The role of policy entrepreneurs in open government data policy innovation diffusion: An analysis of Australian Federal and State Governments

Akemi Takeoka Chatfield[a], Christopher G. Reddick[b],*

[a] School of Computing and Information Technology, Faculty of Engineering and Information Sciences, University of Wollongong, Australia
[b] Department of Public Administration, College of Public Policy, The University of Texas at San Antonio, United States

ARTICLE INFO

ABSTRACT

Open government data (OGD) policy differs substantially from the existing Freedom of Information policies. Consequently OGD can be viewed as a policy innovation. Drawing on both innovation diffusion theory and its application to public policy innovation research, we examine Australia's OGD policy diffusion patterns at both the federal and state government levels based on the policy adoption timing and CKAN portal "Organization" and "Category" statistics. We found that state governments that had adopted OGD policies earlier had active policy entrepreneurs (or lead departments/agencies) responsible for the policy innovation diffusion across the different government departments. We also found that their efficacy ranking was relatively high in terms of OGD portal openness when openness is measured by the greater number of datasets proactively and systematically published through their OGD portals. These findings have important implications for the role played by OGD policy entrepreneurs in openly sharing the government-owned datasets with the public.

1. Introduction

The U.S. Federal Government was the first mover in articulating open government policy's transparency, citizen participation, and collaboration outcomes through the U.S. Open Government Directive of 2009 (US Executive Office, 2009). Open government reform practices have now widely spread to other developed and developing nations. As of 2016, Open Government Partnership (OGP), which was launched in 2011, has 75 nations that are committed to collaborate among its member nations towards promoting open government policies and to realize the potential benefits of open government data (OGD) implementation (Open Government Partnership, 2016). The concept of OGD underscores the recognition of government-owned data as a valuable resource which needs to be shared with government's external stakeholders including the public and data portal users (Alanazi and Chatfield, 2012). Governments can leverage transparency through OGD as a way to increase the level of policy innovation in government (Fung et al., 2007).

In this OGD landscape, the declaration of OGD policy innovations and the implementation of OGD portals have been progressing globally at all government levels. These developmental trends are further stimulated by big data, such as geospatial data, sensor data, streaming video data, and text data, which large federal, state and local governments increasingly generate and capture through the use of various advanced information and communication technologies, including geographical information systems (GIS), police body cameras, and social media platforms. Moreover, the development trends are further stimulated by the advancement in portal platform technologies such as "The Comprehensive Kerbal Archive Network" (CKAN), an open source front-end data portal platform, and increased OGD portal investments. However, how can we account for the national and sub-national diffusion of remarkably similar OGD policy innovations across widely differing state governments?

To date we still know very little about the diffusion of OGD policy innovations and the characteristics of the early adopters of OGD policy innovations. This observation is consistent with prior research on OGD portals, which found that a "comprehensive analysis of the capabilities and potential of these initiatives is currently missing from the recent research literature" (Petychakis et al., 2014, p. 34). To address this knowledge gap, we draw on diffusion of innovation theory (Rogers and Shoemaker, 1971) and its extension to policy innovation diffusion to consider OGD policy as a policy innovation (Mintrom, 1997a). In this paper we address the following two research questions:

RQ1. *How do OGD policy innovations diffuse across the different levels of government in Australia?*

RQ2. *If the OGD policy innovations diffusion patterns are different across the state governments in Australia, what are the characteristics of the early*

---

adopters of OGD policy innovations?

In this research we examine OGD policy innovation drivers or what Mintrom refers to as "policy entrepreneurs" (Mintrom, 1997a, p. 738) who are politically active and responsible for articulating policy details, such as expected benefits, and diffusing the ideas of OGD policy innovations within the government. Given the known existing barriers to sharing OGD, including "rather inward looking" policies (Zuiderwijk and Janssen, 2014, p. 17), adoption barriers (Janssen et al., 2012), inadequate rewards for sharing data (Reichman et al., 2011), and government departmental data ownership and original use (Conradie and Choenni, 2014) among others, we also examine OGD portal openness by measuring the number of datasets proactively and systematically published by government departments to the public for reuse. Prior empirical research on OGD portals used the number of datasets released on the U.S. data.gov as a measure of OGD portal content (Thorsby et al., 2017). Open data portal openness can also be examined by measuring the degree of open data portal usability. Specifically, we are interested in measuring how the datasets are organized for ease of use from ordinary citizens' perspectives – in the way which they can explore, understand, find, download, and reuse datasets to create new insights on public services and develop new applications of public value. Finally, we will address these two research questions in the research context of Australia's OGD policy innovations and open data portal implementations at the federal government and state government levels.

The structure for the remainder of this paper is as follows: The second section presents a review of the literature on OGD and policies, diffusion of innovations theory, and policy innovation diffusion. The third section describes our research methodology. The fourth section presents our key findings. The fifth section is our discussion of our results and the final section is our conclusions including lessons learned, policy implications, our research contributions and research limitations.

2. Literature review

2.1. Open government data adoption

The literature on OGD adoption has grown dramatically over the last decade with many studies examining adoption through various types of research methods. On the one hand, the literature identifies the political and social benefits of OGD adoption such as generating greater transparency, increased trust in government, improved policy making process, enhanced citizen services, and creation of new insights (Dawes et al., 2016). Some of the barriers reported in the literature include institutional resistance, lack of legislation, lack of user input, lack of resources, and technical issues such as data quality (Barry and Bannister, 2014; Conradie and Choenni, 2014).

The tradeoffs of releasing OGD were also examined (Zuiderwijk and Janssen, 2015). While politicians typically support data release and recognize its potential benefits, government agencies tend to be more reluctant to open data as they face greater complexity and potential risks associated with its release (Zuiderwijk and Janssen, 2015). Specifically, there are risks of security and privacy, decrease in trust in government, exclusion of certain stakeholders from data reuse, low data quality, and lack of clarity on who is responsible for the data (Zuiderwijk and Janssen, 2015). There is a push for higher quality and usability "liquid open data". These data are available online, free-of-charge and under an open access license, conceptually coherent, and published in useable formats, easily discoverable and accessible (Jetzek, 2016, p. 91).

Carrasco and Sobrepere (2015) found that politics had an impact on data release with less politically sensitive maps, census, economy, or transport data were released first. However, datasets that contain information on taxation, health, or crime are more often avoided by Spanish municipalities because of potential political controversies surrounding their release.

Krishnamurthy and Awazu (2016, p. 668) argue that government agencies need to improve their organizational capabilities to move towards "open data by default", think critically about the unintended OGD consequences, and adopt better metrics to evaluate the outcome of open data portal efforts in achieving its goals. Moreover, government agencies also need to develop the portal users' capabilities to reuse open data to solve community problems (Krishnamurthy and Awazu, 2016).

A study of seven national open data portals as tools for transparency and accountability in U.S., U.K., Canada, France, Australia, New Zealand, and Singapore found that overall the portals functioned as "simple data repositories". The open data portals failed to facilitate ordinary citizens to reuse open data without the provision of high quality datasets and a complete listing of metadata fields (Lourenço, 2015, p. 331). Furthermore, the practice of releasing open data faced challenges of task complexity and data quality in a case analysis of U.S. Department of Defense contracting data (Whitmore, 2014).

A comparative case analysis of OGD use in Sweden and The Netherlands found evidence that open data was at its early stage of adoption. While all organizations expect the potential benefits of open data publication, they experienced the challenges of finding the resources, managing stakeholders, and spurring enthusiasm for publishing data online (Susha et al., 2015). This research concluded that open data should be "demand-driven" and that government should work with users to better understand their data requirements to provide better value and solve wicked societal problems.

For open data reuse the existence of a legal framework was important in both developed and developing countries to publish data online, address operational issues such as standards for datasets, and stimulate the demand for data reuse with greater user interaction (Nugroho et al., 2015). As a result of the growth of OGD, many benchmarks for evaluating OGD adoption have been developed by the World Bank and other international organizations (Susha et al., 2015). The results of an analysis of five benchmarks showed that there was a significant overlap in dataset assessment, but they tend to produce generic results which may be ambiguous for a particular organization.

Despite these findings and insights, the literature finds some emerging challenges in realizing the full transformative promises and potential benefits of open data. First, the existing open data policy frameworks fail to address a number of policy challenges related to big data (e.g., geospatial data) (Bertot et al., 2014). Second, the diverse open data policies, all of which aim to create public value, find some contradictions with public values, such as trust, transparency, privacy, and security (Meijer et al., 2014). Finally, Zuiderwijk and Janssen (2014, p. 17) argue pointedly: "Currently there is a multiplicity of open data policies at various levels of government, whereas very little systematic and structured research has been done on the issues that are covered by open data policies, their intent and actual impact." Despite these interesting research findings and challenges raised, however, what clearly lacks in the literature is theoretical and empirical research on OGD policy innovation diffusion.

Although the literature on OGD is extensive, the literature on *OGD policy* has also been slowly gaining the momentum since 2009. As of January 5, 2016, 23 "open data policy" keyword searched journal articles and conference papers were found in the SCOPUS database alone. In one study, seven Dutch governments' open data policies at different government levels were compared. The study found "rather inward looking" Dutch open data policies, suggesting the need for policy improvement through collaboration with other organizations, a focus on policy impacts, and stimulating open data use and a proactive data publicizing culture (Zuiderwijk and Janssen, 2014). Another study compared open data policies of the U.K., the U.S., the Netherlands, Kenya, and Indonesia (Nugroho et al., 2015). A Finnish study on open data policies found a major information privacy challenge for collection and efficient utilization of traffic geospatial data on individual vehicles