The Algorithm Agenda: A Discourse Analysis of the Dutch Algorithm Register.

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Abstract: This paper examines accountability and transparency in the Algorithm Register (AR) in the context of the Netherlands government's algorithm use. This paper aims to explore how transparency and accountability are implemented within the AR's functions, especially when considering criticisms of their application in both technical and political spheres. They are explored using Critical Discourse Analysis on government letters and AR development forum discussion and documentation. Additionally, the paper employs Category Analysis for the AR's information categories. The study highlights the AR's emphasis on transparency, accountability, and clarifying governmental algorithms. Finding that accountability is focused on administrative aspects, which deviates from the conventional three-stage accountability process encompassing informing, debating, and consequences. Transparency, rooted in government discourse, is selective. The AR adopts open-source practices and platforms but centers on efficient governance. By centralizing algorithms, it aims for efficient supervision and increased transparency. However, there are gaps: the AR promotes transparency but isn't wholly transparent, and it prioritizes feedback over enforcing consequences. The AR leans towards technical issues over societal concerns, and AR development discourses may validate governmental algorithmic development biases, equating accountability through transparency with responsibility.

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Introduction

In recent years, the government of the Netherlands' utilization of certain algorithms has raised concerns within Dutch society. For example, implementing earlier versions of predictive policing algorithms in the Netherlands has drawn criticism, with Amnesty International voicing apprehensions.[1] Further, algorithms used to assess risks and detect fraud in social benefits are not exempt from biases and discriminatory tendencies.[2] A particularly infamous instance was the 2021 Child Benefits scandal. In this episode, thousands of parents were unjustly accused of fraud in part due to the use of discriminatory algorithms, leading to severe financial and emotional distress for those implicated.[3] Central to each of these controversies has been the role played by algorithms within the institutions and administrative processes of the social welfare state. Their use, the non-informing of their use, and the social, economic, and ethnic negativity bias resulted in discriminatory, harmful effects when used in administration. Recognizing these challenges, Dutch state representatives have communicated a heightened awareness of the risks posed by biased and discriminatory algorithms and have committed to addressing these issues.[4]

In response to these challenges, the Dutch government inaugurated the Algorithm Register (*Algoritme Register*) of the Dutch State. The Algorithm Register (AR) is a publicly accessible ledger detailing algorithms employed by the Dutch central government, its provinces, and municipalities. This register encompasses descriptions of algorithms integral to Dutch governance, capturing their various stages; whether in planning, under development, actively deployed, or having been retracted. Each entry in the AR provides a comprehensive overview, elucidating the rationale behind the algorithm's creation, its societal significance or value, its legal foundation, potential impact, and the mechanisms of human oversight. With the register, the Dutch central administration aims to shed light on the measures taken to mitigate bias or discrimination in these algorithms, offering insights into their algorithmic design and identifying the parties responsible for their implementation.

The AR is one of the Dutch state's answers to concerns about bias and discrimination in its algorithms. The AR aims to make state-used algorithms in areas like social welfare and

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[1] Netherlands: We Sense Trouble: Automated Discrimination and Mass Surveillance in Predictive Policing in the Netherlands," Amnesty International, September 28, 2020, https://www.amnesty.org/en/documents/eur35/2971/2020/en/

[2] Netherlands: We Sense Trouble: Automated Discrimination and Mass Surveillance in Predictive Policing in the Netherlands." ; Rekenkamer Rotterdam, "Gekleurde Technologie: Verkenning Ethnisch Gebruik Algoritmes" (Rotterdam: Rekenkamer Rotterdam, 2021), https://rekenkamer.rotterdam.nl/wp-content/uploads/2020/11/R.P.20.06-gekleurde-technologie.pdf.

[3] Den Haag, "Parlementaire ondervraging Kinderopvangtoeslag, Brief van de Parlementaire ondervragind commissie [Parliamentary paper 35 510, nr.2]," December 17, 2020, https://www.tweedekamer.nl/sites/default/files/atoms/files/20201217_eindverslag_parlementaire_onder vragingscommissie_kinderopvangtoeslag.pdf, 14-15.

[4] A.C. van Huffelen, "Informatie- en communicatietechnologie (ICT) [Parliamentary paper 26 643, nr. 852]," *Tweede Kamer der Staten-Generaal*, accessed August 8, 2023, https://zoek.officielebekendmakingen.nl/kst-26643-924.html.

governance more transparent. Its main goal is to "offer transparency on algorithms that impact individuals and businesses, helping the public better understand how the government works."[5] By sharing the reasons and methods behind these algorithms, the AR gives the Dutch people the information they need to judge these algorithms and, if necessary, challenge the government's use. Many discussions about the problems with algorithms point to a lack of openness and responsibility in how these state-approved algorithms are made and used as a big part of the issue.[6] While the AR is not a fix-all solution, it can be seen as a step in the right direction to improve algorithms' use and reduce their negative discriminatory effects.

The AR champions transparency as a cornerstone in governance. In the Dutch context, such transparency aims to build public trust,[7] countering perceptions of algorithms as elusive "black boxes."[8] Through the AR, the government seeks to show its dedication to protecting individual rights.[9] The AR, designed to demystify algorithms for Dutch citizens, is paired with oversight to ensure fairness and clarity.[10] This transparency initiative also intends to amplify governmental accountability, allowing public scrutiny of the state's algorithmic practices.[11]

However, transparency's merits are debated. While often equated with trustworthiness,[12] genuine transparency is challenged when information complexity exceeds public comprehension.[13] A mere glimpse into the 'black-box' is not enough; understanding an algorithm's impact demands a holistic view of its environment and functions.[14] Despite transparency, some systems remain so intricate that even their developers cannot identify

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[5] Marielle de Groot, "Algoritmeregister van de Nederlandse overheid gelanceerd," nieuwsbericht, Digitale Overheid (blog), December 21, 2022, https://www.digitaleoverheid.nl/nieuws/algoritmeregister-van-de-nederlandse-overheid-gelanceerd/.

[6] Alexandra van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]" (Ministirie van Binnenlandse Zaken en Koninkrijksrelaties, February 16, 2023), https://www.rijksoverheid.nl/documenten/kamerstukken/2023/02/16/kamerbrief-over-reflectie-op-notities-eerste-kamer-over-artificiele-intelligentie-en-algoritmische-besluitvorming-overheid.

[7] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 4.

[8] "Werkagenda Waardegedreven Digitaliseren," November 2022, https://open.overheid.nl/documenten/ronl-0de79e5c4c0c9b203c0a1c263efca7eca410958b/pdf. 37.

[9] "Werkagenda Waardegedreven Digitaliseren." 37.

[10] "Werkagenda Waardegedreven Digitaliseren." 37-38.

[11] De staatssecretaris van Binnenlandse Zaken en Koninkrijksrelaties Digitalisering en Koninkrijksrelaties, "Kamerbrief voor de Stand van zaken Algoritmeregister" (Ministirie van Binnenlandse Zaken en Koninkrijksrelaties, December 21, 2022), https://open.overheid.nl/documenten/ronl-391fc340bc62f9c0b60f7408f9d780aa6be5168e/pdf. 1

[12] Corinne Cath and Fieke Jansen, "Dutch Comfort: The Limits of AI Governance through Municipal Registers," *Techné: Research in Philosophy and Technology*, February 4, 2023, https://doi.org/10.5840/techne202323172.

[13] Jakko Kemper and Daan Kolkman, "Transparent to Whom? No Algorithmic Accountability without a Critical Audience," *Information, Communication & Society* 22, no. 14 (December 6, 2019): 2081–96, https://doi.org/10.1080/1369118X.2018.1477967. 2086

[14] Mike Ananny and Kate Crawford, "Seeing without Knowing: Limitations of the Transparency Ideal and Its Application to Algorithmic Accountability," *New Media & Society* 20, no. 3 (March 1, 2018): 973–89, https://doi.org/10.1177/1461444816676645. 978.

inherent biases.[15] Transparency, without accountability, risks becoming a hollow gesture, especially if those exposed face no real consequences.[16]

Accountability, particularly in tandem with transparency, is foundational in governance. In European contexts, especially the Netherlands, it is hailed as a "golden concept."[17] Its prominence in policy and discourse suggests trustworthiness.[18] Furthermore, it indicates mechanisms making institutions accountable to the public, empowering the public to drive change when institutions are accountable for their actions.[19]

The AR, introduced alongside other measures, seeks to enhance governmental accountability when using algorithms.[20] This initiative boosts the Dutch government's trustworthiness and offers the public insights into algorithmic processes. This focus on algorithmic responsibility is termed 'Algorithmic Accountability.'[21] Diakopoulos views algorithms as human creations, emphasizing their design and interpretation.[22] While this concept is rooted in accountability theory, it is not new.[23] Wieringa defines it as a framework for explaining an algorithmic system.[24] Accountability has its critics. In governance, it is often associated with trustworthiness and justice, sometimes deflecting criticisms.[25] In political discourse, 'accountability' can be a catch-all term, implying virtues like equity and integrity.[26] This label

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[15] Nicholas Diakopoulos, "Accountability in Algorithmic Decision Making," *Communications of the ACM* 59, no. 2 (January 25, 2016): 56–62, https://doi.org/10.1145/2844110. 59.

[16] Ananny and Crawford, "Seeing without Knowing," 978.

[17] Mark Bovens, "Analysing and Assessing Accountability: A Conceptual Framework," *European Law Journal* 13, no. 4 (2007): 447–68, https://doi.org/10.1111/j.1468-0386.2007.00378.x. 448.

[18] Bovens, "Analysing and Assessing Accountability," 448.

[19] Bovens, "Analysing and Assessing Accountability," 449.

[20] "Werkagenda Waardegedreven Digitaliseren,", 37-38.

[21] Nicholas Diakopoulos, "Accountability in Algorithmic Decision Making," *Communications of the ACM* 59, no. 2 (January 25, 2016): 56–62, https://doi.org/10.1145/2844110; Alex Rosenblat, Tamara Kneese, and Danah Boyd, "Algorithmic Accountability," SSRN Scholarly Paper (Rochester, NY, March 17, 2014), https://doi.org/10.2139/ssrn.2535540; Hetan Shah, "Algorithmic Accountability," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 376, no. 2128 (August 6, 2018): 20170362, https://doi.org/10.1098/rsta.2017.0362; Reuben Binns, "Algorithmic Accountability and Public Reason," *Philosophy & Technology* 31, no. 4 (December 1, 2018): 543–56, https://doi.org/10.1007/s13347-017-0263-5; Nicholas Diakopoulos, "Algorithmic Accountability: Journalistic Investigation of Computational Power Structures," *Digital Journalism* 3, no. 3 (May 4, 2015): 398–415, https://doi.org/10.1080/21670811.2014.976411; Anna Brown et al., "Toward Algorithmic Accountability in Public Services: A Qualitative Study of Affected Community Perspectives on Algorithmic Decision-Making in Child Welfare Services," in *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, CHI '19 (New York, NY, USA: Association for Computing Machinery, 2019), 1–12, https://doi.org/10.1145/3290605.3300271; Maranke Wieringa, "What to Account for When Accounting for Algorithms: A Systematic Literature Review on Algorithmic Accountability," in *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency*, FAT* '20 (Barcelona, Spain: Association for Computing Machinery, 2020), 1–18, https://doi.org/10.1145/3351095.3372833.

[22] Nicholas Diakopoulos, "Algorithmic Accountability," 402.

[23] Wieringa, "What to Account for When Accounting for Algorithms," 2.

[24] Wieringa, "What to Account for When Accounting for Algorithms," 2.

[25] Bovens, "Analysing and Assessing Accountability," 449.

[26] Bovens, "Analysing and Assessing Accountability," 449

suggests exemplary governance, but discussions often oversimplify issues, attributing them to specific individuals or system components.[27]

Past studies on initiatives like AR have shown mixed results. Some praise algorithm registers for their potential in public service algorithms and AI deployment.[28] Others see them as a "bottom-up" oversight, viewing algorithms and AI as tools to improve government functions.[29] These registers aim to enhance transparency and trust, positioning AI as a beneficial tool and focusing on its utility rather than questioning its broader implications.

Given these multifaceted considerations, where ideals of accountability and transparency intersect with critiques of their practical application in technical and political domains, this paper seeks to address the following question: *"How are transparency and accountability operationalized in the functionality of the AR?"*

To comprehensively address this primary research question, we will dissect it through the lens of four pivotal sub-questions:

SQ1: "How can we understand transparency and accountability in the context of algorithmic governance?" This question will be elucidated by delving into academic theories surrounding 'transparency' and 'accountability,' thereby establishing a foundational theoretical framework for our exploration.

SQ2: "How are transparency and accountability conceptualized in governance discussions? "This segment will probe into the political imaginaries of these concepts, especially as they pertain to addressing biases and discrimination in algorithms employed by the Dutch government. Our primary sources of insight will be four parliamentary letters and policy documents related to the AR.

SQ3: "How are these concepts implemented in the technical infrastructure? "Building upon the imaginaries as mentioned earlier, we will investigate how notions of transparency and accountability influence the 'categorization' methods used to organize and discuss information within the AR.

SQ4: "How have transparency and accountability been practiced in the first six months since its launch?"

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[27] Catherine D'Ignazio and Lauren F. Klein, *Data Feminism*, Strong Ideas Series (Cambridge, Massachusetts: The MIT Press, 2020), 49.

[28] Luciano Floridi, "Artificial Intelligence as a Public Service: Learning from Amsterdam and Helsinki," *Philosophy & Technology* 33, no. 4 (December 1, 2020): 541–46, https://doi.org/10.1007/s13347-020-00434-3.

[29] Corinne Cath and Fieke Jansen, "Dutch Comfort: The Limits of AI Governance through Municipal Registers," *Techné: Research in Philosophy and Technology*, February 4, 2023, https://doi.org/10.5840/techne202323172, 7.

Theory: Transparency and Accountability in Governance and Digital systems.

Transparency

Transparency is a state attributed to objects and a direct metaphor; to be entirely transparent is to remain unnoticed in observation.[30] As Alloa and Thomä highlight, "transparency" in discourse often implies clarity without demanding complete understanding. In many interpretations, the concept is not deeply examined. Nevertheless, Critical Transparency Studies have recently emerged to challenge and reflect on this idea.[31] Critical Transparency Studies offer insights into the word and metaphor as lacking a "stable semantic core." As Alloa and Thomä describe, in modern times, transparency, both as a word and metaphor, oscillates between a "factual requirement and a normative claim, an optical impression and a metaphorical promise."[32]

The elements of a factual claim, optical, and metaphorical promise are deeply embedded in both the word and the concept. Manfred Schneider's contribution to *Transparency, Society, and Subjectivity* traces the concept's origin to scholastic descriptions of the physical state of blessed souls in the Western Christian afterlife.[33] In essence, to have "transparence" (the etymological precursor to 'transparent') is to be observed in full, facilitating a silent communication of aspects, leading to absolution of faults in the thing or being and that this understanding still shades our interpretations of the concept today.[34]

Others who adopt a different historical lens echo this perspective on transparency. The concept appears during Renaissance's early scientific method development.[35] Here, it is tied to visions of understanding and complete, truthful observations. As Mike Ananny and Kate Crawford posit, the ideal of transparency follows the belief that it offers a method for truthful observation, granting deeper insights.[36] The interpretations do not end there. Dennis Neyland underscores that the concept spans various disciplines, from poetry and psychology to political analysis and accounting.[37] Neyland notes that 'transparency' has assimilated characteristics from

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[30] Emmanuel Alloa and Dieter Thomä, eds., *Transparency, Society and Subjectivity* (Cham: Springer International Publishing, 2018), https://doi.org/10.1007/978-3-319-77161-8., 3.

[31] Alloa and Thomä, *Transparency, Society and Subjectivity*, 3.

[32] Alloa and Thomä, *Transparency, Society and Subjectivity*, 3-4.

[33] Manfred Schneider, In Alloa and Thomä, *Transparency, Society and Subjectivity*, 90

[34] Schneider, In Alloa and Thomä, *Transparency, Society and Subjectivity*, 91

[35] Mike Ananny and Kate Crawford, "Seeing without Knowing: Limitations of the Transparency Ideal and Its Application to Algorithmic Accountability," *New Media & Society* 20, no. 3 (March 1, 2018): 973–89, https://doi.org/10.1177/1461444816676645, 974

[36] Ananny and Crawford, "Seeing without Knowing," 974

[37] D. Neyland, "Achieving Transparency: The Visible, Invisible and Divisible in Academic Accountability Networks," *Organization* 14, no. 4 (July 1, 2007): 499–516, https://doi.org/10.1177/1350508407078050, 500-499.

the fields in which it has been applied.[38] Despite the varied perspectives, a consistent theme emerges: in modern applications, transparency is often initially perceived as a means to make things "good," whether in practices, systems, or governance.[39]

Transparency in governance.

Schneider's perspective on the modern application of 'transparency' in governance is that it remains anchored to traditional interpretations of 'transparence.' However, in this context, 'transparency' promises an honest, deceit-free approach in government, management, and communication.[40] Neyland, taking a similar stance to Schneider, delves into the effects of transparency on organizations and government institutions. He challenges the notions of Gray, who posits that as more facets of an organization become transparent, a feedback loop is initiated, revealing even more aspects. This process provides a deeper insight into the organization's inner workings.[41] The underlying assumption here is that increased transparency offers a clearer view into an organization, thereby presenting opportunities for its improvement.[42]

Neyland builds on this, suggesting that this premise is rooted in the belief that more information is synonymous with a stronger democracy.[43] This sentiment is mirrored by Amitai Etzioni, who emphasizes that transparency is widely regarded as a "major good," facilitating public scrutiny and insight.[44] This association of transparency with the fortification of democracy has solidified its status as an "unquestionable norm."[45] August and Osrecki, meanwhile, describe 'transparency' as a blend of standards and habits. While it has historical roots, it is tailored to address modern challenges and aspirations. They see 'transparency' as a tool to navigate the complexities of contemporary societies, invoking a "mechanistic concept of causal steering."[46] Thus, the concept of transparency seemingly carries more implicit ideas than the state of an institution or practice.

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[38] Neyland, "Achieving Transparency," 501.
[39] Neyland, "Achieving Transparency"; Jakko Kemper and Daan Kolkman, "Transparent to Whom? No Algorithmic Accountability without a Critical Audience," *Information, Communication & Society* 22, no. 14 (December 6, 2019): 2081–96, https://doi.org/10.1080/1369118X.2018.1477967; Vincent August and Fran Osrecki, "Transparency Imperatives: Results and Frontiers of Social Science Research," in *Der Transparenz-Imperativ: Normen – Praktiken – Strukturen*, ed. Vincent August and Fran Osrecki (Wiesbaden: Springer Fachmedien, 2019), 1–34, https://doi.org/10.1007/978-3-658-22294-9_1; Ananny and Crawford, "Seeing without Knowing"; Alloa and Thomä, *Transparency, Society and Subjectivity*.
[40] Schneider, "The Dream of Transparency: Aquinas, Rousseau, Sartre.", In Alloa and Thomä, *Transparency, Society and Subjectivity*, 91
[41] Rob Gray, "Accounting and Environmentalism: An Exploration of the Challenge of Gently Accounting for Accountability, Transparency and Sustainability," *Accounting, Organizations and Society* 17, no. 5 (1992): 399–425, 415.
[42] Ananny and Crawford, "Seeing without Knowing," 974.
[43] Neyland, "Achieving Transparency," 502
[44] Amitai Etzioni, "The Limits of Transparency," In Alloa and Thomä *, Transparency, Society and Subjectivity,* 179-180
[45] August and Osrecki, "Transparency Imperatives," 2
[46] August and Osrecki, "Transparency Imperatives," 8

In governance and policy, the nuances of transparency can be further discerned through its metaphorical representations. Ananny and Crawford point out that discussions on organizational transparency in policy and management literature revolve around three primary themes: it is a societal value to combat corruption, it ensures open decision-making processes in governments and nonprofits, and it is a nuanced strategy to enhance operational efficiency.[47] In the political context, transparency is perceived as a mechanism for the public to gain insights into the inner workings of government. It represents ideals of openness and lack of secrecy. Etzioni defines it as eliminating secrecy, ensuring that institutional activities are visible, and openly conducting public affairs.[48] However, he also notes that this openness is often measured by the degree of public access to governmental information.[49]

To sum up, transparency has long been associated with virtue metaphorically and as an attribute. Its application signifies and actualizes an organization or institution's commitment to "goodness."[50] There is always room for organizations or institutions to enhance their transparency further. Still, the application in governance is not without implied imaginaries that are carried over from the concept to the institution that employs it. Suppose we know that the concepts' imaginaries does transfer to organizations and institutions: in that case, we should also ask how these implicit notions that come with transparency are carried over in the digital and algorithmic systems that these organizations and institutions employ.

Transparency in digital systems.

It is necessary to clarify the definition of an algorithm in the context of this analysis to grasp how transparency is genuinely applied. Etymological studies trace 'algorithm' (or its earlier form, 'algorism') to its initial definition as a "specific step-by-step method for written elementary arithmetic."[51] By the mid-20th century, with the rise of scientific computing and advanced programming languages, "algorithm" began to denote a specific sequence of steps for computers and digital systems.[52] When these steps are executed correctly, they process input to yield the

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[47] Ananny and Crawford, "Seeing without Knowing," 976
[48] Etzioni, "The Limits of Transparency." In Alloa and Thomä , *Transparency, Society and Subjectivity,* 179-180.
[49] Suzanne J. Piotrowski and Erin Borry, "An Analytic Framework for Open Meetings and Transparency," *Public Administration and Management* 15, no. 1 (2010): 138. 138-140
[50] Neyland, "Achieving Transparency," 512.
[51] Miyazaki, S. (2012). Algorhythmics: Understanding micro-temporality in computational cultures. Computational Culture, Issue 2. Retrieved June 25, 2014, from http://computationalculture.net/article/algorhythmics-understanding-micro-temporality-in-computational-cultures, Quoted in Rob Kitchin, "Thinking Critically about and Researching Algorithms," *Information, Communication & Society* 20, no. 1 (2017).
[52] Kitchin, "Thinking Critically about and Researching Algorithms," 16

expected outcome.[53] Simply put, an algorithm is a predefined set of instructions to solve a problem or achieve a specific result.[54]

It is through detailing these steps that 'transparency' in algorithms and digital systems is applied.[55] Historically, computer science has favored transparency because it ensures that knowledge from observation and objective computing techniques, like algorithms, aligns with a correspondence to a long-established "theory of truth."[56] Indeed, transparency is often linked with the aspiration for tech solutions to solve societal and political challenges, building on the idea of transparency as a "disinfectant," leading to an institutionalized transparency movement.[57] This movement involves various actors, including organizations, corporations, and activists, who champion the idea that sharing information can lead to complete visibility, understanding, and control, thus preventing harmful actions.

Frank Pasquale's "The Black Box Society" delves into the growing obscurity of algorithms today, explaining the need for such movements towards transparency. Hidden algorithms make vital decisions impacting individuals within metaphorical 'black boxes' into which both the practice of corporate and governmental entities and the functions of the algorithm are indiscernible. Pasquale argues that this leaves the individuals impacted mainly in the dark and unable to challenge outcomes. He contends this by calling for more transparency, accountability, and regulation of these covert processes to uphold democratic values.[58]

Various methods for applying transparency have been proposed to answer the problems stated by Pasquale, such as algorithm reconstruction complemented by visualization, or a "transparent box."[59] Other methods include reverse engineering algorithms to make their step-by-step processes known,[60] or obtaining disclosures from algorithm creators.[61] Such openness has increasingly become a governmental mandate.[62] Some argue that data sharing and open access

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[53] Kitchin, "Thinking Critically about and Researching Algorithms," 16

[54] Nicholas Diakopoulos, "Algorithmic Accountability: Journalistic Investigation of Computational Power Structures," *Digital Journalism* 3, no. 3 (May 4, 2015): 398–415, https://doi.org/10.1080/21670811.2014.976411, 400.

[55] Diakopoulos, "Algorithmic Accountability," 402-3; Jakko Kemper and Daan Kolkman, "Transparent to Whom? No Algorithmic Accountability without a Critical Audience," *Information, Communication & Society* 22, no. 14 (December 6, 2019): 2081–96, https://doi.org/10.1080/1369118X.2018.1477967, 2085-6; Marijn Janssen and George Kuk, "The Challenges and Limits of Big Data Algorithms in Technocratic Governance," *Government Information Quarterly*, Open and Smart Governments: Strategies, Tools, and Experiences, 33, no. 3 (July 1, 2016): 371–77, https://doi.org/10.1016/j.giq.2016.08.011, 372; Maranke Wieringa, "What to Account for When Accounting for Algorithms: A Systematic Literature Review on Algorithmic Accountability," in *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency*, FAT* '20 (Barcelona, Spain: Association for Computing Machinery, 2020), 1–18, https://doi.org/10.1145/3351095.3372833, 4;

[56] Ananny and Crawford, "Seeing without Knowing," 979.

[57] Mikkel Flyverbom, *The Digital Prism: Transparency and Managed Visibilities in a Datafied World*, 1st ed. (Cambridge University Press, 2019), https://doi.org/10.1017/9781316442692.), 1 -2

[58] Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information*, 1 online resource (311 pages) vols. (Cambridge: Harvard University Press, 2015), http://www.degruyter.com/isbn/9780674736061.

[59] Wieringa, "What to Account for When Accounting for Algorithms," 4.

[60] Diakopoulos, "Algorithmic Accountability," 404.

[61] Diakopoulos, "Algorithmic Accountability," 403.

[62] Kemper and Kolkman, "Transparent to Whom?" 2083.

can make governments more honest, accountable, fair, and democratic.[63] These propositions lay the groundwork for other concepts to address the effects of algorithms used in contemporary algorithm governance practices, such as 'accountability.'

Accountability

The term '*accountability*' originates in Anglo-Norman and is closely associated with bookkeeping or accounting.[64] Mark Bovens references Dubnick's work, suggesting that the historical use of 'accountability' arose from new ideas that property owners were autonomously responsible for their actions. They were expected to give an explanation or "a count" of their behavior and possessions to the dominant hegemonic ruling class.[65]

In contemporary politics, 'accountability' is not strictly about bookkeeping or financial management.[66] As Mark Bovens points out, its underlying meaning has changed. Historically, 'accountability' implied hegemonic leaders keeping the populace in check. Now, it is about the public holding their leaders accountable.[67] However, Bovens emphasizes that the concept does not have a universal interpretation. Its origin from bookkeeping is a particular Anglo-American phenomenon. In Dutch understanding, for example, there is no specific semantic distinction between the word and concept of 'responsibility' (*verantwoordelijkheid*) and 'accountability' (*verantwoordelijkheid*).[68] Another challenge with 'accountability' is its diverse interpretations, leading to frequent redefinitions.[69] In European discourse, 'accountability' is a social process where one entity can hold another accountable. Bovens further notes that the term is also "loosely" used as a normative concept or an ideal state, associating it with the obligation to act responsibly, transparently, and fairly.

This ideal state positions the concept as a virtue for organizations and officials.[70] As a "virtue," accountability comprises characteristics that define it as accountable through elements: transparency, liability, controllability, responsibility, and responsiveness. However, these elements are "wide-ranging concepts and symbolic ideas" and cannot be measured on a singular scale. Thus, providing a universal definition of accountability as a virtue is challenging due to these fluctuating standards.[71]

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[63] Kemper and Kolkman, refer for the call to more open government in relation to data and transparency to Daniel Lathrop and Laurel Ruma, *Open Government: Collaboration, Transparency, and Participation in Practice* (O'Reilly Media, Inc., 2010)., 2083.

[64] Mark Bovens, "Analysing and Assessing Accountability: A Conceptual Framework," *European Law Journal* 13, no. 4 (2007): 447–68, https://doi.org/10.1111/j.1468-0386.2007.00378.x, 448.

[65] Bovens, "Analysing and Assessing Accountability," 448.

[66] Bovens, "Analysing and Assessing Accountability," 449.

[67] Bovens, "Analysing and Assessing Accountability," 449

[68] Bovens, "Analysing and Assessing Accountability," 449.

[69] Bovens, "Analysing and Assessing Accountability," 448.

[70] Bovens, "Analysing and Assessing Accountability," 450.

[71] Bovens, "Analysing and Assessing Accountability," 450.

Despite its varied interpretations, 'accountability' consistently follows a structured interaction.[72] By building on Bovens, Goodin, and Schillemans, Reuben Binns describes 'accountability' as a scenario where party 'A' is answerable to party 'B' for action 'C.'[73] Party A must justify action C to Party B and might face repercussions if the justification falls short. This dynamic of justifying actions and potentially facing the consequences is termed the 'accountability relationship,' with 'A' as the actor, 'B' as the forum, and 'C' representing actions open for discussion, responses, and final judgment or consequences.[74] However, both Binns and Bovens contend that 'accountability' remains ambiguous, often serving as a catch-all term for any mechanism making powerful institutions more responsive to their public.[75] The concept has somewhat lost its analytical utility, now resembling a "hodgepodge" of loosely defined concepts and "well-intentioned ideals."[76] Over time, accountability transitioned from a tool to enhance public governance to an end celebrated as a hallmark of good governance in EU political circles and member nations.[77]

Despite its varied applications, there is a way to understand 'accountability' in the Netherlands within the EU political context. Bovens distinguishes between the US interpretation and the EU's political orientation of accountability in governance. In the US, accountability often pertains to the virtuous aspect of institutions or political character.[78] In contrast, the EU—and, by extension, the Netherlands—views accountability as a mechanism.[79] This paper will follow and explore the understanding of accountability as a mechanism in its application to governance.

As previously discussed, accountability still adheres to the interaction structure of presenting conduct when viewed as a mechanism. However, when applied as a mechanism, certain specificities must be considered. Defining to whom the account is given determines the "type" of accountability.[80] If the account is presented to political forums (e.g., parliament or committee), it is termed political accountability.[81] For courts or legal forums, it is legal accountability. With administrative and financial control forums, it is administrative accountability. It is called social accountability when given in public announcements, to citizen panels, and to third-party evaluations.[82]

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[72] Reuben Binns, "Algorithmic Accountability and Public Reason," *Philosophy & Technology* 31, no. 4 (December 1, 2018): 543–56, https://doi.org/10.1007/s13347-017-0263-5; Bovens, "Analysing and Assessing Accountability"; Mark Bovens, "Two Concepts of Accountability: Accountability as a Virtue and as a Mechanism," *West European Politics* 33, no. 5 (September 1, 2010): 946–67, https://doi.org/10.1080/01402382.2010.486119.
[73] Binns, "Algorithmic Accountability and Public Reason," 5.
[74] Bovens, "Two Concepts of Accountability," 5-6.
[75] Binns, "Algorithmic Accountability and Public Reason," 544; Bovens, "Two Concepts of Accountability," 950
[76] Bovens, "Analysing and Assessing Accountability." 449.
[77] Bovens "Two concepts of Accountability," 949.
[78] Bovens "Two concepts of Accountability," 948-50
[79] Bovens "Two concepts of Accountability," 950-4.
[80] Bovens "Two concepts of Accountability," 950-4
[81] Bovens "Two concepts of Accountability," 950-4.
[82] Bovens "Two concepts of Accountability," 953.

Bovens expands on this by defining who is expected to provide an account to the forum. The relationship is termed corporate or organizational accountability if the entire organization is held accountable in legal processes. In most political accountability scenarios, the organization's upper echelons are often externally held accountable, often called hierarchical accountability. An example might be ministers in parliamentary systems held politically accountable for civil servant actions. Another consideration is why the individual feels obligated to account, primarily based on their relationship with the forum and the nature of the obligation.[83]

In summary, accountability is not a clear-cut definition and concept, but the way it functions is a specified arrangement of interactions between actors and forums. As such, understanding the concept can be defined and interpreted in multiple ways, but the arrangement seemingly allows for a specified manner of application in institutions.

Accountability in governance.

Accountability often follows a schema comprised of multiple phases: an information phase where the individual presents their conduct to the forum, a debating phase where questions are posed and answers are given, and a consequences phase, where judgment might lead to sanctions, ranging from disapproval to organizational termination.[84]

The precise application of accountability in governance faces several challenges. One such challenge is the 'Many-hands' problem, which, as Bovens describes, due to the increasingly involved different fora for different aspects of the used accountability arrangement, complicates the exact mechanism and application.[85] However, Bovens and Schilleman concur that accountability is applied as a mechanism in the Dutch context following the earlier discussed arrangement and phases.[86] In the case of the AR being open for public scrutiny and informing on government actions, this paper will primarily focus on the earlier mentioned 'public accountability' aspect.

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[83] Bovens "Two concepts of Accountability," 953

[84] Thomas Schillemans and Mark Bovens, "The Challenge of Multiple Accountability," *Accountable Governance: Problems and Promises*, 2011, 3–21, 4-5.

[85] Thomas Schillemans and Mark Bovens, "The Challenge of Multiple Accountability: Does Redundancy Lead to Overload?," in *The Challenge of Multiple Accountability*, ed. Melvin J. Dubnick and H. George Frederickson (M.E. Sharpe, 2015, 2011), 3–21, https://dspace.library.uu.nl/bitstream/handle/1874/319030/Challenge_multiple_accountability_Schillem ans_Bovens_2011.pdf?sequence=1, 6-11.

[86] Mark Bovens, *The Quest for Responsibility: Accountability and Citizenship in Complex Organisations* (Cambridge university press, 1998); Thomas Schillemans, "Verantwoording Na Verzelfstandiging: Continuïteit, Verwarring En Vernieuwing," *Bakker, W. & Yesilkagit, K. (2005). Publieke Verantwoording. Regimes van Inzicht En Rekenschap Bij de Uitvoering van Publieke Taken. Amsterdam: Boom*, 2005; Thomas Schillemans, *Verantwoording in de Schaduw van de Macht. Horizontale Verantwoording Bij Zelfstandige Uitvoeringsorganisaties* (Lemma, 2007); M. A. P. Bovens, W. Bakker, and K. Yesilkagit, "Publieke Verantwoording: Een Analysekader," 2005.

The term 'Public' has multiple implications here. Primarily, it signifies the aim of an "open" approach to the arrangement.[87] Public accountability is not conducted discreetly; it is accessible to the public, with information about actions widely available and hearings and debates open for public participation. The forum publicizes its judgment, allowing the public to evaluate the actors' actions.[88] Secondly, "public" indicates the subject of accountability, as Boven, Bakker, and Yesilkagit argue, concerning social and public resources and institutions.[89] Public accountability typically concerns matters in the public domain, such as public funds, the exercise of public powers, or the performance of public institutions or organizations with a public role. This perspective on accountability implies a responsibility centered on the public interest, aiming for an evaluation by citizens.[90]

In discussions about accountability concerning its application in governance, there is an argument that one can identify the relationship as Political Accountability.[91] Political accountability is crucial in a democratic rule of law, often following the principal-agent relationship chain. In parliamentary systems like the Netherlands, voters delegate sovereignty to representatives, who then delegate most of their powers to a cabinet of ministers.[92] These ministers then delegate authority to civil servants or semi-autonomous administrative bodies. Accountability then reverses up this delegation chain.[93] Thus, public accountability, applied in open governance, can be understood as political accountability when a political forum—such as committees and independent agencies—imposes judgment and consequences.

As a mechanism, accountability involves the formal and informal relationships formed by the arrangements of various government institutions, committees, and actors. This process involves three stages: informing, debating, and consequences. Within these stages, when viewing accountability as a mechanism, the focus is not on the actor but on how the institutional arrangements interact and their effects.[94]

The Utrecht School of Governance, which conducts research in accountability studies, often emphasizes three key aspects related to the application of accountability as a mechanism in governance.[95]These concern the obligation to provide information to the forum, whether the forum can debate, and if the forum's judgment impacts the actor. The mechanism's operation is implied by the forum's questioning and the presence of sanctions or rewards. The mechanism's effect is also evaluated, considering its ability to promote democratic control, prevent

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[87] Bovens, Bakker, and Yesilkagit, "Publieke Verantwoording," 4.
[88] Bovens, Bakker, and Yesilkagit, "Publieke Verantwoording," 4.
[89] Bovens, Bakker, and Yesilkagit, "Publieke Verantwoording," 5.
[90] Bovens, "Analysing and Assessing Accountability." 455.
[91] Bovens, Bakker, and Yesilkagit, "Publieke Verantwoording," 6; Schillemans, *Verantwoording in de Schaduw van de Macht*, 41-2; Thomas Schillemans, "Verantwoording Na Verzelfstandiging: Continuïteit, Verwarring En Vernieuwing," *Bakker, W. & Yesilkagit, K. (2005). Publieke Verantwoording. Regimes van Inzicht En Rekenschap Bij de Uitvoering van Publieke Taken. Amsterdam: Boom*, 2005,
[92] Bovens, Bakker, and Yesilkagit, "Publieke Verantwoording," 6.
[93] Bovens, Bakker, and Yesilkagit, "Publieke Verantwoording," 6
[94] Bovens, "Two concepts of Accountability," 959-60.
[95] Bovens, "Two concepts of Accountability," 960.

organizational deviance, enhance learning and governance effectiveness, and its potential to lead to defensive routines, shirking, and administrative overloads.[96] Therefore, public and political accountability as a mechanism in governance seemingly follows the actor-forum-consequence relations and can be defined by its application phases of informing, debating, and (possible) consequences.

Accountability in digital systems.

The accountability mechanism applied in digital algorithmic systems is termed 'algorithmic accountability."[97] Applying algorithmic accountability often builds on the concept of transparency to make algorithms more accountable.[98] Applying transparency would allow for a better understanding of the algorithmic systems' functionality, aiding the information phase for debating potential consequences.

A significant challenge in applying the accountability framework to algorithms lies in identifying the 'Actor' within the digital system.[99] Neyland suggests that understanding algorithmic accountability means examining how an algorithmic system produces results that organizations use to interpret a monitored situation. This process, termed the algorithm's "accountable order", alters our understanding compared to pre-algorithmic systems.[100] For Binns, algorithmic models have various facets that can be questioned.[101] These facets encompass issues of design, functionality, and their validity as decision-making tools. Some perceive these models as scientific, while others consider them educated guesses. Binns contends that using an algorithmic system implies a stance on these discussions and emphasizes that these models carry inherent assumptions and debates. These can be surfaced by applying clear accountability mechanisms.[102]

Considering the discussion on the application of algorithmic accountability and its use of accountability and transparency, it could be considered that the primary question in applying accountability is: How does the system work? This "how" of the algorithm would then allow potential stakeholders involved in the complete path—from inception, development, and

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[96] Bovens, "Two concepts of Accountability," 960.

[97] Maranke Wieringa, "What to Account for When Accounting for Algorithms: A Systematic Literature Review on Algorithmic Accountability," in Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency, FAT* '20 (Barcelona, Spain: Association for Computing Machinery, 2020), 1–18, https://doi.org/10.1145/3351095.3372833. 2.

[98] D. Neyland, "Bearing Account-Able Witness to the Ethical Algorithmic System," *Science, Technology & Human Values* 41, no. 1 (January 1, 2016): 50–76, https://doi.org/10.1177/0162243915598056, 1; Maranke Wieringa, "What to Account for When Accounting for Algorithms,4; Hetan Shah, "Algorithmic Accountability," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 376, no. 2128 (August 6, 2018): 20170362, https://doi.org/10.1098/rsta.2017.0362, 2; Nicholas Diakopoulos, "Accountability in Algorithmic Decision Making, 404.

[99] Wieringa, "What to Account for When Accounting for Algorithms, 4.

[100] Neyland, "Bearing Account-Able Witness to the Ethical Algorithmic System," 4.

[101] Binns, "Algorithmic Accountability and Public Reason," 546.

[102] Binns, "Algorithmic Accountability and Public Reason," 546-70.

deployment, or Software Development Life Cycle (SDLC)—of an algorithm to be summoned in the information phase of the accountability framework.[103]

Transparency, Accountability and Algorithmic Governmentality.

The application of transparency and accountability frequently surfaces in discussions about algorithms and other digital systems, such as AI, in the public sector and governance.[104] When referencing the application of digital algorithmic systems and AI, it does not imply a scenario where algorithms entirely replace human-led governmental tasks.[105] Instead, it highlights the trend where governments are increasingly integrating algorithmic services to aid decision-making and enhance the efficiency of governmental institutions.[106] As discussed earlier, an algorithm can be broadly understood as a step-by-step process. However, we must refine our understanding of algorithms in this context to delve deeper into their application in governance and the public sector.

The step-by-step interpretation of algorithms can be seen as a "narrow" definition.[107] The boundaries defining an algorithm are not rigid, as they can grow increasingly intricate, often intersecting with machine learning (ML) algorithms. These ML algorithms can "learn" through intricate instructions, refining their outputs.[108] ML algorithms differ from the recent surge of artificial intelligence (AI) systems, designed and trained based on data rather than algorithms.[109] There are many definitions for both algorithms and AI. For a comprehensive understanding, referring to both Kitchin and Sousa is advised.[110] Despite the nuances in the definitions and

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[103] Wieringa, "What to Account for When Accounting for Algorithms," 4-5.

[104] Corinne Cath and Fieke Jansen, "Dutch Comfort: The Limits of AI Governance through Municipal Registers," *Techné: Research in Philosophy and Technology*, February 4, 2023, https://doi.org/10.5840/techne202323172; Weslei Gomes de Sousa et al., "How and Where Is Artificial Intelligence in the Public Sector Going? A Literature Review and Research Agenda," *Government Information Quarterly* 36, no. 4 (October 1, 2019): 101392, https://doi.org/10.1016/j.giq.2019.07.004; Daan Kolkman, "The Usefulness of Algorithmic Models in Policy Making," *Government Information Quarterly* 37, no. 3 (July 1, 2020): 101488, https://doi.org/10.1016/j.giq.2020.101488; Marijn Janssen et al., "Will Algorithms Blind People? The Effect of Explainable AI and Decision-Makers' Experience on AI-Supported Decision-Making in Government," *Social Science Computer Review* 40, no. 2 (April 2022): 478–93, https://doi.org/10.1177/0894439320980118; Marijn Janssen and George Kuk, "The Challenges and Limits of Big Data Algorithms in Technocratic Governance," *Government Information Quarterly*, Open and Smart Governments: Strategies, Tools, and Experiences, 33, no. 3 (July 1, 2016): 371–77, https://doi.org/10.1016/j.giq.2016.08.011; Jakko Kemper and Daan Kolkman, "Transparent to Whom? No Algorithmic Accountability without a Critical Audience," *Information, Communication & Society* 22, no. 14 (December 6, 2019): 2081–96, https://doi.org/10.1080/1369118X.2018.1477967.

[105] John Danaher, "The Threat of Algocracy: Reality, Resistance and Accommodation," *Philosophy & Technology*, January 9, 2016, https://doi.org/10.1007/s13347-015-0211-1; Weslei Gomes de Sousa et al., "How and Where Is Artificial Intelligence in the Public Sector Going? A Literature Review and Research Agenda," *Government Information Quarterly* 36, no. 4 (October 1, 2019): 101392, https://doi.org/10.1016/j.giq.2019.07.004.

[106] Sousa et al., "How and Where Is Artificial Intelligence in the Public Sector Going?" 1; Janssen et al., "Will Algorithms Blind People?" 479.

[107] Kemper and Kolkman, "Transparent to Whom?" 2.

[108] Janssen et al., "Will Algorithms Blind People?" 479-80.

[109] Sousa et al., "How and Where Is Artificial Intelligence in the Public Sector Going?" 2.

[110] Kitchin, "Thinking Critically about and Researching Algorithms."; Sousa et al., "How and Where Is Artificial Intelligence in the Public Sector Going?"

functionalities of Algorithms, ML, and AI, the central question revolves around their utility as tools to interpret vast datasets, thereby informing government decision-making and policy.[111]

This process of interpretation and decision-making guidance is termed 'algorithmic governmentality.[112] It represents a governance style rooted in technological solutions or technocratic governance.[113] The concept is predicated on the notion that intricate societal challenges, processes, and decisions can be distilled into clear structures and issues, which can then be algorithmically addressed.[114] While technocratic governance bears similarities to algorithmic governance, the latter also encompasses how governmental entities, through algorithms, regulate both collective and individual behaviors.[115] This regulation involves the public's generation and surrender of data to the government, transitioning from a focus on control to a strategy of heightened automation with diminished intervention, thereby reducing regulatory costs.[116]

Transparency and Accountability applied in Algorithmic Governance.

The surge in automation via algorithms often undergoes scrutiny for its transparency, with Kolkman emphasizing its paramount importance.[117] For an algorithm to be effective in societal applications, its workings must be comprehensible to its users. Kolkman identifies two approaches to transparency in algorithmic governmentality: Firstly, opting for simpler models due to their "explainability." Secondly, approaching transparency as a set of practices, in line with Annany and Crawford's approach to transparency.

Merely increasing transparency is not deemed sufficient to address potentially biased or discriminatory algorithms. However, it is seen as a foundational step towards bolstering the accountability of algorithms in governance.[118] This step can be realized by gaining insights into algorithmic functions by analyzing disclosed information, employing journalistic investigations via reverse engineering, or integrating accountability frameworks into the SDLC.[119] While these methods differ, they converge on the same objective: pinpointing specific actors accountable for the algorithm's effects.

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[111] Sousa et al., "How and Where Is Artificial Intelligence in the Public Sector Going?"; Kolkman, "The Usefulness of Algorithmic Models in Policy Making"; Janssen et al., "Will Algorithms Blind People?"; Ziewitz, "Governing Algorithms."

[112] Danaher, "The Threat of Algocracy"; Janssen and Kuk, "The Challenges and Limits of Big Data Algorithms in Technocratic Governance."

[113] Janssen and Kuk, "The Challenges and Limits of Big Data Algorithms in Technocratic Governance," 372.

[114] Janssen and Kuk, "The Challenges and Limits of Big Data Algorithms in Technocratic Governance," 372.

[115] Janssen and Kuk, "The Challenges and Limits of Big Data Algorithms in Technocratic Governance," 375.

[116] Janssen and Kuk, "The Challenges and Limits of Big Data Algorithms in Technocratic Governance," 372.

[117] Kolkman, "The Usefulness of Algorithmic Models in Policy Making," 8.

[118] Kemper and Kolkman, "Transparent to Whom?" 2086.

[119] Kemper and Kolkman, "Transparent to Whom?"; Diakopoulos, "Algorithmic Accountability."; Wieringa, "What to Account for When Accounting for Algorithms."

The applications of transparency and accountability concepts do not aim to make the algorithm the primary actor. Instead, they apply the understood accountability framework to those involved in the algorithm's development, design, and implementation.[120] Arrangements like the AR appear to strive towards this goal. Some have recognized other pilot algorithms and AI register programs, which the central government AR is based upon, as avenues for public feedback. They provide details about the department and the individual overseeing the AI service.[121] This initiative aligns to ensure AI's use is as safe, transparent, and responsible as other local government operations. The aim is to enhance services and enrich the citizen experience.[122] In such a vision of the AR, applying transparency through information provision and the potential to hold actors accountable in a public forum seems to address concerns regarding algorithmic use in governance.

Critiques: Data feminism.

There are, however, some critiques regarding applying transparency and accountability concepts, especially when using a register to hold institutions that deploy algorithms more accountable.

While transparency and accountability seek to address challenges within algorithmic governmentality, their application is not exempt from criticism. Specifically, transparency, especially in a digital context, grapples with a nuanced contradiction: absolute transparency can inadvertently lead to confusion and obfuscation due to an information overload.[123] Additionally, there is a need to be selective about discerning information. Some organizations might be reluctant to disclose certain information, driven by either capital or security interests.[124]

Relying solely on various accountability methods might not delve deep into the root causes of injustices. Catherine D'Ignazio and Lauren Klein contend that an emphasis on data ethics, bias, accountability, transparency, and algorithmic clarity tends to blame individuals or technical glitches rather than addressing the foundational causes of recurring issues in data and algorithms.[125]They highlight Eubanks' study of New York's Welfare Management System, which illustrates how early data systems attributed discrimination to personal biases.[126] The solution then was to minimize human intervention to reduce discrimination. However, this approach erroneously pins racism and bias on individual misdeeds, overlooking broader systemic issues.

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[120] Wieringa, "What to Account for When Accounting for Algorithms," 10.
[121] Floridi, "Artificial Intelligence as a Public Service," 541.T
[122] Floridi, "Artificial Intelligence as a Public Service," 541.
[123] *Transparency, Society and Subjectivity*, 9; Wieringa, 4; Ananny and Crawford, "Seeing without Knowing," 979; Cath and Jansen, "Dutch Comfort," 6.
[124] Pasquale, *the black box society,* 103*;* Ananny and Crawford, "Seeing without Knowing," 979.
[125] D'Ignazio and Klein, "Collect, Analyze, Imagine, Teach," 61-62.
[126] D'Ignazio and Klein, "Collect, Analyze, Imagine, Teach," 61.

AI registers are posited as tools that centralize information on algorithms. In doing so, they might inadvertently amplify power disparities between governing entities and the general populace. Within their embedded contexts, AI registers can act as instruments that perpetuate existing information and power imbalances between governments and citizens.[127] Due to this aspect, AR methods necessitate scrutiny regarding their role as arenas where power dynamics manifest distinctly. In essence, municipal AI registers, coupled with discussions around ethical safeguards, risk normalizing the politically charged endeavor of urban AI.

Registers, often developed for administrative purposes, have come under scrutiny. They typically encompass a specific, narrow set of variables, primarily those necessary for administrative tasks. While they played a pivotal role in the Dutch population census, complementing questionnaires, the rise in information technologies and government digitalization has amplified the accessibility and utility of online registers.[128] These considerations raise questions about an AI register's efficacy as a preferred tool for enhancing accountability and transparency. Moreover, In Meijer et al., websites used for accountability lack strict debate or sanction guidelines. The emphasis is on informal penalties, notably reputational harm. Their work also suggests that mere transparency might be seen as a form of accountability, especially when revealing policy and performance details.[129]

The imagined definitions of 'transparency' and 'accountability' both contain, to some extent, a metaphorical property. That is, they insinuate to attribute other aspects than the semantic description of being transparent or accountable for that manner. However, both concepts are questioned and critiqued for their ability to address societal power discrepancies that have harmful impacts on people.

Methods

The Dutch government has launched the AR initiative to bolster the transparency of public algorithms. This endeavor seeks to critically examine the deployment of these algorithms, mitigating any unjust or discriminatory outcomes and ensuring accountability for entities leveraging public algorithms.[130] The Dutch government has collaborated nationwide with various

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[127] Cath and Jansen, "Dutch Comfort," 5-7.
[128] Bart F.M. Bakker, "Trek alle registers open!" (Vrije Universiteit Amsterdam, November 26, 2009), 3-5.
[129] A. Meijer, G. J. Brandsma, and S. Grimmelikhuijsen, "Transparantie Als Fictieve Verantwoording," *Bestuurswetenschappen, 64 (4)*, 2010, 8–27, 8.
[130] Alexandra van Huffelen, "Kamerbrief over inrichtingsnota algoritmetoezichthouder - Kamerstuk - Rijksoverheid.nl" (Ministerie van Algemene Zaken, December 22, 2022), https://www.rijksoverheid.nl/documenten/kamerstukken/2022/12/22/kamerbrief-over-inrichtingsnota-algoritmetoezichthouder; Alexandra van Huffelen, "Kamerbrief over reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid" (Ministirie van Binnenlandse Zaken en Koninkrijksrelaties, February 16, 2023), https://www.rijksoverheid.nl/documenten/kamerstukken/2023/02/16/kamerbrief-over-reflectie-op-

technology and research institutions to actualize the AR initiative.[131] This joint effort is geared towards crafting a standardized framework to evaluate these algorithms' ethical ramifications and potential biases.[132] This project is orchestrated in line with open-source principles, drawing from the framework offered by Saidot, a digital platform development company aimed at providing algorithm registers. As well as democratically elected officials that discuss approaches such as the AR in parliament.[133] On these platforms, stakeholders and interested parties can offer insights and critique the AR register's standards and information requisites.

The diverse array of participants in this initiative warrants reflection. All these entities collectively engage in deliberations regarding the pertinence and selection of specific information to be incorporated into the algorithm register. They also discuss how this register can epitomize transparency and hold algorithmic governance to account. However, theoretical perspectives on the imaginaries of transparency and accountability underscore the assumed aspects these concepts carry over to institutions and the initiatives to which they are applied. Both concepts encounter critiques in governance, transparency, -and accountability studies, as well as from the vantage point of data feminism. In this light, the AR emerges as a site of discourse. Dvora Yanow postulates that any policy or governmental program is intrinsically constructed and intertwined with power dynamics.[134] Given that the AR encapsulates both a policy enactment and a governmental initiative, it delineates arrangements of discourse striving to instill transparency and accountability. Consequently, it can be perceived as a discourse and power dynamics nexus. When conceptualized as a discourse epicenter, the AR can be delved into as a site of power struggles and societal change. Thus, the AR can be analyzed through methodologies tailored to dissect such discourses, such as Critical Discourse Analysis (CDA).

Critical Discourse Analysis

Ruth Wodak suggests that CDA's purpose is to study social inequalities as they are expressed, constructed, and legitimized in discourses.[135] The term 'discourse' can have two meanings. Broadly, it refers to all statements. More specifically, it can mean a set of related statements or the

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notities-eerste-kamer-over-artificiele-intelligentie-en-algoritmische-besluitvorming-overheid; Rijksoverheid, "Werkagenda Waardegedreven Digitaliseren," November 2022, https://open.overheid.nl/documenten/ronl-0de79e5c4c0c9b203c0a1c263efca7eca410958b/pdf.

[131] Sjoera Nas and Sanne Ouburg, "Inrichting algoritmetoezicht," Advisory Raport, Scenario's algoritmetoezicht (Privacy Company, December 5, 2022), 10.

[132] Nas and Ouburg, "Inrichting algoritmetoezicht," 11.

[133] Nas and Ouburg, "Inrichting algoritmetoezicht," 24.

[134] Dvora Yanow and Marleen Van Der Haar, "People out of Place: Allochthony and Autochthony in the Netherlands' Identity Discourse — Metaphors and Categories in Action," *Journal of International Relations and Development* 16, no. 2 (April 2013): 227–61, https://doi.org/10.1057/jird.2012.13; Dvora Yanow, *How Does a Policy Mean? Interpreting Policy and Organizational Actions* (Washington, D.C: Georgetown University Press, 1996), 29.

[135] Ruth Wodak, "What CDA is about - a Summary of Its History, Important Concepts and Its Developments," in *Methods of Critical Discourse Analysis*, ed. Ruth Wodak and Michael Meyer (London, UNITED KINGDOM: SAGE Publications, 2001), 1–13. 2.

rules behind them, showing a relationship between language and social practice.[136] Rooted in linguistics and social theory, CDA looks at text and spoken discourse to understand how language can support or challenge social hierarchies and norms. Analysts often examine the assumptions, representations, and power dynamics in media, political rhetoric, and other communication forms.[137]

Fairclough believes every discourse instance is a 'communicative event.' In these events, relationships, cultural norms, and institutions come from explicit and subtle elements and practices.[138] These events confirm or challenge existing discourses and social practices in various media forms.[139] As these discourses are examined, they can change through new linguistic uses within a particular communicative event.[140] For JP Gee, language in this context is not just words. It is a tool for action, written, spoken, or visual.[141] We use language to define, shape, and change things like institutions or relationships. It is not just about sharing ideas but also about creating narratives and achieving goals. Gee highlights the power of language. Language, combined with actions, symbols, technologies, and specific viewpoints, creates our reality.[142]

JP Gee identifies several roles for language. First, Significance: It gives value to subjects. Second, Activities: It goes beyond expression, with even sharing information being an action. Third, Identities: Language shows our roles. Fourth, Relationships: It establishes and maintains connections. Fifth, Politics: For Gee, politics is about distributing resources, not just governance. Sixth, Connections: Language shows how things are related. Seventh, Sign Systems and Knowledge: Language can create or destroy communication systems and shape our views.[143] Building on this idea of language as a tool, Jørgensen and Phillips go deeper, using Fairclough's ideas with examples of journalists and a hospital PR officer using consumer language in healthcare. Using this language, the officer is not just using a set communication system from specific areas (public relations and healthcare); they also influence both discourses in their communicative event. For example, journalists reference and support the existing media system when they use accepted media language.[144]

These arguments suggest that such frameworks apply to any form of language communication. By using CDA on a "text," analysts can uncover what is established in the discourse language and how it might reshape it. This method aims to uncover and show the

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[136] Norman Fairclough, "Discourses," in *Analysing Discourse: Textual Analysis for Social Research* (London: Routledge, 2003), 123–33, 124-6.

[137] Norman Fairclough, *Discourse and Social Change*, Reprinted (Cambridge: Polity Press, 2009); Wodak, "What CDA Is about ," 2-4.

[138] Norman Fairclough, *Discourse and Social Change*, Reprinted (Cambridge: Polity Press, 2009), 71-73.

[139] Marianne Jørgensen and Louise Phillips, *Discourse Analysis as Theory and Method* (6 Bonhill Street, London England EC2A 4PU United Kingdom: SAGE Publications Ltd, 2002), https://doi.org/10.4135/9781849208871, 66-69.

[140] Jørgensen and Phillips, *Discourse Analysis as Theory and Method*, 71.

[141] James Paul Gee, *How to Do Discourse Analysis: A Toolkit*, 2. ed (London: Routledge, 2014), 94.

[142] Gee, *How to Do Discourse Analysis*, 94.

[143] Gee, *How to Do Discourse Analysis*, 94-7.

[144] Jørgensen and Phillips, *Discourse Analysis as Theory and Method*, 72.

connections between these discourses. It allows for a critique of how language use reflects and shapes social inequality, echoing Habermas's idea that language can also be a tool of power and control.[145]

Applied in Text

CDA is frequently employed to analyze institutional texts, offering insights into the ideologies embedded within their discourses. Discourses are representations of specific world aspects, approached from distinct perspectives.[146] Textual analysis in CDA identifies primary themes or parts of the world the text refers to. The perspective or angle from which these themes are presented is then scrutinized.[147]

This method aims to discern how linguistic elements realize specific discourses in texts. The focus is not solely on wording and how various discourse structures themes, allow semantic relationships to emerge. The analysis can encompass grammatical, lexical, or vocabulary elements, examining word relationships, groupings, common pairings, underlying beliefs, and grammar to pinpoint themes and discourses.[148] Importantly, texts analyzed should be contextualized within (social) practices and related to other texts.[149] A mere textual analysis is not sufficient for discourse analysis. A comprehensive understanding necessitates examining how texts intersect with broader societal and cultural contexts, ideally adopting an interdisciplinary approach.[150]

Register Information Category Analysis

In line with CDA's multidisciplinary emphasis, the central research question is: How are transparency and accountability manifested within the AR? The AR is more than just a register; it is a sophisticated digital data regulation and organization system. It details how algorithms are labeled, the data they process, and the rules for organizing this information. As Bowker and Star highlight, classification systems are tangible and symbolic, guiding the flow of information across time and space.[151]

This study employs a dual-method approach, intertwining CDA with Category analysis. While the CDA focuses on discourse and linguistic events surrounding transparency and

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[145] Wodak, "What CDA Is about," 2.
[146] Fairclough, "Discourses," 129.
[147] Fairclough, "Discourses," 129-30.
[148] Fairclough, "Discourses," 130.
[149] Jørgensen and Phillips, *Discourse Analysis as Theory and Method*, 70.
[150] Jørgensen and Phillips, *Discourse Analysis as Theory and Method*, 66
[151] Bowker and Star, *Sorting Things Out*, 287-90.

accountability in the AR, the category analysis contextualizes these concepts by examining the AR's organization and categorization of information of algorithms.

Category analysis is rooted in the understanding that categorization is deeply intertwined with linguistic metaphors. It operates on two principles: firstly, that organizational categories reflect cognitive structures derived from these metaphors, and secondly, that these structures subsequently guide actions.[152] Metaphors act as bridges, transferring meaning from one context to another to facilitate understanding.[153] Categorization is not arbitrary. It is based on specific criteria, often leaning towards implicit, universally recognized features or an ideal prototype that increasingly aligns with stereotypical attributes.[154] Yanow argues that categorization carries inherent value judgments influenced by societal, political, or perceptual conditions and can imbue categories with positive or negative connotations.[155] In essence, information systems are conventions for representing structured and observational data.[156]

The goal of category analysis is to decode the logic behind these representations. It investigates the reasons for term selection, the need for specific markers, and the rationale behind these choices.[157] In the digital realm, this analysis expands to include connections, descriptions, the broader context of categorized entities, and the control and potential alteration of these connections.[158]

By integrating category analysis with CDA, this study addresses two key facets of the AR as a digital entity. Firstly, it contextualizes the textual analysis of political discourse, aiming to elucidate how these discourses influence the AR's operationalization of 'transparency' and 'accountability.' [159] Secondly, it seeks to understand how the AR's implementation of these concepts shapes discussions, information dissemination, and potential actions concerning algorithmic transparency in Dutch administrative entities.

Impact on Social Practices.
Using CDA to analyze the text and the AR as a digital entity necessitates additional consideration. As previously discussed, CDA views a communicative event as a social practice where discourses either reinforce or challenge existing social practices.

Social practices are analyzed using the interactions on the Pleio.com digital platform. This platform serves as a dedicated space for discussions about AR and as a primary hub for public

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[152] Yanow and Van Der Haar, "People out of Place," 231.
[153] Lakoff and Johnson, "The Metaphorical Structure of the Human Conceptual System."203; Yanow and Van Der Haar, 231
[154] Yanow and Van Der Haar, "People out of Place," 233.
[155] Yanow and Van Der Haar, "People out of Place," 233-4.
[156] Bowker and Star, *Sorting Things Out*, 292.
[157] Yanow and Van Der Haar, "People out of Place," 233.
[158] Bowker and Star, *Sorting Things Out*, 292.
[159] Bowker and Star, *Sorting Things Out*, 292.

communication. As a site where discourse is held, its forum is examined through the lens of CDA. The goal is to discern how discussions on this platform might mirror or shape political text perspectives and how the AR embodies the principles of transparency and accountability. Key questions guiding the analysis include: Do forum conversations align with views identified in the textual analysis? Might they introduce novel perspectives that could reshape these views or the AR's proposed structure? Do these discussions endorse the actions and perspectives of the Dutch administration, or do they amplify alternative voices? Furthermore, how have these discussions influenced the practice of transparency and accountability since the AR's inception? This inquiry is conducted alongside a textual analysis of forum posts, considering the website as a communication medium and examining the platform's presentation of statements and press releases.

Corpus Material; Letters of Government, the AR and Pleio.com.

From the Pleio website, four letters of government from the BZK to the Dutch House of Representatives were selected for analysis. These letters were pivotal in shaping the policy that established the AR. Additionally, the AR itself and its accompanying manual—which details the algorithmic information it encompasses—were also scrutinized.

The analysis focuses on the underlying structures that influenced the decision to create an algorithm register, gleaned from these four letters. These letters are not mere correspondences; they represent a significant communicative political event. They delve into the structures, actors, and institutions that shaped AR. Furthermore, they provide insight into how the Dutch parliament—and, by extension, the Dutch public—was informed about the AR's development.

These letters also shed light on the rhetoric surrounding the AR. They position the AR as a tool for enhancing transparency and bolstering government accountability, reflecting the research that underpins Dutch political decision-making and policy formulation. By concentrating primarily on these letters and occasionally referencing specific sections of documentation they allude to, we can better understand the political dynamics that shape the discourse on the AR. This approach also offers insights into the perspectives of various stakeholders, revealing how they influence both the elements of the Algorithm Register and its implementation.

This study employs a category analysis methodology, aiming to uncover the underlying logic of representations, especially within the context of digital systems. The exploration delves into the rationale behind term selection for categorization, emphasizing the necessity of specific markers and the reasons informing these choices. As we transition to the digital realm, the analysis broadens to encompass connections and descriptions that link categorized entities to their defining characteristics, how the given information is linked to government conceptualization, and organized on the AR.

From there, the analysis scrutinizes the AR's content, discerning which information is instructed to be provided concerning an algorithm. This material is taken from the AR website, the Pleio.com site, and the AR discussion platform developer documentation.

While utilizing the CDA approach to analyze the parliamentary letters, the AR analysis delves into additional aspects: such as the letters concerning algorithms, involved actors, forums, types of accounts, consequences, and accountability relationships. These elements not only categorize but also enhance the precision of the analytical review. Through this approach, we gain a holistic understanding of categorization principles in digital systems and the specific intricacies of the AR Interactions on the Pleio.com website. Alongside the discourse in the parliamentary letters, the analysis delves into the argumentation and online discourse in the AR forum. This examination provides insights into the Dutch government's communication strategies, particularly concerning developing and selecting information to be incorporated into the AR.

Analysis.

How are transparency and accountability conceptualized in governance discussions.

How transparency is conceptualized.

Textual analysis emphasizes the imaginaries of the concepts of accountability and transparency. The most detailed explanations of the formulation and discourses on these concepts are discerned from the parliament letters. These letters, spanning three months, elucidate and justify the actions, policies, and approaches to introducing the AR. They also detail how transparency plays pivotal roles therein. The letter '*State of Affairs of the Algorithm Register*' (Stand van Zaken Algoritme register) defines transparency as offering insight into decision-making and the rationale behind using algorithms.[160] The letter advocates for transparency through explainability and accountability, drawing from open development practices.[161] Such practices encompass publicizing the source code on accessible platforms and incorporating input from social organizations and external experts.[162] The letter asserts that with online publication, the "set-up of the register is transparent" and welcomes suggestions for enhancement.[163]

These arguments of transparent development and open publication language are consistently echoed in subsequent government letters, such as the '*Inrichtingsnota algoritmetoezichthouder'* letter which elaborates on using open-development practices in the

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[160] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government],"2.
[161] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 2-3
[162] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 2.
[163] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 2.

AR's application.[164] These documents point to community sections with message forums to discuss enhancements and updates for the various AR iterations. In doing so, the government letters posit that they address the adoption of some harmful and discriminatory algorithms by the Dutch government, namely by addressing the absence of transparency clear algorithm criteria and creation goals.[165]

The transparency criteria are seemingly drawn from sources like the *Wet Open Overheid* (Law for Open Government, WOO) and the *Algemene Verordening Gegevens bescherming* (General Information and Data Security Law, AVG).[166] Both these laws demand a detailed examination with appropriate references. Given that these letters cite specific laws as the benchmark, it prompts inquiries into how these laws and policies are interpreted to shape the conceptualization of transparency.

Reflections on the algorithm register's implementation elucidate the ties between algorithmic transparency and policy. The '*Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid*' (Reflection on the Senate's Notes on artificial intelligence and algorithmic decision-making by the government.) letter underscores the government's duty to adhere to established legal standards during algorithm deployment, with an unwavering emphasis on preserving human rights.[167] It delves into the potential of an algorithm registry to ensure transparency, shedding light on the extent of human involvement in certain scenarios and the balancing act between the advantages and disadvantages of a specific algorithm.[168] The Dutch government appears to equate algorithms' heightened 'transparency' with disclosing the associated 'rules' they utilize in decision-making and judicial contexts.[169] Here, 'rules' do not allude to legislation but the procedures and decisions to bridge the gap between laws and their tangible application.[170] This information would then be accessible on a platform. Moreover, the reflection letter posits that it is imperative to elucidate and supervise the government's actions effectively.[171]

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[164] "Publicatiestandaard," algoritmes.pleio.nl, February 27, 2023, https://algoritmes.pleio.nl/groups/view/e5dd717e-8817-44e7-893f-cd6bcfa2d24f/metadatastandaard; "Metadatastandaard," algoritmes.pleio.nl, February 27, 2023, https://algoritmes.pleio.nl/groups/view/e5dd717e-8817-44e7-893f-cd6bcfa2d24f/metadatastandaard/discussion; "Documenten Publieke controle op algoritmes-Kamerbrieven," Pleio.nl, January 12, 2023, https://algoritmes.pleio.nl/cms/view/ee8608db-724e-4155-96ff-099c6ee60204/documenten-publieke-controle-op-algoritmes; Rijksoverheid, "Werkagenda Waardegedreven Digitaliseren,"37-38; van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]."

[165] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government],"2.

[166] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government],"10.

[167] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 6.

[168] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government],"6.

[169] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government],"8.

[170] van Huffelen, "Reflectie op Notities Eerste Kamer,"4.

[171] van Huffelen, "Reflectie op Notities Eerste Kamer,"4-5.

It emerges that the government's conceptualization of transparency is to reveal the internal rules they adhere to when designing and managing their systems in alignment with law and policy. To be transparent, as portrayed in these letters and consequently in policy, is seemingly rooted in legal discourses. Specific laws, like the AVG and the WOO are cited, as is the *Raad van State* (Council of State), a paramount advisory entity to the government in the Netherlands that also functions as the supreme administrative court.[172] The AVG mandates limitations on automated decision-making devoid of human supervision. In these letters, transparency concerning algorithms appears to be about openness regarding their underlying motives, justifications for their use, and compliance with the law.

While there appears to be open communication regarding the functions as transparent, this transparency is not all-encompassing. It suggests that transparency can be selective. The text emphasizes the push for increased transparency in using algorithms, especially those classified as "high-risk" algorithms, which have an increased chance of breaking human rights laws.[173] However, this transparency is limited, especially in cases involving legal or justified exceptions like law enforcement or defense.[174] Citing legal safeguards like the AVG and WOO, exceptions can be made for legal or security reasons to avoid situations where too much transparency could lead to system exploitation.[175] This perspective on transparency suggests selective public access to governmental info. The narrative in these letters equates 'transparency' with revealing government algorithm decision-making processes, which seemingly aligns with Annany and Crawford's views on open decision-making.[176]

The AR is a step towards transparency, according to the *Ministirie van Binnenlandse Zaken en Koninkrijksrelaties* (Ministry of Interior and Kingdom Relations, or BZK).[177] It aims to make government algorithms more transparent, understandable, and accountable to the public. However, the exact nature of transparency is not deeply explored. It is mainly about adhering to legal definitions and making information public. Transparency is seen as a tool for the public to understand the rationale behind government algorithms. In the letters, transparency seems to be about sharing select information to ensure it does not jeopardize legal, law enforcement, or defense operations.

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[172] van Huffelen, "Reflectie op Notities Eerste Kamer,"5; Raad van State, "Ongevraagd advies over de effecten van de digitalisering voor de rechtsstatelijke verhoudingen." (Raad van State, October 9, 2019), W04.18.0230/I, Kamerstukken II 2017/18, 26643, nr. 557, https://www.raadvanstate.nl/adviezen/@112661/w04-18-0230/.
[173] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 3-4.
[174] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 3-4.
[175] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 4.
[176] Ananny and Crawford, "Seeing without Knowing," 976.
[177] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 3-4.

How accountability is conceptualized.

Accountability is initially framed as 'public accountability,' inferred from language promoting civilian critique of the government, suggesting a public accountability relationship.[178] There is also a focus on lawful accountability concerning the AR, especially when referencing EU legislation. The accountability mechanism appears structured as " A reports to b for possible 'C' consequences." The phrase from the governance letter *Stand van Zaken* implies that the government "A" provides an account to "B," the public.[179] However, the consequences of "C" are not clearly defined.

At a glance, the government letters discuss accountability as public accountability, inspired by open governance discourse. Nevertheless, a deeper dive reveals a shift towards administrative or political accountability, especially with the introduction of an algorithm supervisor. This accountability mechanism is exemplified by the approach where algorithm developers share information but are not directly accountable through imposed consequences. They are urged, and soon mandated, to be transparent.[180] It is up to others, like proposed algorithmic supervisors or the public, to provide feedback, but they are not discussed as having direct powers to impose a consequence. This algorithmic supervisor(s) would seek to expand and share knowledge among various stakeholders through independent and joint research. In conjunction with projects such as the AR, the aim is to identify risks and "blind spots" in algorithm use, which could lead to issues like discrimination or lack of transparency.[181]

The political and administrative accountability relationship could be inferred from conventions described in the *Inrichtingsnota*: what is accounted for in sharing information, who provides information, and the possible consequences. The governance letter about the algorithm supervisor reveals they will analyze and foster knowledge exchange to improve the algorithm "supervision landscape."[182] The AR and an algorithm supervisor are presented as potential oversight tools for the public, government institutions, and Non-government organizations.[183] For example, in considering the AR, the *Inrichtingsnota* stresses enhancing the current oversight methods, including identifying algorithmic risks, fostering knowledge sharing, and promoting collective oversight efforts.[184] Engaging with the private sector and creating algorithm supervisors is a primary strategy. This policy practice involves ongoing collaboration among governmental departments, oversight entities, and algorithm registrations like the AR. The text uses words such as "mapping the landscape," "signal detection," and the need for a "social antenna" to understand social issues and the impact of algorithms on different groups of people to create an idea of the

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[178] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 3.
[179] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 1-3.
[180] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 4-5
[181] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 11.
[182] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 6.
[183] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 6
[184] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 7-8.

actions of algorithm supervisors.[185] Additionally, it acknowledges that the regulatory body for algorithms should be highly visible, with public information sharing to address concerns and insights across human rights -and technical fields to improve risk management. [186]

References such as enhanced collaboration and knowledge-sharing across human rights - and technical fields to improve risk management highlight the writers' call for shared algorithmic standards[187] and guidelines.[188] The supervisor discourse emphasizes the importance of early risk detection, collaboration, and visibility to the public and organizations. Additionally, the letters of government mainly discuss the public's ability to challenge algorithmic decisions rather than focusing on the public's accountability mechanism. Therefore, it seems that the public, or those affected by outcomes, could only challenge decisions through upward delegation of their democratic representatives' legislative powers.

The algorithm supervisor and AR's primary goal is to provide clarity and responsible algorithm use, catering to a broad audience from government bodies to startups to the public, emphasizing the regulator's educational role, and presenting a balanced perspective on algorithms.[189] Considerations are being made on organizing information, supervision, and communication for AI and algorithms. Proposals include accessible assessments, algorithm registration, and regular evaluations. Emphasis is also on considering digital implementations when formulating laws. The General Administrative Law Act (Awb) is set to be amended to enhance its protective aspects, addressing errors and fostering better citizen-government dialogue.[190]

The consequences described in the *Inrichtingsnota*, or rather the absence of any distinction thereof, seem to indicate that the discourse in the government letters leans towards a 'responsibility' improving framework rather than a clear accountability framework. The idea is that increased transparency triggers an action for improved responsible algorithmic use and development.[191] Explicit consequences are not detailed apart from referring to laws such as the AVG or the Awb.[192] In the context of the Dutch government, when viewed through the lens of frameworks proposed by Bovens, Binns, and others, [193] accountability seems to be a scenario where entity A, an institution or government organization, strives for transparency by sharing information based on guidelines from the supervisor of entity B. The supervisor then assesses the

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[185] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 7

[186] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 8.

[187] Gee, *How to Do Discourse Analysis*, 94.; van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 8.

[188] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 8-9.

[189] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 10.

[190] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 14.

[191] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 7-9.

[192] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 4-5; van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 10.

[193] Bovens, "Two Concepts of Accountability," 950.

information provided by A and offers feedback, but without imposing direct consequences to improve the responsible development and implementation of algorithms.

How are these concepts implemented in the technical infrastructure?

How transparency is implemented in the technical infrastructure.

Several methods bring transparency into the technical infrastructure, aligning with the open-source development approach. Relevant materials are available on the Pleio.com website.[194] Sponsored by the government, Pleio operates as an open-source collaboration platform.[195] It is supervised by the Ministry of BZK and ICTU, a government advisory group, and other government bodies.[196] Pleio focuses on algorithmic transparency and metadata improvement, as indicated by a community post that sets out goals for transparency, demographic analysis, collaboration, and feedback.[197] With an emphasis on public algorithm transparency, Pleio offers access to the code on GitHub (an online code-sharing platform), publishes API guidelines, and organizes development sprint reviews.[198] The AR's development is facilitated through community forum pages.[199]

Communities on the platform are organized around five main topics. The intergovernmental workgroup (*Interbestuurlijke werkgroep*), works on definitions for the AR and the development of the metadata standard, sharing their results during public sessions. These community sections mainly use forum posts to encourage stakeholder discussions about the algorithm's publication standard. Shared information includes policy news, legislative updates, political discussions, specific posts about changes or topics, files related to the publication standard, version updates, reports, and official letters. Subsequent discussions and changes are

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[194] "Over Deze Website - Het Algoritmeregister van de Nederlandse Overheid," Algoritme.overheid.nl, accessed March 27, 2023, https://algoritme.overheid.nl/footer/over.

[195] "Publicatiestandaard," algoritmes.pleio.nl, February 27, 2023, https://algoritmes.pleio.nl/groups/view/e5dd717e-8817-44e7-893f-cd6bcfa2d24f/metadatastandaard; "Metadatastandaard," algoritmes.pleio.nl, February 27, 2023, https://algoritmes.pleio.nl/groups/view/e5dd717e-8817-44e7-893f-cd6bcfa2d24f/metadatastandaard/discussion; "Documenten Publieke controle op algoritmes-Kamerbrieven," Pleio.nl, January 12, 2023, https://algoritmes.pleio.nl/cms/view/ee8608db-724e-4155-96ff-099c6ee60204/documenten-publieke-controle-op-algoritmes.

[196] "Over ons | ICTU," accessed April 11, 2023, https://www.ictu.nlhttps://www.ictu.nl/over-ons; Rijksoverheid, "Werkagenda Waardegedreven Digitaliseren."; van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]."

[197] Marjolijn Kortemann, "Doel Algoritmeregister vs. aanpak doorontwikkeling discussion thread," *Algoritmes*, January 12, 2023, https://algoritmes.pleio.nl/cms/view/ee8608db-724e-4155-96ff-099c6ee60204/documenten-publieke-controle-op-algoritmes.

[198] "Sprintreviews," algoritmes.pleio.nl, accessed August 28, 2023, https://algoritmes.pleio.nl/groups/view/22fbab96-5e3d-412b-8e0f-accf3b53a616/sprintreviews.; "Algoritmeregister," algoritmes.pleio.nl, December 20, 2022, https://algoritmes.pleio.nl/cms/view/5129946d-9bf8-4fb9-b15c-e122d1dc02c9/algortimeregister.

[199] "B. Meedoen/op de hoogte blijven," algoritmes.pleio.nl, June 20, 2023, https://algoritmes.pleio.nl/wiki/view/d1a34f9c-ec8a-4465-967c-a6ae05393049/b-meedoenop-de-hoogte-blijvenn.

then incorporated into the guidelines and the AR's information categories.[200] Operationalizing AR transparency involves making letters and changes available for review and discussions on community pages. There is a proactive approach to transparency, as seen in government letters, by promoting open discussions about the AR's information and sharing the AR's source code.[201] This method of sharing information aims to make development activities transparent and open. This approach aligns with Etzioni's thoughts on transparency adapted for digital development, emphasizing the visibility and openness of activities.[202]

Regarding forum discussions and information categorization, the AR highlights several principles. Due to the current legal landscape, organizations are only encouraged to fill out all fields according to their judgment, as it is not mandatory.[203] Incomplete fields are typically hidden on the website, with some exceptions. The current format has limited structuring capabilities, but future website updates aim to expand this.[204] Another principle is using language for the general public, implemented using a B1 language level.[205] While this might be challenging for all fields, the main goal is to reach a broader audience. Finally, the central AR's publication standards allow for flexibility in how organizations organize fields, with internal registers possibly requiring more detailed algorithmic information.

The BZK sees the AR as a move towards increased transparency in government institutions to demystify government algorithms and thus increase trust in algorithmic governance.[206] However, transparency's exact nature is narrowly explored. It primarily revolves around legal transparency definitions and publicizing information. It is seen as a tool for the public to understand government algorithms' rationale. The discourse in the letters implies selected information sharing that does not jeopardize law enforcement or defense operations.

How accountability is implemented in the technical infrastructure.

As highlighted, information categories on the Pleio.com website are managed by the intergovernmental workgroup community. According to Pleio.com and the algorithm submission guidelines, the organization updates information about site AR and submission guidelines based on meetings and discussions.

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[200] "Concept Handleiding Aanlevering AR 0.4.0a." (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, May 10, 2023), https://algoritmes.pleio.nl/files/view/cefda7b3-b24a-4597-915a-5321437b880c/20230510-handleiding-aanlevering-ar-0.docx; "Handleiding Aanlevering AR 0.2.3b" (Ministirie van Binnenlandse Zaken en Koninkrijksrelaties, July 3, 2023), https://algoritmes.pleio.nl/files/view/33c59a9e-2269-43da-aac5-c452d7b37120/handleiding-aanlevering-ar-0.pdf.

[201] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 4; van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 4; van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 3.

[202] Etzioni, "The Limits of transparency," In *Transparency, Society and Subjectivity,* 179-180.

[203] "Concept Handleiding Aanlevering AR 0.4.0a," 4.

[204] "Concept Handleiding Aanlevering AR 0.4.0a," 4.

[205] "Concept Handleiding Aanlevering AR 0.4.0a," 4.

[206] van Huffelen, "De Stand van zaken Algoritmeregister [Letter of Government]," 3-4;

The information is organized into four main categories and subcategories. Observing Table one, 2.2 reveals categories that align with Binns' views on digital system accountability.[207] The AR delivery guidelines discuss ethical system use, including purposes and possible impacts.[208] It also stresses human oversight in decision-making and Risk Management.[209] The Legal Basis section refers to guiding legal frameworks.[210] The Impact Assessment shows if assessments like Data Protection Impact Assessment (DPIA) or *Impact Assessment Mensenrechten en Algoritmes* (Impact Assessment Human Rights and Algorithms, IAMA) have been conducted.[211] From a technical standpoint, the Operations section details the system's functional aspects. Data details the system's information. Link to Data Sources references the data's origin. Technical Operation describes the algorithm's function. Supplier identifies the system's responsible entity, while Link to Source Code provides access to its programming foundation.

These categorizations hint at the AR's specific conceptualization of accountability. Each section of information is, in their regard, the implementation of what is considered necessary to provide adequate accounts of the uses of government algorithms development and implementation. *General Information* offers a system or product's operational overview and the responsible organization.[212] When compared with Wieringa's and Neyland's insights on identifying digital system 'Actors,' the emphasis on 'Human Intervention' intersects with their views, acknowledging human decision-making centrality.[213] *Purpose,* and *Impact, and Considera*tions resonate with Binns' arguments that algorithms can be viewed variably.[214] The *Technical Operation,* primarily how the algorithm functions, aligns with Neyland's concept of the algorithm's "accountable order," that is, it aims to shape the understanding of the actions compared to pre-algorithmic application.[215] The *Link to Data Sources* and *Data* sections address the data's context. Understanding the data's origin and use is crucial for system integrity,[216] a sentiment echoed in government letters.[217] The focus on *Risk Management* and *Legal Basis* reflects basic algorithmic accountability mechanisms, aligning with Binns' idea that clear accountability mechanisms explain the risks that can reveal inherent algorithmic system assumptions.[218] The 'Supplier' and 'Link to Source Code' sections could be further explored for potential biases in algorithm-driven systems.

[207] Binns, "Algorithmic Accountability and Public Reason," 546-70.
[208] "Concept Handleiding Aanlevering AR 0.4.0a," 9.
[209] "Concept Handleiding Aanlevering AR 0.4.0a," 9-10.
[210] "Concept Handleiding Aanlevering AR 0.4.0a," 10.
[211] "Concept Handleiding Aanlevering AR 0.4.0a," 11.
[212] "Concept Handleiding Aanlevering AR 0.4.0a," 5-8.
[213] Wieringa, "What to Account for When Accounting for Algorithms," 2-3; Neyland, "Bearing Account-Able Witness to the Ethical Algorithmic System,4"
[214] Binns, "Algorithmic Accountability and Public Reason," 546.
[215] Neyland, "Bearing Account-Able Witness to the Ethical Algorithmic System,4"
[216] Binns, "Algorithmic Accountability and Public Reason," 546-70; Wieringa
[217] van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government]," 5.
[218] Binns, "Algorithmic Accountability and Public Reason," 546.

Section	Information subsections
2.1 General Information	2.1.1 Name
	2.1.2 Brief Description
	2.1.3 Organization
	2.1.4 Theme
	2.1.5 Self-Learning
	2.1.6 Status
	2.1.7 Start Date
	2.1.8 End Date
	2.1.9 Contact Information
	2.1.10 Link to Public Page
	2.1.11 Link to Source Registration
2.2 Responsible Use	2.2.1 Purpose and Impact
	2.2.2 Considerations
	2.2.3 Human Intervention
	2.2.4 Risk Management
	2.2.5 Legal Basis
	2.2.6 Link to Legal Basis
	2.2.7 Impact Assessments
	2.2.8 Link to Impact Assessment
	2.3.1 Data
2.3 Operation	2.3.2 Link to Data Sources
	2.3.3 Technical Operation
	2.3.4 Supplier
	2.3.5 Link to Source Code
2.4 Metadata	2.4.1 Language
	2.4.2 Schema
	2.4.3 National-ID
	2.4.4 Source-ID
	2.4.5 Tags

Table 1. Sections and discussed themes in the AR from the latest "Concept Handleiding Aanlevering AR 0.4.0a." translated from Dutch.

The AR's sections align with insights from Binns and Neyland regarding digital system accountability, indicating that understanding and implementing algorithmic systems requires a holistic approach. However, the AR's accountability operationalization does not entirely align with the three-stage accountability process: informing, debating, and consequences.[219] The

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[219] Bovens, "Two concepts of Accountability," 959-60.

informing stage in the AR focuses on providing information through the subjects in the AR, e.g., *General Information, Data, Link to Data Sources*, and *Technical Operations*. The debating phase revolves around the online community and supervisor. As the supervisor fosters discussions about the balance between human agency and automated processes, the Pleio.com communities and the BZK aim to translate these into future informing categories. The consequences stage examines outcomes, which in the AR are not addressed but are implied based on feedback from those signaling issues from the AR information or the supervisor. The emphasis on the information phase in the AR and supervisor mechanisms can be suggested to hinge exclusively on making the department use the algorithms as answerable to the algorithm functionality without directly indicating or imposing consequences. However, according to Binns' and Neyland's perspective, there should also be clear ramifications for how AR elements function within institutional structures, emphasizing ethical utilization and transparent data.

In earlier versions, institutions or organizations provided information to the BZK through mail, with the BZK then uploading it to the AR. This arrangement has been changed to one where algorithm owners manage their information, overseeing delivery, retrieval, modification, deletion, and publication on the AR.[220] Additionally, taking the critical lens concerning accountability in digital systems, the implementation is mainly focused on considering the organization and provision of information. In other words, the arrangement organizes information on algorithms, but it does not facilitate direct influence on the development and implementation of algorithms.

Despite the perspectives and methodologies of the AR, the operationalization of accountability in the AR does not fully correspond with the three-stage accountability process: informing, debating, and consequences.[221] As the supervisor encourages dialogue regarding responsible use from various sources, the Pleio.com communities, in conjunction with the BZK, strive to convert these discussions into structured information categories that will guide future information dissemination concerning government algorithms. In the initial informing phase, through its information categories, as seen in Table One, the AR could be said to lay the groundwork for understanding an algorithm's system operations. Therefore, it could be considered part of the information phase in an accountability mechanism. The subsequent debating stage is implemented through the supervisory element and others who would use this information to debate the algorithm. However, the exact consequences remain vague; feedback is given whether from those highlighting issues with the AR's information or from the supervisor, which, in the view of the BZK, is implied to produce more responsible development and usage of algorithms in government administration. This assessment indicates that the focus is not merely on holding the institution or developer accountable as actors within an accountability mechanism. Instead, it is an arrangement that emphasizes the interplay of the AR's elements within institutional

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[220] Tom Moesker, "Aanlever functionaliteit voor het Algoritmeregister van de Nederlandse overheid: Sprintreview 1," 7-8.
[221] Bovens, "Two concepts of Accountability," 959-60.

structures, which understands increased responsible algorithmic development through feedback, implied judicial consequences, and selective transparent information sharing.

How have transparency and accountability been practiced in the first six months since its launch?

Analyzing the technical infrastructure of the AR during its initial six months post-launch through the given theoretical lens indicates an alignment with principles of transparency and accountability in algorithmic governance. The arrangement of the AR employs various strategies to operationalize accountability. The *Publicatiestandaard* (Publication standard) has been a recurring topic in AR development sprint reviews two, three, and four, with the latter two sessions revealing that the publication standard was previously termed the *Metadata standaard (*Metadata standard*)*.[222] The discussions in these reviews also highlighted a desire for a centralized location for all related standards. By the fifth sprint review, the publication process was reiterated, emphasizing the ongoing development of the publication standard.[223] However, the sixth sprint review provided no specific updates on this topic. It would seem then, that the sprint review discussions on the publication standard indicate an aim towards algorithmic integration in governance with transparent development. As such, transparency seems evident in the AR's operations, with updates on the community page and expert sessions mirroring Kolkman's emphasis on transparency for societal algorithms.

Over the past six months, there have been several efforts to share information. These include the release of development documentation, strategy presentations, tech demos during meet-ups, and the continuous incorporation of feedback into the organization of the guidelines for information submission. The AR Version 0.2.3b underwent several refinements, with changes spanning multiple sections, emphasizing the B1 language level.[224] Versions 0.3.1a and 0.3.1b subsequently focused on refining the document further, emphasizing clarity and comprehension.[225] Version 0.4.0a marked a significant milestone, with numerous changes aimed at wording modifications and merging categories.[226]

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[222] Tom Moesker, "Publicatiefunctionaliteit voor het Algoritmeregister van de Nederlandse overheid: Sprintreview 2."; Tom Moesker, "Publicatie functionaliteit voor het Algoritmeregister van de Nederlandse overheid: Sprintreview 3"; Tom Moesker, "Publicatie functionaliteit voor het Algoritmeregister van de Nederlandse overheid: Sprintreview 4."

[223] Tom Moesker, "Publicatie functionaliteit voor het Algoritmeregister van de Nederlandse overheid: Sprintreview 5," https://algoritmes.pleio.nl/files/view/85865f0f-019b-4180-b932-7bcfc843a61e/230530-algoritmeregister-sprintreview-5-verslag.pdf.

[224] "Handleiding Aanlevering AR 0.2.3b."

[225] "Handleiding Algoritmeregister 0.3.0a" (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, March 7, 2023), https://algoritmes.pleio.nl/file/download/c0588ffc-a9b6-4707-8f8a-c81fee0d4dbc/handleiding-aanlevering-ar-0.pdf; Version 0.3.1b

[226] "Concept Handleiding Aanlevering AR 0.4.0a."

The discussion about these categories aligns with established views from the government letters. When examining forum conversations and Pleio.com documentation, it is found that the primary goal of the AR is to bolster trust in the government.[227] The online meet-ups organized through the Pleio.com platform often reiterate the discourses established in the government letters, emphasizing the AR's role in demystifying the government's use of algorithms and AI and ensuring transparency and accountability.[228] The AR also showcases an accountability framework supported by community dialogues and information dissemination. The theory advocates for disclosed information, journalistic oversight, and accountability within the SDLC.[229] The *Sprintreview* series, feedback sessions, and meet-ups provide a platform for discussing these accountability measures. The AR addresses both its development human -and organizational contributors, consistent with the theoretical perspective of Wieringa.[230] The AR's feedback approach aligns with Floridi's view of pilot AI register programs, emphasizing transparency and governance responsibility.[231]

The online discussions regarding the AR's further development often endorse the actions and perspectives of the Dutch administration. They iterate the need to build on the existing initiatives, focusing primarily on improving the publication standard, enhancing the AR's functionalities, and facilitating the adoption of algorithm submission transparency.[232] These discussions do not deviate significantly from the initial perspectives provided. They often refer to the original inception and motions for politicians regarding planned policy and administrative strategy for algorithmic use in government institutions.[233] Even though these conversations promote open dialogue and transparent development of the AR, the discourse remains anchored in established practices, particularly concerning the conceptualization of transparency in functionality and open development.

Since the AR's inception, the online discussions have hardly influenced the practice of transparency and accountability. The emphasis on functionality and open development discussions and questions during online video meetups is focused on re-organizing information in the AR, primarily concerned with embracing transparency practices to facilitate more accessible methods for submitting, modifying, and even removing information. However, there has been no

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[227] *Meet-up Handreiking Algoritmeregister*, 2023, https://algoritmes.pleio.nl/cms/view/f35ff679-fb2d-4763-8b38-57d0b1efa2d0/meet-up-handreiking-algoritmeregister.
[228] "Concept Handreiking Algoritmeregister"; *Meet-up Handreiking Algoritmeregister*; Moesker, "Sprintreview 5."; Moesker, "Sprintreview 6."
[229] Kemper and Kolkman, "Transparent to Whom?"; Diakopoulos, "Algorithmic Accountability."; Wieringa, "What to Account for When Accounting for Algorithms."
[230] Wieringa, "What to Account for When Accounting for Algorithms," 10.
[231] Floridi, "Artificial Intelligence as a Public Service," 541.
[232] "Meet-up Publicatiestandaard"; "Impressie Meet-up Metadatastandaard 31 januari 2023"; "Verslag Meet-up Algoritmeregister 26 januari"; "B. Meedoen/op de hoogte blijven."; *Meet-up Handreiking Algoritmeregister*; "Meet-up Publicatiestandaard"; "Doel Algoritmeregistern vs. aanpak doorontwikkeling"; "Impressie Meet-up Metadatastandaard 31 januari 2023"; "Concept Handreiking Algoritmeregister."
[233] *Meet-up Handreiking Algoritmeregister*; "Doel Algoritmeregistern vs. aanpak doorontwikkeling"; "Concept Handreiking Algoritmeregister"; "Verslag Meet-up Algoritmeregister 26 januari."

significant deviation regarding the established arrangement and mechanisms of transparency and accountability as conceived in the earliest government letters.

Conclusion and Discussion.

The emphasis on transparency and accountability in algorithmic governance is evident throughout the discussed texts. As presented in parliamentary letters and policy communications, transparency is not merely about making information accessible. Instead, it delves deeper into making governmental algorithms' internal rules, design, and decision-making processes discernible. This transparency is rooted in legal discourses, with specific laws like AVG and WOO as benchmarks.[234] However, the nature of this transparency is selective, ensuring a balance between open access and preserving security or other justified concerns.

Accountability, on the other hand, appears to be multi-dimensional. While it initially presents itself as public accountability, it evolves to include administrative or political accountability elements. The core of this accountability lies in a structure where information is provided transparently, followed by feedback and assessment. However, the consequence phase, an essential component of proper accountability, remains somewhat ambiguous.

The technical infrastructure of the AR seems to attempt to embody principles of transparent use and development, and thus being accountable. In its design and implementation, the AR focuses on openness, with open-source development practices and public access to code and discussions. The community-driven platform Pleio.com catalyzes this transparency. The AR's emphasis on responsible use, open information, and continuous feedback could be seen as evidence of its commitment to these principles.

However, it should not be left unmentioned that the AR also serves as a method for governing efficiency. Registers, often developed for administrative purposes, typically encompass a specific, narrow set of variables, primarily those necessary for administrative tasks.[235] The mentioning of the centralization of employed algorithms could be said to support the efficiency and quality of the algorithm supervisor. Getting direct feedback from a centralized place removes possible confusion around which parties use what algorithms.

Furthermore, the practical application of these principles in the AR's initial six months showcases some gaps. While transparency is promoted, it is not absolute. Similarly, while accountability mechanisms are in place, they are not as robust as expected, particularly in

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[234] van Huffelen, "Reflectie op Notities Eerste Kamer over artificiële intelligentie en algoritmische besluitvorming overheid [Letter of Government]," 4-5. van Huffelen, "Inrichtingsnota algoritmetoezichthouder [Letter of Government],"10.
[235] Bakker, "Trek alle registers open!" 5-6; Cath and Jansen, "Dutch Comfort," 7.

defining and enforcing consequences. The actors are mentioned in general information, but the text and discussion surrounding the aim and organization of the AR often discuss it as a system of providing feedback for responsible use rather than moving to impose consequences. The conceptualizations of accountability thus turn the AR into a mechanism for responsible use rather than holding specific actors and algorithms accountable. Even more so, the choice of specific considerations for categories meant to inform the improvement of responsible use is an almost exact overlap with the arguments of D'Ignazio and Klein; the use of transparency and accountability place faults in technical errors rather than societal ones.[236] The organization of the information categories and how the owners of the algorithms are mandated to deliver the information on their algorithms mainly discusses data, ethics, bias, accountability, transparency, and algorithmic functions, which could tend to emphasize technical glitches and, in the case of the AR lapses in responsible use rather than addressing the foundational causes of recurring issues in data and algorithms. Additionally, the adherence to established discourses within the letters of government re-establish Dutch government conceptualizations of transparency. Thus, equating transparent practice through the implementation of AR as an online platform, as being accountable and thus responsible in the governments use of algorithms. Moreover, re-iterating pre-established discourses in the development and implementation of algorithmic accountability practices could promote the legitimization of established government approaches towards discriminatory algorithms.[237]

Considerations and possible solutions

The role of algorithms within the institutions of the social welfare state presents a pressing problem. Specifically, the use of these algorithms, combined with a lack of transparency about their application, can lead to social, economic, and ethnic negativity biases. These biases, in turn, result in discriminatory and harmful effects when the algorithms are used in administrative processes.[238] Recognizing the gravity of these challenges, Dutch state representatives have expressed a heightened awareness of the dangers posed by biased and discriminatory algorithms. In response, they have committed to addressing these concerns. To tackle the issue, an algorithm register has been introduced as an online platform to improve transparency and provide feedback on aspects that signal issues for observers using the platform. However, the current research concluded that this approach invites considerations regarding the emphasis on feedback rather than imposing clear consequences. This focus tends to highlight technical errors over societal issues.

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[236] D'Ignazio and Klein, *Data Feminism*, 60-63.

[237] Meijer, Brandsma, and Grimmelikhuijsen, "Transparantie Als Fictieve Verantwoording," 8.

[238] "Hoe signalen van het Inlichtingenbureau bijstandsgerechtigden in de problemen brengen," De Groene Amsterdammer, January 27, 2021, https://www.groene.nl/artikel/ze-weten-alles-van-je; Rekenkamer Rotterdam, "Gekleurde Technologie: Verkenning Ethnisch Gebruik Algoritmes"; Douwe, "Landmark ruling in SyRI case: Dutch court bans risk profiling," *SOLV* (blog), February 5, 2020, https://solv.nl/blog/landslide-victory-in-syri-case-dutch-court-bans-risk-profiling/.

Considering the focus on technical errors over societal issues, some limitations of the research need to be acknowledged. First and foremost, while the AR offers insights into a multitude of algorithms, this research did not extensively investigate the SDLC of the algorithms listed therein. As a result, the study hasn't deeply explored the effects of feedback, leaving questions about the real impact of the AR's accountability arrangements on the formulation of government algorithms. Consequently, this research should primarily be viewed as an exploration of the conceptualization of an algorithmic accountability framework, as seen through the digital platforms of the AR and the Pleio.com communities. It's important to note that the study does not address certain aspects, particularly the broader social implications on algorithmic governance practices.

To address the limitations, it is recommended that future research efforts explore deeper aspects of extended algorithmic governance practices. One potential avenue is to conduct continued research into policy implementation through infrastructural inversion. This would allow a comprehensive examination of the embedded systems underpinning the current approaches to algorithmic governance. By doing so, researchers can better understand and address the potential systemic issues that shape the algorithms in use.

Furthermore, it could be beneficial to investigate the adoption of algorithmic accountability practices as framed by both the AR and governmental directives, to discern differences in the adoption and perception of these practices between individuals in supervisory roles and the public. As part of this exploration, it could be beneficial to consider perspectives beyond the commonly acknowledged ones such transparency and accountability. Specifically, by engaging with practitioners in the fields of critical data and data feminism who can provide invaluable insights.

The disciplines of critical data and critical algorithm studies could offer a comprehensive understanding of the foundational information structures upon which these algorithms are built. Moreover, they can qualitatively shed light on the context in which these technical arrangements are crafted. Other approaches rooted in data feminism in future research can uncover alternative methods of algorithmic development and implementation. These methods would consider the systemic challenges that drive discriminatory algorithmic practices and functionalities.

By pursuing these alternative approaches to algorithmic development and implementation, there lies an opportunity to actively challenge the prevailing and unequal power dynamics that inform adverse discriminatory algorithms. To pursue these alternative approaches would, as D'Ignazio and Klein eloquently put it, "push back against existing and unequal power structures and to work toward more just and equitable futures."[239]

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[239] D'Ignazio and Klein, *Data Feminism*, 53.

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Universiteit Utrecht

Faculty of Humanities
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PLAGIARISM RULES AWARENESS STATEMENT

Fraud and Plagiarism

Scientific integrity is the foundation of academic life. Utrecht University considers any form of scientific deception to be an extremely serious infraction. Utrecht University therefore expects every student to be aware of, and to abide by, the norms and values regarding scientific integrity.

The most important forms of deception that affect this integrity are fraud and plagiarism. Plagiarism is the copying of another person's work without proper acknowledgement, and it is a form of fraud. The following is a detailed explanation of what is considered to be fraud and plagiarism, with a few concrete examples. Please note that this is not a comprehensive list!

If fraud or plagiarism is detected, the study programme's Examination Committee may decide to impose sanctions. The most serious sanction that the committee can impose is to submit a request to the Executive Board of the University to expel the student from the study programme.

Plagiarism

Plagiarism is the copying of another person's documents, ideas or lines of thought and presenting it as one's own work. You must always accurately indicate from whom you obtained ideas and insights, and you must constantly be aware of the difference between citing, paraphrasing and plagiarising. Students and staff must be very careful in citing sources; this concerns not only printed sources, but also information obtained from the Internet.

The following issues will always be considered to be plagiarism:
- cutting and pasting text from digital sources, such as an encyclopaedia or digital periodicals, without quotation marks and footnotes;
- cutting and pasting text from the Internet without quotation marks and footnotes;
- copying printed materials, such as books, magazines or encyclopaedias, without quotation marks or footnotes;
- including a translation of one of the sources named above without quotation marks or footnotes;
- paraphrasing (parts of) the texts listed above without proper references: paraphrasing must be marked as such, by expressly mentioning the original author in the text or in a footnote, so that you do not give the impression that it is your own idea;
- copying sound, video or test materials from others without references, and presenting it as one's own work;
- submitting work done previously by the student without reference to the original paper, and presenting it as original work done in the context of the course, without the express permission of the course lecturer;
- copying the work of another student and presenting it as one's own work. If this is done with the consent of the other student, then he or she is also complicit in the plagiarism;
- when one of the authors of a group paper commits plagiarism, then the other co-authors are also complicit in plagiarism if they could or should have known that the person was committing plagiarism;
- submitting papers acquired from a commercial institution, such as an Internet site with summaries or papers, that were written by another person, whether or not that other person received payment for the work.

The rules for plagiarism also apply to rough drafts of papers or (parts of) theses sent to a lecturer for feedback, to the extent that submitting rough drafts for feedback is mentioned in the course handbook or the thesis regulations.
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