

“The Great Data Revolution”: Breaking Barriers to Opening Government Data in China

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Abstract. This poster reports on a research study that aims to identify and overcome barriers that hinder the release of open government data (OGD) in China. Specifically, this poster demonstrates initial findings drawn from a critical literature review. 15 barriers were identified and emerged in three themes: institutional barriers, data integrity and quality barriers, and user participation barriers. This poster presents one of the early research efforts investigating the problems of releasing OGD in China.

Keywords: Open Government Data, China, Barriers, Literature Review.

1 Introduction

Releasing open government data (OGD) has become a global phenomenon. OGD has been widely accepted as not just an important democratic step, but can drastically promote the development of innovative technologies and applications in the creative industry, as well as the economic growth and stability [1, 2]. In addition, according to European Data Portal, open data also offers an excellent opportunity in assisting organisations in achieving digital transformation [3].

Following many developed countries, the Chinese Government has made a commitment to opening their data. In 2015, releasing OGD has become a major strategy for national development. The central government requires that all levels of government in all regions in China should endeavour and give priority to “opening and sharing government data” [4]. Currently, more than 19 major cities in China have launched OGD portals (e.g. Beijing, Shanghai, Guangzhou), on which people can freely download, share, use all kinds of OGD for their own purposes and benefits.

Nevertheless, many researchers claim that the datasets released by the government are lacking necessary quality and significantly underutilised [5, 6]. It can be speculated that, despite strong determination and promises made by the Chinese central government, many regional government and administrative agencies at provincial and city levels are not ready to release their data, at least not fully and truthfully.

This poster reports on a National Key Project supported by the National Social Sciences Foundation in China, and aims to identify and explain barriers to OGD development in China, as well as to devise mitigating strategies to these barriers. This

poster focuses on the first stage of this project and presents a theoretical framework of OGD barriers developed through a critical literature review.

2 Review Methods and Processes

According to the main aim of this literature review, the following research questions have been formulated: (1) What barriers hinder the release of OGD in China? (2) What are the relationships between the OGD barriers? (3) What strategies can be formulated to mitigate the effect of the OGD barriers?

To respond to these research questions, the literature review consisted of two stages. In the first stage, the concepts and theories relating to OGD development were reviewed to provide a theoretical basis and lens for the literature analysis. This stage included academic works in both English and Chinese. It was confirmed that Chinese OGD problems and issues have often been discussed in Chinese conferences, academic journal articles and dissertations, although rarely in English. This confirmation led to the decision to focus on Chinese literature and to select the following three major Chinese academic databases for research: CNKI, Wanfang and CQVIP.

In the second stage, the three Chinese academic databases were systematically searched in August 2017, using the search strategy presented below:

(Open Government Data) OR (China OR Chinese) AND (Obstacle OR Barriers* OR Assess* OR Evaluation*) TIME = 2007-2017*

A total of 780 articles were retrieved in the databases: 284 articles from CNKI, 197 articles from Wanfang and 309 articles from CQVIP. All the articles retrieved were carefully screened and selected as shown in the PRISMA diagram (Fig. 1). Finally, 62 articles were included and analysed using a thematic qualitative analysis approach. Furthermore, the framework of OGD adoption barriers proposed by Janssen et al. [7] was adopted as a preliminary thematic framework.

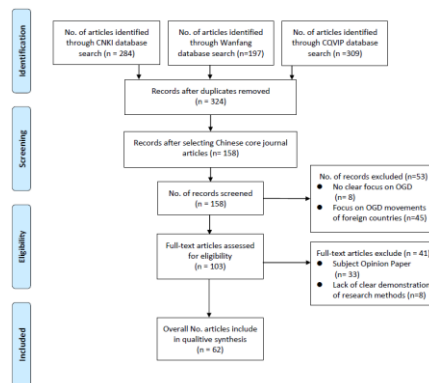


Fig. 1. Processes of Literature Selection using a PRISMA Flow Diagram.

3 Review Findings

The literature analysis showed that the OGD development in China is not really successful and only at an early stage of exploitation. The findings contradict the positive results, achievements and successes propagated in the media and news reports. The analysis pointed to 15 barriers in three theoretical themes: institutional barriers, data integrity and quality barriers, and use and participation barriers, as shown in Table 1.

Table 1. Emerged Theoretical Themes and Barriers of OGD in China

Theoretical Themes	OGD Barriers
Institutional Barriers	Conflicts between traditional bureaucracy and OGD A risk-averse culture and OGD resistance A lack of true understanding about the value of OGD Data seen as a private resource, benefit and source of power A lack of inter-department/agency OGD collaboration A lack of specific and unified OGD policies
Data Integrity and Quality Barriers	Data fragmentation, scatteration and duplication Absence of unified standards for OGD structure and metadata Overly simplified, obsolete or invalid data A lack of maintenance or a timely update
User Participation Barriers	A lack of effective OGD search and browse services A lack of a privacy protection mechanism A lack of public OGD awareness Neglect of the perspective of users Users lacking skills, capabilities and knowledge of OGD use

The institutional barriers have become very eminent in the analysis and significantly hinder the OGD release in China. Despite a general belief that OGD can potentially revolutionise and substantially change the original bureaucratic structure of the Chinese government, many government departments and agencies, usually at the provincial and city levels, are not ready to adopt the concept of OGD and are not fully motivated, against very strong OGD commitment made by the central government. [8] One of the manifestations is the lack of specialized agencies or positions responsible for OGD. For example, only 3 provincial and 11 municipal big data management institutions are established .

In addition, data integrity and quality barriers have emerged from the analysis. Many authors report that the OGD released thus far are not really useable, overly fragmented, scatteredly stored and unnecessarily duplicated [9]. Moreover, the existing OGD fragments are probably never going to be linked and integrated, due to a lack of inter-departmental coordination and collaboration, as well as a lack of clear and unified standards for OGD structure and metadata. Therefore, these data fragments are unlikely to be used [10].

Furthermore, user participation barriers have identified and confirmed as a theoretical theme. The literature analysis revealed a relatively low rate of user participation and, consequently, a low usage of the released OGD. This could have been resulted not only by a lack of effective and user-centred services on the OGD web portals, but also people are unprepared and inadequately educated to access and use OGD.

Moreover, through conceptualising the findings, a conceptual model is developed and presented in Fig. 2, which presents a cause–consequence network that exhibits relationships between individual OGD barriers.

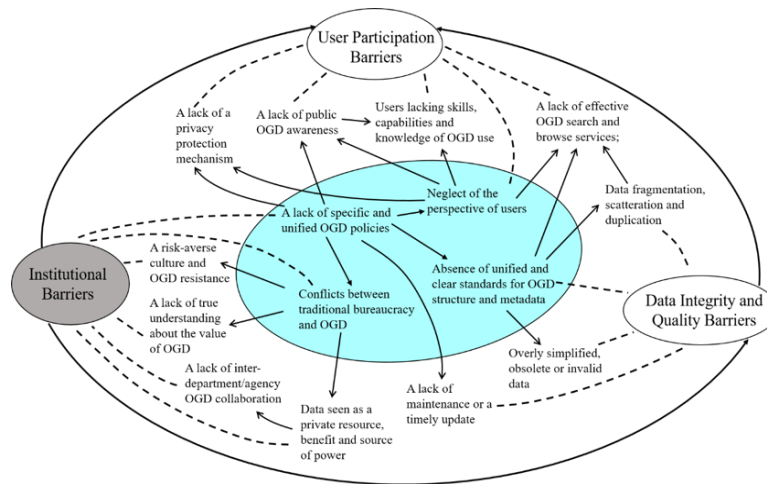


Fig. 2. Model of Emerging OGD Barriers, Relationships and Themes.

4 Conclusions: Proposing Strategies and Library Participation

Based on the analysis, the following strategies can be formulated: (1) The central government should establish a complete set of OGD policies, guidelines and working protocols, which should be implemented in all government units and agencies. (2) The central government should strive to gradually restructure the traditional bureaucratic system and culture so that open government and OGD policies can be implemented. (3) A set of unified and clearly defined data structures and metadata standards should be developed. (4) Services provided on the OGD portals should be better organised so that user requirements and needs can be better addressed. (5) Data literacy instructions including programs, courses or on-the-job training are required to increase data literacy and technical capacity among potential participants.

Additionally, it is perceived that public libraries in China can play a mediating role between the government and OGD users, through formulating collaborative relationships with the government and through working closely with users. Specifically, public libraries can become: government data consultant, OGD public awareness promotor, outsourcing OGD management, OGD user service provider.

References

1. Conradie, P. and Choenni, S.: On the barriers for local government releasing open data. *Government Information Quarterly* 31 (S1), S10-S17 (2014).
2. Ruijter E, Grimmelikhuijsen S, Meijer A.: Open data for democracy: Developing a theoretical framework for open data use. *Government Information Quarterly* 34(1), 45-52 (2017).
3. Analytical Report 1: Digital Transformation and Open Data, https://www.europeandataportal.eu/sites/default/files/edp_analytical_report_n1_-_digital_transformation.pdf, last assessed 2017/09/08.
4. China seeks to promote big data, http://english.gov.cn/policies/latest_releases/2015/09/05/content_281475183253390.htm, last assessed 2017/09/08.
5. Yue, L., Liu, W.Y.: A comparative study on the current situation of domestic and foreign government data open. *Library and Information Service* 60(14), 94-101 (2016).
6. Chen J.: An Analysis of the Impact of Cooperative Mechanism on Government's Open Data. *Information and Documentation Services* (2), 43-47 (2017).
7. Janssen, M., Charalabidis, Y., Zuiderwijk, A.: Benefits, adoption barriers and myths of open data and open government. *Information Systems Management* 29 (4), 258-268 (2012).
8. Chen L.: Barriers and strategies of Open Government Data in China. *Information Studies: Theory & Application* 40 (4), 16-19, 31 (2017).
9. Du, Z. and Cha, H.: On opening government data to the public. *Journal of Capital Normal University (Social Sciences Edition)* 44 (5), 74-80 (2016).
10. Xia, Y.: Status, problem and solution of opening government data in China under the international comparison perspective. *Library and Information Service* 60 (7), 34-40 (2016).