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Public engagement and AI: A values analysis of national strategies

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ABSTRACT

Calls for public engagement and participation in AI governance align strongly with a public value management approach to public administration. Simultaneously, the prominence of commercial vendors and consultants in AI discourse emphasizes market value and efficiency in a way often associated with the private sector and New Public Management. To understand how this might influence the consolidation of AI governance regimes and decision-making by public administrators, 16 national strategies for AI are subjected to content analysis. References to the public's role and public engagement mechanisms are mapped across national strategies, as is the articulation of values related to professionalism, efficiency, service, engagement, and the private sector. Though engagement rhetoric is common, references to specific engagement mechanisms and activities are rare. Analysis of value relationships highlights congruence of engagement values with professionalism and private sector values, and raises concerns about neoliberal technology frames that normalize AI, obscuring policy complexity and trade-offs.

1. Introduction

The inherent opacity and rapid diffusion of artificial intelligence and machine learning technologies (AI) have prompted debate about how such technologies ought to be governed, and which actors and values should be involved in shaping governance regimes (Cath, 2018). The private sector has been prominent in this discourse (Cussins, 2020), but governments play a uniquely decisive role, by regulating the use of AI in the private sphere (Kroll et al., 2017), by adopting and applying AI in their own operations (de Sousa, de Melo, Bermejo, Farias, & Gomes, 2019), and by cultivating and facilitating national ecosystems for AI development and innovation (Misuraca & Viscusi, 2020). Policy-making and investments across all of these activities force public administrators to weigh the potential benefits of AI against AI's potential for harm. In order to compensate for limited technical knowledge or understanding of how AI will actually impact society, individuals often rely on values, ideas, and assumptions to guide these decisions (Guenduez, Mettler, & Schedler, 2020).

One increasingly prominent heuristic in this regard is the notion that responsible engagement with AI by administrators requires public engagement and “a prior debate with society,” because ethical challenges “permeate all layers of application of this technology” (see also Janssen & Kuk, 2016 for a call to “democratize algorithms”; de Sousa et al., 2019, p. 1). This notion may have particular resonance with public administrators insofar as it aligns with values of public engagement in

public value management (Stoker, 2006), and is matched by an increasingly prominent strain of grey literature urging governments to engage the public as active participants in designing AI governance regimes (Desouza, 2018; Mehr, 2017; The Forum for Ethical AI, 2019; UNESCO, 2018). On the other hand, public administration scholars note a fundamental tension between the public engagement values and the value constructs associated with new public management (O'Flynn, 2007; see also Oravec, 2019), and e-government research suggests that perceived costliness disinhibits public engagement (Irvin & Stansbury, 2004; Vogt & Haas, 2015), and is at odds with prominent rhetoric regarding AI and administrative efficiency (Berryhill, Heang, Clogher, & McBride, 2019; Oravec, 2019).

It remains unclear how these values and the tensions between them are manifest in national discourses on AI governance, though a recent mapping of EU activities suggests that public engagement values are not prominent in AI implementations by government (Misuraca & Van Noordt, 2020, p. 82). This may be unique to the European context. Indeed, though a recent analysis of Nordic national strategies for AI has argued for a direct link between national political cultures and the values of openness and engagement in national governance regimes (Robinson, 2020), there has been no comparative research exploring how national context influences the salience of values in national discourses on AI governance. This article aims to fill that gap by conducting a content analysis of 16 national strategies for artificial intelligence. Doing so complements analyses on mapping of values and principles in

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the content of AI policy documents (Van Berkel, Niels, Giachanou, Hosio, & Skov, 2020; Dexe & Franke, 2020), while focusing attention on the higher level discourses through which values are asserted in the consolidation of AI governance regimes. It does so by addressing three research questions.

RQ1: What roles do national strategies envision for the public in AI governance?

RQ2: To what extent do strategies anticipate public engagement in AI governance?

RQ3: What is the relationship between engagement values and other values in strategies?

The article proceeds in five sections. Following this introduction, a section on theory clarifies a discursive notion of AI governance, presents arguments for public engagement in AI governance, and articulates theories of value salience in national governance discourses. A methods section then justifies the selection of national action plans, and describes measures and analytical methods for content analysis. This is followed by a section presenting results. The article concludes with a discussion of the article's implications, contributions, and limitations.

2. Theory

2.1. National strategies as a consolidation mechanism in AI governance

The notion of AI governance is imprecise. It can be used to describe both government regulation of third parties using and developing AI (Yeung & Lodge, 2019) and the roles and procedures through which AI is adopted by the public sector (Kuziemski & Misuraca, 2020), as well as government's role in cultivating a national ecosystem for AI innovation and development (Misuraca & Viscusi, 2020). This analysis takes a broader view, understanding AI governance as the discursive processes through which different societal actors advance and contest competing visions for the appropriate development, implementation and regulation of AI. This conceptualization aligns with notions of interactive governance as “the complex process through which a plurality of social and political actors with diverging interests interact in order to formulate, promote, and achieve common objectives by means of mobilizing, exchanging, and deploying a range of ideas, rules, and resources” (Torfing, Guy Peters, Pierre, & Sørensen, 2012, pp. 2–3), and can be situated in a narrative on how norms for AI governance have been developed (Dafoe, 2018).

Cussins', 2020 review of efforts to define and assert visions for AI governance identify three stages, where articulation and dissemination of principles is followed by consolidation and consensus building, in turn followed by the “the development of tools and initiatives to transform AI principles into practice” (p. 3). The tension between competing principles and governance visions during the second stage of consolidation is widely acknowledged, described by Kuziemski and Misuraca (2020) as a “multi-level game characterized by the systemic resistance to steering,” in which there is a significant conceptual and experiential distance between the different actors involved (p. 4). In particular, critical scholars have questioned the influence of the private sector in shaping AI governance through industry lobbying and normative standards driven by business (Cath, 2018, 3–4).

National strategies produced and endorsed by governments represent an important mechanism in the consolidation of AI governance regimes and discourses. Because they explicitly build on the diversity of values and principles “to identify divergences and commonalities, and to highlight opportunities for international and multistakeholder collaboration” (Cussins, 2020, p. 3), national strategies provide a normative foundation for how AI governance is conceptualized within government. One of the ways this occurs is through the articulation and consolidation of values that shape expectations and assumptions of policy-makers. The discursive power of values and policy frames can have a direct influence on policy processes and decision-making by public administrators (Björnehed & Erikson, 2018; Leipold & Winkel, 2017) and the perceived

complexity of AI and big data can make this influence particularly powerful for public servants with limited technical capacity (Guenduez et al., 2020).

National strategies consolidate and emphasize specific principles, policy frames and values that are active in national discourses on AI governance. They do so by explicitly defining priorities and policy objectives, but also through what a recent mapping called “the sermon-based approach” of national AI strategies, which emphasizes “campaigns for awareness, encouragements to improve data quality, and training” (Misuraca & Van Noordt, 2020, p. 83). Through these signals, national strategies simultaneously assert and articulate the values that are most salient to the public sector. This provides a consolidated point of reference for public sector decision-making in all aspects of AI governance, from the regulation of third parties, to investments in national ecosystems and the direct adoption of AI in the public sector.

2.2. Public engagement in AI governance

The public tends to play a minor role in discourses on AI governance, primarily cast as recipients of AI's abstract benefits (Chui, Harryson, Manyika, Roberts, & Chung, 2018) or users of AI-driven services and products (Mehr, 2017; Reis, Santo, & Melão, 2019). This emphasis may be associated with the dominant role that commercial actors have had in popular discourse surrounding AI (Cath, Wachter, Mittelstadt, Taddeo, & Floridi, 2017) and recalls Cardullo and Kitchin's (2019) critique of the neoliberal conception of citizenship in smart cities discourse. They note that this conception of the public prioritizes consumption choice and individual autonomy within a framework of constraints that prioritize market-led solutions to urban issues, reinforced through practices of stewardship (for citizens) and civic paternalism (deciding what is best for citizens) enacted by states and companies, rather than being grounded in civil, social and political rights and the common good (p. 2).

Paternalistic conceptualizations of the public are problematic not only because they obscure the sustained effects of AI on society (Crawford & Calo, 2016), but because the scale of AI's potential impact demands that AI be attuned to societal values, which must in turn be defined by the public. Cath et al. (2017) suggest that this is particularly pressing because these technologies are not yet fully developed, deployed or understood.

AI is not merely another utility that needs to be regulated only once it is mature; it is a powerful force that is reshaping our lives, our interactions, and our environments. It is part of a profound transformation of our habitat into an infosphere. It has a deep ecological nature. As such, its future must be supported by a clear socio-political design, a regulative ideal... (2017, p. 508).

In response to this challenge there has been an increasing demand to directly engage citizens and stakeholders in all aspects of AI governance, including regulation and design by governments and private actors, but also in regard to national dialogues and the development of AI ecosystems. Calls for public engagement in AI governance are often framed according to AI's potential harms (see Cath et al., 2017 for a discussion) and mechanisms for public engagement can be grouped according to whether they engage stakeholders proactively in an effort to prevent negative outcomes, or reactively in an effort to respond to negative outcomes.

Proactive approaches emphasize dialogue across stakeholder groups and the inclusion of diverse perspectives in the design and monitoring of AI implementations. In this vein scholars recommend that governments pursue public dialogues and consultations in order to establish a democratic mandate to govern AI (Cath et al., 2017; de Sousa et al., 2019; Mikhaylov, Esteve, & Campion, 2018), and emphasize the representativity and diversity of governance bodies (Gupta & Heath, 2020). Proactive deliberative and consultative mechanisms are expected to counterbalance the interests of private sector actors who currently dominate public

debates on AI and society (Cath et al., 2017), and to mitigate the risk that AI processes will be “captured” by actors who do not pursue the public good (UNESCO, 2018).

An inclusive approach to representing stakeholders is central to this approach, and leads the OECD to argue that including “multi-disciplinary, diverse, and inclusive perspectives [...] is perhaps the main enabling factor to achieving AI initiatives that are both effective and ethical, both successful and fair” (Berryhill et al., 2019, p. 101). Similarly, UNESCO argues that a public, multi-stakeholder dialogue is the best way for governments “to balance interests, aggregate wisdom, and build consensus and legitimacy” for AI (p. p. 113), while Balaram, Greenham, & Leonard (2018) note that public dialogue is the most effective mechanism for securing legitimacy when policy trade-offs between stakeholder interests are particularly difficult and policy debate requires technical knowledge (p.19).

Reactive mechanisms are prominent in the literature addressing negative outcomes associated automated decision-making (see Eubanks, 2018), and the burgeoning body of research on explainable AI (XAI) (Abdul, Vermeulen, Wang, Lim, & Kankanhalli, 2018), which emphasizes the inherent opacity of interactions between AI platforms, human agents, and regulatory frameworks. Critics, however, argue that the notion transparent and explainable AI requires a public capable of critically and reactively interrogating AI platforms in order to hold them to account for harm (Kemper & Kolkman, 2019), emphasizing the importance of regulatory approaches that link multiple stakeholder constituencies both reactively and proactively (Berscheid & Roewer-Despres, 2019).

2.3. Values in AI governance

Public engagement is a key component in models of public administration that depart from a New Public Management emphasis on values associated with the private sector, such as customer service and efficiency (O’Flynn, 2007). In contrast, public value management

argues that legitimate democracy and effective management are partners. Politics and management go hand in hand. One must involve many stakeholders to make good decisions and to get a grip on delivery and implementation. The public value paradigm places its faith in a system of dialogue and exchange associated with networked governance (Stoker, 2006, p. 56).

Several taxonomies have been developed to map values underpinning the public value management paradigm and public administration processes more generally. Rose, Persson, Heeager, and Irani (2015) synthesize 16 of these into a framework composed of four value ideals (professionalism, efficiency, service, and engagement), each comprised of multiple representative values. Like other public value researchers, Rose et al. articulate these values in contradistinction to values associated with the private sector, but note that some links and associations persist. In particular, they note the close association between the efficiency value ideal and efficiency values in the New Public Management and Reinventing Government movements, which emphasize “entrepreneurial government promoting competition between service providers, where many services are privatized and citizens (redefined as customers) exercise choices governed by their individual economic well-being” (2015, p. 536).

Though absent from most public value frameworks and taxonomies, the private sector values of market competition and citizen as consumers are particularly relevant in the context of AI, and can be associated with the incentives and influence of commercial actors (Cath et al., 2017; Metzinger, 2019; UNESCO, 2018). Recent analysis by Van Berkel et al. (2020) found that the private sector was a central topic in many countries’ national policy documents on AI, and the link between AI and national competitiveness has been stressed in EU policy documents (European Commission, 2020) and the national strategies of Nordic

countries (Dexe & Franke, 2020). These values are positioned as composing Private Sector Ideal, together with Rose et al.’s four synthesized public value ideals and representative values in Table 1.

One of the ways in which technology vendors and consultants promote AI technologies is by arguing for public value, what the literature on strategic communication calls public interest framing (Strömbäck & Kiouisis, 2011, pp. 151–152). The public value of administrative efficiency is prominent in this regard, and particularly in communications that target public administrators. IBM describes how AI can “make tedious tasks a thing of the past” (Partnership for Public Service and IBM Center for the Business of Government, 2018, 7–10), and Deloitte suggests that investment in AI can free up to 1.2 billion hours of administrative tasks and save government up to \$1.4 billion (Eggers, 2017, p. 3). McKinsey echoes this rationale, while also suggesting that AI can boost consumer experiences through increased efficiency in the private sector (Chui et al., 2018), a value that goes hand-in-hand with market estimates of “a US\$2-trillion opportunity in AI systems over the coming decade” (Crawford & Calo, 2016, p. 312). These arguments illustrate the persistent connection between private sector values and public ideals of efficiency and service.

In addition to values associated with better service delivery and administrative efficiency, value positions related to professionalism are prominent in mainstream regulatory discourse (Scherer, 2016) and notions of equitable, accountable and explainable AI (Dignum, 2019). The public ideal of engagement also resonates strongly with how the AI technical research community aspires to define societal values that can be embedded in AI (Zhu, Yu, Halfaker, & Terveen, 2018). Direct public engagement and participation is a prominent mechanism for identifying appropriate values (Rahwan, 2017), in keeping the fundamental ethos of public values research more generally (Stoker, 2006). Recent research highlights how AI systems can “fail to solve the problems they were designed to tackle when they are inconsistent with [the values] of the people and communities who use them” (Smith et al., 2020, p. 1).

2.4. Value relationships and technology frames

Rose et al.’s analysis develops a schema for how public managers experience the relationships between different values. According to this schema, value relationships may be either congruent, whereby a given value is the cause, prerequisite, side effect, or synergy of another value, or divergent, whereby a given value competes with, transforms, or negates another value (p. 545). This framework has been subsequently validated in the context of algorithmic decision-making in a Swedish municipality (Ranerup & Henriksen, 2019). It also provides a rich theoretical framework on which to assess the multiple, and often competing, values and stakeholder incentives that surround AI governance (Rahwan, 2017), and as Rose et al. note, can “help expose empty rhetoric in the formulation of goals and objectives, or the careless juxtaposition of divergent values” (2015, p. 556).

A cursory review of popular AI discourse suggests that different types of actors frame different values according to different value relationships. Proponents of democratic process and accountability are likely to emphasize congruent relationships between engagement values and other democratic values, and divergence between engagement values and values more closely associated with the private sector. Congruent relationships can be read from the AI Now Institute’s call to engage the public in order to mitigate the risk of unintended harm (Reisman, Schultz, Crawford, & Whittaker, 2018), and a Harvard white paper’s description of engagement as “essential” for designing high quality public services (Mehr, 2017, p. 12). In recommending dialogue to “steer governance in the best interests of society,” a report from the Forum for Ethical AI simultaneously articulates a convergent relationship between public dialogue and ideals of professionalism and public service professionalism, while suggesting that most governments adopt AI “to increase efficiency and reduce costs, but in some circumstances it may also be used to improve the fairness of outcomes,” which articulates

Table 1
Public and private values and value ideals.*

Value ideals	Professionalism Ideal	Efficiency Ideal	Service Ideal	Engagement Ideal	Private sector Ideal
Representative values	- Durability - Equity - Legality - Accountability	- Efficiency - Value for money - Productivity - Performance	- Public service - Citizen centricity - Service level and quality	- Democracy - Deliberation - Participation	- Market competition - Citizens as consumers

* Adapted from Rose et al. (2015, p. 544, 536).

divergence of professionalism from service and efficiency ideals (Balaram et al., 2018, p. 10).

Commercial actors on the other hand might emphasize engagement's congruence with values related to administrative efficiency, improved service delivery, or the creation of economic value, for example by suggesting that public consultations can help to solve problems of interoperability and scaled data transfer, or can "lower the cost and complexity of AI technologies (Matheny, Israni, & Ahmed, 2019, pp. 2, 24). White papers from McKinsey and IBM describe public engagement as a necessary step towards "overcoming the bottlenecks and market failures that are holding it back" (Chui et al., 2018, p. 42) and improving the uptake of public services (Desouza, 2018, p. 36). Deloitte goes so far as to suggest that AI can make public engagement more efficient through automation (Eggers, 2017). These framings have been critiqued for their normalization of AI (Bourne, 2019), and for disregarding AI's socio-technical failures (Oravec, 2019).

Tensions between how value relationships are articulated by commercial actors and civil society is not new, and recall distinctions drawn between public value management and new public management (O'Flynn, 2007). As such, value relationships can be understood as technology frames that help public managers process information and make decisions.

Confronted with a complex situation that lacks clear information and recognizable facts, individuals use frames to interpret and make sense of it. Frames help individuals deal with situations that are ambiguous, uncertain, and complex. Technological frames refer to a person's assumptions, knowledge, and expectations concerning individual, organizational, cultural, and ethical impacts of the introduction and uses of a certain technology (Guenduez et al., 2020, p. 3).

Guenduez et al.'s analysis identifies technology frames as commonly held views among public managers, often reflecting complex and nuanced value positions. Similarly, technology frames can be identified in the articulations of value relationships described above. A detailed typology of those frames is beyond the current scope, but it is possible to associate certain types of frames with engagement values in public value management, and others with private sector values in new public management. Doing so builds on the fundamental tension that scholars have identified between the value systems of those two movements (O'Flynn, 2007), while acknowledging the pithy truism that the "public sector's duties towards the citizens are at odds with those of the profit maximizing private sector" (Kuziemski & Misuraca, 2020, 9). By this logic, public managers are influenced by both the salience of specific values, and the salience of value relationships as technology frames, which help to define the scope of options for AI governance.

National strategies for AI are an excellent site for mapping this dynamic, because they consolidate and prioritize the principles and values that have been advanced in broader governance discourses (Cussins, 2020), often through national consultative processes (Van Roy, 2020). Importantly, national strategies require the formal authorship or endorsement of government, and this can have a signaling effect for individuals making governance decisions with limited technical expertise or capacity to understand the societal impacts of AI. As such, national strategies connect the complex constellations of personal, organizational and societal values that motivate context-specific action

by public administrators (Witesman & Walters, 2015, 88–89), and are an important unit of analysis for understanding how those constellations vary across countries (Van Der Wal, Zeger, & Vrangbaek, 2008).

3. Methods

3.1. Data sample

National strategies were collected in November 2020 from the OECD AI Policy Observatory, which curates an overview of AI initiatives being taken around the world, including press releases and documents related to national strategies in 53 countries.¹ To be included in the analysis, policy documents were required to be authored and published by government institutions, thereby representing the assertion of values and policy frames with which civil servants and public administrators would engage. As a result, national strategies that were written by expert groups to guide government policy-making were excluded (e.g.: Belgium, Japan, Lithuania, Spain), as were preparatory or planning documents intended to support national strategies (e.g.: India, New Zealand, Poland, Singapore). Policy documents were also required to address national issues rather than municipal or sectoral, and to have a specific focus on AI rather than digital government issues more broadly (e.g.: Australia). Lastly, only strategies that were available online and contained specific strategic content were included. Saudi Arabia's strategy is a website listing policy areas without specific policy or discussion, and was excluded. France's finalized national strategy was not available online, despite the prominence of the independent expert report on which it is based (Villani, 2018). When more than one policy document met the above inclusion criteria, the document with the broadest policy scope was included (e.g.: Estonia, Finland, Germany, USA, UK). The final sample was composed of 16 national strategy documents, as shown in Table 2. Though national strategies are often drafted on the basis of national consultative processes, only 3 of the 16 national strategies included here were produced through formal collaboration with non-governmental or multi-stakeholder groups.

To identify portions of national strategies relevant to public engagement, the 16 strategies presented above were subjected to Nvivo text search queries with wildcards and broad coding coverage, using word stems drawn from the literature discussed in section 2.2: stakeholder*, citizen*, participat*, engage*, consult*, collaborat*, dialog*, explainab*, accountab*, complain* and redress*. The resulting 621 text portions were then subjected to three waves of hand coding, using theoretical start lists drawn from the literature presented in section 2.

3.2. Identifying roles and references to engagement

The first two waves of hand coding can be associated with research question 1, and identified public roles and references to engagement mechanisms. Firstly, the full sample of 621 text portions were coded for roles described for the general public, distinguishing from conceptions of the public as beneficiaries of AI's societal benefits, and the public as active participants in the governance and implementation of AI. Text

¹ See <https://www.oecd.org/going-digital/ai/initiatives-worldwide/>, accessed 26 November 2020.

Table 2
National Strategies.

Country	Name	Lead Agencies	Year Published
China	Three-Year Action Plan for Promoting Development of a New Generation Artificial Intelligence Industry	Ministry of Industry and Information Technology	2020
Czech Republic	National Artificial Intelligence Strategy of the Czech Republic	Ministry of Industry and Trade	2019
Denmark	National Artificial Intelligence Strategy of the Czech Republic	Ministry of Finance and Ministry of Industry, Business and Financial Affairs	2019
Estonia	Estonia's national artificial intelligence strategy 2019–202	Ministry of Economic Affairs and Communications	2019
Finland	Leading the way into the age of artificial intelligence: Final report of Finland's Artificial Intelligence Programme 2019	Ministry of Economic Affairs and Employment	2019
Germany	Strategy for a Meaningful Artificial Intelligence	3 Ministries (Education and Research, Economic Affairs and Energy, Labour and Social Affairs)	2018
Hungary*	Hungary's Artificial Intelligence Strategy 2020–2030	Ministry for Innovation and Technology and Hungarian Artificial Intelligence Coalition	2019
Luxembourg	Artificial Intelligence Technology Strategy, Strategic Council for AI Technology, March 2017	Ministry of State	2019
Netherlands	Artificial Intelligence Technology Strategy, Strategic Council for AI Technology, March 2017	4 Ministries (Economic Affairs and Climate, Interior, Justice and Security, Education, Culture and Science)	2019
Norway	National Strategy for Artificial Intelligence	Ministry of Local Government and Modernization	2020
Portugal*	AI Portugal 2030	Portugal INCoDe.2030 (inter-agency project) and Fundação para a Ciência e Tecnologia (gov't funding agency)	2019
South Korea*	Mid- to Long-Term Master Plan in Preparation for the Intelligent Information Society	"Interdepartmental Exercise" involving multiple committees and representing 10 Ministries	2016
Sweden	National approach to artificial intelligence	Government of Sweden (executive office)	2018
United Kingdom	Artificial Intelligence Sector Deal	Office for Artificial Intelligence	2018
United States	National AI R&D Strategic Plan: 2019 Update	National Science and Technology Council	2019
Uruguay	Artificial Intelligence Strategy for the Digital Government	Office of the President	2019

* National Strategy was coordinated in collaboration with non-governmental organizations or multi-stakeholder groups.

portions that described a governance role for the public were then coded to identify references to engagement mechanisms that facilitated the input or participation by members of the general public in AI governance processes, including individuals, community organizations, and civil society representatives. Coding also distinguished between abstract references to public engagement mechanisms and references to specific

engagement activities, which were described as taking place in the future and were accompanied by specific time frames, budgets, policy mechanisms, or stakeholder groups.

3.3. Value salience and relationships

The final wave of hand coding can be associated with research question 2 and identified articulations of the value ideals presented in Table 1. Articulations of value ideas within the full sample of 621 text portions were identified by coding references to representative values also presented in Table 1. The salience of value ideals was measured by frequency of references in each strategy. Because key word searches generated the full text sample, this captures value ideals that are articulated when national strategies discuss the general public, and does not capture articulations of values in other parts of national strategies.

Value relationships were assessed at two levels. At the macro level of national discourses, correlation analysis using the Pearson coefficient was used to measure the frequency with which different value ideals were articulated in national strategies. At the micro level, Nvivo matrix queries identified instances in which specific portions of text simultaneously articulated multiple values, and these portions of text were subjected to content analysis to determine whether they represented congruent or divergent value relationships (Rose et al., 2015).

4. Results

4.1. Roles for the public in national strategies

Hand coding of the text sample identified four prominent roles for the public. This included a *governance role* for the public, individuals and groups to contribute to regulating or designing AI platforms or processes. This was sometimes articulated in terms of specific engagement mechanisms such as consultations or stakeholder steering groups, but was also sometimes presented as a governance role without any specific mechanism, such as Denmark's assertion that "citizens, patient associations and Danish businesses should help set the course in close collaboration with the health authorities" (Denmark, p. 64).

Closely related to this, strategies also described the public's role as a *thriving democratic society* underpinning and enabling the benefits of AI. Discussion of this role often emphasized the importance of citizen agency, awareness and capacity, or the preservation of citizens' rights. The German strategy addresses both of these elements when describing "people's privacy and the right to informational self-determination" as a mechanism for helping people to manage the consent they give to AI platforms (p. 16). Other references to democratic societies described AI solutions as "a way of reinventing society and increasing citizens' participation in decision-making and democratic processes," without describing public participation in governing AI itself (Finland, p. 39).

The public was also regularly described as a *workforce*, emphasizing the need for training and capacity development mechanisms, such as Denmark's "vocational adult education" (p. 48) or Germany's "Centres for the Future" (p. 29). These measures were often couched in ambitions to equip national workforces for a new digital labor market (see, for example, the UK strategy, p.8), and to increase national competitiveness. Lastly, almost all strategies described members of the public as *users of services* powered by AI. In the public service context, this often emphasized increasing the quality of services, and health services were particularly prominent in this regard. In the private sector context, strategies emphasized ethics, responsibility, and protecting the rights of users, including the "fundamental rights relating to the protection of personal data" (Hungary, p. 43).

The frequency with which these roles were referenced in national strategies is reported in Table 3, together with the frequency of word stems from which the text sample was generated. Though a *governance role* for the public is regularly articulated, it is only very rarely the most prominent role in a national strategies (Czech Republic and Uruguay).

Table 3
Roles for the public.

	Word stem frequency	Roles				
		Users of Services	Democratic Society	Governance Role	Labor Workforce	Total
China	10	0	0	0	0	0
Czech Republic	35	4	4	5*	1	14
Denmark	59	24*	10	4	2	40
Estonia	7	0	0	0	0	0
Finland	87	17*	10	4	2	33
Germany	57	2	16*	11	7	36
Hungary	47	9*	0	2	4	15
Luxembourg	18	2*	2*	0	0	4
Netherlands	72	2	10*	6	0	18
Norway	44	2	3*	2	0	7
Portugal	40	2	4*	2	2	10
South Korea	36	7*	7*	1	0	15
Sweden	7	2*	0	1	0	3
UK	19	0	0	0	1	1
Uruguay	12	2	0	3*	1	6
USA	71	0	1*	0	0	1
Total	621	75	67	41	20	203

* Indicates the most prominent role in each country.

Most prominent is the role of *users of services*, which is referenced nearly twice as often as the governance role. Given the close linkages between references to public governance roles and *democratic societies*, however, it is worth noting that these two roles together constitute more than half of the references reported in Table 3.

4.2. Public engagement in AI governance

Hand coding identified 48 references to public engagement, occurring across 11 national strategies, as shown in Table 4. Notably, these references are distributed unevenly across the sample, with five countries making no reference at all to public engagement (China, Luxembourg, Netherlands, UK, USA), and two countries responsible for over 80% of the references (Finland and Germany). It is also noteworthy of these 48 references, only approximately one fifth referred to specific engagement activities. Much more common were assertions such as those in Denmark's strategy, that the "government will ensure that citizens are involved when data is made available" (p. 34), and which are best understood as an affirmation of public engagement values and principles. The majority of strategies in this sample made only a small number of abstract references, and no reference to specific engagement activities.

Only four countries' strategies referenced specific public engagement activities: Hungary (a software platform for citizen feedback, p. 56),

Table 4
Engagement rhetoric and activities by country.

	Abstract references	Specific references	Total references
China	0	0	0
Czech Republic	2	3	5
Denmark	4	0	4
Estonia	1	0	1
Finland	14	2	16
Germany	8	5	13
Hungary	0	1	1
Luxembourg	0	0	0
Netherlands	0	0	0
Norway	1	0	1
Portugal	2	0	2
South Korea	1	0	1
Sweden	1	0	1
UK	0	0	0
Uruguay	3	0	3
USA	0	0	0
Total	37	11	48

Czech Republic (2 consultations to be conducted within 2021, p. 34), Finland (a training project for senior citizens and a public sector engagement platform (pp. 18–19) and Germany (engagement activities through Centres of Excellence, sub-national engagement programs, funding for "for in-company-based innovation spaces", training and advisory services targeted at works and staff councils, and a Digital Work and Society Future Fund with a mandate for public dialogue and information campaigns, pp. 13–14, 25, 28, 44). Of these, the Finnish and German strategies stand out as those with both the most references and the most abstract references.

4.3. Value relationships

The frequency with which national strategies articulate public value ideals when discussing the public is considered a measure of those values' salience, and is reported in the first column of Table 5. These frequencies suggest that strategies' attention to the general public is dominated by values associated by professionalism and public service, as well as values associated with the private sector to a somewhat lesser degree. Public engagements values are much less salient, as are values associated with the efficiency value ideal.

The co-occurrence of value ideals is also reported in Table 5, which presents a proximity matrix, showing the statistical distance between frequencies of value articulation in national strategies. A higher coefficient indicates that value ideals co-occur more regularly in national strategies. This table suggests that articulations of the engagement ideal co-occur with all other value ideals, most frequently with professionalism values, and least frequently with service values, though this correlation is not statistically significant. Engagement ideals co-occur with roughly the same range of frequency as do other ideals.

Macro-level analysis of value co-occurrence in national strategies was complemented by micro-level analysis of value positions that were articulated within the same sentence or paragraph. The frequencies with which values were co-referenced in the same text portion are presented in Table 6. As in macro analysis, engagement values were co-referenced most regularly with the professionalism ideal, a total of nine times across strategies. The engagement ideal was also articulated three times in co-reference with the service ideal and three times together with private sector values.

Co-reference of the engagement ideal with other value ideals was articulated a total of 16 times and in five strategies. Content analysis of the relevant text portions finds that all of the value relationships are congruent, and short summaries of each relationship are presented in

Table 5
Value ideal frequencies and co-occurrence in strategies.

	#	Correlations				
		Professional-ism Ideal	Efficiency Ideal	Service Ideal	Engagement Ideal	Private Values
Professionalism Ideal	73	1	,638**	,547*	,760**	,739**
Efficiency Ideal	24	,638**	1	,864**	,517*	,743**
Service Ideal	68	,547*	,864**	1	,400	,463
Engagement Ideal	28	,760**	,517*	,400	1	,646**
Private Values	45	,739**	,743**	,463	,646**	1

Correlation between Vectors of Values using Pearson coefficient is significant at the 0.01 level = ** and 0.05 level = * (2-tailed).

Table 6
Value ideal references and co-references.

	Total	Co-references				
		Professional-ism Ideal	Efficiency Ideal	Service Ideal	Engagement Ideal	Private Values
Professionalism Ideal	73	-/-	4	12	9	12
Efficiency Ideal	24	4	-/-	15	0	8
Service Ideal	68	12	15	-/-	3	9
Engagement Ideal	28	9	0	3	-/-	3
Private Values	44	12	8	9	3	-/-
Totals		110	51	107	43	76

Table 7
Engagement ideal value relationships.

Country	with the Service Ideal	with the Professionalism ideal	with Private Sector Ideal
Denmark		public involvement will lead to trust and responsibility (p. 34) citizen and patient involvement and legal frameworks are preconditions for the balanced and responsible use of health data (p. 64)	
Finland		engagement will “enable” required legislation (p. 56) “Strong inputs by the public sector” are essential for citizen influence over service development, which is essential for quality services (p. 13) the public should be involved in “the assessment of the acceptability” of services” (p. 108)	
Germany		AI ethics (as defined by citizens) contribute to clear rules and an efficient and competitive market (p. 106) dialogue will contribute to equitable services (p. 6) engagement is pursued “in order to achieve a trusting and legally secure use of AI-based services” (p. 44)	development of a skilled labor strategy is pursued in dialogue with stakeholders (p. 28).
Hungary		public and citizen participation enables the exercise fundamental rights (p. 43)	citizen input enables business contracts (p. 43)
Uruguay	public engagement leads to trust, which leads to better services (p. 6)		

Table 7, by country. Several articulations presented more than one value relationship, and summaries of these relationships are spread across columns in Table 7. For example, the Finnish strategy asserts that inclusion of the public in defining ethics for AI would increase levels of trust and predictability in AI regulatory systems (the Professionalism Ideal), which would in turn contribute to values associated with the

private sector: “AI ethics generates economic growth by making the environment easier to anticipate and by providing new business opportunities” (Finland, p. 106). Notably, the Service ideal is only co-referenced with the Engagement ideal when the Professionalism Ideal is also referenced.

5. Discussion

5.1. Public roles and public engagement in AI governance

In regard to research question 1, this analysis anticipated that national strategies would describe the general public either as recipients of AI’s societal benefits (Chui et al., 2018; Mehr, 2017; Reis et al., 2019) or active participants in defining AI’s role in society (Cath et al., 2017). The truth is of course more nuanced. The most common role national strategies articulated for members of the general public was as *users of public and private services*. Descriptions of this role tended to emphasize societal benefits that were anticipated to accompany specific services. They did so quite abstractly, however, and in regard to specific services and sectors, such as particular health or transportation services. This might indicate a technology-centric discourse that is driven more by R&D investments than benefits to users (Cath et al., 2017). Simultaneously, strategies regularly described the public as a *workforce* in need of training and upskilling. While this role was often couched in language about workforces reaping the benefits of AI, it was also closely linked to descriptions of economic value creation, national competitiveness, and the dangers of automation in the workforce, suggesting that the most prominent societal benefit in this regard would be to simply keep the public employed.

Other allusions to societal benefit in national strategies appear at first glance to imply public participation in AI governance. This was particularly the case for descriptions of the public as a *thriving democratic society* that unlocks AI’s potential. These articulations fall significantly short of calls to “democratize algorithms” (Janssen & Kuk, 2016; The Forum for Ethical AI, 2019), however. Descriptions of democratic societies tended rather to emphasize the importance of predictable and efficient regulatory systems, and public trust in those systems, in order to facilitate technology and service development. While most strategies in this sample (11) also articulated a clear role *governance role* for the public, this was almost always overshadowed by other roles, and reads more like an afterthought or rhetorical gesture than a clear commitment

to putting “society-in-the-loop” of AI design and implementation (Rahwan, 2017).

A close analysis of references to public engagement only confirms the lack of public participation in national strategies for AI. This is itself not surprising, as a recent mapping of strategies in the EU found that only 10% of AI initiatives (24 out of 230) aimed to improve “the openness of government” (Misuraca & Van Noordt, 2020, p. 82). The contrast between rhetoric and activities is nonetheless noteworthy. Nearly four fifths of references to public engagement are abstract and best understood as an affirmation of principles. Only four of the strategies reviewed have any reference to specific public engagement activities and mechanisms, and with the exception of German and Czech strategies, these are generally overshadowed by other policy initiatives and activities. The rhetoric of public engagement appears to have permeated the national discourse of AI governance in many countries, but this analysis finds little evidence of meaningful actions following that rhetoric. This may represent the emergence of participatory norms in the evolving discourse of AI governance (Cussins, 2020), or simply another example of governments embracing the language of public participation in the interests of better public relations (Irvin & Stansbury, 2004).

5.2. Value relationships and technology frames

In regard to research question 2, public engagement values were significantly less frequent in national strategies than were values associated with professionalism, service, and the private sector. Articulations of the efficiency value ideal were, however, even less prominent, which is surprising given the emphasis on efficiency gains in the discourse on public sector AI (Berryhill et al., 2019; Oravec, 2019). Since these frequencies were based on the coding of references to the public, however, it may be that national strategies reference values ideals off efficiency more regularly when they are not talking about the public.

In terms of value relationships and research question 3, the consistent association of public engagement values with the value ideal of professionalism is noteworthy. The professionalism ideal is constituted by values of legality, durability, equity, and accountability. These values were consistently affirmed through descriptions of public engagement as a precondition to building trust and accountability in AI systems, aligning with arguments that public engagement is the best way to ensure that AI governance adheres to democratic principles and processes (Balaram et al., 2018; UNESCO, 2018).

Surprisingly, perhaps, the engagement ideal also had a strong macro-level correlation with private sector value ideal, and weaker correlations with service and efficiency ideals. There is literature suggesting that each of these might represent an articulation of value divergent relationships in national strategies, reflecting the inherent tension between private sector and public sector values (Kuziemski & Misuraca, 2020), a conceptualization of AI as a tool for improving services through automation and efficiency gains (Al-Mushayt, 2019), or perception of public engagement as an obstacle than a condition for developing quality services (see Irvin & Stansbury, 2004 in contrast to; Mehr, 2017, p. 12). Close analysis of text portions that co-reference multiple value ideals finds, however, that public engagement values enjoy a congruent, not a divergent, relationship with all other value ideals.

The language in which these congruent value relationships are asserted is vague and frustrates a clear categorization according to Rose et al.'s (2015) typology, though causal and pre-conditional congruence appear to dominate. This is least surprising in regard to congruence with service and efficiency ideals, and there is something familiar about the Uruguayan assertion that public engagement leads to trust (p. 6). The congruent relationship between engagement and private sector values is less familiar, but demonstrates a clear emphasis on the contribution of engagement processes to competitive market dynamics, in line with framings found in EU and Nordic policy documents (Dexe & Franke, 2020; European Commission, 2020).

Space precludes a closer analysis, but the consistency of congruent

relationships is worth noting, and might raise concerns about whether the policy frames and value ideals advanced by national strategies are acknowledging the policy trade-offs necessarily implied by AI design and implementation (Balaram et al., 2018; Rahwan, 2017). This is particularly important in the complex policy environment where public administrators make decisions about AI governance, and where the tendency of AI researchers to ignore socio-technical failures in their moral reasoning and public discourse (Oravec, 2019) can have profound and far reaching societal implications (Crawford & Calo, 2016).

Indeed, if the congruent value relationships identified here are considered to be “technology frames” that help public administrators “to interpret and make sense of [policy dilemmas] that are ambiguous, uncertain, and complex” (Guenduez et al., 2020, p. 3), then the congruence highlighted in this analysis is cause for both comfort and concern. On the one hand, the prominence of congruent relationships between the professionalism ideal and the public engagement ideal suggests that values of equity and accountability to the public will be salient in the governance decisions of public administrators. On the other hand, public engagement values' proximity and congruence with private sector values should give pause to anyone who accepts Kuziemski & Misuraca's assertion that “public sector's duties towards the citizens are at odds with those of the profit maximizing private sector” (2020, p. 4).

Alignment with private sector values of consumerism and market competition might be explained away as PR exercises and examples of “public interest framing” (Strömbäck & Kioussis, 2011, pp. 151–152), but can also be read as the resilience of neoliberal policy frames associated with new public management (O'Flynn, 2007), and the new fuel they find in the logic of AI technologies (Oravec, 2019). If AI's societal risks are at all real, this suggests a tension between public engagement's congruent relationship with the professionalism ideal and with private sector values. This tension is particularly challenging for AI governance, because of the inherent complexity of AI technologies and the difficulty public administrators face in anticipating governance outcomes (Jansen & Kuk, 2016; Kolkman, 2020). Technology frames that obscure this tension and the trade-offs it implies may represent efforts “normalize AI” as common sense public goods (Bourne, 2019). This makes critical interrogation of how governance regimes are developed all the more important. Following Cath, we should continue to ask in each national context.

...who sets the agenda for AI governance? Second, what cultural logic is instantiated by that agenda and, third, who benefits from it? Answering these questions is important because it highlights the risks of letting industry drive the agenda and reveals blind spots in current research efforts (2018, pp. 3–4).

6. Conclusion

Analysis of 16 national strategies for AI finds little evidence that public engagement values and mechanisms are salient in the consolidation of AI governance regimes. While references to public engagement and participation in AI governance were present in most strategies, they were usually abstract and consistently overshadowed by other roles, values and policy concerns. This may represent “empty rhetoric in the formulation of goals and objectives, or the careless juxtaposition of divergent values” (Rose et al., 2015, p. 556) by public administrators in overly complex technology policy environments, or the perception that public engagement can only be achieved at costs to efficiency and economic benefits that AI is expected to deliver (Irvin & Stansbury, 2004). Either way, there is little evidence here that public administrators are engaging in “prior public debate” in order to counterbalance the ethical and societal risks posed by AI (de Sousa et al., 2019), at least at the national level.

In terms of the consolidation of governance regimes, a dominance of

rhetoric over practice in national strategies does not itself suggest a lack of value salience and may not disinhibit the pursuit of public engagement. Reference to abstract values in national strategies may encourage engagement activities in specific policy regimes or local contexts (though this is admittedly most likely in those countries where those values are most salient, according to this analysis, in Finland and Germany).

The value relationships identified in this analysis paint a different picture, however. The consistently congruent relationship between public engagement values and values associated with the professionalism ideal and the private sector may suggest the salience of technology frames that obscure the tensions and trade-offs between those value ideals, encouraging the “normalization” of AI among public administrators (Bourne, 2019). This recalls Cardullo and Kitchin’s (2019), critique of neoliberal conceptions of the citizen in the smart city discourse, which they find marked by logics of stewardship and civic paternalism when considering the public and the public good. Like the discourse that Cardullo & Kitchin critique, the national strategies assessed here regularly emphasize “consumption choice and individual autonomy within a framework of constraints that prioritize market-led solutions” (p. 2). These logics are salient when national strategies occasionally consider the role of the general public. That congruence and its consequences deserves further attention.

6.1. Contributions

This analysis fills an important gap in research on AI governance, by establishing national strategies as an object of study for research on public values, and by assessing the degree to which national strategies anticipate democratic and participatory governance. The findings presented above provide important benchmarks for policy development, advocacy, and the burgeoning body of research on AI in the public sector. This analysis also provides an additional body of evidence on which to evaluate critiques of neoliberal discourse and ideology in the application of emerging technologies (Bourne, 2019; Cardullo & Kitchin, 2019).

Theoretically, this analysis contributes to understanding the role of values, frames, and discourse in public administration and technology policy. It expands research on value relationships in the context of public sector AI, and identifies linkages between theories of value relationships and technology frames that merit further study. Lastly, conceptualization of AI governance as an interactive governance regime (Torfing et al., 2012) adds empirical and theoretical detail to a developmental understanding of AI governance (Cussins, 2020), while expanding the toolbox of analytical methods for assessing how different types of actors contribute to these regimes (Cath, 2018).

6.2. Limitations and further research

This analysis considers dynamics that have not been deeply theorized and for which there is limited empirical data. As such, it is exploratory and preliminary, and subject to several limitations. Four deserve special mention. Firstly, this analysis has only assessed the portions of national strategy texts that directly and explicitly consider the role of the general public. It is possible that a more holistic reading of national strategies might identify more subtle ways in which values and roles are considered. Secondly, national strategies for AI are only snapshot of complex discursive contexts in a complicated policy environment. Though they might indicate some contours of a national policy discourse, they do not reflect the myriad web of political and discursive processes that likely contribute to their production. Qualitative research could and should be conducted to better understand the processes through which national strategies are produced, and how this affects value salience. Thirdly, national strategies for AI are proliferating, but the 16 considered here constitute only a small sample, which cannot support categorical assertions about AI governance writ large. As additional strategies are

produced, there is an opportunity to revisit this research. Lastly, AI technologies are not well understood, and this analysis has not attempted to discern how technological complexity and uncertainty has influenced the salience of values in national strategies. A closer analysis of these dynamics would also illuminate the ways in which different aspects of AI ecosystems influence value salience and technology frames. Further research should be pursued to add clarity to these processes, with a particular focus on how differences between the incentives, expertise and capacities of different stakeholders influence the values that are advanced in different national contexts.

Declaration of Competing Interest

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