

State of Open Data in Government Ministries: The Case of The United Arab Emirates

Martin Critelli; Sorbonne University Abu Dhabi, SAFIR; Centre for Humanities, Languages and Education; Abu Dhabi, United Arab Emirates;

Mehluli Masuku; Sorbonne University Abu Dhabi, SAFIR; Centre for Humanities, Languages and Education; Abu Dhabi, United Arab Emirates;

Samson Mutsagondo; Sorbonne University Abu Dhabi, SAFIR; Centre for Artificial Intelligence and Digital Policy; Abu Dhabi, United Arab Emirates

Abstract

Open data has become a multidisciplinary concept attracting different players and professionals across the globe. Given its benefits, countries are thriving to provide a conducive environment for such open data. The study examines the extent of open data deployment and presence of open data laws, policies and regulations in government ministries in the United Arab Emirates. This article analyses national and federal policies and regulations concerning open data. The study revealed the presence of a strong regulatory framework for data packaging, reusability, accessibility and the presence of open data in most government ministries. Given that most governments are still grappling with open data implementation, the UAE serves as one of the rich cases for open data deployment by government, deepening access to public data.

Introduction

Open data can be understood as any type of data that can be used or shared with others for any purpose without restrictions or usage from copyright laws [1]. The subject of open data has been debated over the years in the scientific literature, particularly concerning the characteristics that data must have to be effectively defined as open. Among these are the three pillars outlined by [2], the eight principles enshrined by [3], or, with explicit reference to open science, the Findable, Accessible, Interoperable, and Reusable (FAIR) principles described by [4].

This research focused on the context of Open Government Data (OGD), “the information generated by public organizations, and which can be freely used, re-used, and distributed by anyone” [5: i]. Among other benefits, OGD supports trustworthiness, transparency, reliability, and reusability of data, translating to greater citizen awareness of government actions. The dissemination of OGD also facilitates the creation of new jobs, stimulates research, and innovation [6]. This study examined the provisions of open data in the ministries of the United Arab Emirates (UAE). It looked at open data policies, laws, and regulations, as well as the presence and formats of open data in government ministries. In pursuit of the open science movement, OGD is generally regarded as progressive and developmental. This work is organised as follows:

- **Open Government Data and the UAE OGD Policy** section, which defines OGD and the context of the UAE;
- **Motivation and Research Questions** section, which highlights the impetus of the study;
- **Problem** section, which highlights the gap in terms of understanding the state of OGD in the UAE;

- **Approach** section, which describes the method applied to conduct the research;
- **Results** section, which analyses and reports the outcomes of the research;
- **Discussion** section, which brings out the significance of the study findings in relation to similar studies across the globe;
- **Conclusion** section, which gives insights into and implications of the study findings.

Open Government Data and the UAE OGD Policy

OGD can be seen as an out birth of open government, whose thrust is transparency and good governance as citizens increasingly push the boundaries of inclusion in governance. The idea of open government is one strand of an otherwise broader movement commonly known as open government which is comprised of classic open government as characterised by the Freedom of Information Act and as a nascent means of citizen participation and experience [7]. Recent years have witnessed the notion of open government gaining momentum, necessitated by the deteriorating legitimacy of governance models in Western democracies, culminating in citizen discontent and legitimacy with the traditional methods of citizen engagement [8]. OGD has impacted the manner in which citizens perceive civics today [7].

Historically speaking, the concept of OGD grew into a real and noticeable phenomenon as recently as 2009, owing to the two debut Transparency Camp conferences under the auspices of the Sunlight Foundation, coupled with the development of a gamut of new applications outside governments and a new interest in open data by stakeholders outside the sphere of governments. OGD developed in three stages; viz:

- Open government proponents with keen interests in the Freedom of Information Act;
- The category comprised open-source software and open scholarly data proponents; and
- The proponents of open innovation entrepreneurship [7].

Thus, it is quite clear that OGD is related to different social and economic aspects of a country, including business information, patents, health or legal information, and more. Since the late 2000s, countries around the world have launched specific programmes in favor of the adoption of OGD [9]. Within

the Gulf Cooperation Coalition (GCC) zone¹, the UAE Government has started its campaign to support OGD with the promulgation of data protection laws² and the Smart Data Strategy [10]. The result of this process is the implementation of the portal Bayanat, the UAE's official Open Data Portal, where all the data generated by national agencies, public entities, and authorities are uploaded. The portal is developed according to the national regulations to be technologically compliant and interoperable with other UAE applications. This solution facilitates communication and data exchange between different government sources to provide various services to citizens. In addition, the platform allows the sharing of Geo and Real-time data that can be used to localise information within a specific Arab Emirate or its evolution over a range of time.

Motivation and Research Questions

Whilst the concept of open data, as part of the broader idea of the open movement, continues to gather momentum, the degree of its adoption differs from one government to the other. Access to open government data is littered with a multiplicity of challenges, chief among them being the existence of a closed information culture, coupled with the dearth of open data policies [11][12]. The UAE stands out as a remarkable example of efforts by the Government to provide open access to information. A study of this nature and magnitude is likely to inspire other governments to do the same in support of the open science movement. The study stands as a reminder that access to information is a basic right which authority such as governments should prioritise.

The study aims to address the following questions:

1. Which guidelines, policies, and regulations inform open data in government ministries in the UAE?
2. Which ministries have open data presence on their websites in the UAE?
3. In which formats is open data published on government ministries in the UAE?

Problem

The UAE is one of the governments that have demonstrated commitment to OGD, serving as one of the shining examples of OGD deployment for improved service delivery [13]. However, limited literature and empirical studies exist to understand the efforts of the UAE in the OGD deployment, as well as the supporting policies, laws, and guidelines for open data in the country. Some of the studies on the subject include [14] [15] [13]. Against the backdrop of the foregoing, the researchers embarked on this study to generate more empirical knowledge about the adoption of OGD in the UAE.

Approach

This study aims to investigate the provisions of OGD, its policies, laws, and regulations, as well as the presence and formats in which it is provided in the ministries of the UAE. The preliminary step in conducting the research was to consider the complexity of the country's Federal System³. This includes:

- Federal Supreme Council
- President and Vice President
- The Cabinet
- Federal National Council
- Federal Judicial Authority

In the context of this study, all the 21 UAE ministries, which are part of the Cabinet are examined (see **Table 1**). The reason for limiting the study to the government ministries only is to ensure the comparability of data collected from the same entities.

In order to obtain a clear legal framework on OGD in the country, the analysis conducted in this work focuses on the initiatives carried out by the UAE Government, both at national and federal levels.

This encompasses national and federal regulations, policies, rules, and laws, such as the Open Data Specifications for Government Agencies in the UAE [16], Abu Dhabi Government Data Management Policy [17], that define open data, data privacy, and the data management framework across the UAE and its single Emirates.

Starting with the analysis of the current legislation, the study investigates how the single ministries have responded to the legislative requirements and which activities they have initiated towards OGD.

The following table (**Table 1**) depicts the list of ministries that constitute the population of the research.

Table 1 List of the UAE ministries analysed

#	Name of Ministry	Abbreviation
1	Presidential Court	DIWAN
2	Ministry of Health and Prevention	MOHAP
3	Ministry of Defense	MOD
4	Ministry of Finance	MOF
5	Ministry of Interior	MOI
6	Ministry of Foreign Affairs	MOFA
7	Ministry of Tolerance and Coexistence	MOTAC
8	Ministry of Cabinet Affairs	MOCA
9	Ministry of Energy and Infrastructure	MOEI
10	Ministry of Industry and Advanced Technology	MOIAT
11	Ministry of Sports	MOS
12	Ministry of Community Empowerment	MOCE
13	Ministry of Education	MOE
14	Ministry of Economy	MOEC
15	Ministry of Human Resources and Emiratisation	MOHRE
16	Ministry of Justice	MOJ
17	Ministry of State for Federal National Council Affairs	MFNCA
18	Ministry of Culture	MCY

¹ GCC includes: Saudi Arabia, Bahrain, Qatar, Oman, United Arab Emirates, and Kuwait.

² The list of data protection laws is presented at: <https://u.ae/en/about-the-uae/digital-uae/data/data-protection-laws> (last access 05/14/2025).

³ For further and detailed information about the UAE Government, please visit the official webpage: <https://uaecabinet.ae/en/uae> (last access 05/12/2025).

19	Ministry of Investment	INVESTUAE
20	Ministry of Climate Change and Environment	MOCCAE
21	Ministry of Family	N.A.

The study is restricted to document analysis in which the ministries' websites are examined, enabling the researchers to gather primary data for the study. Data is analysed and presented based on the three main categories, that are (i) open data guidelines, policies, and regulations (ii) publication and availability of open data and (iii) open data file formats, access, and reuse modalities. Data is also presented through the use of charts. The study specifically targeted the ministries' websites in order to ensure data trustworthiness. Data from the Government Bayanat platform is compared with that from individual ministries' websites for validity. The results are further explained in the following section and reflect the current UAE scenario regarding the publication of OGD.

Results

The study reveals the presence of 6 laws, 2 guidelines and 1 policy related to the creation, handling, and use of OGD. Of the above-mentioned laws, 5 were Federal whilst 1 was Emirate-specific in scope. Some of the outstanding open data policies and guidelines include [16][17] which ensure the identification and sharing of open data, proper data management in compliance with Federal Law No (7) of 2008; National Archives Law No. (12) of 2014, UAE Federal Law No. (1) of 2006 and other relevant laws and policies. In addition are the Abu Dhabi Government-Data Management Standards which specify an array of open data standards, identification, publishing plans, publishing and awareness strategies.

Regarding the presence of OGD, Figure 1 shows that 14 out of 21 (66.7%) ministries have published their own open data policies on their websites.

Moreover, 15 out of 21 (71.42%) ministries have open data, but only 13 (86.7%) of these are publicly accessible.

The study further reveals that 15 out of 21 (71.42%) ministries provide statements on the reusability of open data on their platforms. The data reusability statements include fair use and prohibition of its abuse. In most cases, direct access to OGD is available through Bayanat for all ministries except for the Ministry of Health and Prevention, which uses its specific platform, MOHAP Open Data, to expose its data, possibly owing to the uniqueness of the health sector. It is further observed that 1 Ministry requires a written application to access its data, which can be responded to within three working days. Furthermore, 12 out of 21 (57.14%) ministries provide brief descriptions of the composition of their open data. The chart below (**Figure 1**) summarises the key findings of the study.

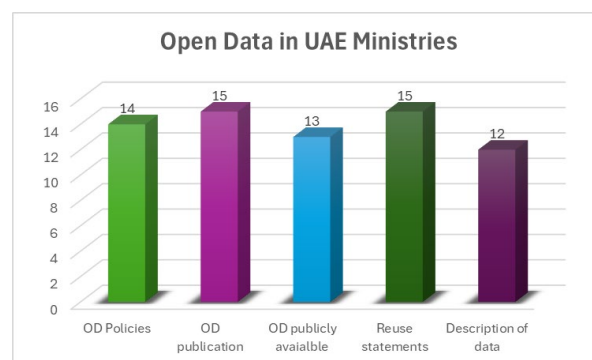


Figure 1. UAE Ministries' open data file formats

The study also seeks to establish the file formats in which open data is published by each ministry. To facilitate this, the frequency of file formats is determined. **Figure 2** below summarizes the results of this analysis by presenting the frequency of each open data format per ministry.

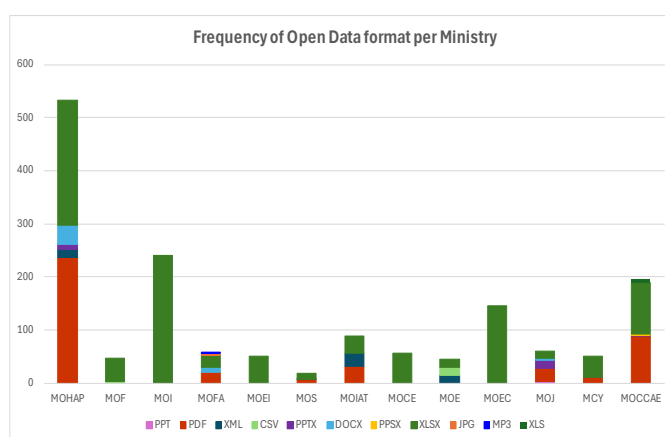


Figure 2. Frequency of Open Data format per Ministry.

The chart above highlights the predominance of XLSX format in providing data files. In particular, data files provided with this format is 1003 on a total of 1589⁴. PDF is the next format, chosen mainly to make available rules and laws, employed for displaying 416 data files. Far more distant, there is XML, found only in 4 ministries to provide 56 data files, and DOCX, employed by 3 ministries for a total of 51 data files. Finally, the last mention concerns the presence of multimedia data files in one case, the Ministry of Foreign Affairs characterised by 4 images (JPG format) and one audio (MP3). Furthermore, it can be observed in **Figure 3** that out of the total data files (1589), 73% are structured (XLSX, XLS, CSV), 3.5% semi-structured (XML), and 24% unstructured (PDF, DOCX, PPT, PPTX, PPSX, JPG, MP3).

⁴ Data updated to 05/14/2025.

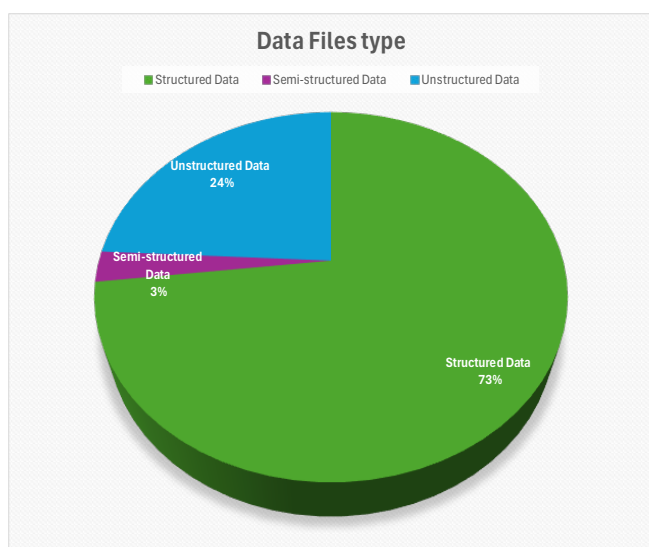


Figure 3. Data files variations across UAE ministries

Discussion

The UAE is the leading country in the Middle East and North African region regarding open data initiatives [13]. Its efforts are comparable to those of Portugal, Serbia, and Slovakia, which in 2022 to 2023 were singled out as the fastest-growing open data participants in Europe [18]. In terms of the policy framework for open data, Portugal stood at 78%, Serbia at 73%, and Slovakia at 93% in 2023 [18]. In terms of OD policies, the UAE has enacted a raft of policies that promote and regulate open data.

In terms of open data formats, the UAE ministries are faring well as most of their open data formats are comparable to those found in leading open data countries such as the United Kingdom and Australia among others. The most prevalent formats in some of the leading open data participants including the United Kingdom and Australia are XML, PDF, DOC as well as DOCX [19] and TSV and HMLT [20]. The usage of multiple open data formats enhances access to many people making the initiative both open and more useful. The results obtained from this research demonstrate an initial openness of the UAE Government towards the publication and sharing of open data, although more still has to be done towards improving open data across government ministries.

Conclusion

Ministries in the UAE have made great strides in the adoption of open data, coupled with a strong regulatory framework at federal and Emirate levels. Given that most governments are still grappling with open data implementation, the UAE serves as one of the rich cases for open data deployment by government, deepening access to public data. Owing to the Government structure of the UAE, it can be noted that the existing guidelines, policies and regulations are both Emirate-specific and Federal in coverage. Furthermore, some ministries have developed their own specific open data policies. Most Government ministries have registered the presence of open data on their websites, although data for some of the few ministries is not yet fully accessible. Given that the present study was limited to the 21 government ministries, it is recommended that further studies be conducted on other government establishments

including the Federal authorities in the UAE. It is further recommended that a study based on the open data maturity model be conducted in order to determine the position of the UAE relative to other countries in the world.

References

- [1] L.B. Ayre, and J. Craner, Open Data: What It Is and Why You Should Care, Public Library Quarterly, 36, 2, 173 (2017).
- [2] D. Eaves, The three laws of open government. Available at: www.eaves.ca. Accessed on: 15 May 2025.
- [3] Open Government Data Working Group, The Annotated 8 Principles of Open Government Data, (2007). <https://opengovdata.org/>
- [4] Mark D. Wilkinson et al., The FAIR Guiding Principles for scientific data management and stewardship, Scientific Data, 3, 1, (2016). 10.1038/sdata.2016.18
- [5] Astana Civil Service Hub, Open [Government] Data Policies and Practices: Select Country Cases, (Astana 2022). ISBN 978-601-08-3045-5.
- [6] OECD, Open, Useful and Re-usable data (OURdata) Index: 2019, OECD Public Governance Policy Papers, 1, (OECD Publishing, Paris, 2020). DOI: 10.1787/45f6de2d-en.
- [7] Joshua Tauberer, Open Government data; The book (2014). Available at <https://opengovdata.io/>. Access in 15 May. 2025.
- [8] Beatriz Franco Espiño, and Ricard Pérez Alcázar, Archives model of the transparency and access to public information network (RTA), EUROsocial Programme, (Madrid 2015).
- [9] S. Saxena, Open government data (OGD) in six Middle East countries: an evaluation of the national open data portals, Digital Policy, Regulation and Governance 20, 4. 310-322. (2018). DOI: 10.1108/DPRG-10-2017-0055.
- [10] Telecommunications and Digital Government Regulatory Authority, The UAE Smart Data Framework. Part 1: Smart Data Principles and Standards version 2.0", (2019). <https://u.ae/-/media/Documents-2023/Smart-Data-Strategy-EN-TDRA.pdf>
- [11] Omer Hassan Abdelrahman, Open Government Data: Development, Practice, and Challenges, Vijayalakshmi Kakulapati, Open Data (India, 2022) pg. 1-16. DOI 10.5772/intechopen.94663.
- [12] J. Fang, L. Zhao, and S. Li, Exploring open government data ecosystems across data, information, and business, Government Information Quarterly, 41, 2 (2024). DOI: 10.1016/j.giq.2024.101934
- [13] T. Ekundayo, and O. Isaac, Open Data: A National Data Governance Strategy for Open Science and Economic Development: A case Study of the United Arab Emirates, Emirati Journal of Business, Economics, & Social Science, 1(2), 96 – 107. (2022). <https://doi.org/10.54878/EJBESS>
- [14] S. Saxena, Significance of Open Government Data in the GCC countries, Digital Policy Regulation and Governance, 19, 3 (2017). Digital Policy Regulation and Governance.
- [15] Aleksandar Abu Samra, Toufic Mezher, and Elie AzarElie Azar, Public Sector Data for Academic Research: The Case of the UAE in Artificial Intelligence in the Gulf, (2021). 10.1007/978-981-16-0771-4_3.
- [16] Telecommunications and Digital Government Regulatory Authority, Open Data Specifications for Government Agencies in the UAE, (2022). <https://u.ae/-/media/Documents-2023/Open-Data-Specifications-Guidelines-for-UAE-Government-Entities--2022-Eng.pdf>
- [17] Abu Dhabi Government, Data Management Policy, Version 1.0. <https://data.abudhabi.opendata/sites/default/files/AD-Gov-Data-Management-Policy-EN-v1.0.pdf>
- [18] M. Moro, M. Page, Open data best practices in Europe. (European Union, 2024).
- [19] L. Akka, A structured data format for digital contracts in the UK. (2021). <https://discovery.ucl.ac.uk/id/eprint/10184049/1/Legal%20Schema.pdf>

[20] Office of the Chief Information Officer. Open Data Process Guide (2014). https://data.sa.gov.au/sites/default/files/Toolkit/open-data-process-guide_2022.pdf

He writes and publishes on a range of aspects of records and archives management. Mehluli has presented at over 22 regional and international conferences. He currently serves as Deputy Editor of the ESARBICA Journal

Author Biography

Martin Critelli is a Post-Doc Researcher at the Sorbonne University Abu Dhabi in the field of Records Management and Archival studies. He holds a Ph.D. in Digital Humanities, specializing in Archival studies, obtained at the University of Macerata (Italy). His research concerns the application of Machine and Deep Learning techniques for automatic knowledge extraction in the archival and records management domains, metadata, archival descriptions, and long-term preservation.

Mehluli Masuku holds a PhD in Information Science, and is currently an Assistant Professor- Records Management and Archival Science in the History Department at Sorbonne University Abu Dhabi.

Samson Mutsagondo is a Post-Doctoral Research Fellow at Sorbonne University Abu Dhabi where he is currently engaged in two research projects, namely, greening information management and the application of artificial intelligence in records management and archival science. He holds a PhD in Information Science from the University of South Africa. His research interests lie in sustainable records management, electronic records management and greening information management. He has presented papers at many national and international conferences.