



A semantic (TRIZ) network analysis of South Korea's “Open Public Data” policy



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ABSTRACT

This study provides an overview of the background and content of the Open Public Data Directive (OPDD), a long-term plan to implement South Korea's “open public data” policy from 2013 to 2017. The OPDD and the principles of social use are the main policy documents serving as a framework for comparing and evaluating policies on open public data of 34 government organizations in South Korea. That is, these 34 organizations have been directed to refer to the OPDD as official or authoritative guidelines for planning their own programs. To examine South Korea's open public data policy, a semantic (TRIZ) network analysis was conducted, and a preliminary descriptive analysis of the OPDD was implemented. For the OPDD, a total of 4162 keywords were identified based on the space between them. Among these, 118 were used at least 10 times (2.84%), and 49 occurred at least 20 times (1.12%). Therefore, the analysis focused on the most frequently occurring 100 keywords that further functioned as nodes in the semantic network analysis. The results for key problems and solutions expressed in the OPDD suggest that the open public data policy should explicitly incorporate the importance of a creative economy ecosystem to facilitate creative industries based on innovation and its diffusion through new types of products.

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1. Introduction

Can the simple opening of public data facilitate economic growth and business innovation? In the last decade, national and local governments worldwide have established and implemented “open public data” (OPD) policies. According to the 2014 World Bank report *Open Data for Economic Growth*, open data provided by governments and public agencies has economic potential for both private and nonprofit sectors. Despite this potential, few studies have systematically clarified the key issues and dimensions embedded in the OPD policy across government agencies. Because of a lack of OPD research in South Korea, this study addresses the following research questions:

RQ1: What are the key issues in designing an open public data policy in South Korea?

RQ2: What dimensions are embedded in the public directive coordinating the open public data policy across government agencies?

The building of the OPD policy in South Korea began from conflict between citizens who wanted to use public data and a government that tried to prohibit the use of public data. As an example, a high school

student developed and provided one of the most popular apps called “Seoul Bus” in 2009 to provide free information on public transportation. The provincial government of Gyeonggi immediately objected however, invoking copyright and location information laws. Public protest led to the government allowing the app to resume its service. Based on this case, the national government has recognized a need for a law to effectively coordinate a pan-government policy on open data and thus enacted the “Open Data Law” through the National Assembly on June 27, 2013. The law became effective on October 31, 2013.

Under this *The Act on Provision and Active Use of Public Data (2013)*, South Korea's national government and public organizations have launched OPD programs to make their machine-readable data available to firms and citizens free of charge for any appropriate purpose. These OPD programs aim to ensure the right to use public data, registration procedures, data provision obligations, and immunity from any liability. As emphasized by *The World Bank (2014)*, the objectives of these programs appear to be a mixture of four critical dimensions: (1) economic growth, including business innovation and the creation of firms and jobs; (2) closer and more inclusive citizen engagement in improving public services, particularly by giving citizens information on standards of provision and service performance that can equip them to be more engaged “consumers” of public services; (3) increased transparency and accountability; and (4) improvement in the efficiency and operation of public services themselves through, for example, better decision-making processes based on fuller access to public data from other agencies.

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The rest of this paper is organized as follows: the concepts and theoretical arguments related to OPD are first discussed, and the policy-evaluating context in South Korea is then considered. This is followed by an explanation of the research design, data collection, and the semantic network analysis for an examination of key issues and dimensions embedded in the OPD policy. The results are then presented, and finally, the limitations of this study as well as some suggestions for future research are discussed.

2. Literature review

Diverse open data policies have focused increasing attention on OPD (i.e., open government data) in recent years, and therefore the term “open public data” has been widely used and applied to a wide range of policies in the U.S. and European countries. This concept’s distinct nature reflects transparency, accessibility, accountability, civic engagement, and economic feasibility, among others (see, e.g., Huijboom & Van den Broek, 2011; Zuiderwijk & Janssen, 2013). The concept of OPD, inspired by the Obama administration in 2009, was initiated as the open government strategy of the U.S. to “ensure the public trust and establish a system of transparency, public participation, and collaboration” by sharing government information with the public (The White House, 2012). Since the Obama administration’s proclamation, the U.K. government (December, 2009), the Australian government (May, 2010), the Danish government (July, 2010), and the European Union (EU) have promoted OPD policies and strategies to maximize the value of reusing public sector information (PSI) (Huijboom & Van den Broek, 2011; Janssen, Charalabidis, & Zuiderwijk, 2012; Zuiderwijk & Janssen, 2013). Recently, Asian countries such as the Philippines, Singapore, Taiwan, Japan, and South Korea have announced and launched OPD initiatives, which is timely and important for removing existing information asymmetry in each country and creating open data systems beyond the level of government by newly understanding the relationship between the government and citizens (Ritter, 2014).

Zuiderwijk and Janssen (2013) defined OPD as “non-privacy-restricted and non-confidential data which is produced with public money and is made available without any restrictions on its usage or distribution” (p. 258). Because privately produced and confidential data cannot be forced to become public data, OPD cover the range from public organizations to private firms officially funded by government aid. In line with a broad perspective on OPD, Zuiderwijk and Janssen (2013) indicated that OPD policies can be considered a purposive course playing a critical role in ensuring the long-term transparency of government information and facilitating citizen’s right to access government information. According to Huijboom and Van den Broek (2011), the concept of OPD can be refined by three primary motives to share government information with the public in the U.S. and EU members such as the U.K. and Denmark: (1) increasing democratic control and political participation (The White House, 2009; Chief Secretary to the Treasury of the United Kingdom, 2009); (2) fostering services and product innovation (Chief Secretary to the Treasury of the United Kingdom, 2009; Danish Ministry of Science, Technology and Innovation, 2010); and (3) strengthening law enforcement (Chief Secretary to the Treasury of the United Kingdom, 2009). That is, governments aim to stimulate and develop OPD policies to produce positive internal and external effects from their use on both public value and economic growth.

The OPD policy focuses on sharing government information with the public and offers many benefits for both data providers and consumers such as private firms and citizens. Here the fundamental presumption is that opening public data creates a more valuable outcome than selling or preserving data sets. Through in-depth interviews, Janssen et al. (2012) classified the benefits of OPD into (1) political and social, (2) economic, and (3) operational and technical benefits. First, political and social benefits include public value such as transparency, democratic accountability, government trust, civic engagement, and citizen satisfaction, which are closely connected to the relationship between public

organizations and citizens. New York’s Open Data Portal (<https://data.ny.gov>) for example is an OPD system at the local level and may hold public officials transparent and accountable for both administrative procedures and performance by filling the information gap between the government and citizens. Citizens can verify whether certain outcomes drawn from policy-making processes are justified by employing OPD. Second, economic benefits shift attention to economic stakeholders such as private firms, which can generate new products and services through innovation; the OPD policy can encourage them to contribute to economic growth by providing better alternatives to unleash innovative products (Manyika et al., 2011). Third, operational and technical benefits are derived from a management perspective for data management. In other words, the OPD policy allows public organizations not only to sustain government data without loss but also to build organizational capacity to systemically manage access to internal and/or external problem-solving procedures by combining current data with new information.

Despite these potential benefits of OPD, however, there remain many barriers to the construction of an OPD system. As indicated by the Obama administration (The White House, 2009), barriers to adopting the OPD policy can be limited by technical and legal conditions. For example, although OPD should be available in a technically readable and usable standard format retrieved and processed by diverse applications, public organizations may neglect opportunities to share their information with others because of complicated legal issues. Zuiderwijk and Janssen (2013) indicated that, because interorganizational collaboration in the development of OPD policies is not systemically organized, OPD in a wide range of public organizations tend to vary widely in their quality and quantity. More importantly, Janssen et al. (2012) asserted that public organizations face diverse legal issues related to who, what, when, and how in terms of creating data public. In the field of public policy, for instance, the U.S. Environmental Protection Agency and the Federal Emergency Management Agency have partnered to jointly help communities prepare for and recover from natural disasters under the agreement for Smart Growth Technical Assistance (SGTA), but various problems embedded in opening SGTA data owned by both organizations may not be easily addressed. The complexity of tasks entailing technical and legal issues among others, matters in finding an appropriate way to share data with the public. In addition, the way to minimize any violation of privacy and the provision of licenses for using OPD remain controversial because there are no standard guidelines for unlocking potential benefits and limitations of OPD (Auer, Lehmann, & Hellmann, 2009). triz.

3. The policy-evaluating context in South Korea

The following provides an overview of the background and content of the OPD Directive (OPDD), a long-term plan by South Korea to implement its OPD policy from 2013 to 2017. The following sub-elements of the policy are addressed: the OPDD’s definitions and scope; strategies and direction; and expected outcomes.

3.1. Background

The OPDD is based on The Act on Provision and Active Use of Public Data (2013). Addressing the need for a law to effectively coordinate and implement the OPD policy, the National Assembly enacted the Act on June 27, 2013, to open public data, and the law has been enforced since October 31, 2013. The purpose of this law is to ensure the right of the public and the private sector to access and use public data, improve the quality of life, and develop the national economy by stipulating relevant authorities of the OPD that public organizations had managed (Article 1 of the Act, 2013). Under this law, the Open Data Strategy Council is co-chaired by the prime minister and an OPD expert appointed by the prime minister. The principal agency is the Ministry of Safety and Public Administration (MOSPA), the agency leading and

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