

# Decoding open government policy: Recurrent or innovative liberalism?

Seulki Lee-Geiller

ORCID Nr: 0000-0001-5183-6631

Yale University - Institution for Social and Policy Studies, New Haven, Connecticut, USA  
[seulki.lee-geiller@yale.edu](mailto:seulki.lee-geiller@yale.edu)

Mohsan Ali

ORCID Nr: 0000-0002-3956-3543

ICSD, Karlovasi 83200, University of the Aegean, Samos, Greece  
[mohsan@aegean.gr](mailto:mohsan@aegean.gr)

*Abstract: This article examines the implications of open government policies that emerged at a critical juncture for democracies worldwide. Since the launch of the Open Government Partnership (OGP) in 2011, the movement has aimed to revitalise democratic governance. However, its theoretical context within the evolution of liberal democracy remains unexplored. Bias in case selection and a lack of empirical evidence have constrained our understanding. This study analyses open government policy documents from 75 OGP national member countries using Natural Language Processing techniques. The findings reveal a collective commitment to more inclusive and participatory governance models, departing from neoliberal priorities through public innovations. This research enriches the dialogue around democratic governance by explaining how the Open Government Movement intersects with the ideals of liberal democracy. It provides valuable theoretical and practical perspectives, enhancing our understanding and application of open government principles.*

*Keywords: Liberal democracy, Natural language processing, Open government, Policy analysis*

*Acknowledgement: This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 955569. The opinions expressed in this document reflect only the author's view and in no way reflect the European Commission's opinions. The European Commission is not responsible for any use that may be made of the information it contains.*

## 1. Introduction

Worldwide democracies are confronting an existential crisis marked by dwindling voter engagement, the ascent of populism, and deepening political divides. These trends have sparked debates over the efficacy and future viability of democratic systems. Liberal democracy, once hailed as the pinnacle of governance evolution in the post-Cold War era, has faced challenges, particularly as it transformed into neoliberalism toward the late 19th century. This shift, emphasising reduced government intervention and a market-oriented approach, has been criticised for exacerbating socio-political inequalities, contributing significantly to democracy's perceived degradation since the late 20th century (Calhoun et al., 2022; Madariaga, 2020).

Against this complex backdrop, the Open Government Movement has emerged as a new policy agenda globally. Its foundations lie in the 1960s' Freedom of Information Act, the European Union's Public Sector Information Directive, and was further propelled by the Obama administration's Open Government initiative in 2009. This movement has achieved global reach with the launch of the Open Government Partnership at the United Nations General Assembly in 2011. It has since heralded a wave of open governance with the participation of numerous governments. Consequently, we witness a stark contrast in the political landscape, with the democratic backsliding on one hand and the rise of the Open Government Movement on the other.

To understand the prospect of democratic systems, it is imperative to explore the locus and significance of open government within the evolving context of liberal democracy. However, open government has neither gained appropriate attention in political studies nor scrutinised its substances within a broader political spectrum of liberal democracy. Consequently, a notable gap persists in our understanding of how the theoretical principles of open government—such as transparency, citizen engagement, and collaboration—are manifested in the policies of various countries. Existing literature, such as Tai (2021) notes, has primarily fixated on information access, often at the expense of adequately addressing facets critical to the ethos of open government, such as citizen engagement and collaboration. This oversight suggests a skewed prioritisation within open government policies, leading to criticisms of supporting the neoliberal agenda (Bates, 2012; Catlaw & Sandberg, 2014; Gurstein, 2011; Ruppert et al., 2017).

Further complicating this landscape is the methodological approach predominant in the field. The reliance on qualitative analyses, issues of generalizability, and methodological limitations underscore a critical shortfall in empirical rigour. The current empirical investigations have largely been circumscribed to case studies from North America and Europe, creating geographic and thematic myopia that fails to capture the diverse implementations of open government policies worldwide. This methodological limitation not only narrows the scope of understanding but also leaves the practical aspects of open government policies underexplored.

The purpose of this study is to provide a complex outlook on contemporary democracy by investigating the essence of this policy. Particularly, situating itself amidst this complex global wave of policy reform toward democratic governance, this study aims to dissect the open government policies across different regions in the framework of liberal democracy. We employ advanced machine-

learning techniques, specifically Natural Language Processing, to analyse the latest policy documents across 75 countries to decode a vast array and extent of values highlighted. In this way, this study seeks to bridge the observed gaps between theoretical frameworks and practical applications of open government principles.

The findings of this analysis cast light on the substantive nature of open government policies, revealing a discernible shift in the global policy trend. The results suggest a strategic reorientation towards an innovative paradigm that potentially redefines liberal governance. The implications of this study are manifold, providing a fertile ground for scholarly debate within public policy, governance, international relations, and political science disciplines. By delineating the current trajectory of open government policies, the research contributes to the discourse on whether these policies signify a continuity or a departure from traditional (neo)liberal governance and how they might shape the architecture of democratic governance in the years to come.

The remainder of this paper is organised as follows. The literature review section explores the century-long evolution of liberal democracy, the challenges contemporary democracies encounter, the rise of the Open Government Movement, and its conceptual relevance to liberal democracy. The Methods section outlines the procedures employed for data collection, processing, and analysis. Subsequently, the Results section provides a comprehensive overview of the findings obtained from this analysis. The Discussion section examines the theoretical and practical implications of these findings, addresses the study's limitations, and suggests directions for future research. The paper concludes with a summary that encapsulates the key points and contributions of the research.

## **2. Literature review**

This section delves into the implications of the Open Government Movement on contemporary liberal democracy. We begin by examining the evolution of liberal democracy and discussing the modern challenges that underscore the need for its renewal. Furthermore, we illustrate the global rise of the Open Government Movement over the past decade, along with the current research findings in the literature. We then identify the need for more robust empirical research on open government policies to deepen our understanding of their influence on the contested state of liberal democracy in today's governance landscape.

### **2.1. Calls for the renewal of liberal democracy**

Liberalism became a dominant global political ideology in the 1990s, though its origins can be traced back to the Enlightenment of the 17th and 18th centuries. With the disintegration of the Soviet Union, the ideological conflict between Capitalism and Communism that defined the post-war era concluded, leading over 60 formerly autocratic countries toward democracy (Desilver, 2019). International organisations like the United Nations (UN) have supported this liberal order, with Western liberal democracy often perceived as an advanced stage of governance development, as noted by Francis Fukuyama (1992).

Post-Cold War liberal democracy, commonly characterised as Western-style representative democracy, rests on four pillars: individual liberty, political freedom, the rule of law, and equal rights (Jahn, 2013). Individual liberty emphasises freedom and individual rights, as articulated by philosophers like Locke (1689) and Mill (1859), while Kant (1785) and Berlin (1969) expanded on moral autonomy and liberty concepts.

The interplay of individual liberty and democratic rights, however, reveals limitations, as all-rights aim to secure collective decision-making (Beetham, 1992). This perspective supports the broader idea of political freedom, emphasising civic engagement and open discourse. Alexis de Tocqueville (1835) viewed political freedom as the ultimate human political goal but warned of the tyranny of the majority over minority rights when the power of majority preferences suppresses the inclusion of minority freedom.

The rule of law is fundamental to safeguard such liberties, ensuring that law, not arbitrary power, governs the state. This concept, influenced by Locke's Social Contract Theory, underscores legal equality to every citizen, including lawmakers and those in power (Dicey, 1885). Furthermore, it highlights the importance of checks and balances in governance by separating powers within government (Montesquieu, 1748).

Equal rights in terms of life, liberty, and property, as advocated by Locke (1689) and Mill (1859), have evolved to include gender equality, spurred by the feminist movement notably spearheaded by Wollstonecraft (1792). This has further influenced contemporary social justice movements for racial, gender, and sexual orientation equality. The growing liberal demand for equal treatment and non-discrimination reflects liberalism's adaptability to social changes (Young, 2016).

Around the late 19th century, liberalism transformed under globalisation and economic intensification into neoliberalism. This new version prioritises economic freedom and minimal state intervention to ensure efficiency, which has been criticised for overlooking democratic principles and exacerbating economic and social inequalities (Green, 2005; Manne & Hurwitz, 2018). Alan Ware (1992) described liberal democracy as a multi-dimensional concept encompassing the economy, civil society, institutions, and world politics. Specifically, he outlined six features of liberal democracy, which include the link between liberal democracy and nationalism, its development from capitalism, its claims to protect the civil liberties of individuals, the crucial role assigned to the election of key public officials, institutionalisation in the political system, and the cooperation among liberal democracies for the greater part of their existence. He further argues that liberal democracies follow a similar pattern across jurisdictions and progress similarly.

In recent years, however, there has been a growing concern about democratic recessions, marked by a gradual erosion of democratic norms, as highlighted by Larry Diamond (2015). However, some scholars argued the perceived democratic decline reflects heightened expectations post-Cold War rather than a significant recession (Levisky & Way, 2015). Regardless of varied perceptions of the reality, democracies, both established and emerging, face ongoing challenges like low voter turnouts (Ezrow & Krause, 2023), the rise of populist figures, which threaten established democratic norms (Galston, 2018).

In response, experts advocate for bolstering democracy by fortifying institutions, ensuring judicial autonomy, safeguarding media freedom, and encouraging civic education and participation (Corke et al., 2021; Office of the Spokesperson, 2021). Additionally, enhancing international democratic alliances is suggested to aid in upholding democratic values and supporting governments committed to democratic practices (International Institute for Democracy and Electoral Assistance, 2019).

## 2.2. The emergence of the open government movement

Amid the complex prospects of liberal democratic governance, open government policy has emerged as a meaningful new stream within the global democratic policy agenda. It champions transparency, accountability, and public rights to access government information, drawing inspiration from the principles enshrined in the 1960s Freedom of Information Act. This movement toward open government, gaining noticeable momentum around 2010, has been supported by a series of events and legislative efforts, including the Public Sector Information (PSI) Directive of the European Union (EU). Initially adopted in 2003 (Directive 2003/98/EC), this key legislative framework was aimed at regulating the reuse of PSI across EU member states. It was later amended in 2013 (Directive 2012/37/EU) to adapt to the rapid evolution of the digital economy, broadening the directive's scope and introducing principles of fairness, transparency, and non-discrimination. The fundamental motive behind the EU's PSI Directive is to unlock the economic potential of public sector data by promoting digital innovation and creating a digital market.

On January 21, 2009, the Obama administration announced its "Transparency and Open Government" initiative, highlighting a commitment to secure an unprecedented level of openness in government. This aimed to ensure public trust and establish transparency, public participation, and collaboration. Following this, on May 21, 2009, the director of the President's Office of Science and Technology Policy invited public feedback, leading to the drafting of 4 goals for the Open Government Plan. These goals include publishing government information online, improving the quality of government information, institutionalising a culture of open government, and creating an enabling policy framework for open government.

In 2011, the Open Government Movement marked a significant shift in administrative reform and governance transformation when it gained global traction with the launch of the Open Government Partnership (OGP) at the UN General Assembly. This initiative represented a departure from traditional North-centric governance models, involving a diverse coalition of founding members, including Brazil, Indonesia, Mexico, Norway, the Philippines, South Africa, the United Kingdom, and the United States. This global spread underscores a shift towards a more inclusive approach to policymaking and governance, reflecting a broader, more diverse set of influences and experiences. The OGP's flexible, voluntary commitment structure, designed to accommodate a variety of local contexts, suggests an evolving landscape of open government policies. This structure allows for a tailored approach to open governance, shaped by the specific needs and conditions of each member nation, potentially fostering innovation and a competitive spirit among nations to continually improve their governance models (Piotrowski et al., 2022). The inclusive and bottom-up principles of

the OGP demonstrate a distinctive shift in the governance structure of international coalitions, countering concerns about international organisations acting as vehicles of modern imperialism or components of neo-colonialism (e.g., Go, 2003).

Moreover, the emergence of digital technologies has underscored the potential to facilitate open governance, especially in terms of publishing government information and data and enabling citizen engagement. The modern stream of the Open Government Movement at the global level has not only reinforced traditional norms of openness but also allowed member governments to develop innovative approaches tailored to their contexts, constantly reshaping the substance of open government policies.

However, the Open Government Movement has faced criticisms for its limited effects and unexpected consequences in addressing existing socioeconomic issues. Critics argue that some open government initiatives result in superficial transparency, where governments release large quantities of data that are either not useful or too complex for the public to understand and use effectively (Yu & Robinson, 2012). This can create an illusion of transparency without providing meaningful insights or enabling genuine accountability. Additionally, the emphasis on digital platforms for open government initiatives can exacerbate the digital divide, privileging citizens who have access to the internet and digital literacy skills over those who do not (Bezuidenhout et al., 2017). This can lead to unequal access to government information and participation opportunities, undermining the inclusivity of open government efforts. Furthermore, scholars argue that while open government initiatives aim to increase democratic values such as transparency, accountability, and citizen participation, they may unintentionally support a neoliberal agenda by reinforcing certain power structures, prioritising economic over social values, and commodifying public information (Bates, 2012; Catlaw & Sandberg, 2014; Gurstein, 2011; Ruppert et al., 2017). While these criticisms highlight important aspects to consider, they frequently pertain to the open government policies of the UK or the US, which may not be applicable to the open government policies of many other countries.

Given the Open Government Movement's potential significant impact on shaping future democratic governance globally, understanding the principles of the involved countries' open government policies is of the utmost importance. Contemporary literature on open government policies has highlighted limitations in achieving this. The existing studies have predominantly focused on the principles related to information access, overlooking citizen engagement and collaboration, pointing to a potential imbalance where the emphasis on transparency may overshadow the equally critical facets of citizen engagement and collaboration within open government policies (Tai, 2021). In response, proposed conceptual frameworks, such as those by Gil-Garcia et al. (2023), consist of broad aspects, including transparency and public engagement, under which four components are included: information availability, information fitness for use, public participation, and collaboration with the public. While this conceptual framework encompasses comprehensive ideal expectations from open government initiatives, it requires validation by examining practical evidence to identify how these normative ideas are translated in practice, a gap that exists in the current literature on open government.

Additionally, heavily relying on qualitative approaches, the empirical evidence in open government research has been criticised for its limited number, generalizability issues, and methodological

weaknesses. Between 2008 and 2019, 183 open government studies were published, with approximately 80% utilising qualitative methods and only 20% adopting quantitative approaches (Tai, 2021). Moreover, most of these empirical studies have relied on case study methods primarily focused on North America and Europe (Tai, 2021). This uneven selection of methods, topics, and cases has not comprehensively informed us on the practical side of open government policies. Establishing a robust connection between the conceptualisation and implementation of open government policies is crucial. This study aims to bridge this gap by examining a large number of open government policies, which will ultimately aid in assessing current practices compared to the conceptual blueprints and identifying areas for improvement.

### **2.3. Democratic innovations? Or new wine in old barrels?**

Given the theoretical background, a question arises: Where does open government stand in the complex landscape of liberal democracy? To examine this, we will compare the conceptual characteristics of open government and liberal democracy. Then, we delve into how open government policies adapt to the challenges facing modern democracies.

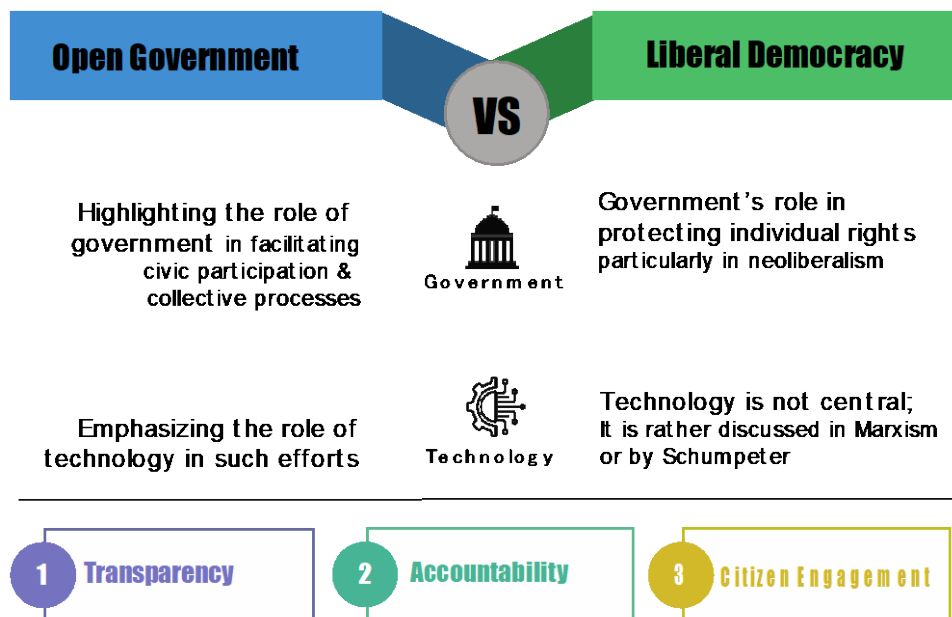
Open government and liberal democracy share common ground, including transparency in government actions, accountability that protects the rights of the public, and citizen participation in decision-making. In liberal democracy, transparency is often regarded as a fundamental right, enabling citizens to access information about government operations, thereby fostering accountability and trust in the political system. Although traditional political philosophers did not explicitly use the term “transparency,” their advocacy for individual freedom, political rights, equality, and justice significantly aligns with the importance of transparency in governance. Liberal democracy is founded on the principle that governance should be based on the consent of the governed. For instance, John Stuart Mill (1859) argued that free speech and open debate are vital for a healthy democracy, facilitated by transparency in government decision-making. This idea reflects the belief that, as the people entrust governance, governments must be accountable to their citizens, a concept echoed in Locke’s “Second Treatise of Government (1689a).” Similarly, Rousseau’s “Social Contract (1762)” emphasises the necessity of direct citizen involvement in the legislative process to ensure laws reflect the general will. Alexis de Tocqueville (1835) also underscored the crucial role of an active and engaged citizenry in ensuring transparency and accountability in governance.

While there are overlaps between open government and liberal democracy, the latter is a broader political and philosophical ideology. Open government, more narrowly focused, primarily concerns the roles of government in facilitating collective processes and democratic participation. On the other hand, liberal democracy, particularly under the influence of neoliberalism, places a strong emphasis on individual rights, especially economic rights, a stance to which open government remains neutral. Moreover, open government extensively leverages technology and digital platforms to achieve its objectives, a focus not central to liberal democracy. Thus, open government can be viewed as complementary to liberal democracy, offering an adaptive approach to contemporary societal changes. How open government can complement liberal democracy will be discussed in relation to the challenges facing modern democracies below. Figure 1 illustrates the theoretical comparison between liberal democracy and open government.

Regarding the rise of populism, open government has the potential to mitigate its impact by increasing transparency and accountability in government. When governments are more open and responsive, there is diminished space for populist leaders to exploit public dissatisfaction derived from economic inequalities and mistrust in the elites. However, if transparency is not accompanied by accountability, it may expose governmental inefficiencies or corruption, thereby fostering public disillusionment and distrust – food that populist leaders feed on.

Additionally, the increasing emphasis on collective rights within open government can bolster civil society, channelling civic engagement in an organised and civil manner to collectively seek resolutions instead of directly aligning with exclusive populist leaders. In other words, open government can nullify the negative effects of neoliberalism on democratic governance by highlighting the role that civil society can play. However, if open government initiatives carelessly disseminate public information and data focusing solely on individual use, without considering civic aspects or socioeconomic inequalities, they may be criticised for their neoliberal bias (Bates, 2012; Catlaw & Sandberg, 2014; Gurstein, 2011; Ruppert et al., 2017).

Figure 1. Conceptual Comparison between Open Government and Liberal Democracy



Furthermore, open government may help mitigate democratic backsliding by ensuring greater public access to information, thereby enabling informed public discourse and scrutiny of government actions. It can also bolster democratic institutions, making them more resistant to authoritarian tendencies. Nonetheless, its effectiveness in counteracting democratic recession largely depends on the broader political context and the commitment of government leaders to genuine openness and adherence to democratic principles.

Open government can also diminish information bubbles contributing to polarisation by providing a unified platform for access to unbiased public information. By promoting civic engagement and public consultations, it can facilitate dialogue among different segments of society. However,

increased transparency might sometimes reveal deep-seated disagreements and conflicts that are fundamentally irreconcilable, potentially exacerbating polarisation if not effectively managed.

Lastly, open government can boost political engagement by making citizens feel more connected and influential in governmental processes. Improved access to government data and decisions can educate voters, potentially increasing voter turnout by providing a better understanding of the issues at stake. However, the impact on voter turnout significantly hinges on the implementation of these policies and the degree to which they genuinely engage and empower citizens, as alerted by Yu and Robinson (2012).

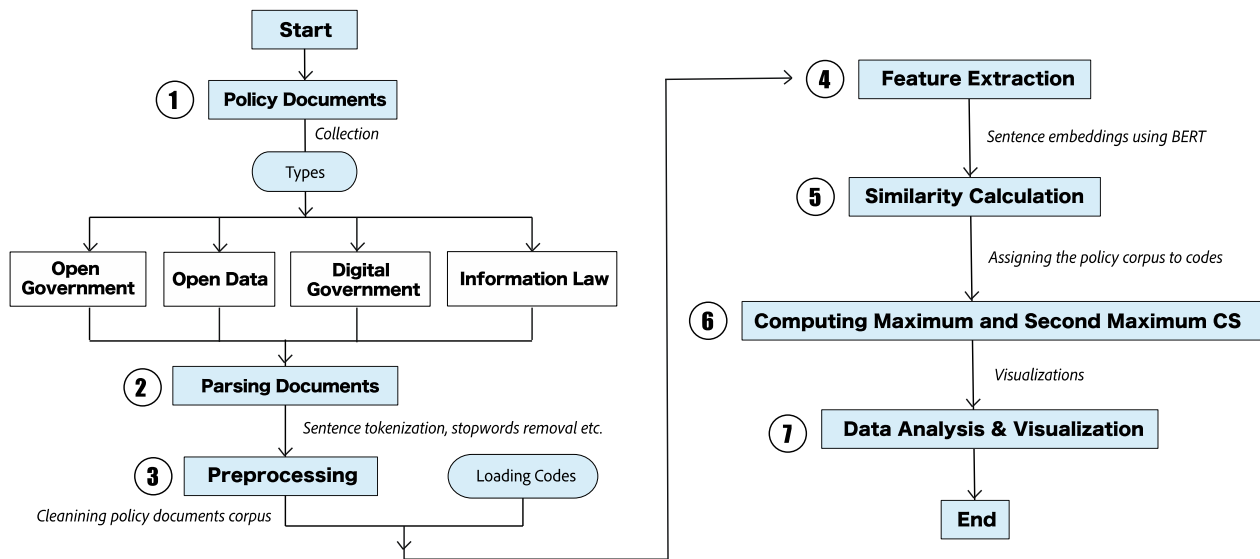
To thoroughly evaluate the potential of open government for reviving democracy, it is crucial to bridge the gaps in our understanding of the nature and significance of open government in the framework of liberal democracy. To this end, this study aims to delve into recent open government policies across countries to gain an in-depth understanding of this new trend within the framework of liberal democratic governance.

### **3. Methods**

To examine policy documents on open government, we conduct an automated content analysis. Specifically, we employ Natural Language Processing (NLP), a theoretically motivated range of computational techniques for analysing and representing naturally occurring texts at one or more levels of linguistic analysis (Liddy, 2001). We believe supervised NLP is better suited for our research since we aim to compare the data with a conceptual framework derived from the literature on open data and the values inherent in liberal democracy.

NLP techniques are widely used to analyse large volumes of text data systematically and far more efficiently than manual content analysis. Furthermore, while human coders might vary in their interpretations, NLP techniques apply consistent standards to all data, and they also enable the uncovering of latent topics or sentiment trends. Although computerised content analysis may struggle with understanding context, especially when it involves irony, idioms, or cultural references, policy documents are generally intended to be understood at face value. Therefore, this limitation does not significantly diminish the strengths of this technique. Figure 2 details the NLP procedures.

Figure 2. Procedures of the supervised natural language processing



### 3.1. Data collection

To investigate the content of open government policies from countries engaged in the global Open Government Movement (OGM), we focused on 75 nations, all of which are national members of the Open Government Partnership (OGP). While local governments also participate in OGP initiatives, our study is confined to national-level policies to gauge their inter-state influence. As OGP member countries voluntarily joined this global initiative and were required to develop their versions of open government policies, the sample represents a leading group of countries in shaping the global OGM.

Open government policies are diverse across countries in policy timelines and the years of initial adoption, making it challenging to align cross-national policy documents by publication year. To accurately capture current trends, we gathered the most recently published four types of relevant policy documents of each country, ranging between 2020 and 2023: OGP Action Plans—a required document to the member countries, Open Data Policies, Digital Government Strategies, and Freedom of Information Laws. This selection of policy documents allows us to observe ongoing national efforts toward promoting open government.

To identify relevant policy documents, we utilised a two-step online search approach. We began using generative AI tools like ChatGPT-3.5 and Bard to aid the initial search for policy documents. The document names suggested by these tools served as entry points for intensive web searches, ultimately leading to official sources. The authenticity of the suggested links and documents through web searches was verified by the authors through additional searches of the original policy documents. All retrieved documents were then converted into PDF format for uniformity.

As of October 23, 2023, we could not locate specific documents indicating an “open data policy” for Bosnia and Herzegovina, Israel, and Honduras. Similarly, the Freedom of Information law for Senegal and the OGP Action Plan for Timor-Leste, which joined the OGP in 2023, was unavailable.

Consequently, with these five missing documents, we collected a total of 295 policy documents from 75 countries. We collected 10,066 pages of documents, which consist of 363,477 sentences, while the length of each document varies considerably, ranging from 5 to 300 pages. Although a huge variation in the volume of policy documents is a concern for comparative analysis, this is less problematic for our objective of extracting holistic information.

Of the collected documents, 200 were in English, and we translated the remaining 95 non-English documents using the Google Translate document upload system for uniformity of the analysis. Despite earlier concerns regarding its translation accuracy (Balk et al., 2013), recent advancements in Google Translate's automated translation have attracted the attention of researchers working with multilingual data. A cross-national survey by the Pew Research Center (Kessel et al., 2021) revealed that Google Translate's reliability is comparable to that of professional in-house translators, with notable exceptions for Greek and Korean. Fortunately, for these two languages, we obtained officially published English documents from the respective governments. A similar level of translation accuracy, exceeding 80%, was reported in a study by Sumiati et al. (2022), further validating the use of Google Translate in academic research involving multilingual documents. Furthermore, the varied translation accuracy may not have a great impact on our study, as NLP can infer meaning from context and linguistic structures, which allows us to capture the intended message even if the translation is not perfect.

### 3.2. Parsing documents

In this study, the Python programming environment was employed to parse the collected policy documents, preparing them for further analysis. Particularly, we used Google Colab with GPU as an interactive development environment for Python 3.10. Upon loading these documents into the Python environment, it was observed that the dataset contained a significant amount of 'noise'--including numerical figures, hyperlinks, and special characters--which could potentially interfere with the accuracy of subsequent analyses. Initially, the input sentence is broken down into subword tokens using a subword tokeniser (e.g., WordPiece in the case of BERT). This step converts the entire sentence into a sequence of discrete tokens.

### 3.3. Preprocessing

To address this issue and enhance the dataset's quality, we applied a comprehensive preprocessing methodology. This process involved the removal of stop-words, which are commonly used words that carry minimal informational weight, as well as the elimination of non-English words, hyperlinks, and special characters from the text corpus.

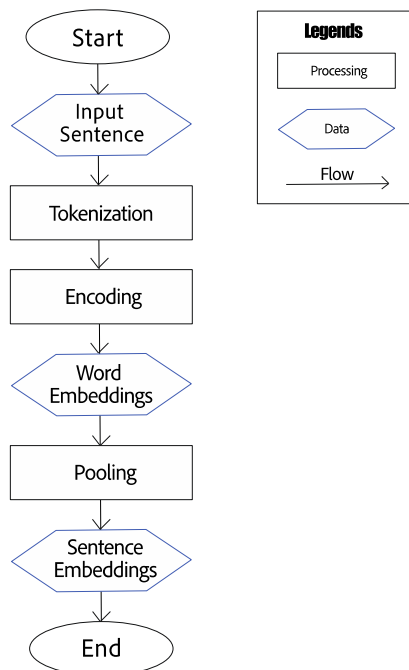
Each token is then passed through a multi-layer bidirectional transformer architecture. This transformer processes the tokens concurrently, producing contextualised embeddings for each token. The outcome is a sequence of word embeddings enriched with contextual information.

### 3.4. Feature extraction

Following the initial preprocessing to cleanse the corpus, we proceeded to a more advanced stage of analysis by generating sentence embeddings. Sentence embeddings are a sophisticated concept in the field of NLP, where sentences—comprised of individual words or tokens—are transformed into vectors of real-number values. This transformation is crucial for enabling computational models to understand and process textual information in a manner analogous to human comprehension.

To facilitate the generation of sentence embeddings, it is essential first to convert the preprocessed corpus into individual sentences. This segmentation is achieved using sentence tokenisers, with the Natural Language Toolkit (NLTK: version 3.8.1) sentence tokeniser being one of the primary tools employed for this purpose, installed following the official instructions<sup>1</sup>. Following sentence tokenisation, we utilise the Bidirectional Encoder Representations for Transformers (BERT) model—a powerful, pre-trained model developed by Google AI—for embedding generation. Particularly, we used BERT’s “all-MiniLM-L6-v2” variant from the HuggingFace interface<sup>2</sup> to create the sentence embeddings. BERT’s advantage over traditional feature extraction methods, such as Bag of Words and Term Frequency-Inverse Document Frequency (TF-IDF), lies in its capacity to capture contextual nuances within the text. The process for generalising sentence embeddings with BERT involves several steps, as illustrated in Figure 3.

Figure 3. Sentence embeddings generation/representation steps using BERT



<sup>1</sup> <https://www.nltk.org/install.html>

<sup>2</sup> <https://huggingface.co/sentence-transformers/all-MiniLM-L6-v2>

Following the encoding process, it is necessary to aggregate these word embeddings into a cohesive sentence-level embedding. This aggregation is achieved through pooling techniques, among which Mean Pooling and token Pooling are the most prevalent. In our study, we opted for Mean Pooling, whereby the mean (average) of all contextualised word embeddings within a sentence is computed, yielding a single vector representation for the entire sentence. Alternatively, Token Pooling leverages the [CLS] token--a special marker introduced at the beginning of the input sentence in BERT's architecture--as the aggregate sentence-level representation.

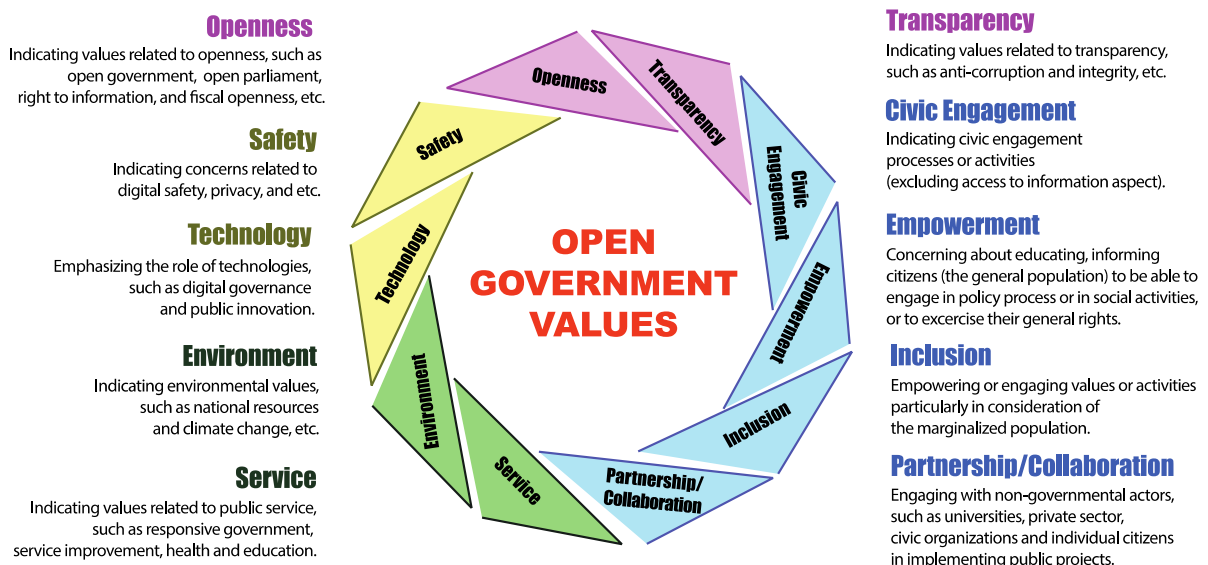
The output of the pooling step, derived from either the mean-pooled vectors or the [CLS] token output, encapsulates the essence of the input sentence in vector form, facilitating subsequent analytical tasks that require an understanding of textual content at a semantic level.

Similar to the approach taken with policy document sentences, we also subjected the predefined value codes to a comprehensive processing pipeline, encompassing loading, parsing, preprocessing, and ultimately generating sentence embeddings to ensure consistency and analytical rigour. The predefined codes were adapted from the Open Government Declaration of the OGP, as presented on its website on September 20, 2023, which has now been revised at the time of writing this paper<sup>3</sup>. Initially, the OGP indicated its upholding values mainly in areas of openness, transparency, civic engagement, technology, service, and environment, under which they specified their policy areas such as anticorruption, civic space, digital governance, environment and climate, inclusion, and public service delivery. The authors incorporated conceptual discussions in the literature (e.g., Gil-Garcia et al., 2023; Tai, 2021; Piotrowski et al., 2022; Ruijer et al., 2017) into these categories, ensuring the alignment between practical and academic frameworks. Figure 4 lists the list of value codes and their definitions. These definitions were meticulously processed to generate sentence embeddings, ensuring a standardised format for comparison.

---

<sup>3</sup> <https://www.opengovpartnership.org/process/joining-ogp/open-government-declaration/>

Figure 4. Predefined value codes



Adapted from Open Government Declaration of the OGP, as indicated in September 20, 2023.

### 3.5. Similarity calculation

With sentence embeddings prepared for both policy documents and value codes, we proceeded to compute the cosine similarity between them. This calculation was performed for each sentence within the policy documents, comparing it against the embeddings of the predefined codes. The cosine similarity metric, which yields a value ranging from 0 to 1, served as a quantitative measure of similarity; values approaching 1 indicate a high degree of similarity between a policy document sentence and an extent code.

$$\text{Cosine Similarity} = \frac{A \cdot B}{\|A\| \cdot \|B\|}$$

Where: A and B are the vectors: policy contents and value codes

### 3.6. Computing maximum and second maximum cosine similarity

As a penultimate step in our methodology, we assigned the most appropriate value code to each sentence within the policy documents based on the highest cosine similarity score. Additionally, for a more nuanced analysis, we identified a secondary value code corresponding to the second-highest similarity score, offering further insight into the thematic alignment of policy content.

### 3.7. Visualization of results

The culmination of our methodology is the visualisation of the findings, presenting a clear and illustrative representation of the value codes' distribution as a whole and across various regions,

areas, and their directional flow. Using graphs, we aim to convey the spatial and thematic relationships uncovered in our analysis, highlighting patterns and trends in adopting and emphasising open government principles worldwide.

This structured approach underscores the systematic and data-driven methodology employed to explore the thematic underpinnings of open government policies, leveraging NLP techniques to quantify and visualise the alignment between policy content and defined governance principles.

## 4. Results

### 4.1. Basic statistics

In our sample, most countries, numbering 48, are from the Global South, while 27 are from the Global North. As Table 1 details, our findings reveal a significantly higher number of instances in which values related to open government and liberal democracy are emphasised by countries in the Global South—63,057 instances, as opposed to 49,778 instances highlighted by countries in the Global North. On a per-country basis, however, countries in the Global North demonstrate a higher frequency of emphasising these values in their policy documents, averaging over 1,800 instances per country, compared to the Global South’s average of around 1,300 instances per country.

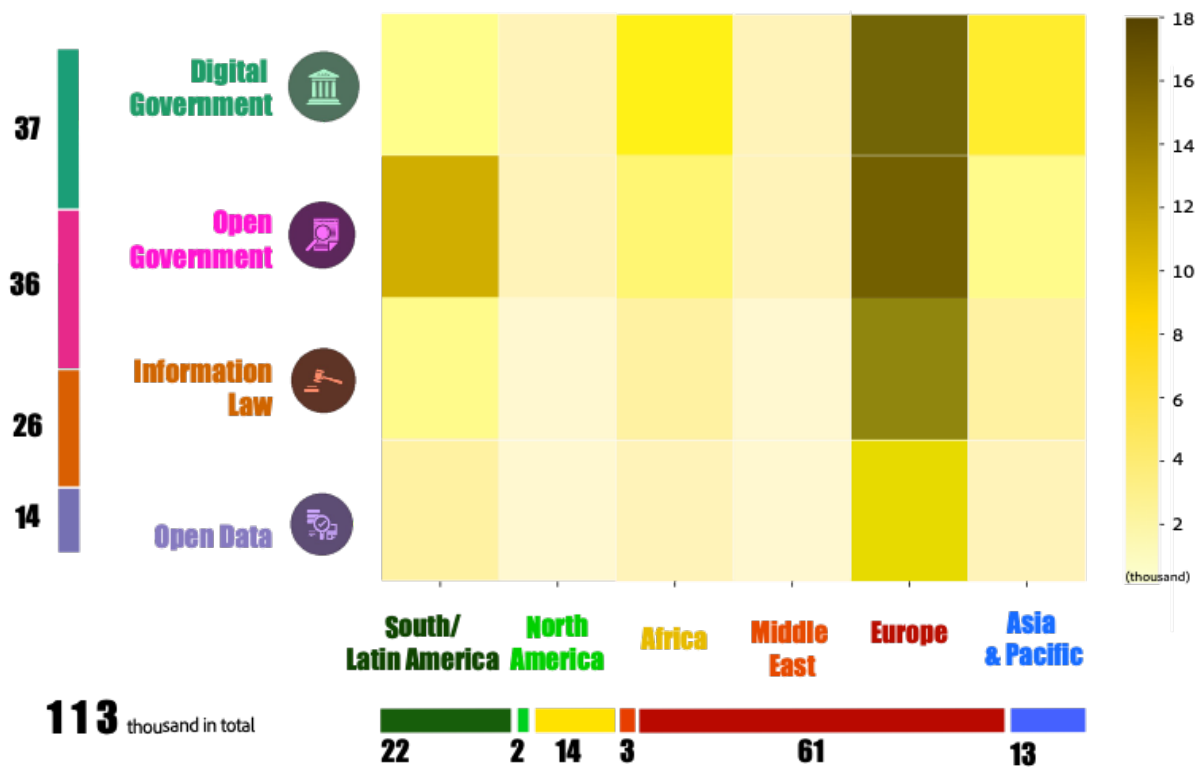
*Table 1. Basic statistics of NLP analysis*

| Category            | # of Countries | # of Instance<br>(thousand) | Instances per<br>country<br>(thousand) |
|---------------------|----------------|-----------------------------|--|
| By Economy          |                |                             |  |
| North               | 27             | 50                          | 1.85                                   |
| South               | 48             | 63                          | 1.31                                   |
| By Region           |                |                             |  |
| Africa              | 13             | 13.5                        | 1.04                                   |
| Asia & Pacific      | 11             | 12.5                        | 1.14                                   |
| Europe              | 31             | 61                          | 1.97                                   |
| Middle East         | 3              | 2.5                         | 0.83                                   |
| North America       | 2              | 1.5                         | 0.75                                   |
| South/Latin America | 15             | 22                          | 1.47                                   |
| Total               | 75             | 113                         | 1.51                                   |

Moreover, Europe appears as the region with the largest contingent of countries in our sample, totalling approximately 31. These countries exhibit the highest average number of instances, approximately 1,970, where open government values are underscored in their policy documents. Conversely, North American countries exhibit the least frequency of highlighting these values in their policy documents, with about 750, closely followed by countries from the Middle East, with approximately 830. Collectively, our sample accounts for a total of 112,835, averaging approximately 1,500 instances per country.

The frequency of instances where values are highlighted varies by both policy type and region, as Figure 5 demonstrates. This heatmap illustrates the number of identified instances aligning with predefined open government values across different policy document types (y-axis) and the geographical regions of the corresponding countries (x-axis). Each cell presents cross-tabulation values, colour-coded by magnitude: higher values are represented in shades of brown, while lower values appear in shades of yellow. Generally, Digital Government Strategies serve as the primary vehicle for expressing commitment to open government values. These are followed by Open Government Action Plans, Information Laws, and Open Data Policies. This pattern of preference for policy platforms is consistent across most regions, except for Europe and South/Latin America. In these regions, there is a marked preference for utilising Open Government Action Plans over other types of policy documents.

Figure 5. Value highlighting instances by policy document type and region



#### 4.2. The link between open government and liberal democracy

The results of sentence similarity calculations to the predefined value codes related to open government revealed that civic engagement was the most widely highlighted value across policy documents, followed by service, safety, technology, transparency, and so on. Figure 6 displays the compositions of countries' contributions to policy content aligned with these predefined open government values categorised by economic and regional groupings.

In the upper subplot, which depicts the Global North/South composition, most values show a relatively steady contribution from both regions. However, countries in the Global North contribute more prominently to policy content emphasising technology.

The lower subplot illustrates the regional breakdown of contribution with overall comparable values. Notable differences include a higher contribution from South and Latin American countries toward civic engagement and a greater focus on service among countries in the Asia and Pacific region compared to other values.

To validate the link between instances of highlighting open government values in policy documents and the levels of liberal democracy, we ran a logistic regression analysis using the Liberal Democracy Index (LDI) from the V-Dem Dataset (2020). V-Dem dataset uses an interactive system where users are allowed to decrease the democracy score of a polity whose autonomy is limited by another polity (Koenig-Archibugi, 2022). The result shows a statistically significant association between the instances of highlighting open government values and the scores of the LDI.

Table 2 presents the OLS regression results. The intercept, at 6.67, is statistically significant ( $p < 0.001$ ) and represents the model's predicted log of total instances when the Liberal Democracy Index is zero. The coefficient for the Liberal Democracy Index is 0.77, indicating that for each one-unit increase in the LDI, the logged number of instances is expected to increase by 0.77. This relationship is statistically significant at the 5% level, with a p-value of 0.05, suggesting that there is a marginal but statistically significant positive association between the Liberal Democracy Index and the logged number of instances. F-statistic of 4.13 with a corresponding p-value of 0.05 suggests that there is evidence to reject the null hypothesis of having no linear relationship between these variables.

Table 2. OLS regression results for logged instances and LDI

| Residuals:    |          |           |         |           |     |
|---------------|----------|-----------|---------|-----------|-----|
| Min           | 1Q       | Median    | 3Q      | Max       |     |
| (2.11)        | (0.43)   | 0.07      | 0.45    | 2.00      |     |
| Coefficients: |          |           |         |           |     |
|               | Estimate | Std.Error | t-value | Pr(>  t ) |     |
| (Intercept)   | 6.67     | 0.23      | 28.86   | 0.00      | *** |
| LDI           | 0.77     | 0.38      | 2.03    | 0.05      | *   |

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.6797 on 73 degrees of freedom

Multiple R-squared: 0.05357,

F-statistic: 4.13 on 1 and 73 DF, p-value: 0.05

*Figure 6. Geographical overview of value highlighting instances*

Figure 7 visualises the relationship between the LDI and the logged number of instances emphasising open government values in policy documents. The upper maps show the distribution of these values globally, with the top map representing the intensity of open government mentions, while the middle map depicts the spread of liberal democratic practices. The lower scatter plot further illustrates a positive correlation between LDI scores and the frequency of values mentions, suggesting that countries with stronger liberal democratic practices also tend to emphasise open government values more frequently in their policies. The observed trend, along with the model's explanatory power, indicates a potential synergistic effect between policy focus on open government values and liberal democratic practices.

*Figure 7. The link between liberal democracy and value highlighting in policy documents*

### 4.3. Co-occurrences of value highlighting

To ensure the reliability and relevance of our findings, we only included instances exhibiting a cosine similarity above 50%. As a result, the five most prominently highlighted values were identified as Transparency, Openness, Civic Engagement, Technology, and Service. Figure 8 illustrates the distribution of value categories related to open government. Each value category is represented by a box with two bars: the left bar displays the composition by Global North/South, while the right bar breaks down the geographical composition across different regions.

*Figure 8. Maximum categories with cosine similarity over 50%*

The efforts under the Transparency agenda include the establishment of institutional frameworks and international collaborations, adopting legal, technological, and innovative approaches tailored to various levels of government and sector-specific transparency initiatives.

Policy actions aligned with Openness encompass implementing open data, enhancing the accessibility and usability of open data, fostering awareness of open data availability, training public administration staff, and pursuing technological advancements to improve portals.

Initiatives for Civic Engagement aim to promote co-creation and collaboration, foster digital democracy, and support civic education and local initiatives.

Policy initiatives related to Technology focus on digital transformation, strategic management, and use of digital technology, enhancing digital skills, culture, and inclusion, and developing policy, legal, and regulatory frameworks. They also include improving infrastructure and sectoral growth through innovation and skills development, as well as fostering inclusive strategies and collaboration.

Finally, policy actions regarding Service are directed at enhancing the quality and accessibility of public services, leveraging digital transformation and public innovation for community and social inclusion, and improving service delivery to enhance citizen satisfaction.

Table 3 summarises key policy actions and initiatives across five focal areas.

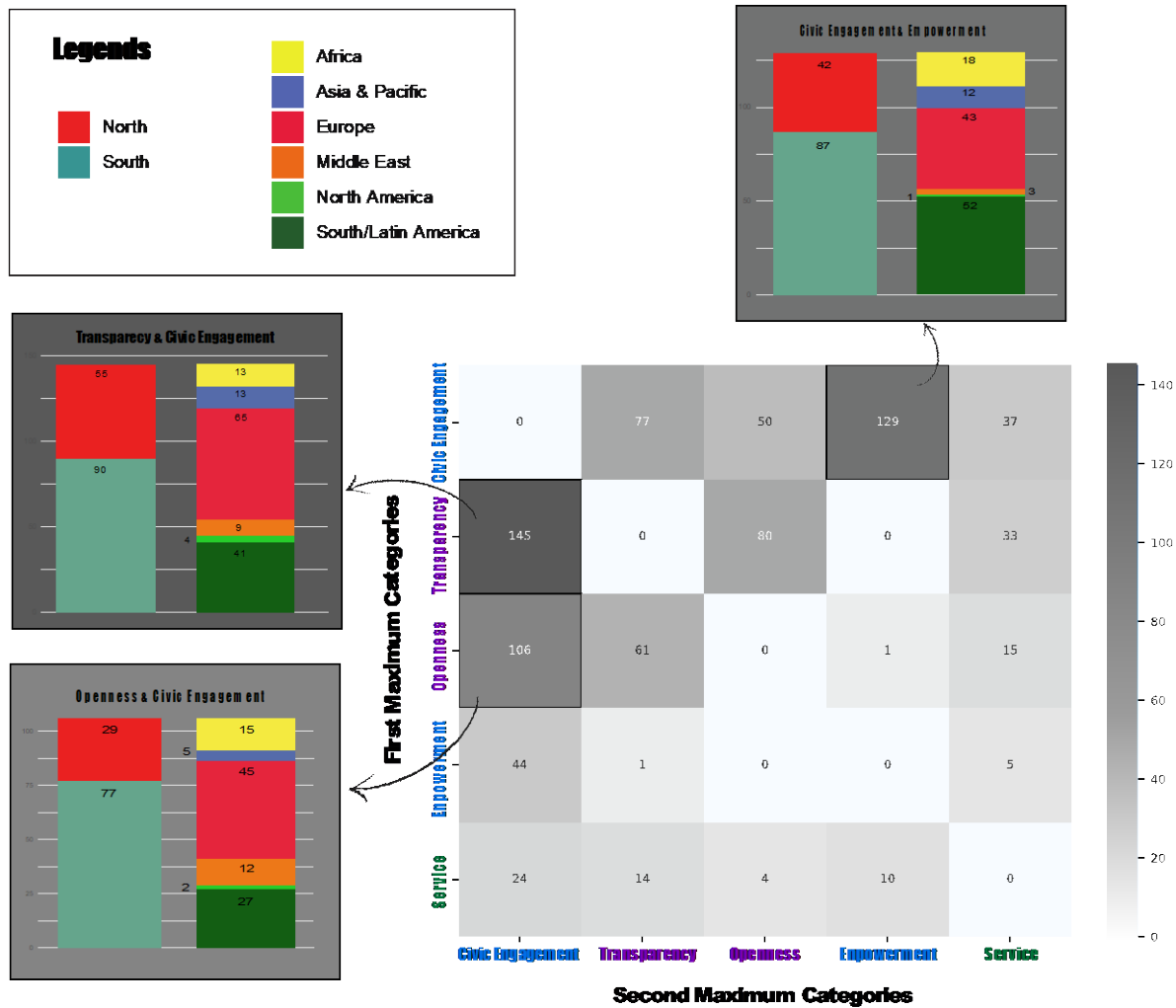
Table 3. Key Policy Actions and Initiatives Highlighting Top Five Values with Cosine Similarity above 50%

| Values           | Approaches  | Descriptions  |
|------------------|---|---|
| Transparency     | Institutional Framework and International Collaboration | Establishing bodies like the Public Integrity and Transparency Commission.<br>Participating in international initiatives such as the Inter-American Open Data Program.  |
|                  | Legal and Policy Measures                               | Enact laws for access to public information and establish national public integrity systems.<br>Developing transparency standards and obligations for proactive disclosure of government activities and financial transactions.                 |
|                  | Technological and Innovative Approaches                 | Develop technological tools for public feedback to elevate government transparency and engage citizens effectively.   |
|                  | Localised & Sector-Specific Transparency Efforts        | Enhance transparency in local governance (e.g., village-level programs) to promote sustainability in development programs, as well as in areas like the extractive industry and election data processing to ensure fairness and accountability. |
|                  | Fiscal Transparency & Public Finance Management         | Promot fiscal transparency and accountability in public procurement and publish beneficial ownership data.  |
| Openness         | Open Data Implementation                                | Make public administration data accessible in accessible and structured formats.<br>Promote its economic and social value and its role in creating new knowledge and empowering citizens.   |
|                  | Awareness & Training                                    | Raise awareness of open government principles among public employees and citizens, integrate them into training programs, and distribute guides.  |
|                  | Accessibility & Usability of Open Data                  | Ensure public data adheres to principles of accessibility, relevance, and confidentiality.  |
|                  | Technological Advancements & Portals                    | Develop open data portals in an effective way to give visibility to the way of governing and policymaking.  |
|                  | Enhancing Legal & Regulatory Framework                  | Enhancing the legal and regulatory frameworks to support the opening of data and promoting a culture of open data within public institutions.   |
| Civic Engagement | Co-Creation & Participation                             | Use virtual platforms for co-creation in action plans, improve access to legislative information, and streamline citizen involvement in public management.  |
|                  | Digital Democracy                                       | Develop digital platforms for citizen participation, train citizens in digital processes, and monitor projects financed by royalties.   |

|            |  |   |
|------------|--|---|
|            | Civic Education & Local Initiatives              | Launch educational programs on open government, focus on citizen-centred strategies, and solve public issues through participation and data innovation. |
|            | Community & Stakeholder Collaboration            | Foster local government-citizen collaboration, engage civil society and involve the private sector in open data solutions.                              |
| Technology | Digital Transformation & Governance              | Establish digital strategies for ICT sector growth, enhance governance frameworks, and accelerate digital transformation.                               |
|            | Strategic Management & Use of Digital Technology | Use data to generate public value, improve public sector efficiency, and promote digital innovation in both public and private sectors.                 |
|            | Digital Skills, Culture, & Inclusion             | Develop digital skills, promote a digital culture, bridge the digital divide, ensure access to digital technologies, and encourage digital citizenship. |
|            | Policy, Legal, & Regulatory Frameworks           | Create enabling conditions for a vibrant digital economy, support ICT in governance, and foster regulatory compliance.                                  |
|            | Infrastructure & Sectoral Growth                 | Invest in digital infrastructure, promote ICT innovation, and enhance service quality through interoperable digital platforms.                          |
| Service    | Quality & Accessibility of Public Services       | Train public servants, digitise services, implement digital accessibility guidelines, and promote equitable service delivery.                           |
|            | Digital Transformation & Public Innovation       | Use technology to enhance service delivery, promote user-friendly digital solutions, and strengthen digital infrastructure for inclusivity.             |
|            | Community & Social Inclusion                     | Improve access to ICT infrastructure, promote digital literacy, and support employment with disabilities in public offices.                             |
|            | Service Delivery & Citizen Satisfaction          | Use surveys to assess citizen satisfaction, enhance municipal services through digital platforms, and promote participatory budgeting.                  |

Moreover, for a detailed examination of the contexts in which these values are jointly emphasised, we analysed the policy contents associated with the top five co-occurrences. Figure 9 provides a detailed visualisation of policy contents aligned with two major open government values. Civic Engagement emerged as the value most frequently highlighted, with 293 instances in the category of highest similarity and 319 in the second highest. Transparency was the second most emphasised value, with 258 instances at the highest similarity level and 153 at the second highest. Openness followed, ranking third and fourth in terms of frequency within the highest and second-highest similarity categories, respectively. Significantly, Empowerment was observed to play a more complementary role, as evidenced by its markedly higher frequency in the second-highest similarity category (140 instances) compared to the highest similarity category (50 instances). Altogether, this pattern suggests a governmental commitment to promoting interactive governance, characterised by institutional conditions that enable citizen engagement and oversight in decision-making, facilitated by enhanced civic capacities.

Figure 9. Top co-occurrences and distributions



The heatmap on the right of Figure 9 illustrates cross-value interactions among the six most frequently highlighted open government values. The intensity of the colour represents the magnitude of co-occurrence between value pairs, with darker shades indicating higher frequencies. Notable interactions include strong co-occurrences between Transparency and Civic Engagement (145 instances), Citizen Engagement and Empowerment (129 instances), as well as Openness and Civic Engagement (106 instances). The three bar charts on the left side and top further break down these co-occurrence cases by economic groups and geographical regions, demonstrating the diversity of contributions.

### 4.3.1. Transparency and civic engagement

The analysis of policy documents reveals a strong commitment to advancing transparency and civic engagement within the spheres of government operations and public governance. This commitment is anchored in democratic principles and the innovative application of technology to improve government services, policy development, and citizen collaboration. The main strategies derived from these documents include:

- Expanding public access to information, enhancing governmental transparency through legislative actions and establishing national public integrity frameworks.
- Cultivating a culture that values information accessibility as a core tenet of public administration, emphasising the respect, protection, and facilitation of the public's access to government documents and data.
- Utilizing technological innovations, such as open data platforms and digital analytics tools, to render government information more accessible, intelligible, and beneficial to citizens, interest groups, and civil society.
- Enhancing citizen participation in governance by creating participatory frameworks across diverse community sectors to actively engage in shaping and overseeing public policies at all levels of governance.
- Committing to the eradication of corruption and the improvement of public integrity by making data available in open formats and fostering citizen involvement in oversight and regulatory activities.
- Encouraging citizen engagement in decision-making processes to increase governmental responsiveness to public needs and priorities, thereby promoting a model of governance that is transparent, participatory, and conducive to developing a more informed, active, and empowered citizen base.

These initiatives represent a concerted effort to embed transparency and civic engagement within public administration, highlighting open government's crucial role in elevating democracy, accountability, and governance efficacy. Through prioritising information accessibility, fostering active citizen participation, and leveraging technological advancements, these policies strive to create a government that is more transparent, accountable, and responsive. Such efforts are key to reinforcing democratic processes and enhancing governance.

#### **4.3.2. Civic Engagement and Empowerment**

The policy content emphasises enhancing civic engagement and empowerment by employing diverse participatory mechanisms, legal frameworks, and technological innovations. The actions delineated in these documents focus on:

- Developing and executing participatory activities and initiatives to increase the quantity and impact of citizens actively engaging in governance.
- Establishing mechanisms for articulating and disseminating citizen rights within the open government framework. This encompasses training programs and civic innovation labs designed to empower citizens across various community sectors.
- Advocating for laws and governmental actions that underscore the importance of citizen participation in the democratisation process. This encompasses legislation ensuring public access to information and strategies to directly engage citizens in governance, ranging from their participation in legislative drafting and monitoring public services to their contribution to economic and social progress.
- Providing platforms and forums for citizen engagement, including digital avenues for continuous public consultation and involvement, thereby enabling citizens to evaluate governmental operations and actively partake in policymaking critically.

- Participating in international partnerships and adopting best practices that promote civic participation and empowerment. This underscores the significance of open data and innovative technologies in facilitating public involvement and increasing the efficiency of participatory processes.

These collective actions acknowledge the pivotal role of civic engagement and empowerment in formulating public policies that genuinely represent the desires and needs of the citizens.

#### 4.3.3. Openness and civic engagement

The policies that highlight the combination of Openness and Civic Engagement aim at embedding these principles into the core of public administration. This reveals a commitment to promoting open government and open data initiatives to make data generated by public administrations and funded by public money universally accessible. This approach is based on the view that such information constitutes a societal asset. The primary actions identified include:

- Adopting open government policies requiring public sector entities to release information in structured, user-friendly formats. This facilitates various applications, including social control, innovation, and business development.
- Advancing legal frameworks that endorse the accessibility of public information and assume its openness, except in specific, justified instances.
- Formulating strategies and guidelines aimed at enhancing the use of open data, assessing its impact, and ensuring its quality and interoperability.
- Establishing specialised offices and working groups that promote openness, transparency, and accountability across different government agencies.
- Organizing open government roundtables and awareness sessions to promote these initiatives and stimulate civic engagement.
- Fostering collaboration with the private sector to augment digital public services and enhance the transparency of public administration.

These actions underscore an organised effort to institutionalise openness and civic engagement as fundamental components of public administration. By prioritising the accessibility of publicly funded data, fostering legal and operational frameworks to support openness, and encouraging public and private sector collaboration, these initiatives strive to reinforce the principles of open government.

## 5. Discussions

### 5.1. Theoretical implications

Building on the nascent stage of research on open government, our study offers crucial theoretical insights for reviewing the existing knowledge and guiding future research. Initially, our research delineates the theoretical underpinnings of open government policies, positioning this burgeoning agenda within the centuries-long evolution of liberal democracy. It demonstrates how open

government policy complements the core values of liberal democracy, adeptly promoting these principles tailed for the digital age. It highlights transparency as essential, championing the right to information and fostering open dialogue—key to safeguarding individual liberty and political freedom. Accountability is emphasised as a cornerstone, asserting that governance must be derived from and accountable to the public to uphold the rule of law and ensure individual freedoms. Moreover, it promotes citizen engagement as a testament to political freedom, equality, and the inherent right to participate in public affairs, thereby reinforcing the principle of self-governance.

The advent of digital technology has revolutionised the enactment of these values, with digital innovations underpinning nearly all facets of the open government framework. For example, Digital Government Strategies have been a primary platform for showcasing open government values, with over 37,000 instances documented. This shift underlines the crucial role of public innovation in achieving the aims of open government, distinguishing it from traditional liberal democracy and neoliberalism. Unlike in conventional liberal democracy, where discussions of technology and public innovation were marginalised, open government policies actively integrate these aspects.

Additionally, while initial critiques suggested aligning open government policies with a neoliberal agenda, our cross-country analysis, grounded in the latest policy documents, suggests a differing narrative. Open Government policy contrasts with neoliberalism by emphasising the government's duty to disseminate public information and encourage civic participation. This strategy aims to cultivate a civic society and collective freedom, shifting the focus back to the government to foster a more inclusive form of liberal democracy, thus separating from individualistic or neoliberal models.

Secondly, our study presents the first empirical evidence spanning 75 member countries of the OGP. Previous research on open government has been critiqued for its partial conceptual focus and lack of empirical foundation. Although case studies have provided practical insights into open government policies, their overreliance on North American and European examples has neglected contributions from Global South countries to the global Open Government Movement. This selection bias led to critiques of open government as promoting a neoliberal agenda by reinforcing certain power structures and commodifying public information (Bates, 2012; Catlaw & Sandberg, 2014; Gurstein, 2011; Ruppert et al., 2017). Our cross-country policy analysis reveals significant engagement of Global South countries, both in terms of their membership in the international coalition and their emphasis on open government values in their policy documents. The extensive coverage of our sample presents a more inclusive and empowering perspective of open government, with civic engagement frequently paired with values like transparency, empowerment, and openness, indicating a balanced focus on the roles of both providers and recipients in promoting interactive governance.

Thirdly, recognising the potential of open government policies to address challenges faced by modern democracies hints at the possibility of advancing democratic innovations. Our findings reflect practical solutions and recommendations put forth by numerous countries in response to various societal challenges. The most frequently emphasised values in policy documents are civic engagement and service, reflecting a commitment to involving citizens in policymaking processes and ensuring public accountability. Digital Safety and Technology are highlighted to stress the importance of harnessing digital technologies innovatively and securely. This suggests a shift away

from the individualistic approach associated with neoliberalism towards promoting collective rights and bolstering civil society, which are crucial for fostering a vibrant public discourse and preventing alignment with exclusive populist agendas.

While these commitments shed light on how countries perceive and aim to tackle challenges in modern democracies, their effectiveness in combating democratic backsliding largely hinges on the broader political context and government leaders' genuine commitment to openness and democratic principles. Thus, these insights should serve as the intellectual basis for future studies into the efficacy of these commitments in revitalising democracy, contributing to the development of more tangible and actionable policy directions.

## 5.2. Practical implications

Our cross-country policy analysis yields significant insights into practical governance enhancements, serving as a reference tool for learning, innovating, and promoting inter-nation collaboration. At its core, this study presents an exhaustive compilation of policy benchmarks aimed at advancing open government principles, which are aligned with the five paramount values identified in policy documents: transparency, openness, civic engagement, technology, and service. Under these headings, specific policy actions and initiatives are detailed in the results section. For instance, policy documents have detailed measures to establish the appropriate institutional, legal, and regulatory frameworks to promote transparency, openness, and the use of technological applications. Furthermore, they have underscored the importance of tailoring policy actions to local and sector-specific contexts, as well as adopting inclusive strategies to engage a broad spectrum of stakeholders and address the needs of socio-economically marginalised populations. Additionally, education and training for both citizens and public administrators, complemented by awareness and promotional initiatives, have been integrated into their policy agendas, including openness, civic engagement, technology, and service. These foundational approaches and detailed examples of policy initiatives can serve as a blueprint for designing policies that uphold the principles of open government.

Moreover, acknowledging the interconnectedness of these values, our analysis identifies key policy actions and initiatives through the three most common co-occurrences, offering a comprehensive strategy to embody open government principles in governance collectively. This strategy includes legislative measures to foster transparency and formally recognise citizens' rights to participate. Additionally, the importance of fostering a culture of information sharing within government entities to enhance transparent public administration was underscored. Institutionalising participatory mechanisms and civic innovation labs is proposed to equip and empower citizens. Furthermore, the promotion of technological innovations to facilitate information dissemination and encourage citizen engagement was highlighted. Communication and promotion of these open government efforts through advocacy, roundtables, and awareness sessions are also recommended. The policy documents further stress the value of engaging in international coalitions that uphold democratic practices and facilitate policy learning to enhance public involvement and participatory processes.

Policy learning is poised to streamline the learning curve, enabling a swift response to the rapidly changing public and political landscapes of contemporary democracies. Policymakers keen on refining these values within their governance models are encouraged to critically assess the applicability of these actions and tailor them to their unique needs and contexts.

Furthermore, the findings emphasise the importance of innovating the governance structures of international coalitions to allow contributions from the Global South to the global policy agenda, thereby reducing bias and skewness in policy design. Our study elucidates that the essence of open government policies transcends mere information sharing, focusing instead on citizen engagement. This underscores the voluntary, adaptive, and flexible governance framework of the OGP, which has successfully ensured a balanced approach to open government, both in its processes and outcomes. The inclination of the international policy agenda to serve as conduits for modern imperialism or facets of neo-colonialism highlights our findings. It supports the efficacy of developing more inclusive and adaptable governance structures within international policy mechanisms to avert the pitfalls of a “one-size-fits-all” policy design approach.

### **5.3. Limitations and future research directions**

Although this study offers substantial theoretical and practical insights, the findings warrant cautious interpretation, mainly due to methodological limitations. Our analysis primarily relies on policy documents, which reflect government commitments to open government principles rather than the tangible outcomes of these policies. This distinction suggests that the optimistic outlook derived from our study highlights potential policy directions for enhancing democratic governance rather than demonstrating actual achievements. Although policy feedback theory (Mettler, 2002) suggests that policy actions influence citizens’ attitudes and behaviours by creating incentives. Our findings should not automatically translate to observable real-life impacts. Future studies conducted several years hence will be essential to ascertain the actual effects of these policy commitments as documented.

Furthermore, our quantitative analysis emphasises the frequency of highlighting specific values in sentences without accounting for their nuanced, context-dependent meanings. This approach presupposes that the prominence of these values in policy documents directly correlates with government dedication to them. While policy documents tend to be more direct and less susceptible to interpretive variability compared to other types of literature, this methodology underestimates the impact of cultural diversity in policy formulation and presentation. For instance, some countries may favour conciseness in their policy documents, while others might adopt a more detailed approach. Thus, these findings should be viewed as an overview rather than a precise, line-by-line comparison. This observation underscores the importance of future research aimed at exploring the complex interplay between the emphasis on certain values in policy documents and the actual commitment levels of governments. In doing so, research will move beyond the surface level of policy documents to uncover the tangible impact of open government initiatives on enhancing democratic practices across diverse contexts, ensuring that the promise of open government policies is fully realised in practice.

## 6. Conclusion

In the complex landscape of contemporary liberal democracy, open government has emerged as a global policy initiative. Despite its deep-rooted connections to the protracted evolution of liberal democracy spanning centuries, the relationship between this emerging policy agenda and the wider political landscape remains largely unexplored. Our comprehensive analysis of open government policies across 75 countries, powered by a machine-learning technique called Natural Language Processing, illuminates the potential of these policies as a dynamic and innovative approach to addressing the challenges that democracy faces in the digital age. These policies not only advocate for public innovation and citizen participation but also extend beyond the confines of traditional liberal democracy. They do so by incorporating technological advancements—an unprecedented element in the theoretical foundation of liberal democracy—and counteracting neoliberal ideologies by emphasising collective civic rights as well as the shared responsibilities of governments and citizens.

In conclusion, our findings present an extensive overview of the essence of open government policies underpinned by empirical data from a broad range of countries. This investigation significantly enriches both theoretical discourse and practical policy development, marking a substantial contribution to the understanding of how open government policies are poised to reshape the future of democratic governance.

## References

- Balk, E., Chung, M., Chen, M., Trikalinos, T., & Kong, W. (2013). Assessing the Accuracy of Google Translate to Allow Data Extraction from Trials Published in Non-English Languages.
- Bates, J. (2012). 'This is what modern deregulation looks like': Co-optation and contestation in the shaping of the UK's Open Government Data Initiative. *The Journal of Community Informatics*, 8(2).
- Beetham, D. (1992). Liberal Democracy and the Limits of Democratization. *Political Studies*, XL(Special Issue), 40-53.
- Berlin, I. (1969). *Four Essays on Liberty*.
- Bezuidenhout, L. M., Leonelli, S., Kelly, A. H., & Rappert, B. (2017). Beyond the digital divide: Towards a situated approach to open data. *Science and Public Policy*, 44(4), 464-475. <https://doi.org/10.1093/scipol/scw036>
- Calhoun, C., Gaonkar, D. P., & Taylor, C. (2022). *Degenerations of Democracy*. Harvard University Press.
- Catlaw, T. J., & Sandberg, B. (2014). 'Dangerous Government': Info-Liberalism, Active Citizenship, and the Open Government Directive. *Administration and Society*, 46(3), 223-254. <https://doi.org/10.1177/0095399712461912>
- Corke, S., Eisen, N., Katz, J., Kenealy, A., Lamond, J., Polyakova, A., & Taussig, T. (2021). *Democracy Playbook 2021: 10 Commitments for Advancing Democracy*. <https://www.state.gov/u-s-department-of-state-announces-initiatives-to-bolster-democracy-defend-human-rights-in-support-of-the-presidential-initiative-for-democratic-renewal/>
- Dahlberg, S., Linde, J., & Holmberg, S. (2015). Democratic discontent in old and new democracies: Assessing the importance of democratic input and governmental output. *Political Studies*, 63(S1), 18-37. <https://doi.org/10.1111/1467-9248.12170>
- Desilver, D. (2019, May 14). Despite global concerns about democracy, more than half of countries are democratic. Pew Research Center. <https://www.pewresearch.org/short-reads/2019/05/14/more-than-half-of-countries-are-democratic/>
- Diamond, L. (2015). Facing up to the democratic recession. *Journal of Democracy*, 26(1), 141-155. <https://doi.org/10.1353/jod.2015.0009>
- Dicey, A. V. (1885). *Introduction to the Study of the Law of the Constitution*.
- Ezrow, L., & Krause, W. (2023). Voter Turnout Decline and Party Responsiveness. *British Journal of Political Science*, 53(1), 85-103. <https://doi.org/10.1017/S0007123421000673>
- Fukuyama, F. (1992). *The End of History and the Last Man*. Free Press.
- Galston, W. A. (2018). The Populist Challenge to Liberal Democracy. <https://www.journalofdemocracy.org/articles/the-populist-challenge-to-liberal-democracy/>
- Gil-Garcia, J. R., Gasco-Hernandez, M., & Pardo, T. A. (2023). Making Sense of Open Government: A Conceptual Framework and Ideas for Future Research. *Perspectives on Public Management and Governance*, 6(2-3), 80-93. <https://doi.org/10.1093/ppmgov/gvad005>

- Go, J. (2003). A Globalizing Constitutionalism? (Vol. 18, Issue 1).
- Green, D. (2005). Liberal imperialism as global-governance perspective. In A. D. Ba & M. J. Hoffmann (Eds.), *Contending Perspectives on Global Governance: Coherence and Contestation* (1st ed., pp. 231-248). Routledge.
- Gurstein, M. (2011). Open data: Empowering the empowered or effective data use for everyone? *First Monday*, 16(2).
- International Institute for Democracy and Electoral Assistance. (2019). *The Global State of Democracy 2019: Addressing the Ills, Reviving the Promise*. <https://doi.org/10.31752/idea.2019.31>
- Jahn, B. (2013). *Liberal internationalism: Theory, history, practice*. Springer.
- Kant, I. (1785). *Groundwork of the Metaphysics of Morals*.
- Kessel, P. Van, Silver, L., Huang, C., & Moncus, J. J. (2021, December 17). The pros and cons of using professional translators vs. Google Translate to analyze open-ended survey responses. Pew Research Center. <https://www.pewresearch.org/decoded/2021/12/>
- Koenig-Archibugi, M. (2022). Who Are the People? Defining the Demos in the Measurement of Democracy. *Political Studies*, 70(2), 402-424. <https://doi.org/10.1177/0032321720966481>
- Levitsky, S., & Ziblatt, D. (2021). *How Democracies Die: What History Reveals about Our Future*. Crown.
- Levitsky, S., & Way, L. (2015). The myth of democratic recession. In *Journal of Democracy* (Vol. 26, Issue 1, pp. 45-58). Johns Hopkins University Press. <https://doi.org/10.1353/jod.2015.0007>
- Liddy, E. D. (2001). *Natural Language Processing*. <https://surface.syr.edu/istpub>
- Locke, J. (1689a). *Second Treatise of Government*.
- Locke, J. (1689b). *Two Treatises of Government*.
- Madariaga, A. (2020). *Neoliberal resilience: Lessons in democracy and development from Latin America and Eastern Europe*. Princeton University Press.
- Manne, G. A., & Hurwitz, J. (2018). *Classical Liberalism and the Problem of Technological Change* (1; ICLE Innovation & the New Economy Research Program).
- Mettler, S. (2002). Bringing the State Back into Civic Engagement : Policy Feedback Effects of the G . I . Bill for World War II Veterans. *American Political Science Review*, 96(2), 351-365.
- Mill, J. S. (1859). *On Liberty*.
- Montesquieu, B. (1748). *The Spirit of the Laws*.
- Office of the Spokesperson. (2021, December 10). U.S. Department of State Announces Initiatives to Bolster Democracy & Defend Human Rights in Support of the Presidential Initiative for Democratic Renewal.
- Piotrowski, S. J., Berliner, D., & Ingrams, A. (2022). *The power of partnership in open government: reconsidering multistakeholder governance reform*. MIT Press.
- Rousseau, J.-J. (1762). *The Social Contract*.

- Ruppert, E., Isin, E., & Bigo, D. (2017). Data politics. In *Big Data and Society* (Vol. 4, Issue 2). SAGE Publications Ltd. <https://doi.org/10.1177/2053951717717749>
- Sumiati, Baharuddin, & Saputra, A. (2022). THE ANALYSIS OF GOOGLE TRANSLATE ACCURACY IN TRANSLATING PROCEDURAL AND NARRATIVE TEXT. *Journal of English Education Forum (JEEF)*, 2(1), 7-11. <https://doi.org/10.29303/j.v2i1.270>
- Tai, K. T. (2021). Open government research over a decade: A systematic review. *Government Information Quarterly*, 38(2). <https://doi.org/10.1016/j.giq.2021.101566>
- Tocqueville, A. de. (1835). *Democracy in America* (H. (Trans) Reeve, Ed.).
- Ware, A. (1992). Liberal Democracy: One Form or Many? *Political Studies*, XL(Special Issue), 130-145.
- Wollstonecraft, M. (1792). *A Vindication of the Rights of Women*.
- Young, I. M. (2016). Justice and the Politics of Difference. In *Democracy: A Reader* (pp. 553-557). Columbia University Press.
- Yu, H., & Robinson, D. G. (2012). The New Ambiguity of 'Open Government'. *UCLA Law Review Discourse*, 178. [www.whitehouse.gov/sites/default/](http://www.whitehouse.gov/sites/default/)

### Author Contributions

SL: conceptualization; supervision; project administration; paper lead; methodology; statistical analysis; data collection; data curation; visualization

MA: methodology; data analysis; visualisation; writing original draft; funding acquisition.

All authors have read and agreed to the published version of the manuscript.

### About the Authors

Seulki Lee-Geiller is a researcher at the intersection of technology and democratic governance, honoured with the Walter Bagehot Prize in 2024. Utilising a range of methodologies, including qualitative analysis, statistical methods, machine learning, and behavioural experiments, Dr. Lee-Geiller explores the fundamental dynamics of interactions among various social entities and their engagement with technologies in governance contexts. With a versatile professional background in strategic planning and policy research across both private and public sectors, Dr. Lee-Geiller brings a wealth of practical insights to her work. She holds a PhD in Global Affairs from Rutgers University-Newark, an MSc in Development Administration and Planning from University College London, and a BA in Political Science and Economics from Sookmyung Women's University.

Mohsan Ali is a researcher at the University of the Aegean. He was awarded the Marie-Curie Scholarship in 2021 for his work in the field of Open Data Ecosystem (ODECO), which enabled him to pursue his PhD at the same university in Greece. Currently, he focuses on the technical interoperability of open data within the Information Systems Laboratory, a project funded by ODECO. His expertise spans open data, data interoperability, data science, natural language processing, and artificial intelligence. Furthermore, Ali has specialized in deep learning, a skill he developed through Coursera. He earned his Master's degree in Computer Science (MScS) with distinction, being a Gold Medallist, from Air University in Islamabad, Pakistan.