for example, audit logs and transparency dashboards.

Trust and trustworthiness are not new issues for society. This highlights a tension between citizens' asserted values and revealed preferences: it does not seem to matter that people do not trust platforms or algorithms, as they still use them. A global conversation about values that matter in the design or operations of platforms might be required. What are the features of trust? What values does society want to see reflected in the black box? And if certain forms of computational ordering are truly incomprehensible to outsiders, how might their applications be limited?

The role of social sciences
Of course, there are differences amongst platforms and how they may respond, via algorithm, to various inputs. There is an important role for social scientists that use platforms (and algorithms) in their research: understanding how platforms differ from one another is important for researchers developing tools for, and working with, algorithms. Using digital media to conduct social research requires an understanding of the media and platforms, and how publics are demarcated. To return to the notion of the black box/dark matter/algorithm, some participants suggested that using and being familiar with platforms and systems may be more important in understanding than understanding the algorithms that run them. By interacting with a system (and its algorithms), a researcher can infer, measure and watch what the algorithms are doing. But can a researcher's results be actionable? That may require assistance from the legal profession.

Further reflections
As the session wrapped up, participants reflected upon the arc of the workshop discussion. Participants covered a wide array of topics, from examining and recommending a framework of accountability for automated computer systems to probing the idea of when and why consumers should be made aware of black box algorithms. The issue of transparency is a multidisciplinary issue that could benefit from further research. It has application and value beyond legal/enforcement issues (for example, the role of play and gaming platform systems within pedagogical contexts). Links between human and non-human elements were noted, as well as the political economy of data and platforms. Overall, questions of accountability and social factors in algorithmic systems will provide a deep well of activity for future research and public discourse.