PRESERVING DEMOCRATIC LEGITIMACY IN THE APPLICATION OF A.I. TO NOTICE-AND-COMMENT RULEMAKING

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The rise of "e-rulemaking" has opened the door to mass comment campaigns that inundate agencies with thousands—and sometimes millions—of public comments on proposed rules. Artificial intelligence technology, and natural language processing programs in particular, promise a powerful solution for agencies looking to respond more efficiently and effectively to mass participation in notice-and-comment procedure. However, these technologies also pose risks and challenges that may undermine the purposes of public comment.

This article identifies four functions of the notice-and-comment procedures of APA § 553—accuracy, accountability and judicial review, democratic legitimacy, and "the right to be taken seriously"—and evaluates the effect of A.I. processing of public comments on each of those functions. The article then compares natural language processing to cost-benefit analysis, demonstrating that the two tools present similar trade-offs between the instrumental functions of § 553 on one hand, and the democratic legitimacy of notice-and-comment procedures on the other.

Having situated A.I. processing and cost-benefit analysis as two steps in the progressive instrumentalization of agency rulemaking, the article argues that the best practices developed by scholars and officials to preserve transparency and accountability in agencies' use of cost-benefit analysis should also be applied to their use of A.I. to process public comments. By recognizing the applicability of these lessons from the rise of cost-benefit analysis in rulemaking, agencies can take fuller advantage of the benefits of A.I. and avoid undermining the democratic legitimacy of notice-and-comment procedures.

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Introduction

Against the multitude of procedures and processes by which the United States government decides issues of public policy, notice-and-comment rulemaking stands out as a unique opportunity for citizens to participate directly in the formulation of the rules that will govern their lives. Unlike many facets of the administrative state bureaucracy, the statutory scheme for public commenting is refreshingly simple. The agency notifies the public of a proposed rule, solicits the public's input on the issue, considers that input, and explains its ultimate decision in light of the public's submissions. Today, rulemaking subject to notice-and-comment procedure constitutes the most common type of administrative action.[1]

Technological advances have increased public access to and participation in notice-and-comment rulemaking—a phenomenon known as "e-rulemaking."[2] Before the internet revolution reached informal rulemaking, public participation in notice-and-comment procedure fell

1. Nina A. Mendelson, *Foreword: Rulemaking, Democracy, and Torrents of Email*, 79 Geo. Wash. L. Rev. 1343, 1343 (2011); *see also* Todd Garvey, Cong. Rsch. Serv., R41546, A Brief Overview of Rulemaking and Judicial Review (2017) (noting that "the vast majority of agency rules are issued" under § 553 informal rulemaking, as opposed to formal, hybrid, direct final, and negotiated rulemaking).

2. *Id.* at 1344.

well short of even the most modest conception of participatory democracy. Many rulemakings with nationwide effect only received dozens of comments.[3] Facilitated by the E-Government Act of 2002 and the centralization of all rulemaking activity on www.regulations.gov,[4] the digitalization of public commenting allowed citizens to find and comment on proposed rules in just a few clicks.

Predictably, lowering the cost to the public of submitting comments caused a substantial increase in participation—especially when the issue under consideration had already entered the public spotlight. The State Department's consideration of the Keystone XL oil pipeline, for example, garnered over 2.5 million comments, and the Environmental Protection Agency received over 4 million comments on its proposed Clean Power Plan.[5] In 2017, while considering net neutrality regulations for internet service providers, the Federal Communications Commission received a grand total of 21.7 million comments.[6] Even though the average number of comments received remains much closer to pre-e-rulemaking averages than to these dizzying heights, e-rulemaking has clearly raised the ceiling for public participation in any given rulemaking.

Setting aside the democratic value of mass online engagement with a proposed rule, the obligation to consider and respond to millions of comments presents major logistical challenges for agencies. "Mass comment campaigns"—or what Livermore calls "megaparticipation"[7]—can easily overwhelm an agency's resources. Across federal agencies, there exists no consistent or centralized set of policies for screening submitted comments.[8] While many comments are duplicates or form letters to which agencies can easily identify and

3. *See* Cary Coglianese, *Citizen Participation in Rulemaking: Past, Present, and Future*, 55 DUKE L.J. 943, 950 (2006) (noting, for example, that significant Environmental Protection Agency rulemakings in 1989 received twenty-five comments on average, and that forty-two rules promulgated by fourteen different agencies in 1996 received an average of only thirty-three comments).

4. Beth S. Noveck, *The Electronic Revolution in Rulemaking*, 53 EMORY L.J. 433, 434 (2004).

5. Michael A. Livermore, Vladimir Eidelman & Brian Grom, *Computationally Assisted Regulatory Participation*, 93 NOTRE DAME L. REV. 977, 988 (2018). In the early 2000s, electronic commenting had already begun to increase participation, with FCC, EPA, and U.S. Forest Service rulemakings receiving hundreds of thousands of comments. Coglianese, *supra* note 3, at 954.

6. Paul Hitlin, Kenneth Olmstead & Skye Toor, *Public Comments to the Federal Communications Commission About Net Neutrality Contain Many Inaccuracies and Duplicates*, PEW RSCH. CTR. (Nov. 29, 2017), [https://perma.cc/JGX6-7W3F].

7. Livermore et al., *supra* note 5, at 988.

8. U.S. SENATE PERMANENT SUBCOMM. ON INVESTIGATIONS, ABUSES OF THE FEDERAL NOTICE-AND-COMMENT RULEMAKING PROCESS 3 (2019).

respond, many other submissions contain partially or entirely unique text. In order to consider so many comments, some agencies have enlisted contractors to pre-process submissions and group them into thematic categories. Comments have also become more difficult to respond to because many include only brief statements of approval or disapproval of a proposed regulation with no rationale given.[9]

Soliciting online submissions also opens the door to fraudulent comments. Comments may put forth false information, and individuals may submit comments under a false name. Computer-generated or "bot" comments may also infiltrate the process. These phenomena remain relatively uncommon, and agencies have generally found them easy to identify and otherwise harmless to the decision-making process. Nonetheless, agencies spend their limited time and resources checking for them.

To address the burdens created by e-rulemaking and mass commenting, agencies are turning to the next technological revolution: artificial intelligence. The vast amount of text submitted in a mass comment campaign presents the agency with a vast and often unstructured dataset.[10] Sophisticated A.I. computer programs can "read" and analyze large amounts of natural language text at high speed,[11] and that natural language processing technology can then attempt to understand the attitudes expressed in that text through "sentiment analysis."[12] This technology holds the potential to drastically reduce the costs to agencies of analyzing mass comments by quickly identifying duplicate or form comments, recognizing comments generated by computers, and presenting agency decision-makers with accurate summaries of the views expressed by commenters and the amount of support each has received. What's more, the aggregation of similar sentiments through A.I. processing may allow agencies to respond, albeit more indirectly, to comments that would never have warranted a response individually.

Like the internet before it, artificial intelligence technology introduces new questions and challenges for every solution that it provides. Natural language processing and sentiment analysis could fundamentally change the way agencies interact with and respond to public comments, which could in turn alter the ability of the APA's statutory scheme to secure the quality, accountability, and legitimacy of notice-and-comment rulemaking. Reliance on A.I. processing could

9. Livermore et al., *supra* note 5, at 990.
10. *Id.* at 995.
11. *Id.*
12. *Id.* at 1003.

force trade-offs between the benefits to agency decision-making of public commenting and the benefits to the commenter as an active participant in the policymaking process.

This article will explore the various functions and purposes of the notice-and-comment procedures of the APA in order to understand how the application of natural language processing A.I. technology could advance or undermine those purposes. The argument posits solutions to the challenges that these A.I. technologies present.

The aggregation of public sentiment through natural language processing may well improve judicial review of rules promulgated under § 553 and empower agencies to better capture the interests at stake at a high level. However, the improved aggregation of public interests may come at the cost of still less deliberative consideration of individual comments and minority positions, undermining the democratic legitimacy of agency decisions from a civic republican theoretical perspective.

This trade-off between accuracy and efficiency on the one hand and democratic legitimacy on the other has arisen before in the application of cost-benefit analysis to agency rulemaking. Comparing the impacts of cost-benefit analysis and natural language processing on the purposes of notice-and-comment rulemaking, this article will argue that both methods represent the same overarching trend toward the instrumentalization of agency rulemaking. Agency practices for preserving democratic legitimacy amid increased reliance on cost-benefit analysis should, therefore, factor into agencies' application of natural language processing to § 553 notice-and-comment procedures. Specifically, agencies should focus on surrounding A.I. models with institutional checks and balances to counteract the unique risks presented by A.I. processing, and on maintaining transparency around the use of A.I. so that other stakeholders can scrutinize the agency's methodology and identify potential issues.

A.I. holds undeniable potential to address the logistical hurdles facing agencies, and agencies should not hesitate to harness that potential. The question, then, is how best to mitigate the risks A.I. poses to transparency and accountability in rulemaking. Lessons learned from the advent of cost-benefit analysis can help agencies to answer that question.

The argument proceeds in five parts. Part I of this paper identifies four major functions of notice-and-comment procedures: improving the accuracy of agency decisions, holding agencies accountable through well-informed judicial review, preserving the legitimacy of agency rulemaking by aligning decision-making processes with both

majoritarian and civic republican notions of democracy, and protecting individual commenters' rights to have their views taken seriously by the government. Part II details the challenges presented by e-rulemaking. It focuses on the increased frequency of mass comment campaigns and the issues they create for the responding agency. Part II then discusses the promises and pitfalls of natural language processing A.I. in addressing those challenges. Part III considers the potential effect of the use of natural language processing on the fulfillment of the aforementioned functions of public commenting and concludes that NLP benefits the instrumental functions of accuracy and judicial review at the expense of the civic republican and dignitary functions. Part IV compares the trade-off presented in Part III to that posed by agencies' use of cost-benefit analysis. Part V argues that scholars' recommendations for institutional constraints on and transparency around cost-benefit analysis can and should be applied to NLP analysis as well and posits what that application might look like in the A.I. context.

I.
The Function and Purpose of APA Notice and Comment Procedures

The Administrative Procedure Act[13] (APA) requires that federal agencies follow the notice and comment procedures at the heart of e-rulemaking before taking certain agency actions. APA procedures apply when agencies seek to "formulat[e], amend[ ], or repeal[ ]" a rule,[14] with a "rule" constituting any "agency statement of general or particular applicability and future [legal] effect designed to implement, interpret, or prescribe law or policy."[15] When the delegating statute calls for rulemaking "on the record" and "after opportunity for an agency hearing," the rulemaking is considered "formal" and therefore subject to the more demanding procedures of APA §§ 556–57.[16] In the absence of that particular statutory language, the rulemaking is considered "informal" and therefore subject only to the notice-and-comment procedures of APA § 553. There also exist some forms of agency action to which not even informal rulemaking procedures apply.[17]

13. Administrative Procedure Act, 5 U.S.C. §§ 551–59 (2011).

14. 5 U.S.C. § 551(5).

15. *Id.* § 551(4).

16. *Id.* § 553(c).

17. Section 553 procedures do not apply when agencies promulgate "interpretive rules, general statements of policy, or rules of agency organization, procedure, or

Under the APA, informal or "notice-and-comment" rulemaking must include three major procedural steps. First, the agency must issue a public notice of proposed rulemaking that includes the time, place, and nature of the rulemaking proceedings; the legal authority for the proposed rule; and the rule's terms or a description of the subjects involved.[18] Second, following the notice of proposed rulemaking, the agency must allow interested persons the opportunity to submit "written data, views, or arguments" about the proposed rule to the agency.[19] The agency need not provide an opportunity for oral presentation, thus opening the door to written and online commenting.[20] Agencies typically allow the public thirty days to submit comments.[21] Finally, after the conclusion of the comment period, the agency must "consider[ ] the relevant matter presented" in the public's comments and include in the final rules adopted a "concise general statement of their basis and purpose."[22] The Supreme Court has made clear that beyond adhering to the requirements set forth in APA § 553, agencies have wide discretion to tailor their informal rulemaking procedures as they see fit.[23]

The agency's statement of basis and purpose facilitates judicial review of the agency's compliance with APA rulemaking procedure. The statement, generally found in the preamble to the final rule,[24] provides the reviewing court with an explanation of the agency's rationale that the court can use to evaluate whether the agency has fulfilled its burden to consider the issues raised by the public in their submitted comments before promulgating the final rule.[25] Agencies need not re-

practice," or in other scenarios when "the agency for good cause finds (and incorporates the finding and a brief statement of reasons therefore in the rules issues) that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest." *Id.* § 553(b)(A)–(B).

18. *Id.* § 553(b)(1)–(3).

19. *Id.* § 553(c).

20. *Id.* (stating that submission of comments may take place "with or without opportunity for oral presentation").

21. CURTIS W. COPELAND, CONG. RSCH. SERV., RL 32240, THE FEDERAL RULEMAKING PROCESS: AN OVERVIEW 6 (2011).

22. 5 U.S.C. § 553(c).

23. *See* Vt. Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc., 435 U.S. 519, 523 (1978) (affirming that "generally speaking [§ 553] established the maximum procedural requirements which Congress was willing to have the courts impose upon agencies in conducting rulemaking procedures").

24. William L. Andreen, *An Introduction to Federal Administrative Law Part I: The Exercise of Administrative Power and Judicial Review*, 50 ALA. LAW. 322, 324 (1989).

25. *See, e.g.*, Natural Res. Def. Council, Inc. v. SEC, 389 F. Supp. 689, 701 (D.D.C. 1974) (explaining that statements of basis and purpose "provide for judicial review an enunciation of the basis and rationale of the agency's action").

spond to every comment or consider every issue raised by the public, but must respond "in a reasoned manner to significant comments."[26] There exists no bright-line rule for determining what constitutes a significant comment, but the Court of Appeals for the District of Columbia Circuit has described significant comments as those raising points relevant to the agency's decision and which, "if adopted, would require a change in an agency's proposed rule [or] cast doubt on the reasonableness of a position taken by the agency."[27] Insignificant comments include "purely speculative" points that fail to provide the factual or policy basis on which they rely.[28] Should a reviewing court find that the agency has failed to consider and respond to all significant points raised in public comments, the APA requires the court to set aside the agency action as arbitrary and capricious.[29]

In this statutory scheme for informal rulemaking, notice-and-comment procedures serve primarily to empower judicial review by creating a record of public viewpoints and arguments against which the court can compare the agency's own reasoning. However, to fully comprehend how the combination of e-rulemaking and natural language processing might affect the function of § 553 procedures, the less obvious purposes of those procedures must factor in as well. Those purposes include what has been called the "output value" of public comments (the value of additional information and resulting improvement in an agency's decision-making process), and also their "input value" (the value that commenters place on their own ability to participate in the process, rooted in notions of due process and democratic participation).[30] The following sections discuss the role of public commenting in improving the accuracy of agency decision-making, agency accountability via judicial review, and agency fidelity to both majoritarian and civic republican notions of democratic values.

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26. Conf. of State Bank Supervisors v. Off. of Thrift Supervision, 792 F. Supp. 837, 846 (D.D.C. 1992) (citing U.S. Satellite Broad. Co. v. FCC, 740 F.2d 1177, 1189 (D.C. Cir. 1984)).

27. Home Box Off., Inc. v. FCC, 567 F.2d 9, 36 n.58 (D.C. Cir. 1977).

28. *Id.*

29. 5 U.S.C. § 706(2)(A) ("The reviewing court shall hold unlawful and set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law[.]").

30. Livermore et al., *supra* note 5, at 983–84 (discussing the value of public commenting in the context of mass online regulatory participation, and also including "observer value"—the value of public commenting to those seeking to understand the relationship between agencies and the public).

A. Accuracy

Perhaps the most straightforward explanation for notice-and-comment procedures lies in the simple fact that soliciting public comments provides the agency with more information on the issues before it, and more information makes for better decision-making. The Supreme Court has stated—in the adjudicative context—that the process of arriving at the right answer and the associated risk of error shape procedural due process rules.[31] Further, the notion that many heads are better than one pervades democratic and legal theory and has often proved true notwithstanding some important caveats to that general proposition.[32]

Public comments are likely to render agency decisions more accurate given the limits on an agency's knowledge base in the absence of that public input. Even within the relatively narrow scope of a particular agency's area of authority, decision-makers may begin with limited information on an issue.[33] They may also carry unexamined biases, or simply not conceive of some potential solution.[34] Furthermore, regulated entities and other repeat players may have the ear of agency regulators who may grant more deference to the input of those entities at the expense of new entrants to the market or other outside perspectives.[35]

At least theoretically, notice-and-comment procedures ensure that agencies make decisions based on more information from more diverse sources, which increases the likelihood that the agency will arrive at the "right" decision. The solicitation of public comments helps agencies in rulemaking in a way similar to how the adversarial system helps adjudicators reach the right outcome by enabling interested parties to bring competing perspectives to the table so that the decision-maker can consider their relative merits. The extent to which public comments actually perform this function remains unclear. Studies

31. *See* Mathews v. Eldridge, 424 U.S. 319, 344 (1976) (noting that in-person hearings have greater value in cases where issues of witness credibility and veracity will factor substantially into the decision-making process, compared to cases where the decision will turn upon routine written documents like medical reports).

32. *See, e.g.*, Adrian Vermeule, *Many-Minds Arguments in Legal Theory*, 1 J. LEGAL ANALYSIS 1 (2009) (identifying several issues with reliance on the "wisdom of the multitude," including selection effects and epistemic bottlenecks within institutions).

33. Jonathan Weinberg, *The Right To Be Taken Seriously*, 67 UNIV. MIA. L. REV. 149, 160 (2012).

34. *Id.*

35. *Id.*

have shown that regulated businesses and business groups dominate the comments submitted in most rulemakings.[36]

B. Accountability and Judicial Review

Judicial review of final agency actions serves as the primary mechanism by which agencies are held accountable for acting lawfully and within the scope of their delegated authority. Agency rulemaking lends itself more readily to governance by judicial review than congressional legislation, as rulemakings offer more comprehensive decision-making records and agencies possess greater capacity to act quickly in response to judicial nullification of a rule.[37] The APA compels reviewing courts to set aside agency rules promulgated without the Act's required procedures, thus ensuring that agencies engaged in informal rulemaking follow the notice-and-comment procedures of § 553.[38] In turn, the agency's adherence to those procedures empowers the court in determining whether the agency rulemaking was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," in which case the court would set the rule aside,[39] or remand it to the agency without vacatur.[40] In this review, the court's analysis of the agency's response to public comments plays a critical role.[41] Examining the agency's response to public comments in the statement of basis and purpose allows the court "to see what major issues of policy were ventilated . . . and why the agency reacted to them as it did."[42] Under this "reasonableness" review, courts cannot

36. Mendelson, *supra* note 1, at 1357 (sharing the results of studies indicating that regulated businesses filed the great majority of comments in rulemakings by the Environmental Protection Agency, the National Highway Traffic Safety Administration, and the Department of Housing and Urban Development).

37. Mark Seidenfeld, *A Civic Republican Justification for the Bureaucratic State*, 105 HARV. L. REV. 1511, 1547 (1992).

38. 5 U.S.C. § 706(2)(D) ("The reviewing court shall hold unlawful and set aside agency action, findings, and conclusions found to be without observance of procedure required by law").

39. *Id.* § 706(2)(A).

40. Courts are more likely to remand a rule without vacating it in cases of minor agency error so as to avoid unnecessarily disrupting the administrative process. Joshua Revesz, *Voluntary Remands: A Critical Reassessment*, 70 ADMIN. L. REV. 361, 375 (2018) (citing Allied-Signal, Inc. v. U.S. Nuclear Regulatory Comm'n, 988 F.2d 146, 150 (D.C. Cir. 1993)); *see generally* Kristina Daugirdas, Note, *Evaluating Remand Without Vacatur: A New Judicial Remedy for Defective Agency Rulemakings*, 80 N.Y.U. L. REV. 278 (2005) (analyzing the D.C. Circuit's application of remand-without-vacatur and suggesting changes to optimize use of the remedy).

41. Donald J. Kochan, *The Commenting Power: Agency Accountability Through Public Participation*, 70 OKLA. L. REV. 601, 613 (2018).

42. Public Citizen, Inc. v. FAA, 988 F.2d 186, 197 (D.C. Cir. 1993) (quoting Automotive Parts & Accessories Ass'n v. Boyd, 407 F.2d 330, 338 (D.C. Cir. 1968)).

pass judgment on the quality of any policy decision made by the agency, but can at least require the agency to defend its reasoning in a more complete and transparent fashion, facilitating public scrutiny.[43] These benefits render public comments particularly important during the period of transition to a new administration, when numerous policy changes may occur and a new set of decision-makers may remain unaware of some of the interests at stake in particular rulemakings.

Agency adherence to notice-and-comment procedure helps to hold agencies accountable even when a rule faces no challenge in court. An agency's responses to significant public comments in informal rulemakings offer voters a record of policy decisions, on the basis of which those voters can hold the agency accountable electorally.[44] Though critical comments tend to outnumber supportive ones, supportive comments help the agency to develop a stronger, more broad-based record in support of its chosen course of action.[45] That record in turn helps the rule to survive administrative "on-the-record" review,[46] and provides the rule's supporters with a basis to challenge the agency if it decides to change course from its proposed rule.[47]

Notice-and-comment procedures thus lay the foundation for the entire statutory scheme by which Congress and the judiciary oversee informal rulemaking by agencies. This function of § 553 procedures offers more "output value" than "input value," as the need to respond to significant comments does not guarantee that the agency will adopt any particular commenter's views. However, the threat of judicial review does force the agency to disclose its reasoning for acting adversely to the views expressed in some significant comments. This empowers commenters to compel the agency to explain the reasoning behind its decision to decline a certain course of action.

C. Democratic Legitimacy

Notice-and-comment procedures seem intuitively to render agency rulemaking more democratic,[48] in no small part because

43. Kochan, *supra* note 41, at 609.

44. *Id.* at 610.

45. *Id.*

46. In an "on-the-record" review, an administrative law judge issues a decision based only on the agency record before them, without holding a formal hearing. *See, e.g.*, 20 C.F.R. § 416.1448 (2011) (providing for on-the-record decisions in applications for benefits from the Social Security Administration when the evidence in the record supports a finding in favor of the applicant on every issue).

47. Kochan, *supra* note 41, at 610.

48. Weinberg, *supra* note 33, at 164 ("The literature reflects what appears to be a widespread intuition that notice-and-comment is an exercise in democracy.").

rulemaking by unelected agency officials begins from a place of "democracy deficit" relative to legislation by Congress.[49] This deficit stems from agencies' promulgation of legislation-like policies and rules in the absence of the guarantees of accountability—namely, regular popular elections—that ostensibly bind Congress's broad policymaking discretion to the public will. This concern has only grown as agencies have moved beyond the purely technical decisions that defined early conceptions of the administrative state, and gradually assumed authority to make the sort of value judgments and policy choices traditionally reserved for the legislature.[50] Because those whose interests are affected by administrative rulemaking hold no right to procedural due process under the Constitution, Congress granted statutory procedural rights to the subjects of agency rulemaking in the APA.[51] The role of notice-and-comment procedures in filling this democratic gap derives further support from the fact that these procedures apply only to legislative-style rules carrying the force of law, and not to non-legislative agency outputs like internal guidance and interpretive rules.[52] Public commenting also provides a means for state interests, spoken for by state representatives in Congress but lacking designated advocates in federal agency rulemaking, to weigh in on the federalism impacts of proposed rules.[53] The APA thereby positions notice-and-comment procedures as a means of re-inserting democratic participation into the agency processes that most closely resemble congressional lawmaking, in order to more ensure that policymaking authority remains tied to direct democratic participation even after Congress has delegated that authority to the agency. Indeed, scholars have argued that notice-and-comment rulemaking is more

49. *See, e.g.*, Peter L. Strauss, *Legislation That Isn't—Attending to Rulemaking's "Democracy Deficit"*, 98 CAL. L. REV. 1351 (2010) (discussing generally the democratic concerns arising from policymaking by unelected agency officials, and the potential of presidential and judicial oversight to address those concerns).

50. *See* Jessica Mantel, *Procedural Safeguards for Agency Guidance: A Source of Legitimacy for the Administrative State*, 61 ADMIN. L. REV. 343, 357 (2009).

51. *See id.* at 350. *See also* Michael Asimow, *On Pressing McNollgast to the Limits: The Problem of Regulatory Costs*, 57 L. & CONTEMP. PROBS. 127, 129 (1994) ("[T]he APA rulemaking procedure has a second important purpose: it provides an ingenious substitute for the lack of electoral accountability of agency heads.").

52. Mantel, *supra* note 50, at 350; *see also* Pacific Gas & Electric Co. v. Fed. Power Comm'n, 506 F.2d 33, 38 (D.C. Cir. 1974) (distinguishing rulemakings and adjudications that carry the force of law—and are thus subject to APA procedural requirements—from general statements of policy which do not carry the force of law).

53. *See, e.g.*, Catherine M. Sharkey, *Federalism Accountability: "Agency-Forcing" Measures*, 58 DUKE L.J. 2125, 2163–70 (discussing the potential for state regulatory interests' participation in notice-and-comment procedure to force federal regulators to consider the impact of federal regulatory schemes on state regulatory interests).

democratically accountable than other, more unilateral forms of executive action, such as executive orders or proclamations.[54]

Beyond this broad conception of the democratic function of notice-and-comment procedures, the precise mechanism by which public commenting renders agency decision-making more democratic varies with different theories of democratic legitimacy. This article will consider the benefits conferred by public comments under two broad conceptions of the source of democratic legitimacy: majoritarianism and civic republicanism.

1. Majoritarian Democratic Legitimacy

Under majoritarianism, democratic legitimacy depends upon the fidelity of decision-makers to the majority will, with that fidelity ensured through regular popular elections.[55] The increased distance between the public and unelected agency bureaucrats naturally raises concerns for majoritarian theorists, especially in the case of independent agencies.[56] A majoritarian seeking to bolster the legitimacy of agency decision-makers might advocate greater oversight of those actors by elected public officials, such as the President or Congress.[57]

Notice-and-comment procedures present both benefits and drawbacks for majoritarian notions of democratic legitimacy. In theory, solicitation of public comments aggregates public sentiment, apprising agencies of the majority viewpoint on a particular issue. The agency is not, however, bound to adopt the majority's view—only to consider it and provide a reasoned response sufficient to survive judicial review. Furthermore, in practice, the comments received by the agency will rarely reflect the actual distribution of public sentiment. Rather, comments tend to disproportionately reflect the viewpoints of well-organ-

54. *See, e.g.*, Kathryn E. Kovacs, *Rules About Rulemaking and the Rise of the Unitary Executive*, 70 ADMIN. L. REV. 515 (2018) (contending that a departure from APA rulemaking due to the proliferation of judicial rules about rulemaking contributed to a rise in executive authoritarianism); William Powell, *Policing Executive Teamwork: Rescuing the APA from Presidential Administration*, 85 MO. L. REV. 71, 95–103 (2020) (explaining the limits of review of non-APA executive actions compared to review of APA rulemaking); *but see* Cristina M. Rodriguez, *Foreword: Regime Change*, 135 HARV. L. REV. 1, (2021) (arguing that "diffuse forms of popular participation [like the notice-and-comment process] will not be enough to ensure that government and its capacities evolve to address the demands of politics[,]" and that presidential actions including personnel appointments, executive orders, proclamations and policy memoranda render the administrative state more responsive to politically ratified policy objectives).

55. Mantel, *supra* note 50, at 360.

56. *Id.* at 360–61.

57. *Id.*

ized regulated interests at the expense of the general public, leading to the "capture" of agencies by interest groups—arguably the antithesis of the majoritarian ideal.[58] Given these realities of the commenting process, public commenting procedures may do relatively little to ensure the fidelity of agency decision-makers to the policy preferences of the majority.

2. *Civic Republican Democratic Legitimacy*

Rather than focusing on the alignment of the outcomes of democratic processes with the will of the majority, civic republicanism locates democratic legitimacy in the nature of the deliberative processes that lead to those outcomes.[59] Under this theory, the mere aggregation of individuals' personal preferences does not suffice to ascertain which policies are best for the community.[60] Instead, quality decision-making depends on a deliberative process that allows for the reasoned interaction and comparison of different viewpoints, with participation by all those whose interests a decision implicates.[61] This theory evokes what has been called the "trustee paradigm" of democratic legitimacy, under which government decision-makers bear fiduciary-like duties to act competently, consistently with the law, and in the public interest.[62] As under the majoritarian theory, oversight of agencies by the political branches matters for ensuring legitimacy, but civic republican theorists see such oversight as subordinate to the obligation of deliberative decision-making as the ultimate guarantor of agency legitimacy.[63] Some studies have shown that individuals tend to focus more on the decision-making processes themselves than on the outcomes of those processes in their appraisal of the legitimacy of government, suggesting that the civic republican view may better capture public conceptions of legitimacy than the more outcome-based majoritarian approach.[64]

The APA's notice-and-comment procedures play an important role in upholding the civic republican conception of democratic legiti-

58. *Id.* at 368.

59. *See* Seidenfeld, *supra* note 37, at 1528 (defining civic republicanism and discussing the "[p]romises and [p]itfalls" of the theory).

60. *Id.* at 1528–29.

61. *See id.* at 1529; *see also* Weinberg, *supra* note 33, at 169 ("[D]eliberative democracy proceeds from Jurgen Habermas's argument that a political system, to be legitimate, must enable meaningful participation by all people affected by its decisions.").

62. Mantel, *supra* note 50, at 362.

63. *Id.* at 365.

64. *Id.* at 377 (citing TOM R. TYLER, WHY PEOPLE OBEY THE LAW 84–106 (2006)).

macy in agency decision-making. The dual requirement that agencies solicit and respond to public comments ensures some level of interaction between agency decision-makers and various public perspectives, ensuring that the agency action represents a more fully reasoned decision that takes into account the often competing values of all those who the decision might affect. Absent the procedural demands of § 553, agency rule-makers would at best face the daunting task of trying to conceive of the rule's potential effect on myriad stakeholders absent direct input from those interested parties, and could at worst forego that effort entirely and base quasi-legislative value judgments entirely on the administration's own policy prerogatives. Instead, the notice-and-comment process helps create the sort of "proceduralized institutional arena" that allows for a rulemaking process that is both more deliberative and more inclusive of alternative, competing viewpoints.[65]

As under the majoritarian theory, public commenting in practice falls short of the ideal made possible by the text of the APA, thereby limiting these procedures' impact on the civil republican notion of democracy. First, the exchange of views engendered by § 553 procedures only qualifies as a "dialogue" between the public and the agency in the most basic sense of the word. Public commenters submit one volley of input during the comment period, and the government responds—to significant comments only—in its statement of basis and purpose. This process allows for an exchange of information between decision-makers and the public, but civic republican theorists ascribe greater value to discussions *among* decision-makers or *among* the public. Consideration of public comments may catalyze further deliberation within the agency, but such deliberation is not required by § 553 and will not necessarily result from notice-and-comment procedures.[66] Second, the primacy of interest groups in public commenting and the general lack of broad participation in the process preclude the agency from ascertaining a complete survey of the competing interests and viewpoints at stake.[67] These realities notwithstanding, agencies might not solicit or consider public input on proposed rules at all absent the mandatory procedures of § 553. Public commenting therefore does more to realize the ideals of deliberative democracy set forth in

65. Weinberg, *supra* note 33, at 170 (noting that, in addition to the informal political discourse taking place in the public sphere, political discourse must also occur within bodies designed for political decision-making) (citing JÜRGEN HABERMAS, BETWEEN FACTS AND NORMS: CONTRIBUTIONS TO A DISCOURSE THEORY OF LAW AND DEMOCRACY 307–08 (William Rehg trans., 1998)).

66. *Id.* at 173.

67. Mantel, *supra* note 50, at 368.

civic republican theory than to ensure that agency action complies with majoritarian goals.

D. The "Right To Be Taken Seriously"

At a more individual level, notice-and-comment procedures also promote a citizen's right to have his or her autonomy and equality respected by the government in a participatory democracy—what Professor Jonathan Weinberg calls the "right to be taken seriously."[68] Unlike the value of public comments to the democratic functioning of government, which represents a more instrumental conception of the role of § 553, the right to be taken seriously focuses on the value to the commenter of the government's consideration of and response to their views. In other words, while the goals of accuracy, accountability, and democratic legitimacy all offer substantial "output value" to the agency by improving the quality of its decision-making processes, the right to be taken seriously grants "input value" to the commenter first and foremost.

Weinberg traces the origins of this right to the First Amendment right "to petition the Government for redress of grievances,"[69] a provision that no longer affords citizens the direct line to Congress that it once did. Early in the nation's history, citizens could submit petitions to Congress, where they were read on the floor of the receiving house and referred to the relevant committee or executive department.[70] The majority of petitions considered by these bodies received written reports in response.[71] Over time, however, petition lost its significance to the legislative process,[72] and courts today do not interpret the right to petition to impose an "affirmative obligation on the government to listen [or] to respond" to citizens' direct entreaties.[73] Though citizens

68. Weinberg, *supra* note 33, at 174 (also describing the right as "the government's obligation to treat citizens as intrinsically significant moral agents").

69. *Id.* at 152 (citing U.S. CONST. amend. I.); *see also* Maggie Blackhawk, *Petitioning and the Making of the Administrative State*, 127 YALE L. J. 1538 (2018) (documenting how petitioning shaped the modern administrative state).

70. Weinberg, *supra* note 33, at 202–03.

71. *Id.* (stating that eighty percent of petitions submitted to *ad hoc* House committees received written reports, while over seventy percent of petitions referred to executive departments resulted in written reports).

72. Blackhawk, *supra* note 69, at 1548 ("The petition process formed an integral part of our congressional lawmaking process until after the Second World War.").

73. Smith v. Arkansas State Highway Emp. Local 1315, 441 U.S. 463, 465 (1979) (holding that the First Amendment did not require the Arkansas State Highway Commission to consider its employees' grievance directly, and that the Commission could oblige the employees to submit a written complaint to a designated employer representative).

may still file petitions today, they are referred to committee without an introduction or debate on the floor, and do not factor meaningfully into congressional legislation.[74]

The commenting power speaks directly to commenters' interest in having the government seriously consider their positions, but the mandates of § 553 fall short of the full realization of the right to be taken seriously. Obliging the government to consider and respond to significant comments may distance agency rulemaking somewhat from the "mere instrumental exercise of authority." Instead, agencies must respect citizens' desire for an explanation as to why the government has taken action that affects their interests.[75] Furthermore, the interaction between individuals and the government fostered by public commenting contributes to individual commenters' sense of community and belonging.[76] Ultimately, though, the fact that the government need only respond to "significant" comments suggests that the APA's procedures do not recognize inherent participatory value in each comment submitted. More broadly, the very fact that the government's engagement with public comments arises from statutory compliance renders the entire notice-and-comment inherently instrumental.[77] From the perspective of the agency, the "output value" of public comments will always supersede the "input value." Nevertheless, from the perspective of those who take the initiative to comment on a particular proposed rulemaking, the act of commenting may make all the difference in satisfying a fundamental desire to participate in government and to ensure that the government takes that participation seriously.

II.
The Challenges of Mass Public Commenting and Potential of Artificial Intelligence Technology

The increase in public commenting facilitated by the transition to e-rulemaking has presented agencies with new logistical and technical challenges. In addition to some of the mass-comment rulemakings mentioned above, the Federal Communications Commission's 2017 rulemaking on the subject of net neutrality—which received 21.7 million public comments[78]—showcases the difficulties that arise from

74. Weinberg, *supra* note 33, at 205–06 (citing Senate Rule VII, para. 4; House Rule XII, para. 3.).

75. *Id.* at 175.

76. *Id.* at 211.

77. *Id.*

78. Hitlin et al., *supra* note 6.

such a staggering volume of public comments. First, the number of comments grew so large in part because many of them, ninety-four percent in fact, were duplicates of other comments. For example, many of these duplicate comments were form letters submitted as part of organized advocacy campaigns designed to sway the agency's decision.[79] Indeed, the seven most common comments comprised thirty-eight percent of all those submitted.[80] Despite their large number, duplicates are relatively straightforward to identify and account for;[81] although, complications may arise when otherwise identical form comments encourage the submitting individual to add their own personal experiences or preferences. Second, many "fraudulent" comments were submitted to the FCC under false names or temporary email addresses, with fifty-seven percent of comments using duplicate or temporary email addresses.[82] Fraudulent comments do not substantially undermine the e-rulemaking process because the APA does not require commenters to identify themselves, nor does it require agencies to verify any identifying information that commenters choose to submit.[83] Third, automated or "bot" comment campaigns use software to rapidly generate and submit many comments without user interaction, allowing single individuals to masquerade as millions of "people" using randomly generated or stolen identities.[84] Though "bot" comments raise potential concerns for identity theft and public confidence in agency rulemaking,[85] agencies can generally identify them easily (by their poor grammar, for example) and discount the sentiments expressed accordingly, though ever-improving software may render these comments more convincing in the future. Once an agency

79. *Id.*

80. *Id.*

81. CARY COGLIANESE, A FRAMEWORK FOR GOVERNMENTAL USE OF MACHINE LEARNING 37 (2020) ("[A] natural language processing algorithm can breeze through the task [of reading 22 million public comments], functioning as a screener to sort out the hundreds of thousands of fake, identical comments submitted by spambots.").

82. *Id.*

83. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-19-483, FEDERAL RULEMAKING: SELECTED AGENCIES SHOULD CLEARLY COMMUNICATE PRACTICES ASSOCIATED WITH IDENTITY INFORMATION IN THE PUBLIC COMMENT PROCESS 18 (2019). A recent report of the New York Attorney General's Office expressed more concern over the prevalence of fake comments in the 2017 FCC net neutrality rulemaking, asserting that fake comments obscure the true popularity of a policy, erode public confidence in democratic institutions, and subvert the true beliefs of those whose identities are stolen. NEW YORK STATE OFFICE OF THE ATTORNEY GENERAL, FAKE COMMENTS: HOW U.S. COMPANIES & PARTISANS HACK DEMOCRACY TO UNDERMINE YOUR VOICE 10 (2021).

84. Hitlin et al., *supra* note 6; NEW YORK STATE OFFICE OF THE ATTORNEY GENERAL, *supra* note 82, at 27 (noting one instance of a single college student using software to submit over seven million comments to one FCC rulemaking).

85. NEW YORK STATE OFFICE OF THE ATTORNEY GENERAL, *supra* note 82, at 10.

has identified duplicate and computer-generated comments, thousands of comments may still remain. In the FCC example, about 1.3 million[86] unique comments remained. Each of these comments is potentially "significant" and requires consideration by and response from the agency. These numerous unique comments present a substantial logistical challenge for agencies and will be the focus of the discussion in this paper.

A.I., and in particular natural language processing (NLP) software, offers a promising potential solution for agencies overwhelmed by mass public comments. In general, A.I. avoids many of the limitations of human analysis of public comments, including fatigue, perceptual inaccuracies, and a host of cognitive biases like confirmation bias and anchoring.[87] Natural language processing uses advanced software to extract and analyze information from large streams of spoken or written words.[88] Several agencies have already successfully implemented NLP to assist their decision-makers. The Social Security Administration (SSA), for example, is using its NLP-based Insight program to review the draft opinions of its administrative law judges for internal consistency and compliance with agency policy—a practice that may reduce processing times according to SSA reports.[89] The Securities and Exchange Commission (SEC) has also employed NLP tools to search corporate filings for textual indicators of insider trading.[90] The U.S. Patent and Trademark Office (USPTO) has also pledged to pursue NLP technologies to expedite the process of searching its database for inventions similar to those described in new submissions.[91] In each of these cases, NLP only supplements the expertise and final authority of human decision-makers, but nonetheless serves a critical role in streamlining processes and improving the quality and consistency of outcomes. It is not difficult to imagine how NLP might facilitate the processing of mass public comments, given the huge amount of written text that is before the agency in such cases. Sentiment analysis in particular may help agencies to understand how commenters feel toward the various choices before the agency in a particular rulemaking. Broadly, sentiment analysis deduces the au-

86. Hitlin et al., *supra* note 6 (noting that six percent of the 21.7 million comments submitted were unique).

87. Coglianese, *supra* note 81, at 8–21.

88. Livermore et al., *supra* note 5, at 995–96.

89. David Freeman Engstrom, Daniel E. Ho, Catherine M. Sharkey & Mariano-Florentino Cuellar, Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies 40–41 (2020).

90. *Id.* at 23–24.

91. Coglianese, *supra* note 81, at 35–36.

thor's attitude toward or evaluation of a thing or idea by categorizing words and phrases according to the sentiment that they convey and searching the authored text for those words and phrases.[92] The software can then aggregate the sentiments expressed in each individual submission to paint a picture of the sentiments of the submitting public as a whole with regard to one or more aspects of a particular agency decision.

NLP, and A.I. generally, also present disadvantages to accompany the undeniable advantages they offer. Agencies hoping to address the challenges of mass commenting with NLP must account for or address these fundamental concerns in order to maximize the advantages of A.I. over human processing. First, A.I. requires substantial capital investment—both human capital in the form of the computer scientists who will train and develop the algorithms agencies use, and software and hardware to store, process, and protect data.[93] Second, basing agency decisions on A.I. may render the decision-making process less transparent to those who don't understand the complex algorithmic calculations that inform the output analysis on which the agency relies.[94] This is particularly problematic in the context of agency rulemakings and adjudications, as agencies must be able to explain the basis of their decision to reviewing courts. Finally, A.I. systems may internalize and perpetuate the biases reflected in the datasets used to train them, the variables selected for analysis, or even the way in which the algorithm's objectives are framed.[95] Such biases could influence an NLP algorithm used to process mass public comments if, for example, the categorization of words into particular categories of sentiment failed to account for the unique vernacular of particular interest groups who may in turn have their views underrepresented in the system's ultimate analysis.[96]

92. Livermore, *supra* note 5, at 1003–06.
93. COGLIANESE, *supra* note 81, at 38–44.
94. *Id.* at 45–47.
95. *Id.* at 47–49.
96. An A.I. system used by Google to attempt to identify hate speech, for example, was more likely to wrongfully identify as hate speech text written in African American Vernacular English. Nicole Martin, *Google's Artificial Intelligence Hate Speech Detector is 'Racially Biased,' Study Finds*, FORBES (Aug. 13, 2019), [https://perma.cc/SS5M-KDQ7].

III.
A.I. AND THE PURPOSES OF NOTICE-AND-COMMENT PROCEDURE

Assuming that an agency could account for and address the general pitfalls of A.I. discussed above, the question remains how the use of NLP to process mass comments might advance or undermine the functions and purposes of notice-and-comment procedures identified in Section II: accuracy, accountability and judicial review, democratic legitimacy (both majoritarian and civic republican), and preserving "the right to be taken seriously." This section will argue that, on the whole, the introduction of A.I. into the analysis of mass public comments furthers the instrumental functions of § 553 procedures (accuracy and judicial review) but impairs the reasoned interaction of competing viewpoints prioritized in the civic republican conception of democratic legitimacy.

If A.I. models are properly designed and trained to fit their intended purpose, they can significantly improve the accuracy of decision-making. Importantly, A.I. can improve accuracy without reducing efficiency and vice versa.[97] If one accepts the general proposition that broader participation in decision-making leads to better decisions overall,[98] A.I. improves accuracy to the extent that it empowers agencies to efficiently internalize the wisdom of millions of commenters whose mass participation might otherwise overwhelm the agency's capacities. A.I. has already improved accuracy in several public sector applications, for example by more accurately predicting recidivism to reduce jail time without increasing crime rates, and by coding workplace injuries more accurately than human coders for the Bureau of Labor Statistics.[99] The SEC has reported that its Corporate Issuer Risk Assessment Tool has improved its efficient allocation of agency resources,[100] and the USPTO is experimenting with A.I. models with the potential to improve the accuracy of patent examinations.[101] The question remains whether NLP technology can identify sentiments with sufficient complexity and accuracy to automate the analysis of millions of public comments, but to the extent they are able to streamline

97. DAVID FREEMAN ENGSTROM ET AL., *supra* note 89, at 83.

98. Weinberg, *supra* note 33, at 159 (citing ARISTOTLE, POLITICS 121 (Benjamin Jowet trans., Oxford Univ. Press 1945)) ("[A] larger, more broad-based body will have superior perspective, for it can draw from the understanding of the collectivity and can bring to bear important perspectives that decision-makers would otherwise lack.").

99. COGLIANESE, *supra* note 81, at 34–35.

100. DAVID FREEMAN ENGSTROM ET AL., *supra* note 89, at 23.

101. *Id.* at 48–49.

that process, the agency can then reallocate the time and resources it has saved to complement that A.I. processing with more targeted human analysis, internalize more public input more efficiently, and improve the quality of the agency's ultimate decision.

NLP technology can also improve the efficacy of judicial review of agency informal rulemakings that receive mass public participation. The reviewing court's examination of the agency's responses to significant public comment is a critical aspect of its review of the agency's ultimate decision,[102] but courts have even less capacity to examine millions of unique comments than agencies do. Thus, one could imagine that a sentiment analysis report sorting comments into "buckets" based on the general nature of the point raised in support of or in opposition to the proposed rule and accompanied by a statement of basis and purpose explaining the agency's response to each category of comment would constitute a more manageable and reviewable record. Such a record would also need to include an explanation of how the NLP system had classified comments, including what words or phrases were taken to indicate what sentiments and what data the model was trained on. This may be easier said than done, as algorithms often operate in a complex, unintuitive fashion that could render their conclusions practically unexplainable to judges.[103] Though agencies might not wish to disclose the specifics of an algorithm when it is used as an enforcement mechanism for fear of signaling potential loopholes to regulated parties, no such incentive exists in this public comment processing context. Indeed, the agency's explanation of its NLP methodology would present reviewing courts with a relatively concise explanation of what sentiments the agency was searching for, and comments that might not have been sufficiently significant to justify a response individually might indirectly receive a response once algorithmically aggregated with comments expressing similar sentiment. Assuming that the record contains an effective explanation of the agency's use of A.I. to streamline the review of mass comments, facially "black box" NLP models might allow for a more transparent notice-and-comment process.[104]

The application of NLP to mass comments will not likely have a strong effect on the majoritarian democratic legitimacy of the notice-and-comment rulemaking process. As discussed in Section II above, there is no guarantee that public comments will reflect the majority will. That holds true even when millions of comments are submitted.

102. Kochan, *supra* note 41, at 613.
103. Coglianese, *supra* note 81, at 45–46.
104. David Freeman Engstrom et al., *supra* note 89, at 76.

NLP might empower agencies to more completely internalize the sentiments expressed within mass comments, but those comments could just as easily reflect minority and specially-affected interests as the interests of the majority. Majoritarian theorists might appreciate the power of NLP to identify and discount duplicate, fraudulent, and "bot" comments which might otherwise allow individuals or small groups to masquerade as larger interest groups, but in its capacity as a means of processing unique comments through sentiment analysis, NLP neither helps nor harms the majoritarian cause in a substantial way.

NLP has its most detrimental effect on the civic republican democratic legitimacy of notice-and-comment rulemaking. Though sentiment analysis may in the future become capable of a nuanced evaluation of the various rationales underlying a position and the ways in which those rationales inform or respond to opposing positions, Livermore notes that "the general tendency in the field (to date at least) has most often been to reduce sentiment to a single dimension between *positive* and *negative* poles."[105] He goes on to compare sentiment analysis to hedonic utilitarianism in that it reduces a multitude of human experiences "along a single dimension of good/bad. . .or positive/negative."[106] Sentiment analysis therefore boils down to a counting of "votes" for and against a particular position, without consideration of the qualitative arguments underlying those votes and their strengths and weaknesses in light of the policy goals of the agency and the fundamental rights of the parties submitting comments. To rely entirely on NLP analysis without a more deliberative consideration of who exactly has voiced support for or against a proposed rule and why they have done so would be to rob notice-and-comment rulemaking of its uniquely interactive nature. Of course, that interactive dynamic would be preserved when the agency responds to the significant points identified by its algorithm, and analysis of the results of NLP processing may serve as a catalyst of substantive deliberation within the agency. It is therefore critical that the agency designs and applies its NLP model so as to ensure that human decision-makers understand the content of each "bucket" of aggregated sentiment and can consider the arguments therein independent of the analysis of how many commenters supported a particular position. Even with such safeguards in place, the aggregative nature of A.I. creates a risk that certain sentiments and contexts may be lost in the analytical process. What results has been called the "needle in a haystack prob-

105. Livermore, *supra* note 5, at 1004.
106. *Id.*

lem"—even the most sophisticated A.I.s are not guaranteed to locate and identify the one comment whose unique insight might prove grounds for reversal of the agency's decision if left unaddressed. To guarantee such thoroughness would be to sacrifice the efficiency benefits of A.I. processing, which is a luxury that agencies inundated with mass comments may not be able to afford. Thus, the application of NLP to the mass comment problem necessarily entails a less deliberative consideration of the qualitative difference between stakeholders and arguments to the detriment of the civic republican legitimacy of the rulemaking.

Finally, A.I. processing may also undermine public commenters' "right to be taken seriously." The statutory requirement that agencies solicit public comments makes informal rulemaking unique among the various forms of government decision-making. This suggests that the end goal of § 553 procedure is not only to improve accuracy—which could arguably be achieved through less public, more expertise-driven consultations—but also to satisfy the public's dignitary interest in simply having their views heard by agencies that are otherwise relatively insulated from public review.[107] Even a sentiment analysis model that perfectly captures the arguments and rationales of a commenter might nonetheless leave the commenter feeling less fulfilled as a participant in government because having one's views coded and aggregated into various categories of sentiment is, from a dignitary perspective, different in kind from having one's particular ideas, context, and phrasing read as they were written. Of course, whether a commenter feels that they are not being taken seriously in the agency's analysis depends on whether the commenter is even aware of any change in the agency's methodology for processing comments, which they very well may not be. Regardless, instrumental though the agency's consideration of public comments may be, that consideration is a unique opportunity for citizen participation in government, and agencies should therefore think twice before adopting NLP models that could fundamentally change what it means for a commenter to be "heard" in the rulemaking process.

Taken together, the effects of A.I. processing of mass comments on the attainment of the purposes of notice-and-comment procedure present a trade-off between improvements to the instrumental functions of § 553 (improving accuracy and judicial review) and impair-

107. *See, e.g.*, DAVID FREEMAN ENGSTROM ET AL., *supra* note 89, at 45 (suggesting a dignitary interest in being heard as an additional rationale for hearings in agency adjudications, in addition to the promotion of accuracy).

ment to the civic republican and dignitary functions of those procedures.

IV.
Cost-Benefit Analysis and the Progressive Instrumentalization of Agency Rulemaking

The application of A.I. technology to agency rulemaking and the resulting instrumentalization of § 553 procedure would not constitute a new phenomenon, but merely a continuation of a process currently exemplified by agencies' increased reliance on cost-benefit analysis to reach policy decisions. First required by executive order of President Ronald Reagan, agency use of cost-benefit analysis in rulemaking has been encouraged through oversight by the Office of Information and Regulatory Affairs (OIRA).[108] This section will argue that the increased use of cost-benefit analysis in agency decision-making had a similar effect on the purposes of notice-and-comment rulemaking to the potential effects of A.I. processing discussed in Section III above. Cost-benefit analysis and A.I. processing are thus presented as two stages of a single overarching trend toward reliance on analytical approaches that allow agencies to meet the demands of increasingly numerous and complex policy questions, while potentially undermining the democratic legitimacy of the decision-making process in any particular rulemaking.

A. Cost-Benefit Analysis and the Purposes of Notice-and-Comment Procedure

Cost-benefit analysis is an economic tool that prioritizes the maximization of the net benefits of a regulation. While it has been the subject of much scholarly debate, cost-benefit analysis now sits firmly entrenched in the agency rulemaking process.[109] This subsection will

108. Exec. Order No. 12,291, 3 C.F.R. § 127 (1981) ("Regulatory action shall not be undertaken unless the potential benefits to society for the regulation outweigh the potential costs to society[.]"); Lisa Heinzerlig, *Statutory Interpretation in the Era of OIRA*, 33 Fordham Urb. L.J. 1097, 1098–99 (2006) ("In September 2001, John Graham, OIRA's Administrator. . .noted that he would disapprove regulations that did not jibe with the cost-benefit framework of [President Clinton's] Executive Order 12,866." Executive Order 12,866 "requires cost-benefit analysis for major agency regulations and gives OIRA oversight authority regarding agencies' cost-benefit analyses.").

109. *See* Richard Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 U. Chi. L. Rev. 1137, 1139 (2001) (detailing the steady increase in agency cost-benefit analyses across both Democratic and Republican administrations).

consider the relationship of cost-benefit analysis to each of the purposes of notice-and-comment rulemaking discussed in Part II above. Although cost-benefit analysis itself does not factor into the steps of § 553 procedure, understanding the similar roles that it and NLP play in their respective contexts underscores the promise of applying best practices for cost-benefit analysis to future NLP use-cases.

Cost-benefit analyses can greatly improve the accuracy and efficiency of agency decision-making, so long as they are limited to subject areas that are amenable to economic analysis. Though a simple exercise at its core, the totaling of costs and benefits allows agency officials to stay abreast of the various factors and interests at stake in a particular rulemaking, and to lay these elements out in an objective fashion that helps to counteract individual biases and often requires agencies to solicit data and information from various stakeholders. While such economic analysis is well-suited to correcting failures in private markets,[110] cost-benefit analysis loses much of its analytical power when agencies pursue values besides economic efficiency, such as equity,[111] or when problems are multigenerational or involve irreversible catastrophes.[112] Even in purely economic cases, agencies still have difficulty accurately measuring the competing costs and benefits.[113] Despite these limitations, cost-benefit analysis provides a collection of techniques for measuring the impacts of a proposed regulation and for comparing different policy options,[114] and the proper application of those techniques can indicate whether, what kind, and how strict a regulation will best address the problem.[115] Richard Posner argues further that cost-benefit analysis, beyond limiting technical errors, also improves accuracy by serving as a monitoring tool by which the President and Congress can ensure that agency decision adhere to policy goals.[116]

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110. Susan Rose-Ackerman, *Putting Cost-Benefit Analysis In Its Place: Rethinking Regulatory Review*, 65 U. MIA. L. REV. 335, 338 (2011).

111. *Id.* at 347.

112. *Id.* at 348.

113. *Id.* at 446 ("[E]ven when one can justify CBA as a normative matter, cost-benefit analysis faces at least four challenges. These are the problematic link between dollar totals and overall utility or net benefits; the choice of a discount rate; the treatment of risk and uncertainty; and the quantification of life, health, and other nonmarket values in the metric of dollars.").

114. *See* Henry Ergas, *In Defence of Cost-Benefit Analysis*, 16 AGENDA J. POL. ANALYSIS & REFORM 31, 33–36 (2009) (comparing the merits and criticisms of cost-benefit analysis and multi-criteria analysis).

115. Caroline Cecot & Robert W. Hahn, *Transparency in Agency Cost-Benefit Analysis*, 72 ADMIN. L. REV. 157, 167 (2020).

116. Posner, *supra* note 109, at 1140.

Though not as essential to judicial review of agency rulemaking as § 553 procedures, cost-benefit analyses still facilitate judicial review by providing the reviewing court with information about the agency's decision process.[117] The executive order of President Reagan mandating cost-benefit analysis (CBA) in agency rulemaking made clear that courts are not authorized to reverse regulations on the ground of a noncompliant CBA alone,[118] so the CBA requirement itself does not necessarily empower the reviewing court. However, that Order does provide that the agency must include its CBA in the record that would be available to any reviewing court.[119] The CBA thus plays a similar role to public comments in the agency record, furnishing the court with a description of the various factors weighing against and in favor of the proposed rule and providing a baseline against which the court can compare the agency's ultimate decision. As is the case with mass public comments, courts are no better equipped to manage myriad perspectives and data points than the agency, and summative analyses like CBA permit the court to engage with every major facet and implication of an agency's decision without being inundated with more studies and data points than the court can reasonably process. Cost-benefit analysis thus provides the court with more information to help it understand the nature of the choices before the agency, and thereby improves the quality of judicial review.

As with natural language processing in the notice-and-comment context, cost-benefit analysis neither strongly supports nor substantially undermines the majoritarian conception of democratic legitimacy. CBA seeks to maximize net benefits, and those benefits represent an aggregation of private benefits and costs, with the underlying assumption that those who receive the benefits will somehow compensate those who pay the costs in the grand scheme.[120] In prac-

117. For analysis of the information-forcing role of cost-benefit analysis in judicial review of agency rulemaking, see Catherine M. Sharkey, State Farm *"With Teeth": Heightened Judicial Review in the Absence of Executive Oversight*, 89 N.Y.U. L. REV. 1589 (2014) (arguing that a heightened judicial review standard should apply to courts' review of CBAs performed by independent agencies not subject to OIRA's information-forcing review of executive branch agency CBAs).

118. Exec. Order No. 12,291, 3 C.F.R. § 127 (1981) ("This Order is intended only to improve the internal management of the Federal government, and is not intended to create any right or benefit, substantive or procedural, enforceable at law by a party against the United States, its agencies, its officers or any person.").

119. *Id.* ("[A]ny Regulatory Impact Analyses [including an analysis of costs and benefits] for any rule, shall be made part of the whole record of agency action in connection with the rule.").

120. *See* Sven Hansson, *Philosophical Problems in Cost-Benefit Analysis*, 23 ECON. & PHIL. 163, 180 (2007) (explaining the assumption of interpersonal compensability in cost-benefit analysis).

tice, CBA disregards these distributive effects,[121] and might approve of a rule even if a small minority of individuals benefit at the expense of the majority. On the other hand, Posner might argue that CBA itself serves as a means of binding agency decision-makers to the majority will as expressed by elected officials in Congress and the President.[122] Either way, CBA does not directly enforce or defy the majority will or, by extension, majoritarian democratic legitimacy.

The civic republican conception of democratic legitimacy, on the other hand, is clearly undermined by the heavy use of cost-benefit analysis in agency rulemaking. Not unlike the aggregation of sentiment through natural language processing, cost-benefit analysis constitutes a pure accounting of net benefits without a more qualitative and deliberative assessment of what is gained and lost and who in particular gains or loses. The economists Kaldor and Hicks maintained that a policy was justified if the social benefits it produced exceeded the social losses, regardless of whether those actually gaining compensated those actually losing.[123] Posner noted that this approach to policymaking could result in "the sacrifice of individual to aggregate interests."[124] Relying solely on economic efficiency also grants normative weight to the status quo distribution of resources,[125] disincentivizing redistributive policies that fail to increase total wealth. The application of economic analysis to agency rulemaking necessarily entails areas of "market failure," where the best rule will not be the one that maximizes social welfare, and where quality decision-making therefore requires a more complex analysis. To the extent that CBA supplants the deliberative weighing of competing interests in an agency's rulemaking process, it erodes the democratic legitimacy of the agency by inhibiting the agency's capacity to internalize and respond to minority interests that are not fully accounted for in economic analysis.

Finally, cost-benefit analysis does not substantially affect the "right to be taken seriously" because agencies employ the analysis before they submit a proposed rulemaking to public comment proce-

121. Rose-Ackerman, *supra* note 110, at 347.

122. Posner, *supra* note 109, at 1140.

123. *See* Joseph Persky, *Cost-Benefit Analysis and the Classical Creed*, 15 J. ECON. PERSP. 199, 201 (2001) (noting for example Kaldor and Hicks's defense of the repeal of the British Corn Laws, a policy decision that offered net social benefits despite failing to compensate the British farmers who were most directly and adversely affected).

124. Richard A. Posner, *Utilitarianism, Economics, and Legal Theory*, 8 J. LEGAL STUD. 103, 133 (1979).

125. Rose-Ackerman, *supra* note 110, at 342.

dure. However, agencies might forego solicitation of public opinion—or of the opinions of specially affected interest groups—earlier in the rulemaking process because they trust cost-benefit analysis to account for the content and relative weight of the various interests at stake. In theory, cost-benefit analysis might perfectly identify the content and weight of an individual's interest, but there is still no "input value" to that individual in having their position quantified in a model without their participation. Even if the analysis incorporated an individual's own stated valuation of her interests, the effect would be the same as in the NLP context: having one's contribution aggregated into a summative analysis offers lower input value than the individualized consideration of one's opinion. Because the public generally does not participate in the phase of rulemaking in which agencies undertake cost-benefit analyses, the practical effect of those analyses on the right to be taken seriously is limited.

B. Cost-Benefit Analysis and A.I. Processing Present a Similar Trade-off for Agencies

The application of A.I. to notice-and-comment rulemaking poses a similar trade-off to the use of cost-benefit analysis. The aggregative nature of both NLP and CBA precludes the kind of reasoned interaction between different viewpoints (or between various costs and benefits) that agencies would ideally engage in when presented with competing interests and perspectives in public comments. Natural language processing may divorce sentiments from necessary contextual information, including the nature of the interest group expressing that sentiment and the extent to which a particular decision might infringe upon that group's fundamental rights. Similarly, cost-benefit analysis may conclude that a rule will increase economic efficiency, but the review may omit a more nuanced analysis of which groups in particular are gaining or losing and to what extent. Therefore, over-reliance on either CBA or A.I. may disadvantage small but significantly affected minority interests—groups who find in public comment procedure a platform that the majoritarian political process does not afford them. A.I. analysis, like cost-benefit analysis before it, may lead agency decision-makers to mistake volume (of dollars or of comments) for policy significance, succumbing to majoritarian democratic sentiments at the expense of the thoughtful weighing of ideas and protection of minority interests.

V.
Preserving Democratic Legitimacy Amid the Instrumentalization of Agency Rulemaking

Agencies should be willing to accept the risks presented by A.I. processing—at least on a trial basis—to ensure the accuracy and accountability of agency decisions in cases of mass public commenting. A.I. in agency decision-making may undermine civic republican ideals of governance and commenters' "right to be taken seriously," but the alternative—in which the massive volume of comments precludes agencies with limited resources from considering each comment in a timely manner, let alone considering each comment's interaction with the positions taken in hundreds of thousands of other comments—undermines those same values. In a memorandum issued on his first day in office, President Biden called on OIRA and the Office of Management and Budget to review agency actions so as to promote "public health and safety, economic growth, social welfare, racial justice, environmental stewardship, human dignity, equity, and the interests of future generations."[126] Agencies cannot be expected to pursue their own mandates and stay abreast of the effects of every decision on so many other stakeholders and interests without methodologies, like cost-benefit analysis and A.I. modelling, that can aggregate, approximate, and summarize the potential effects of agency action on those interests. If and when A.I. processing or some alternative solution becomes practically necessary to address the challenges brought on by the advent of e-rulemaking and mass commenting, the question is not whether to pursue the solution, but how best to mitigate the adverse side effects of that solution so that agencies can continue to perform § 553 procedures while adhering as best as possible to the ideals of democratic participation that underlie those procedures. Given the similarities discussed in the previous section in the trade-offs presented by cost-benefit analysis and NLP, agencies should approach the implementation of A.I. with the same mindset that scholars have advocated for the responsible use of cost-benefit analysis.

Recognizing the pitfalls presented by overreliance on cost-benefit analysis, scholars have urged a more deliberative form of cost-benefit analysis that goes beyond mere aggregation to account for market failures in the purely economic approach. In other words, agencies can

126. Memorandum for the Heads of Executive Departments and Agencies on Modernizing Regulatory Review, 86 Fed. Reg. 7,223 (Jan. 20, 2021).

take steps to put CBA in its "proper institutional context,"[127] maximizing the method's benefits while limiting its negative impact in areas where it loses analytical power. Sunstein notes that the governing executive orders require benefits to "justify" the costs, but that does not necessitate that the benefits *exceed* the costs.[128] For example, a net-costly regulation may be justified if those bearing the costs have the ability to comfortably bear those costs while the benefits would be a relatively substantial and important gain for those receiving them. Sunstein goes further to suggest that cost-benefit analysis might be preceded by a "Step Zero" of "'meta' balancing" in which some cases would be exempted from economic cost-benefit balancing altogether.[129] He suggests this framework with regard to the irreversible losses associated with endangered species cases, but its use is also justified in cases where the loss is not necessarily irreversible but would be imposed on a particularly vulnerable minority group. In his Executive Order 13563, President Obama directed agencies to include in their net benefits calculation considerations of equity and a regulation's distributive impact.[130] These expansions on the basic maximization of net benefits all serve to deemphasize the benefits to the majority, granting more weight in the informal rulemaking process to the public comments of minority interests. More deliberative engagement with these minority positions may apprise the agency of adverse distributive impacts of its proposed rule in a way that pure cost-benefit analysis would not.

Scholars have also recommended that agencies offer more transparency with regard to their use of CBA in rulemaking to avoid some of the risks that CBA presents. Cecot and Hahn set forth the simple rationale for more transparency: "[t]he government makes the basis for its decisions more readily available, lowering the cost of reviewing the merits of government decisions and making it more likely that affected parties will be aware of the debate and offer their views."[131] When agencies are transparent about their use of CBA and receptive to public feedback about their process (though § 553 notice-and-comment procedure, for example), the exchange of viewpoints that results

127. Posner, *supra* note 109, at 1141 (arguing that cost-benefit analysis "may serve a valuable role even if the proper social goal is not efficiency" because it serves the institutional function of enhancing elected officials' control over agencies).

128. CASS R. SUNSTEIN, VALUING LIFE: HUMANIZING THE REGULATORY STATE 11 (2014).

129. Cass R. Sunstein, *The Cost-Benefit State* 22 (Coase-Sandor Inst. for Law & Econ., Working Paper No. 39, 1996).

130. Exec. Order No. 13,563, 3 C.F.R. 13563 (Jan. 18, 2011).

131. Cecot & Hahn, *supra* note 115, at 161.

may counteract the aggregative nature of CBA and shore up the civic republican legitimacy of the rulemaking. CBA can then play the important role of revealing the expected impacts of a certain regulatory policy to interested parties,[132] setting the table for a more deliberative consideration of competing viewpoints. Cecot and Hahn identify two aspects of transparency: "process transparency," whereby the agency discloses how the CBA was designed and what role it played in the decision-making process, and "policy transparency," whereby the agency provides the actual assumptions, data sources, and models used so that stakeholders may evaluate their accuracy and adequacy.[133] They also recommend that agencies disclose any external contributors to the CBA, and whether they relied on confidential or proprietary models or data in their analysis.[134] Improved transparency empowers the minority interests that CBA might otherwise disadvantage to fill in the gaps in CBA's efficacy with their own knowledge and perspectives, allowing agencies to reap CBA's benefits without concern that economic analysis will alienate certain interest groups to the detriment of the agency's democratic legitimacy.

Agencies can and should apply these lessons from the advent of cost-benefit analysis to their use of A.I. in mass comment cases by implementing safeguards on their use of NLP, several of which have already been proven in other A.I. use-cases.[135] First, agencies must recognize the limitations of NLP and put it in its "proper institutional place" alongside protocols that can check the unique risks presented by A.I. processing. Before deciding to implement NLP and training the model that will analyze comments, agencies should take Sunstein's "Step Zero" and consider the ways in which the model might be biased against particular stakeholders or interests and modify the model design and training data accordingly or, if such modifications are not workable, consider foregoing NLP analysis if possible. Once agencies have a model's completed sentiment analysis before them, human decision-makers must evaluate the various sentiments qualitatively and independently of the volume of support that each received, in order to avoid the infringement of fundamental rights and other serious losses for minority interest groups. If agencies remain wary of

132. *Id.* at 167.
133. *Id.* at 169.
134. *Id.* at 191.
135. For a discussion of "guardrails" that should be placed on the use of A.I. in the retrospective review of agency rules, including agency disclosure of the particular role played by A.I. models in the decision process and of data used to train those models, see Catherine M. Sharkey, *AI for Retrospective Review*, 8 BELMONT L. REV. 374, 399–408 (2021).

the distributive impacts of their decisions and check their own reliance on aggregative methodologies like NLP, they can maintain notice-and-comment rulemakings as a unique platform for minority interests to be heard even as the increasing complexity of agency decision-making processes require increasingly instrumental approaches.

Second, agencies should strive for transparency in their design and implementation of natural language processing to the analysis of mass public comments. Following the framework set forth by Cecot and Hahn, agencies can improve "process transparency" by disclosing (perhaps in their statement of basis and purpose) their use of A.I. technology in the processing of public comments, the role that the results of that analysis played in the ultimate rulemaking decision, and any and all external contributors to the design and running of the NLP model. Agencies can improve "policy transparency" by reporting to the public the data used to train the NLP model,[136] the data analyzed by the model (i.e. the public's comments), any assumptions relied upon, and—in the case of a sentiment analysis—the sentiments identified, examples of the type of text identified as supporting or opposing each sentiment, how such factors were weighted, and the results of the analysis. These public disclosures allow the public, and minority interests in particular, to hold agencies accountable for the way in which they implement A.I. technologies. Thus, even if the rise of e-rulemaking and online commenting propels agencies to adopt NLP processes, interest groups can ensure that agencies avoid the dangers that this new technology poses to the thoughtful consideration and weighing of minority viewpoints.

Conclusion

The rise of e-rulemaking has drastically lowered the costs of participation in APA § 553 notice-and-comment rulemaking, to the point that the most politically salient agency decisions attract millions of public comments. To manage the burden of reading and responding to so many submissions, agencies may turn to the mass-text-analyzing power of natural language processing technology, which has already improved outcomes in several federal administrative agencies. While A.I. technology is a safe bet to improve the accuracy of agency decisions and the quality of judicial review of those decisions in cases of mass public commenting, the aggregative nature of A.I. may inhibit

136. Sharkey suggests that agency disclosure of the data used to train A.I. may be required under the D.C. Circuit's holding in *Nova Scotia* that agencies must disclose the "basic data relied upon" in their rulemakings. *Id.* at 406–07 (*citing* United States v. Nova Scotia Food Prods. Corp., 568 F.2d 240, 252 (D.C. Cir. 1977)).

the deliberative consideration of and interaction between competing interests and positions, thereby disadvantaging minority interests, the significance of which may far outweigh the volume of comments expressing them. This trade-off between the practical capacity of agency decision-makers and the deliberative consideration of minority viewpoints has been seen before in the advent of cost-benefit analysis in informal rulemaking. Agencies should therefore attempt to mitigate the negative effects of NLP on minority participants in the public comment process by applying the same approaches that have been proposed for the responsible use of cost-benefit analysis. These include the potential exemption of certain rulemakings from NLP comment analysis, consideration of the distributive impacts of regulations in designing and training NLP technologies, identification of who the "winners" and "losers" of a particular decision are and what exactly those parties stand to gain or lose, and increased transparency around the design and implementation of A.I. models.