



## Article

# Open Government Data in Gulf Cooperation Council Countries: An Analysis of Progress

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**Abstract:** Open government data (OGD) has been introduced relatively recently in Gulf Cooperation Council Countries (GCC Countries). However, progress has been significantly less than either hoped for or expected. The purpose of this research is to explore the reasons for this lack of progress. To do so, the attitudes and views of a range of senior government department (OGD-related) personnel were sought, using semi-structured interviews, and the results examined using thematic analysis. Unlike existing studies, which focus on external barriers to progress, this study focuses on internal factors which can result in a lack of progress to implementation, such as leadership attitudes, organisational culture and fear of failure. The findings show that considerable changes are required at both an ideological and practical level, if the gap between expectation and reality is to be closed. The paper concludes with recommendations of specific actions that can be taken to close this gap and the identification of areas where further study would be useful.



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**Keywords:** open government data; open data portals; open data; e-government; open data benefit; open data barrier; GCC countries

## 1. Introduction

The benefits of open government data (OGD) are widely recognised. The Organisation for Economic Co-operation and Development (OECD), for example, claims that, as well as making public institutions more transparent and accountable, OGD can help governments encourage business growth and introduce “innovative, citizen-centric services” [1]. OGD is also closely linked with the concept of open government: the idea that government is conducted for the benefit of the country and its people, to whom it needs to be accountable, and that accountability is strongly served by transparency and openness of information [2].

In order to fully realize the benefits of OGD, many countries have increased the number of OGD initiatives they have implemented significantly. For example, the Gulf Cooperation Council Countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) began to introduce OGD, and several local governments (i.e., ministries, authorities and institutions) have started to utilise OGD platforms, although the availability of data falls far short of expectations [3–5]. As of March 2022, some or all platforms provided fewer than 100 datasets, and did not reach to the satisfied level to update the datasets on a regular basis. The implication of this is that OGD initiatives introduced by GCC Countries seem to need to do more work. This leads to our research question: what are the reasons for the lack of progress of OGD initiatives in GCC countries?

This study explores the factors that should be addressed to lead to more significant progress by government departments (i.e., data providers), on the wide provision of open data. It recognizes that, globally, lack of progress on such initiatives is a combination of collective and individual attitudes and behaviours [6], and those data providers are

typically resistant to radical change [7]. The study seeks to gain insights into the causes of lack of OGD progress in the context of GCC countries through the thematic analysis of interviews with senior civil servants who provide open data to OGD platforms. The views of 20 personnel were sought using a semi-structured interview technique, and the results were used to identify attitudinal and behavioural themes. The study concludes that there is not likely to be a significant increase in the rate of OGD initiative implementation in GCC countries without a major shift in attitudes, funding levels and concept promotion at all levels of OGD initiatives.

## 2. Literature Review

During the last decade, the topic of open data has drawn increasing consideration from the research community, specialists, experts and practitioners, resulting in many definitions [8,9]. Yet, while these definitions all differ in one way or another, they also share some key similarities. The Open Data Handbook and Office of Management and Budget, for example, describes open data as data that can be used freely by anyone (public), and which can be reused, discovered and shared [10]. Both definitions broadly agree with that of the UK Government's open data portal (<https://data.gov.uk>, (accessed on 17 May 2022)), which refers to open data as publicly available information that is published in a machine readable format and which is licensed for free reuse. Moreover, from research community perspectives, for data to be 'open', it should satisfy eight main conditions: namely, that it should be primary, complete, accessible, timely, machine readable, non-proprietary, non-discriminatory and free of charge [4,5,8,9].

It is clear that, over the past few decades, the concept of open data, based on these definitions, has increased in popularity in many countries. The OECD's Open Government Data Project shows growing engagement and tracks the progress of over 30 countries in providing "OURdata" (open, useful, reusable government data) [1]. Many countries therefore have made efforts to establish the development of open data as part of their political, social and economic agendas, aiming to increase its benefits (e.g., economic growth, stimulate innovation, promotes entrepreneurship, improving public services, supporting decision-making and transparency) [8–10]. This growing awareness of the benefits of OGD has resulted in a significant increase in the number of OGD initiatives, rising from two in 2009 to more than 200 by 2014 [9]. Furthermore, the number of countries opting to join the Open Government Partnership also increased substantially, from eight in 2011 to 77 by 2022 [11].

Despite the many benefits of OGD, it is widely acknowledged that there are significant risks and challenges associated with its implementation. Challenges arise at the level of national government and also the local government [12]. Among these challenges are privacy and the protection of personal data. Most specifically, data providers must, prior to publication, take appropriate steps to make sure that no data capable of identifying an individual is included in the published data; more generally sensitive information may also cause concern if included in published data [13]. It is possible that the disclosure of information can cause damage to the reputation of the data provider itself, especially where publication may lead to false or erroneous conclusions. One example of this was provided by Conradie and Choenni [14], who described a scenario in which the value of property could fall if information regarding a possible city development plan was released before the plan was agreed upon and final.

Mitigating these risks requires data providers to invest in the development of a secure publishing platform—a platform which not only complies with data protection regulations but which also ensures that the authenticity and integrity of data is maintained and that documents are published only with appropriate consent or authority. The costs and effort associated with developing and maintaining such a platform can be significant, and represent a barrier for many potential providers.

However, the need to provide various levels of data protection is not the only source of lack of progress from potential data providers. Business and strategic factors also enter into

their reasoning. The study by Conradie and Choennie [14], for example, showed that OGD was not prioritised by many local governments, because the benefits of open data were not immediately apparent, and that the process of releasing data added to their workload. Another source of concern is the risk of compromising a business model which is based on information that derives part of its value from not being in the public domain. Perhaps an analogy can be drawn here with open source software. Morgan and Finnegan [15], for example, showed that many developers are unwilling to join the open-source software sector and release their code in case it affects their revenue—for some businesses, unique source code is a key element of the value of the company, and, similarly, many organisations, even public organisations, draw significant revenue from licensing data (see also Conradie and Choennie [14]). Yet another barrier to the publication of open data is a lack of time or resources. These can extend far beyond the actual publication of the data: there are significant maintenance costs associated with keeping the datasets updated to meet user requirements. A potential data provider is unlikely to progress with an open data initiative if doing so is commercially or economically unviable.

A lack of clear business benefits is not the only factor which can prevent the release of data. There is also the complicated legal situation around data licensing [16]. Data providers run the risk of lawsuits being filed against them as a result of both license violations and the release of sensitive or private information. This area of risk frequently includes data ownership problems—if there is any doubt about who owns the data, they cannot be released. Ownership is an issue which is often the source of government department lack of progress to OGD, as, according to Conradie and Choenni [14], data management is historically vertical in nature (i.e., data sharing between departments does not frequently occur). This means that many departments have a poor understanding of data ownership, making them reluctant to release the information.

In addition to the ‘lack of progress factors’ already discussed, there are also technical barriers to the release of open data. There may be an expectation that data providers will provide the information in a range of formats [15]: for example, the Saudi National Data Governance Interim Regulations [17], of June 2020, prescribe a duty to “Ensure that data is published in discoverable, well-structured, machine-readable, non-proprietary, standardized data formats, including but not limited to: CSV, JSON, XML, and RDF”, and in general to “Whenever possible and applicable, provide data in multiple formats” (p. 53).

However, as yet, there is no clear policy for ensuring this. Data creators themselves are instead tasked with deciding which formats to use for publication. This situation is aggravated by the fact that no standard software exists for carrying out format conversions and ensuring some level of uniformity in outputs [16,17]. Adding further to the technical barriers is the lack of specific standards for open government metadata [15,16,18], though more general metadata standards are familiar, e.g., the well-known Dublin Core [18,19].

As has been noted, there is a cost burden placed on providers that can prevent the publication of data. If businesses and citizens are to be encouraged to engage with open data, this burden could become significantly bigger. This is because many users of OGD require high levels of support and guidance, which is rarely provided by data providers. Although it would be unreasonable to expect providers to set up dedicated helpdesks or other support, particularly as the data are provided without charge, some kind of guidance or simple instructions would be a way to drive public use.

On the other hand, publishing the data is also a complex process for providers themselves. As was shown in a study by Zuiderwijk et al. [20], the process of publishing open data is not well understood by providers, and this constitutes another factor which adds to their reluctance to participate. This reluctance could be reduced through the provision of instructions or guidelines on data portals. It is also likely that such guidance would improve the quality of information published. This, in turn, would help to promote awareness and the understanding of OGD by users.

These barriers are all, of course, addressed and to varying extents overcome in those countries and contexts where OGD has been more successful, as shown for example by

relatively high scores on the OECD OURdata index [1], or the World Wide Web consortium's "Open Data Barometer" [21]. The GCC countries are all either absent or notably low-scoring on these and similar indices. One possible kind of reason for this has been discussed by Stuti Saxena [22], who compared progress on open data in Japan, the Netherlands and Saudi Arabia and attributed major differences between them to differences in national culture as characterised by the Hofstede dimensions [23] such as individualism/collectivism, masculinity/femininity, uncertainty avoidance and power distance. According to Saxena, we might expect that the culture of Saudi Arabia would lead to a cautious approach, avoiding uncertainty or the risk of overstepping boundaries. Perhaps Saudi Arabia can be seen as representative of other GCC countries in these respects (even if the tendency of Hofstede and others to treat "Arab cultures" as unitary may be an oversimplification).

However, it has also been observed that in Switzerland, which is traditionally thought of as more progressive in these respects, the administrative culture has not been conducive to rapid progress with OGD [2]. Since Switzerland is placed on several of the Hofstede dimensions somewhere between Saudi Arabia and, say, the United Kingdom [24], this may suggest that the approach of Saxena [22] is limited. In the present paper, we are concerned with investigating in more detail how individuals within the system see the issues, and we will note how their views might reflect these wider characterizations.

### 3. Research Method

#### 3.1. Interview Format and Purpose

Our overall research question is: what are the reasons for lack of progress of OGD initiatives in GCC countries? We seek to better understand the reasons for this lack of progress by investigating the views and attitudes of people who work within government agencies and departments involved in delivering OGD objectives. We hypothesise that reasons for the lack of progress may be revealed in these views and attitudes.

The research is based on the analysis of semi-structured interviews. Prior to conducting these interviews, an outline format was created in which the areas of research interest were defined, and a series of primary open-ended questions were devised to act as a basis for deeper discussion (follow-up) of each area [25]. The primary questions were designed to examine the views and attitudes of participants towards both the concept and practical implementation of OGD. Although care was taken to create the questions so that they did not 'lead' the participant and therefore create the potential for bias, they were designed to cover a number of specific areas relating to 'lack of progress' in relation to OGD. We derived these areas from the 'lack of progress' factors mentioned in Section 2, grouped into several categories in terms of perceived barriers, attitudes, culture, progress and external factors. The resulting areas included:

- Perceived barriers to the implementation of an OGD initiative.
- Internal (individual and collective) attitudes that could lead to lack of progress by a government department towards releasing open data.
- Aspects of organisational culture that could inhibit the progress of an OGD initiative.
- The ways in which lack of progress towards OGD are manifested.
- External factors that could cause, or contribute to, lack of progress.

Before interviewing the full sample, two pilot interviews were conducted to ensure that the question format delivered the clarity, scope and depth of data required by the researchers. These pilot interviews showed that all areas of investigation (described above) were adequately covered, and that the structure of the primary questions provided a good basis for follow-up questions to explore in more detail the issues raised by individual participants [26].

#### 3.2. The Study Sample

Using a snowball sampling technique with two initial participants from each GCC country, together with purposive selection, 20 suitable participants were identified. These participants were split equally (10:10) between data providers and OGD-related authorities.

The former group were governmental departments tasked with opening up government data for public use, while the latter group of interviewees were responsible for coordinating different government agencies, creating local OGD platforms, and evaluating the work of the data providers.

In order to ensure data validity, coherence and saturation, criteria for inclusion included that all participants had significant experience of open data and were from different GCC countries and departments. They also held different positions and dealt with different types of data. This breadth of responsibility and experience of participants ensured that the research questions could be answered fully and meaningfully, and that the data gathered would be relevant and comprehensive [26]. All participation was entirely voluntary, and no financial (or other) remuneration was offered to interviewees.

Although more suitable interviewees had been sourced, and were prepared to participate, the sample was ultimately limited to 20, as there were clear indications that saturation had been reached, according to the recommendations for qualitative research [27,28]. The data coding process showed that no new themes had emerged with the final three participants. To ensure that the process was reliable, data were triangulated to highlight the points of convergence, divergence and complementarity. Triangulation refers to the use of different sources or means to either investigate and/or analyse a piece of research in order to enhance confidence in its findings [29]. According to Denzin [30], a triangulation process could involve data triangulation, investigator triangulation, theoretical triangulation and methodological triangulation. The specific type used in the present research was data triangulation. This involved a thorough comparison of the views of different responses in order to establish areas of convergence, divergence and/or complementarity.

### 3.3. Conducting the Interviews

Each interview session began with an initial personal introduction, and a review of the purpose of the research. Following this, permission was sought from the participant to record the interview session, so that it could later be transcribed and analysed. After permission was granted (and the recorders switched on), the conventional procedures of qualitative research were followed, including an assurance of confidentiality and an explanation of how the data and results would be used. Each interviewee was also reminded that they had the right to refuse to answer any question(s), and that they could withdraw from the session at any time. It was also stressed that there were no right or wrong answers, and that the intention of the research was to collect as many different views as possible on the subject matter. During and immediately following, each interview session, field notes were made to clarify specific issues, or to confirm that all main points had been covered. Each interview lasted between 45 min and 1 h. Interviews were conducted, transcribed and analysed in Arabic, and material has been translated into English only for the purpose of reporting here.

### 3.4. Data Analysis

The resulting interview transcripts were analysed using a thematic approach, which is “a method for identifying, analysing and reporting patterns (themes) within data” [29]. The process involves the analysis of text to identify and interpret recurring themes in order to answer the research questions [31]. A thematic analysis approach was selected, as it was considered to be particularly suitable for gaining a deeper understanding of the issues involved with this research objective—i.e., to gain insights into the (causes of) lack of OGD progress in the specific context of GCC countries. The approach used will now be described in further detail.

#### 3.4.1. Data Transcription

Transcribing an interview from speech to text is an important phase of the research process [31], and can take different forms, including verbatim or condensed transcription [30,31]. For this research, a full and verbatim transcription was made immediately



after each interview, in order to allow a comprehensive coding analysis of each participant's contribution. To ensure the consistency and correctness of the transcription, each audio recording was listened to several times, and the transcription matched against the detailed field notes that were made during, and shortly after, the interviews. A second researcher independently reviewed all the accuracy of the transcripts compared with the audio tapes. Although this process was time-consuming, it was extremely useful in helping the researchers to make overall sense of the data, and form a holistic view of its scope and implications. The next stage in the data analysis process was the coding phase.

### 3.4.2. Coding and Producing the Analysis

Coding was completed manually and involved working systematically through each transcript. The steps followed were adapted and modified from the works of Braun and Clarke [28] and related elements of Grounded Theory in Charmaz [32]:

**Initial coding.** Using a segment-by-segment coding technique, similarities and differences within and across interviews were identified, and emerging patterns and connections to the research question were noted. This stage followed the suggestion of Charmaz [32] (p. 47), who advised that “initial coding should stick closely to the data . . .”.

**Focused coding.** Codes that were considered to be of particular significance were selected from the initial codes [25]. These ‘focused’ codes were then linked together to establish patterns within each interview to provide a more manageable summary of the data without distorting the original meaning of what the respondents said. Finally, focused coding was used by the researcher to “check his own preconceptions” about the research topic [32].

**Searching for themes.** The coding process operates as a framework to support the ‘thematizing’ process. A theme is defined as “a recurring regularity emerging from the analysis of qualitative data” [33] (p. 470). In this phase, all focused codes were organised on a spreadsheet and analysed to identify groups which shared common ideas or attributes of meaning (themes). These (called ‘sub-themes’) were then examined for common attributes at a higher level, and grouped into categories labelled “main themes”. Finally, the “main themes” were grouped into “major themes” relating to the research question.

**Theme identification.** Patton [34] recommends dual criteria for reviewing and naming themes in qualitative data analysis: internal homogeneity and external heterogeneity. In other words, there should be meaningful coherence within themes, as well as a clear and identifiable distinction between them.

## 4. Results

Twelve sub-themes were identified from the coding analysis, leading to the identification of six main themes. These main and sub-themes were as shown in Table 1 (again, translated here into English for convenience). These themes are described in more detail below, with some illustrative examples of text taken from participant interviews, on which the coding analysis was based.

### 4.1. Lack of Knowledge

A lack of knowledge and understanding of how OGD could be effectively implemented, and lack of clarity over its benefits and legal implications, emerged as a clear theme. This can be broken down into two clear categories.

**Table 1.** Main themes and sub-themes.

Main Themes	Sub-Themes
Lack of knowledge	- Operational confusion - Public confusion
Internal & external drivers	- Lack of Government support - Lack of external pressure
Risk	- Governmental risk - Personal risk
Resources	- Lack of resources - Increased workload
Data	- Data security - Data value - Data compliance
Benefits	- Unclear benefits

#### 4.1.1. Operational Confusion

Several participants noted that uncertainty and confusion over how OGD would work in practice was a significant factor in the slow development of OGD initiatives. As R17 put it, for example:

*The currently agreed policy should speed up the process of open data release, but there is a great deal of confusion regarding how this will operate in our executive department. There is a lack of experience among our staff on several recently added technical features, leading to slow, and sometimes incorrect, implementation. I suspect the same is true across most, or all, departments.*

The definition of business secrets and personal privacy under a country's legal system is also a source of confusion, as highlighted by the following:

*If someone reviews personal privacy data, their identification number and their name can be exempted. However, if the data they are accessing contain anonymous health information, then in that case, there is no way to know whether the data are actually private. (R10)*

Another participant echoed this uncertainty, saying:

*There is no clarity regarding the rights and responsibilities of the data. It is very hard to understand the extent of liability without legal advice, which is a major barrier to moving the system forward. Of course, OGD is still in its early days in GCC countries, so matters might improve. However, right now, this is a significant obstacle to OGD. (R9)*

#### 4.1.2. Public Confusion

Public demand plays a key role in motivating relevant authorities to implement OGD initiatives. It was clear from the research data that there is a lack of public knowledge and understanding of the benefits of open data and how it is used. As one participant remarked:

*The biggest issue is that most people have no idea how to use open data, so it is not being implemented effectively. One complicating factor is that public confusion takes different forms in different countries, due to cultural differences, so standardising a usage framework is not easy. This must be resolved if open data initiatives are to see mass adoption by the public. (R19)*

It was also reported by some government departments that they have had very few requests for open data, either from organisations or individuals. The following extract from R8's contribution was typical:

*As with any product or service, demand is a key driver of development. If there was high demand for datasets, either from commercial entities or members of the public, it would*

*give the government more reason to act. But we see no evidence of such demand, so data providers lack motivation.*

We note here that there was no mention of requests for data between government departments. This might indicate, for example, that the term “open data” was interpreted as indicating only data that is shared outside government contexts.

*Although there have been attempts to encourage greater utilisation of the data through a range of publicity strategies, they were not particularly effective. (R11, R12)*

*Campaigns by GCC countries to educate their publics on the benefits of OGD were not well-received, though there were some serious question-marks over the promotional strategies deployed. Many campaigns seemed to target a very narrow range of sectors, and the messaging was often unclear. It seems to me that there would be large benefits from a broader educational strategy which promoted OGD benefits more strongly. (R11)*

#### 4.2. Internal and External Drivers

Effective OGD implementation will not happen by itself. It must be driven by factors which are both inside and outside of government. It was clear from the data that both these factor types are lacking—there is little support, either ideologically or practically, within government, and there is also a clear lack of enthusiasm from external factors such as the public and private organisations.

##### 4.2.1. Lack of Government Support

Several participants commented upon a lack of support from higher levels of decision-makers in their organisation in terms of implementing open data initiatives. For example:

*It is often impossible for departments to add any more staff, and there is no support for this problem. The consequence is that many staff members are taking on dual roles, adding a lot to their workload. In the case of many, such as myself, the extra responsibility is not merely more work, but is included in the evaluation process, which can seem unfair. (R3)*

There are also problems relating to the recruitment of appropriately qualified (OGD-experienced) personnel, as many private organisations tend to offer better pay levels than government departments. As R6 noted:

*Sourcing suitably qualified employees is not easy, as OGD experience is relatively rare. And even when a department succeeds in recruiting talented staff, they often lose them again to competitive organisations with better pay and prospects. This leaves most departments struggling. (R6)*

Another participant pointed out that government investment is project-based rather than ongoing:

*The security provided by confidence in long-term budgeting can be critical to the growth of major projects, whether they are commercially or government run. This security is lacking in most OGD projects. While our datasets are increasing in number, the capital investment we receive is sporadic and cannot be relied upon over the long-term. (R15)*

Other participants noted that different aspects of government involvement, or lack of it, could be important:

*It depends on the willingness of the government departments as to whether and how much data will be provided . . . for example, if a data provider has a leader who is willing to provide the data, then there is more chance of provision—otherwise, data is unlikely to be released. (R1)*

*Lack of leadership can often result in a lack of initiative at a departmental level. Without proper direction, data providers generally have to make their own decision to open the data, which they can be unwilling to do, for a variety of reasons, including legal, financial and accountability concerns. (R17)*



#### 4.2.2. Lack of External Pressure

Several participants remarked on the lack of pressure on government departments from external sources, such as the public, local government and the legal system. As R10 phrased it:

*As things stand in GCC countries, making data available through OGD is a matter of choice—there is no pressure requirement to do so. Further, there is no pressure from the public, or from commercial bodies. As a result, most data providers act in accord with their conservative instincts and do not release data. (R10)*

Two participants (R1, R7) pointed out that pressure from the management level is also an issue, as the management of data providers and OGD authorities have equal influence. As a result, the actions of open data providers are poorly controlled. In the words of R7:

*There often seems to be a conflict between the views and interests of involved parties, but a lack of a clear hierarchy, in terms of decision-making power, means that decisions are often either not made, or made in favour of the status quo.*

In addition, some participants noted that data providers were unenthusiastic about providing information, because open data is not supported by local high-level management or the public. For example:

*Management and the public also show no interest in the data, and no-one has ever requested any open data. This means that there is no motivation for us to provide open data. (R6)*

#### 4.3. Risk

One of the most commonly quoted causes of lack of progress to OGD implementation was the associated risk levels. This (risk) can take several forms, but all types quoted by interviewees fell into two main categories: risk to the government (financial, control, legal) and risk to individuals (blame, job security).

##### 4.3.1. Governmental Risk

The risks of OGD to government itself cover a range of areas. These vary from the risk of financial loss to the risks of losing some control over aspects of government, commercial enterprise or society. The existence of these risks is evident from the views of several interviewees. One participant, for example, explained that:

*If a government department is not sure whether [data] should be released, they will refuse to do so, as the responsibility is high. It is in the nature of a government department to act in a way that minimizes risk, and as it is almost always safer not to provide the data, they will not do so. (R7)*

Maintaining control is a key, if not always openly acknowledged, concern for many in government. In GCC Countries, data are considered by some government departments to be integral to their value and power, and there is concern that releasing data will compromise this power (R7, R9). This is a source of significant reluctance for many departments to embrace OGD, a situation exacerbated by the recognition that, if the release of data causes problems, they will still be held accountable (R6). In a similar vein, one participant asserted that:

*... if the raw data are released by us, this may lead to the exposure of any flaws in our procedures. It is a risk. (R8)*

OGD also poses a financial risk. This is because, for some government enterprises and institutions, data is a source of revenue. According to participant, R9:

*Many organisations related to central institutions in GCC Countries receive only partial funding. As they have performance targets that they must meet each year, the release of open data is often restricted. (R9)*

Another participant added:

*There are so many uncertain factors associated with open data, the risk to the government is considerable. It is not clear how these issues can be resolved and by whom. (R10)*

#### 4.3.2. Personal Risk

Participants seem to emphasise the tendency to avoid accountability and responsibility, and an eagerness to avoid risk and consequent problems. According to participant R10:

*Releasing data could have many good effects, but it only takes one thing to go wrong and you bear full accountability. The risk-reward equation just doesn't add up for most individuals in leadership roles, so they end up doing nothing. (R10)*

This view of avoiding accountability and responsibility was supported by another participant, who said:

*Personally, I would never decide to release any raw data, the risks are just too high. It's much less risky, and often just as acceptable to users, to simply release statistics about the organisation. This is much more controllable, and the consequences more predictable, so that's what most end up doing. (R7)*

#### 4.4. Resources

In many ways, some aspects or elements of government operate on the same principles as a commercial enterprise, and are subject to the same constraints and pressures. One of these pressures is the need to conserve, or maximise the use of, resources. It was clear from the interviewees that this was a significant issue in the attitude toward OGD at a departmental level.

##### 4.4.1. Lack of Resource

The OGD implementation process is complex and time-consuming, and requires considerable manpower to execute successfully, adding to the pressure on government departments. This was noted by several interviewees, who pointed out that the resources of many departments were too limited to cope with the demanding nature of OGD implementation. As one participant said:

*The work-intensive nature of many tasks means that many do not get finished, despite the large amount of overtime worked on a daily basis. Essentially, this can only be solved by recruiting more staff, but this is usually considered financially unviable. (R9)*

Lack of resources also mentioned by many participants, including participant (6), for example:

*We have considered the issue closely, but it's not possible for our department to meet the requirements of open data. We don't have the human resources to do so, or the financial resource to correct the problem. Suitably qualified people are hard to find and expensive. (R6)*

##### 4.4.2. Increased Workload

Many departmental leaders are unwilling to make any decisions that would result in an increased workload for their department. Given that OGD initiatives are workload-intensive, and additional to existing workloads, these senior personnel are often unwilling to take any initiative with regard to OGD-related work. A number of participants highlighted this point. According to R1, for example:

*There is a lot of extra work involved. Who do we get to do it? Although I can see some advantages in developing OGD, I would end up compromising the quality of my other work, if I adopted an OGD leadership role, and I am unwilling to do this. Basically, I do not have enough time. (R1)*

Or, again, R9:

*The pressure on most senior departmental personnel is already very high. The last thing they need is an addition to their workload, especially when there is no clear benefit to the individual concerned, or to their department. (R9)*

#### 4.5. Data

The nature of the data itself is often a source of factors that lead to lack of progress on OGD initiatives. Most of the interviewees in this research mentioned the properties and constitution of data in holding back OGD, and their comments were grouped under three sub-themes.

##### 4.5.1. Data Security

The sensitivity of data is a major concern. Most departments place a high priority on ensuring the security of sensitive information. For this reason, data that are known to be safe will be released without issue, while any information that could be construed as even slightly risky will be restricted. As one interviewee succinctly put it:

*I will only open up data on the condition that I am confident that it is safe, and it will not lead to any issues. Unfortunately, this is rarely the case. There are simply too many unknowns about raw data, and a lack of clarity about the extent of its use. (R7)*

According to another participant (R2), even where OGD initiatives have been launched, this can hinder progress.

*Government departments will give the impression that they are complying with the requirements of the initiative, by releasing a minimal amount of legally required data, while also holding back some of the data.*

##### 4.5.2. Data Value

Some departments are reluctant to publish data they consider to be valuable. In other words, only “scraps of data” (R7), or poor-quality data, will be released, while data of higher value will be held back (R5, R6). Moreover, only data that does not need processing, and is ready to use (and therefore does not add to cost and workload) will be released:

*If the data needs to be processed first, then the government department will not provide it. However, if it is ready to go, then those data will be made available. (R8)*

On occasions where a government department finds that the data requires more processing, or that the department can obtain some benefit from the data, they may claim either that they (the data) do not exist (R7, R8), or issue a delayed response. Sometimes, they may not respond at all. According to one participant:

*The responses we get are sometimes extremely slow. We have even had data that are outdated by the time they are released. It is understandable that . . . the processes involved to check this are so long and involved that they devalue the end result. Old data is usually commercially valueless. (R1)*

##### 4.5.3. Data Compliance

Legal compliance is another concern. Several participants (R2, R3) noted that many departments refer to information disclosure policy that prevent certain data from being released. One interviewee noted that:

*If we have doubts about any of the data, we tend to send it to the court to get a judgment on the matter. We only release the data if the court finds that it is legally acceptable to do so. (R3)*

Another participant revealed:

*The risk of non-compliance within a complex legal framework is simply too high to take action without a formal green light. Often, this can only be gained through the court system, so data is left unpublished rather than take chances.*

#### 4.6. Benefits

##### Unclear Benefits

To attract government support and funding any initiative must be able to demonstrate clear benefits. Ideally, these will be benefits to all aspects of society, from public and private organisations and enterprises, through to local communities and individuals. However, a significant number of participants in this research felt that, in the case of OGD, there were no benefits of any type, especially to public services or private management. These interviewees held the opinion that the provision of open data is a one-way process: it delivers little or no improvement in services or management, yet it imposes a large financial burden on the relevant department (R7).

A majority of participants also held the opinion that there are no clear benefits to the public, and that this is why there is very little demand. Supplying OGD will simply add to costs without enhancing the government's reputation in the eyes of the public. As one participant (R6) phrased the issue:

*The purpose of OGD is to be of use to society, yet I fail to see exactly what these uses might be. Furthermore, I think the public generally feel the same way. I appreciate that it [open data] is a relatively new idea, and there is much education of the public, and data providers, to be done, but unless awareness is increased rapidly, OGD is destined to progress very slowly.*

While some participants acknowledged that OGD has the theoretical potential to drive economic development, this does not necessarily lead to benefits at a local departmental level. Two examples of this are:

*Since there are no clear benefits [of OGD] to government departments, there is no incentive to provide it. Sometimes, we hear the argument that it increases economic health at a national level, but I am personally very doubtful of the benefit of this to my department. How will an increase in GDP benefit us at a departmental level? (R7)*

Other interviewees made the point that OGD initiatives by GCC-Countries' departments might benefit others outside of the country, without benefitting the GCC Countries' government department itself.

*It seems to me that OGD can too easily work in favour of others, without benefiting the people or the government departments of the data-providing country itself. (R8)*

## 5. Discussion

There have been previous studies on the barriers faced by government agencies in implementing OGD [9,16,35,36], some of which have explored the various factors which might lead to lack of progress on open data initiatives. However, while these studies provide valuable insights, they provide an incomplete picture, as they have not focused on process-based factors that create lack of progress—i.e., the internal logic and thinking processes of governmental departments as OGD providers. By analysing the viewpoints of key stakeholders, this study makes an important contribution to the OGD literature by examining the internal logic of government departments' lack of progress on providing open data. The study's focus on process as a causal factor in OGD lack of progress provides the basis for a new perspective on the relatively slow implementation of OGD initiatives in GCC countries.

The thematic analysis of this study shows that OGD lack of progress can be divided into six principal categories: (1) Lack of knowledge, (2) internal and external drivers, (3) risk, (4) resources, (5) data, and (6) benefit. These six categories reflect the typical characteristics

of organisational behaviour. Although, as public-sector agents, government departments should pursue the public interest, the responses show that officials also conceptualise their role as being an economic actor, which dictates that they should seek measurable benefits, such as income, and mitigate risk as much as possible.

The need to avoid unnecessary risk is discussed in most studies on OGD barriers [6,37], and some of these studies have mentioned the unwillingness of government departments to put pressure on resources, such as staff, by increasing workloads [38,39]. Few studies, however, have reported the lack of profitability as a reason for lack of progress in OGD initiatives. This is notable, as economic growth is often named by policy makers as one of the main benefits of OGD, along with increased transparency and improved public opinion [18,40]. However, this study finds that our interviewees among data providers in GCC countries tend to focus on the benefit to their department, or to government departments overall, and seem to feel that the benefit of making data available more widely is limited because their department cannot profit from it—even, in one case, failing to value the possibility that GDP overall may be increased. Hence, they do not see the potential of OGD promoting economic growth.

This suggests a potential confusion about the role of the department and the concept of OGD. In general terms, one can critique the idea of government actors taking on an economic role [41]: more conventionally, their focus is seen to be on creating conditions that facilitate wealth-creation by other actors. Open Government Data, by definition, is data deriving from the activities of government, which is made openly available for the benefit of all. It seems, therefore, that if the government has embraced the concept of OGD, the implications have not yet filtered down to individual departments, during, for example decade since the study by Elbadawi [41]. The myopic perspective we have seen suggests a bureaucratic mindset that, if endemic among departments, will present real barriers to the benefits of OGD being fully realised.

It can also be observed that many organisational cultures tend not to encourage transparency for its own sake. There is a tendency to hoard information, whereas a “culture of candor” [42] permeating an organisation is exceptionally beneficial. Perhaps a first step in this direction is to care about whether open data can improve internal management and services, identify value and enable data providers to obtain further resources to expand organisational capabilities. However, a further step is to recognise the inherent value of openness across the whole economy and the national culture. The perception that OGD is unprofitable for the economy as a whole may be, in practice, largely a result of an insufficient time and usage history. In countries where government data usage is relatively well developed, there are many data intermediaries which connect the government and the public, and the value of data is more apparent [40]. On the other hand, even in these countries, such as Switzerland, the tendency of administrative cultures towards secrecy, and to hoard and protect information, will take time to break down [2].

Other sources of OGD lack of progress identified by this study are inadequate policies and regulations, and conflicts of interest between government departments, OGD authorities and the public. Therefore, to improve the implementation of OGD initiatives, it is necessary not only to improve the operability OGD, but to establish a policy mechanism to improve coordination and integration.

In order to reduce departmental lack of progress on OGD, it is important to consider how data perceived as sensitive can be made available for public use. As government departments are unwilling to bear even small levels of risk, it is essential to eliminate this concern over data sensitivity. Only then will they (departments) change their current strategy of avoiding accountability by resisting OGD. However, in order to achieve this goal of eliminating risks associated with sensitive data, a number of steps must be taken. First, government departments need a viable framework which enables them to decide whether a dataset is eligible for publication [39]. Secondly, a risk-management mechanism must be established. However, although such an eligibility framework and risk management mechanism may be generally accurate and reliable, it is nonetheless possible that errors may

occur. Therefore, an exemption mechanism is also required. Government departments and staff that perform their duties in good faith, and in accordance with departmental processes and requirements, should not be held liable for adverse consequences. An approach in which the release of data by default is legally mandated should provide a context that would unify and facilitate the solution of all of the above considerations.

This study shows that government departments recognise the fact that OGD can lead to higher value recognition, improved political performance, better internal management and services, and increased resources for expanding organisational capabilities. It is therefore necessary to stress these advantages in the promotion of OGD. It may not be enough to rely on the economic growth and transparency that open data can provide. Instead, more attention should be given to stressing the favourable publicity that open data can deliver, and showing examples of best practices from other countries.

Another finding of the study was that the attitudes of government departments are critical to whether or not an OGD initiative will progress successfully. These departments are the primary source of not providing open data. To counteract this, it is important to increase the pressure on them through mechanisms such as legislation and policy, making open data a legal obligation of government agencies. As part of this, a list of open data projects should be created, and the method of data provision should be stipulated. To police and enforce these regulatory frameworks, OGD authorities should be given more power to approve OGD projects.

According to the current study, the biggest factor for lack of progress to open government data results from the risk-related attitude of administrative employees. Public managers, therefore, should bear this in mind when assigning OGD-related responsibilities to administrative personnel, and ensure that all new appointments possess the appropriate risk awareness for the task concerned. To ensure that all administrative employees are properly informed about relevant data protection and security precautions, and to ensure that they are aware of the benefits of using OGD, suitable communication and education programmes should be implemented. These initiatives may be internal or external, or online, depending which mode of delivery is most appropriate [8,43]. As the level of perceived organisational transparency was shown to have a high impact on OGD, significant efforts should be made to increase transparency. To achieve this, social media and access to inter-agency or department government information can be used [9,44]. Furthermore, public managers should promote the free-flow of information and open exchange across departments and e-government initiatives. They should also set up transparent operative and decision processes [45,46]. To help eradicate the effects of legal, bureaucratic or hierarchical ambiguities, standards guidelines and specific best practice examples should be developed to provide relevant employees with clear OGD guidance.

The current infancy of the OGD environment in GCC countries highlights the complexity of the challenges that lie in the path of its development [8,9]. The data from the interviews in this study shows that there remain many unanswered questions relating to OGD as default government policy. The main concerns of the interviewees were practical challenges, such as determining which data should be published, and securing the resources needed to do so, but there were many comments which indicated a number of further challenges. Most pressing of these, perhaps, is the need to clarify exactly what is meant by the term “open government data” so that efforts to develop a consistent response to the proactive publishing of data can be developed and maintained. Another important issue is the need to build awareness and understanding of information management policy among trusted staff and senior management as a step towards ensuring that key personnel not only provide active support, but become advocates for open government data. Furthermore, as long as questions remain with regard to how an OGD environment will be resourced, its future direction will be uncertain. However, the participant interviewees in this study were consistent in the view that there are many questions still to be answered and more discussions to be had. As well as these internal issues, external challenges must



also be met, not least the loss of public confidence in the way government departments handle data, which has had implications for the proactive publication of government data.

While the technical challenges presented by OGD initiatives are significant, they are secondary to questions concerning what information to publish and why. These ideological questions overshadow practical challenges, such as ensuring the integrity, consistency and accuracy of open data. While OGD agendas demand that attention is paid to practical and technical issues such as data accessibility and ease-of-use, these remain a low priority while fundamental ideological questions remain unanswered.

OGD overall depends on a de-emphasizing of the economic considerations, especially at department level, in favour of an acceptance that openness is desirable in itself. “Open Government Data” is an ambiguous expression (in English), in that it might be read as referring to government data which happens to be made openly available, or as referring to data arising from the operation of open government. These are not necessarily the same thing, as may be reflected also in the fact that none of the GCC countries has joined the OECD’s Open Government Partnership [11], even though they embrace a commitment to OGD. The first way of reading the phrase allows that data may be made open as and when convenient, but otherwise not; whereas the second implies rather that it will be open by default and closed only when necessary. Maintaining the first approach depends on a continual complex process of deciding what data should be released and when: we see the consequences of this among our interviewees, and it seems to be neither desirable nor sustainable. Ultimately, OGD is inseparable from open government: it requires a decision at the highest level of policy to mandate the release of data about the activities of government in general except where legally prohibited (along with a clarification of what is prohibited and why).

Another factor which has been explored by many studies is the perception of risk among civil servants [40,47]. Yet, although these studies have demonstrated that potential disadvantages are seen within departments in providing large volumes of open data, these disadvantages have lacked clear definition and description. This study adds to our knowledge by showing that government departments in the GCC context recognise two principal ways in which the risks of OGD can manifest themselves. The first of these is the very criticism and accountability that can result from allowing data to be seen and used by the public. The second is the loss of vested organisational interests. As Ruijter et al. [36] points out, data are a strategic resource for the organisation—a resource which can be lost if these data are opened to the public. Clearly, however, both of these perceived risks arise entirely from attitudes and practices that are incompatible with open government, which is profoundly motivated by the need for criticism and accountability, and the removal of vested interests. Open government, which we have argued is necessary for the implementation of OGD, would abolish these perceptions in principle. In practice, of course, open government is not adopted perfectly anywhere, and these risks are still commonly felt, but they are less pervasive in defining the actions of departments. OGD can thus be seen as being aimed at making government more effective across all its activities, where the ultimate objective is to serve the national interest. The benefits of open scrutiny, economically and otherwise, need to be more clearly recognised across all forms and levels of government.

## 6. Conclusions

This study has provided valuable insights into some of the reasons for the lack of progress of OGD initiatives in GCC countries. There is no doubt that there are clear developments in some of the directions we have identified as important. In Saudi Arabia, for example, “National Data Governance Interim Regulations”, dated 1 June 2020 [17], mandate that “the Government avail most of its data to the public by default unless there is sufficient justification that non-disclosure of data is of greater public interest” (p. 50), with further principles about timely publication, completeness, accuracy etc. This is internationally excellent in many ways and presumably may be expected to make its

way into legislation in due course. However, the next section (p. 51) discusses a process for “assessing data value (or the data valuation process) to enable the publication of open datasets at scale”, and this develops something of an equivocation over whether data that can be open should be open, regardless of specific “value”. Perhaps there is a hint here that publishing data sets “at scale” will only be feasible or allowed, for example, where they have some value that will cover, or at least justify, the costs involved, and this will play into some of the anxieties of our interviewees. Implementation of the policy will depend ultimately on the attitudes and skills of the people responsible for working with data. It is therefore crucial to undertake an education programme among all staff responsible in this area in order to clarify the importance and value throughout the system of making data maximally open and the details of the process. Our research suggests that a significant shift is needed in the administrative culture.

We have presented only a relatively small and limited study. Our small, though representative sample has been able to reveal several indicators of the reasons for lack of progress, and suggests possible strategies to overcome this, but there remains a clear need for further and continuing research on several issues. It is recommended, for example, that future research seeks to gain an understanding of OGD practice and policy, with a view to possibly benchmarking the performance of GCC countries against more established OGD environments. We need to understand more clearly the nature of administrative cultures, seen across many contexts internationally (and corporate as well as public), that feed a reluctance to put openness fully into practice, even where it is acknowledged as a fundamental principle. Furthermore, while questions concerning the value of OGD to wider society, and what data should be published, remain significant barriers to the development of initiatives in GCC countries, further research into the type and purpose of users of open government data would also be useful. There is an interesting question about the contrast between essentially administrative data (on government processes and finance) and more “domain specific” data (such as may underlie socioeconomic statistics), which will feed into different user groups. An improved understanding of issues like this would help ensure that appropriate datasets are available, easily accessible and easy to use, and would go some way towards providing the necessary demand-side drivers in the form of public confidence and the effectiveness of OGD. Additionally, further research on how the value and impact of OGD can be measured in terms of social benefit would be of significant value to those involved in the development of the OGD concept in GCC countries.

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