



AI and Data Science for Public Policy

EDITORIAL

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ABSTRACT

Artificial intelligence (AI) and data science are reshaping public policy by enabling more data-driven, predictive, and responsive governance, while at the same time producing profound changes in knowledge production and education in the social and policy sciences. These advancements come with ethical and epistemological challenges surrounding issues of bias, transparency, privacy, and accountability. This special issue explores the opportunities and risks of integrating AI into public policy, offering theoretical frameworks and empirical analyses to help policymakers navigate these complexities. The contributions explore how AI can enhance decision-making in areas such as healthcare, justice, and public services, while emphasising the need for fairness, human judgment, and democratic accountability. The issue provides a roadmap for harnessing AI's potential responsibly, ensuring it serves the public good and upholds democratic values.

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KEYWORDS:

AI; data science; ethical AI;
algorithmic accountability;
social science; education

TO CITE THIS ARTICLE:

Benoit K. AI and Data Science
for Public Policy. *LSE Public
Policy Review*. 2024; 3(3):
1, pp. 1–6. DOI: [https://doi.
org/10.31389/lseppr.115](https://doi.org/10.31389/lseppr.115)

The rapid advancement of artificial intelligence (AI) and data science is reshaping the landscape of public policy. Policymaking has long combined historical data, statistical methods, expert intuition, and qualitative insights. However, with the increasing availability of vast datasets and more sophisticated AI tools, public policy now has an even greater capacity to be data-driven, predictive, and responsive. Yet it also brings with it a host of concerns and potential dangers posing new challenges alongside its extensive opportunities. This special issue of the *LSE Public Policy Review* explores how AI and data science are transforming various sectors of public governance, providing fresh insights into the challenges and opportunities they present.

The application of AI in public policy is not a distant future concept – it is happening now. Governments and other political actors around the world are deploying AI tools in areas ranging from healthcare diagnostics, fraud detection, election campaigning, and other forms of public service delivery. AI technologies promise to enhance efficiency, improve decision accuracy, and offer more personalized services to citizens. Yet, as with any powerful technology, AI brings with it significant risks. Issues of bias, transparency, privacy, and accountability loom large. How can we ensure that AI serves the public good, rather than entrenching inequalities or perpetuating errors at scale?

The importance of examining AI and data science in the public policy context cannot be overstated. Unlike private sector applications, where consumers have a choice of whether or not to engage with a company, interactions with the state are inevitable. AI-driven decisions can affect fundamental aspects of citizens' lives, from access to social services to criminal justice outcomes. Ensuring that these systems operate fairly, transparently, and in alignment with democratic values is a challenge that policymakers must urgently address.

The papers in this special issue aim to unpack the complex interplay between AI, data science, and public policy. They offer a critical examination of how AI technologies are being used, the institutional reforms required to mitigate risks, and the ethical dilemmas posed by opaque algorithms. By drawing on case studies and theoretical perspectives, this issue provides a roadmap for how governments and public institutions can harness AI responsibly while safeguarding public trust and ensuring equitable outcomes. Through the topics the papers highlight and the lessons they draw, this issue is designed to serve as a guide by which public servants, policymakers, academics, and lay readers can navigate the new frontiers of AI-driven governance. The authors explore the transformative potential of AI but also delve into the practical and normative considerations that must be addressed to prevent unintended consequences. In many cases, they identify a need for proactive regulation, ongoing public engagement, and a fundamental rethinking of how AI fits within our democratic institutions.

AI AND THE TRANSFORMATION OF THE SOCIAL SCIENCES

Public policy and its study are inextricably linked to knowledge production in the social sciences. Our exploration of the role of AI and data science for public policy thus requires that we first understand how the knowledge production underlying the science of public policy is being fundamentally transformed by AI.

Social science research not only provides the empirical and theoretical foundations necessary for the formulation, implementation, and evaluation of policy, but public policy itself serves as a critical testing ground for these ideas, shaping and being shaped by the knowledge it generates. This reciprocal relationship ensures that as social, economic, and technological changes evolve, so too does the academic understanding that informs evidence-based policymaking. By examining policy in practice, the social sciences contribute to a deeper understanding of human behaviour, institutional dynamics, and societal outcomes, ultimately refining the tools and approaches that guide governance.

Recent research highlights the transformative impact of AI on social science research. AI is revolutionizing data analysis, enhancing the accuracy of predictive models and natural language processing. It offers new opportunities for testing theories and hypotheses at scale, though challenges remain in ensuring transparency and replicability (1). AI tools like ChatGPT are being integrated into various research processes, including data analysis, idea generation, and questionnaire development. However, ethical considerations such as bias and algorithmic transparency must also be addressed (2). Generative AI has the potential to improve survey

research, online experiments, and automated content analyses (3). It can also enhance data quality, create complex simulation models, and provide researcher feedback (4). Despite these benefits, concerns persist regarding the potential erosion of human skills and the need for a balanced synergy between AI capabilities and one of the most crucial underpinnings of public policy formulation and implementation: human judgment and human expertise.

At a recent workshop that brought together the authors of this special issue, we examined not only how AI is being deployed in public policy but also how it is transforming the very nature of knowledge production in the social sciences, the underpinning of how we study public policy and public administration. There are four ways in which AI is influencing social science knowledge production and the cultivation of expertise, each carrying its own promise and controversy.

First, AI is being used as an *augmented search tool*. This function allows researchers to go beyond traditional searches using indexes of the web, or specialised scholarship engines such as Google Scholar. There now exists a rapidly growing set of AI-powered tools and services that delivers academic-focused AI tools that allow authors to rapidly retrieve information, conduct literature reviews, and even generate summaries of existing literature.

AI tools can enhance efficiency, accuracy, and coverage in literature searches and reviews (5). These tools offer functionalities like automated searching, screening, analysis, and synthesis of relevant literature (6). There are debates, however, about the quality and bias of AI-generated content, as well as its impact on genuine intellectual engagement (7). Nonetheless, given the tedium of producing many 'literature reviews' or at least the effort required for this search to be thorough, using AI as an augmented search engine is likely to become a widespread form of academic 'co-pilot' in moving research forward.

A second use of AI is linked to the revolutionary advances brought about by the Transformer, a technological breakthrough that serves as the foundation for the machine learning that powers modern AI and large language models (8). Simply put, the leap from earlier predictive models to advanced tools like deep learning and AI has dramatically increased the accuracy of data analysis in social science research, particularly by enabling more accurate and efficient text analysis. These models outperform conventional machine learning algorithms at nearly all tasks, even with limited training data (9).

The downside of the added power of AI-based machine learning, however, is a loss of transparency. With these 'black box' models, where the underlying mechanisms of AI predictions are opaque even to the researchers who deploy them, it may be impossible to know exactly how they operate on training data to produce results. Despite their better performance as measured by better predicting target outcomes, their complexity creates a lack of transparency that may make it difficult to fully trust the results or understand how well they might operate in different contexts. Despite these concerns, however, the integration of transformer language models in information systems research presents significant opportunities for enhancing existing studies and enabling new research directions (10).

A third area where AI is transforming the social sciences lies in how it is increasingly *replacing human judgment* in research. Tasks that once relied on human expertise – such as coding survey responses, summarising or annotating texts, and even conducting expert analyses – are now being performed by AI systems (1). While this has clear benefits in terms of speed and consistency, it also introduces risks, should researchers rely too heavily on opaque AI judgments (11). The use of AI in qualitative data analysis raises ethical concerns, particularly regarding data privacy and consent (12). AI's impact on decision-making may reduce the need for certain types of human judgment while complementing others (13). Despite potential benefits in various research methods, challenges remain, including bias in training data and ethical considerations (3). Increased automation in social sciences could enhance reliability and validity, but requires careful implementation and consideration of ethical implications.

Finally, and most controversially, AI is beginning to serve as a *producer of qualitative outputs* that were once the sole domain of human creators. Whether through generating written text, producing artwork, or even writing computer code, AI systems like ChatGPT and Copilot are challenging the traditional boundaries of human intellectual labour. This raises significant ethical issues around originality, creativity, and the potential erosion of human skills in content

generation. The use of copyrighted material for AI training is particularly contentious, with some arguing it constitutes theft of creative labour and intellectual property. AI-generated content also raises questions about authenticity, deception, and the nature of creativity itself. These challenges necessitate a comprehensive ethical framework and potential regulatory measures to address security, privacy, and societal implications (14). As AI continues to impact academia and scholarly publishing, there is an urgent need to consider the ethical implications for research integrity and academic practices (15).

As AI becomes more adept at performing these tasks, we may risk losing the qualitative insights and nuanced understanding that come from human engagement with these processes. While AI can streamline problem-solving and decision-making tasks, there is a risk of losing unique human knowledge and individuality (16). There is also a risk that overreliance on AI tools for assisting with or even directly producing social scientific knowledge will cause the skills that, as professional, academic social scientists, we spend so much effort cultivating throughout the course of our educational training and academic careers.

The danger of social scientists being displaced or supplanted by this fourth form of AI knowledge production is higher the more qualitative the social science activity. To the extent that public policy is based on a layer of knowledge that is heavily driven by experience, history, and a qualitative understanding of processes and institutions, the capacity of AI to gradually displace original human contributions to the study, evaluation, and even delivery of public policy is immense.

INTRODUCTION TO THE SPECIAL ISSUE

The challenges confronting knowledge production in the social sciences reflect the broader themes of this special issue, which examines how AI and data science are transforming public policy. As governments adopt AI tools in sectors ranging from healthcare to education, and from political campaigns to justice systems, they face similar challenges of transparency, ethics, and institutional reform. The papers in this issue address these themes from multiple disciplinary perspectives, offering a roadmap for how we might navigate the risks and rewards of AI-driven governance.

This special issue begins by addressing some of the foundational challenges that arise when integrating AI into public policy. Ferretti's paper, 'Value Alignment Alone Cannot Mitigate AI Risks Without Profound Institutional Change', sets the stage by arguing that aligning AI systems with societal values is not sufficient to address the risks posed by these technologies. Ferretti suggests that AI often reveals pre-existing weaknesses within our social institutions, and without deeper institutional reforms, efforts to align AI with human values will fall short. He invites readers to consider the structural changes necessary for AI governance to succeed in the long-term.

Building on this theme, Murray explores the pressing need for regulatory oversight in the public sector in his contribution, 'Automated Public Decision Making and the Need for Regulation'. Murray examines how automated decision-making systems are increasingly deployed by governments, raising concerns about fairness, transparency, and accountability. His paper underscores the unique relationship between citizens and the state, where the stakes of decision-making are higher than in the private sector. He calls for a robust policy framework to ensure that AI in public services is held to the highest standards of justice and transparency.

As AI becomes more embedded in governance, issues of transparency and trust come to the fore. Vredenburg's paper, 'Transparency and Explainability for Public Policy', tackles these challenges by focusing on the moral and practical importance of explainable AI. She argues that in order to maintain public trust, AI systems used in governance must be both transparent and understandable to non-experts. This is not only a technical issue but a deeply ethical one, as opaque systems risk undermining the democratic legitimacy of AI-driven decision-making.

Legal professionals, too, are grappling with the implications of AI. Gentile, in her paper 'Human Law, Human Lawyers, and the Emerging AI Faith', takes a critical view of the growing enthusiasm for AI in the legal profession. While AI tools hold the potential to streamline legal processes and manage the complexity of modern legal systems, Gentile warns that blind faith

in AI could undermine the foundational principles of human law. She advocates for a cautious and reflective approach to integrating AI into legal practice, ensuring that human judgment remains central.

The issue then shifts to specific sectoral applications of AI, beginning with health care. Srivastava's paper, 'AI – A Use Case in Global Health', explores how AI is being used to revolutionize health diagnostics and treatment, particularly in fields like radiology and oncology. While AI has already demonstrated its potential to improve accuracy and save lives, Srivastava highlights the regulatory and ethical challenges that must be addressed to ensure AI is used safely and equitably across different health systems. Her paper emphasizes the need for international collaboration and robust evidence to guide AI policy in healthcare.

Education is another sector where AI is making significant inroads. Sallai et al. examine the role of AI in higher education in their paper, 'Approach Generative AI Tools Proactively or Risk Bypassing the Learning Process in Higher Education'. Drawing on their original research in classrooms at LSE, the authors describe how students are using generative AI tools like ChatGPT. They caution that while AI can enhance learning, it also risks undermining the educational process if students rely on these tools as shortcuts. Their policy recommendations focus on how educators can better integrate AI into the curriculum to support, but not replace, critical thinking and deep learning. Their positive recommendations on how educators can adapt to the changing field of AI to incorporate these tools into teaching and learning offer important guidelines to which all in the field of education should pay close attention.

Turning to the political sphere, Foos in his paper, 'The Use of AI by Election Campaigns', investigates how AI is transforming election campaigns, particularly through AI-generated voter engagement and fundraising strategies. While AI tools offer campaigns the ability to interact with voters at scale, they also raise concerns about data privacy, misinformation, and the unequal distribution of technological resources between campaigns. Foos highlights how the future of AI in politics depends heavily on the regulatory environment, particularly with respect to data protection laws. To safeguard the authenticity of democratic competition, as well as public trust in the system, adaptation by regulators to the new and strange world of AI campaigning will be crucial.

Finally, Guerrero and Margetts, in their paper 'Are All Policymakers Data Scientists Now?' explore how data science is reshaping the policymaking process itself. Governments that traditionally relied on limited official statistics and ad hoc surveys are now faced with a deluge of real-time, granular data. This shift requires policymakers to not only embrace new tools but also to bridge the gap between technical and non-technical teams. The authors argue that in order for governments to fully benefit from data science, they must integrate these methodologies across all levels of the policy process, from design to evaluation, just as educators face challenges in adapting how they deliver and evaluate public policy.

Together, the contributing authors have explored the dynamic relationship between artificial intelligence, data science, and public policy, presenting both the potential and the challenges of these technologies. As AI continues to shape governance and service delivery, it is clear that the social sciences have a critical role in guiding how we harness these tools responsibly. The importance of integrating AI into policy goes beyond technical implementation; it demands a deeper understanding of human behaviour, institutional dynamics, and the societal impacts of new technologies.

The social sciences are uniquely positioned to help policymakers navigate the complexities of AI adoption, from the ethical dilemmas of algorithmic transparency to the risks of bias and inequality. By offering theoretical frameworks and empirical analyses, the social sciences enable us to critically assess how AI systems can be integrated into public institutions without compromising fairness or human judgment. The studies in this issue demonstrate that social scientists are not merely observers of AI's impact on policy but also – through their expertise and research – key enablers of the evidence-based policymaking that can anticipate and mitigate the potential harms of these technologies, ensuring that AI serves the public interest, enhances democratic values, and remains accountable to citizens. They provide timely insights into how AI can serve the public good while ensuring that governance, fairness, and human judgment remain central to policymaking. We hope this collection will be a valuable resource for policymakers, researchers, and citizens aiming to understand and shape AI's role in public policy.

FUNDING INFORMATION

The author gratefully acknowledges administrative and financial support provided by the Data Science Institute, London School of Economics and Political Science.

Benoit
LSE Public Policy Review
DOI: 10.31389/lsepr.115

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COMPETING INTERESTS

The author has no competing interests to declare.

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TO CITE THIS ARTICLE:

Benoit K. AI and Data Science for Public Policy. *LSE Public Policy Review*. 2024; 3(3): 1, pp. 1–6. DOI: <https://doi.org/10.31389/lsepr.115>

Submitted: 02 October 2024
Accepted: 06 October 2024
Published: 04 November 2024

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