Experts advocate responsible and transparent use of algorithms in government

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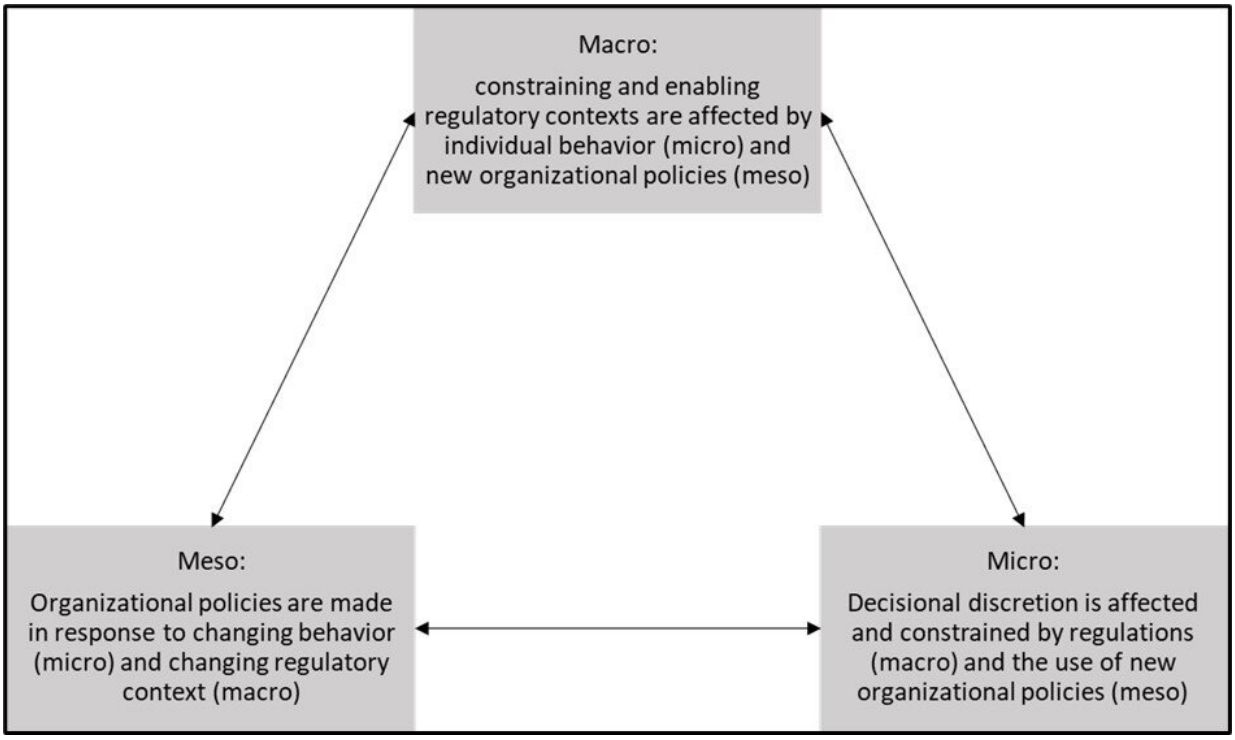

Studying algorithms and algorithmic transparency from multiple levels of analyses. Credit: Information Polity.

The use of algorithms in government is transforming the way bureaucrats work and make decisions in different areas, such as healthcare or criminal justice. Experts address the transparency challenges of using algorithms in decision-making procedures at the

macro-, meso-, and micro-levels in this special issue of *Information Polity*.

Machine-learning algorithms hold huge potential to make government services fairer and more effective and have the potential of "freeing" decision-making from human subjectivity, according to recent research. Algorithms are used in many public service contexts. For example, within the legal system it has been demonstrated that algorithms can predict recidivism better than criminal court judges. At the same time, critics highlight several dangers of algorithmic decision-making, such as racial bias and lack of transparency.

Some scholars have argued that the introduction of algorithms in decision-making procedures may cause profound shifts in the way bureaucrats make decisions and that algorithms may affect broader organizational routines and structures. This special issue on algorithm transparency presents six contributions to sharpen our conceptual and empirical understanding of the use of algorithms in government.

"There has been a surge in criticism towards the 'black box' of algorithmic decision-making in government," explain Guest Editors Sarah Giest (Leiden University) and Stephan Grimmelikhuijsen (Utrecht University). "In this special issue collection, we show that it is not enough to unpack the technical details of algorithms, but also look at institutional, organizational, and individual context within which these algorithms operate to truly understand how we can achieve transparent and responsible algorithms in government. For example, regulations may enable transparency mechanisms, yet organizations create new policies on how algorithms should be used, and individual public servants create new professional repertoires. All these levels interact and affect algorithmic transparency in public organizations."

The transparency challenges for the use of algorithms transcend

different levels of government—from European level to individual public bureaucrats. These challenges can also take different forms; transparency can be enabled or limited by technical tools as well as regulatory guidelines or organizational policies. Articles in this issue address transparency challenges of algorithm use at the macro-, meso-, and micro-level. The macro level describes phenomena from an institutional perspective—which national systems, regulations and cultures play a role in algorithmic decision-making. The meso-level primarily pays attention to the organizational and team level, while the micro-level focuses on individual attributes, such as beliefs, motivation, interactions, and behaviors.

"Calls to 'keep humans in the loop' may be moot points if we fail to understand how algorithms impact human decision-making and how algorithmic design impacts the practical possibilities for transparency and human discretion," notes Rik Peeters, research professor of Public Administration at the Centre for Research and Teaching in Economics (CIDE) in Mexico City. In a review of recent academic literature on the micro-level dynamics of algorithmic systems, he discusses three design variables that determine the preconditions for human transparency and discretion and identifies four main sources of variation in "human-algorithm interaction."

The article draws two major conclusions: First, human agents are rarely fully "out of the loop," and levels of oversight and override designed into algorithms should be understood as a continuum. The second pertains to bounded rationality, satisficing behavior, automation bias, and frontline coping mechanisms that play a crucial role in the way humans use algorithms in decision-making processes.

For future research Dr. Peeters suggests taking a closer look at the behavioral mechanisms in combination with identifying relevant skills of bureaucrats in dealing with algorithms. "Without a basic understanding

of the algorithms that screen- and street-level bureaucrats have to work with, it is difficult to imagine how they can properly use their discretion and critically assess algorithmic procedures and outcomes. Professionals should have sufficient training to supervise the algorithms with which they are working."

At the macro-level, algorithms can be an important tool for enabling institutional transparency, writes Alex Ingrams, Ph.D., Governance and Global Affairs, Institute of Public Administration, Leiden University, Leiden, The Netherlands. This study evaluates a machine-learning approach to open public comments for policymaking to increase institutional transparency of public commenting in a law-making process in the United States. The article applies an unsupervised machine learning analysis of thousands of public comments submitted to the United States Transport Security Administration on a 2013 proposed regulation for the use of new full body imaging scanners in airports. The algorithm highlights salient topic clusters in the public comments that could help policymakers understand open public comments processes. "Algorithms should not only be subject to transparency but can also be used as tool for transparency in government decision-making," comments Dr. Ingrams.

"Regulatory certainty in combination with organizational and managerial capacity will drive the way the technology is developed and used and what transparency mechanisms are in place for each step," note the Guest Editors. "On its own these are larger issues to tackle in terms of developing and passing laws or providing training and guidance for public managers and bureaucrats. The fact that they are linked further complicates this process. Highlighting these linkages is a first step towards seeing the bigger picture of why transparency mechanisms are put in place in some scenarios and not in others and opens the door to comparative analyses for future research and new insights for policymakers. To advocate the responsible and transparent use of

algorithms, future research should look into the interplay between micro-, meso-, and macro-level dynamics."

"We are proud to present this special issue, the 100th issue of *Information Polity*. Its focus on the governance of AI demonstrates our continued desire to tackle contemporary issues in eGovernment and the importance of showcasing excellent research and the insights offered by information polity perspectives," add Professor Albert Meijer (Utrecht University) and Professor William Webster (University of Stirling), Editors-in-Chief.

More information: Rik Peeters et al, The agency of algorithms: Understanding human-algorithm interaction in administrative decision-making, *Information Polity* (2020). DOI: 10.3233/IP-200253

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