



# Open data policies, their implementation and impact: A framework for comparison



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## ABSTRACT

In developing open data policies, governments aim to stimulate and guide the publication of government data and to gain advantages from its use. 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. Furthermore, no suitable framework for comparing open data policies is available, as open data is a recent phenomenon and is thus in an early stage of development. In order to help bring about a better understanding of the common and differentiating elements in the policies and to identify the factors affecting the variation in policies, this paper develops a framework for comparing open data policies. The framework includes the factors of environment and context, policy content, performance indicators and public values. Using this framework, seven Dutch governmental policies at different government levels are compared. The comparison shows both similarities and differences among open data policies, providing opportunities to learn from each other's policies. The findings suggest that current policies are rather inward looking, open data policies can be improved by collaborating with other organizations, focusing on the impact of the policy, stimulating the use of open data and looking at the need to create a culture in which publicizing data is incorporated in daily working processes. The findings could contribute to the development of new open data policies and the improvement of existing open data policies.

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## 1. Introduction

Open data, also referred to as open Public Sector Information (PSI), has received considerable attention in recent years (see for example Bertot, Jaeger, & Grimes, 2010; McDermott, 2010). In addition, a wide variety of open data policies have been developed (Civic commons, 2012; Huijboom & Van den Broek, 2011; Open Government Initiative, 2012), for instance by the United States (Obama, 2009, 2012), Europe (European Commission, 2003, 2011a) and individual countries (for instance, Cameron, 2010; Tweede Kamer, 2011).

Open data policies are important, as their purpose is to ensure the long-term transparency of government information (Jaeger & Bertot, 2010) and thereby to contribute to citizens' rights to public access to government information, which is considered a fundamental tenet of democracy (Allen, 1992). Moreover, open data policies have the potential to increase the participation, interaction, self-empowerment and social inclusion of open data users (e.g. citizens) and providers (Bertot et al., 2010; Janssen, 2011) alike, stimulating economic growth (Borzacchiello & Craglia, 2012) and realizing many other advantages.

In spite of the considerable attention that has been given to open data and open data policies, no overview of existing open data policies

is available at the moment. Moreover, despite their many similarities, open data policies emphasize different objectives. For instance, the European Commission (EC) emphasizes the direct and indirect economic gains from the use of open government data (European Commission, 2011b), whereas the Obama Administration focuses on increasing transparency, participation and collaboration, which it assumes will improve the quality of services to the American people (McDermott, 2010; The White House, 2012). These differences may indicate that open data policies stimulate the provision and use of open data in different ways, and this could provide opportunities for learning from each other.

Little attention has been paid to building systematic and structured research that compares the variety of existing open data policies and provides guidelines for developing open data policies. Although some studies have been performed that compare open data policies (e.g. Huijboom and Van den Broek (2011) and Rothenberg (2012)), there is not yet any suitable framework for comparing open data policies. Although federal United States and European Union open data policies have gained considerable attention, the policies at lower levels have largely been neglected, whereas the lower level policies are needed if the higher level policies are to be set in motion. Furthermore, there is no overview available that compares open data policies on a broad range of aspects. Yet comparing open data policies on different aspects and different levels of government is useful and necessary in order to obtain a better understanding of the common and differing elements in the policies and to identify the factors that affect the variation in

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policies and which influence their impact. This understanding could contribute to the development of new open data policies and the improvement of existing open data policies. This research contributes to the existing literature by 1) developing a framework for comparing open data policies and 2) using the framework for comparing the open data policies of seven Dutch governmental organizations. Based on the similarities and differences found, recommendations for improving open data policies are presented.

A preliminary version of this paper was published in the proceedings of the 13th Annual International Conference on Digital Government Research (Zuiderwijk & Janssen, 2012) and has here been significantly extended and refined.

## 2. Research approach

Our research goal was to develop a framework for comparing open data policies and to be able to use this framework in comparing the open data policies of seven Dutch governmental organizations. Our comparison of open data policies was qualitative and focused on open data policies at various government levels and on the factors that affect the variation of open data policies at these levels. Following Bergmann's (1957) approach of observation, induction and deduction, elements for an initial framework were deduced by investigating the literature and by analyzing (government) reports, documents and websites about open data policies. This analysis resulted in a list of elements, which was used to create a framework for comparing open data policies. The initial framework was further refined through observations gained from four semi-structured interviews as well as e-mail and telephone contact with seven key persons involved in policy-making at the examined government organizations. Transcripts were made of the interviews, and all interviewees were given the opportunity to comment on the transcripts. The information provided in the interviews, e-mails and telephone calls was analyzed to obtain more information about the characteristics and the context of the open data policies and to refine the initial constructs of the framework. This process led to a number of changes to the framework. Subsequently, the information provided by transcripts, e-mails and telephone calls was used towards inductive reasoning. The characteristics of the government organizations were analyzed and compared to identify the similarities and differences between them and the factors that affect the variation of open data policies. Finally, general patterns and regularities were induced from the comparison, which resulted in recommendations for improving open data policies.

## 3. A framework for comparing and evaluating open data policies

Our aim is to better understand how open data policies can be developed and improved. This chapter presents a comparative framework for open data policies that has been derived from the literature. First, we describe policies and policy-making basics (Section 3.1). Subsequently, a comparative framework for open data policies is derived from the literature, in which open data policies are compared at a national level and at an even higher, strategic level (Section 3.2). Finally, the framework for comparing and evaluating open data policies is presented (Section 3.3).

### 3.1. Policies and policy-making

Anderson (1990) defines policy as “a purposive course of action followed by an actor or set of actors in dealing with a problem or matter of concern” (p. 5). Policy deals with processes, activities and/or decisions that tackle societal problems (Stewart, Hedge, & Lester, 2008). Because policies aim to achieve a certain impact in society, we adopt the view that policies should include the factors that contribute to and influence this impact. In line with this broad perspective on policies, we adopt the point of view that policies are more than written documents

in which intentions, choices and actions are described, as they define the broad open data regime of organizations and how they are realized and create their actual impact. Policies are developed using policy-making cycles which can consist of stages including agenda setting, policy formulation, policy implementation, policy evaluation, and policy change or termination (Stewart et al., 2008). In the following sections, the elements for an open data policy comparison framework are identified by referring to these policy-making cycles.

### 3.2. Elements for comparing open data policies

In this section, we derive elements of open data policies as found in the literature. The findings from the literature review are divided into four parts, which are related to the policy-making cycles, namely policy environment and context (related to agenda setting, see Section 3.2.1), policy (related to policy formulations and implementation, see Section 3.2.2), performance indicators (related to policy evaluation, see Section 3.2.3) and realizing public values (related to policy change or termination, see Section 3.2.4).

#### 3.2.1. Policy environment and context (input)

The first stage of a policy-making cycle is agenda setting, which is influenced by environment and context. Huijboom and Van den Broek (2011) point to several relevant policy environment and context elements (see Table 1). Moreover, Gibbs, Kraemer, and Dedrick (2003) and Eskelinen, Frank, and Hirvonen (2008) identified elements that are relevant for policy environment and context comparisons. Even though these elements are not described as general elements that apply to each policy comparison, but are more focused on e-commerce diffusion policies (Gibbs et al., 2003) and broadband policies (Eskelinen et al., 2008) (see Table 1), we included these elements in our framework, because they seem to be relevant for open data policies as well.

#### 3.2.2. Policy content

Based on the policy-making cycles of Stewart et al. (2008), agenda-setting can lead to policy formulation and implementation. A number of researchers have described policy formulation and implementation elements (see Table 2). Huijboom and Van den Broek (2011) and Rothenberg (2012) compared open data policies at a national level, primarily examining countries that already have a well-defined open data policy. Although not specifically focused on open data, Dawes, Pardo, and Cresswell (2004) developed a model that can be used to design programs about access to information. Dawes (2010) points to two main principles which can help guide and evaluate efforts to achieve information-based transparency, namely stewardship and usefulness. A good balance of stewardship and usefulness is presumed to assure quality, engender trust, reduce risks, increase public value, promote innovation and reinforce transparency (Dawes, 2010). Harrison et al. (2011) emphasize that in order to realize public value from open data,

**Table 1**

Environment and context elements for an open data policy comparison framework, derived from the literature.

Framework element	Literature
Country, country demographics and responsible authority	Huijboom and Van den Broek (2011), Gibbs et al. (2003)
Key motivations, date of program launch	Huijboom and Van den Broek (2011)
Financing of open data portals, economic and financial resources, funding	Huijboom and Van den Broek (2011), Gibbs et al. (2003), Eskelinen et al. (2008)
Organizational environment, social and cultural factors (e.g. consumer preferences), market environment, information infrastructure	Gibbs et al. (2003), Eskelinen et al. (2008)
Legislation and regulation	Gibbs et al. (2003), De Bruijn et al. (2002), Eskelinen et al. (2008)

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