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► **To cite this version:**

Alex Ingrams. An Analytic Framework for Open Government Policy Design Processes. 5th International Conference on Electronic Government and the Information Systems Perspective (EGOV), Sep 2016, Porto, Portugal. pp.203-214, 10.1007/978-3-319-44421-5\_16 . hal-01636457

**HAL Id: hal-01636457**

**<https://inria.hal.science/hal-01636457v1>**

Submitted on 16 Nov 2017

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# An Analytic Framework for Open Government Policy Design Processes

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**Abstract.** This paper lays out an analytical framework for OG policy design processes. It uses a systematic review of (1) scholarly literature, and (2) real OG policies to corroborate existing definitions of OG and its sub-categories. The sub-categories are then used for an in-depth literature review of policy design research that is developed into a conceptual model of OG design processes. The model establishes the design considerations needed by policymakers and administrators of OG policies, and can be used as a framework for evaluating OG policy processes. The paper also clarifies design concepts and best practices in a growing e-government domain, and outlines a research agenda for studying OG within organizational theory in public administration.

**Keywords:** Open government; e-government; policy design; ICT; structuration.

## 1 Introduction

The research developed here is an investigation of OG policy design. It addresses the research question of what design processes support the achievement of open government policies. OG is a broad descriptive label that encompasses a range of governmental policies and processes associated with the use of information and communications technology (ICT) to improve democracy, create transparency, accountability, and foster synergies between governmental and non-governmental actors [1], [2]. This range of policies includes, but is not limited to, transparency, freedom of information, public participation, and the pro-active publication and archiving of government data.

While there is a nascent OG research agenda in public administration, scholars frequently highlight the normative and practical limitations of existing theory (e.g., [3], [4]). The research in this paper probes two main puzzles in the theory of OG in particular. The first puzzle in OG theory is related to the coherency of the collection of practices that are conventionally grouped in the category of OG such as transparency, freedom of information, and citizen participation. OG is not synonymous with any one of these practices, but rather is interdependent with them as they are weaved together in open government reforms. However, it is unclear what OG and its sub-categories are and whether they have robust conceptual validity and coherency. The second puzzle, which is an extension of the first puzzle, is that it is unclear what exactly the policy

design features of openness are that are common across these different sub-categories of OG practice. Without such a unified approach it becomes difficult to know how the policy design features of openness can be used for more effective OG policies.

If scholars of public administration and technology do not address the conceptual ambiguity and breadth of the term “open government” the concept becomes liable to be used as a rhetorical device in politics or to be offered as a panacea for an unrealistic range of political problems [5], [6]. Open government is a relatively new field of scholarship and it needs to have a clearer idea of its conceptual parameters and its best practices and methods for public administration. It remains to be shown that OG is a meaningful and distinctive perspective of public policy that can be approached and implemented within a coherent framework for organizational and administrative design processes.

Therefore, in seeking to advance an analytic framework for a policy design theory of OG and to address the aforementioned puzzles of OG, respectively, the following two research questions will be investigated: (1) what are the component sub-categories of OG policies? And (2) what policymaking processes support the design of open government across these sub-categories? The research steps used in the paper involve a systematic OG literature review and deductive content analysis to address the first question, and a broader literature review of OG, structuration theory, and policy design theory to address the second question. The themes developed to answer the second question are used to construct a conceptual model. The model is analyzed and explained using a hypothetical OG policy design example before the paper concludes with suggestions for future use of the model

## 2 Literature review and definition of open government

In previous research, OG has been defined as a collection of governmental practices relating to transparency, public participation, collaboration, and use of ICT technology [2], [7]. However, in order to verify and more clearly define OG, I conducted a systematic survey of scholarly literature (Table 1) and OG initiatives in practice (Table 2) to identify sub-categories of open government.

Table 1 shows the frequency results of a keyword search of “open government” in titles and abstracts of articles in the Web of Science Library for the years 1980 to 2015. A total of 275 articles and conference papers were identified. Each article was then categorized according to its main topic. A total of 11 topics were identified, but there are five most frequently studied topics that are clearly dominant: open data (41%), general open government (15%), transparency (14%), citizen participation (11%), and access to information (9%).

**Table 1.** Topics of open government in scholarly literature (1980 – 2015)

<b>Open government topic</b>	<b>Frequency</b>	<b>Percentage</b>
<i>Open Data</i>	115	41
General open government	42	15
<i>Transparency</i>	38	14

<i>Citizen participation</i>	31	11
<i>Access to information</i>	24	9
Open innovation	8	3
Budget openness	8	3
Geographic information systems	5	2
Open education	2	1
Open science	1	0.5
Intergovernmental collaboration	1	0.5
Total	275	100

In order to make sure that these topics were cross-referenced with actual practice in the open government field, the 11 topics were used deductively to perform a frequency analysis of the OG initiatives in the largest known database of OG initiatives from the OGP national action plans<sup>1</sup>. There were 433 individual OG initiatives in the database across a two year period (2011-2013) in 33 countries. Table 2 shows the results of the OGP database frequency analysis. The most frequently used policy topics of open government are 1) open data; 2) transparency; 3) citizen participation; and 4) access to information. Apart from the general topic of ‘open government’ (which is removed because it would obviously be tautological to include as a sub-category of open government) these four topics match precisely with the four in Table 1. This match answers the first puzzle and demonstrates a strong set of core sub-categories within the study and practice of OG.

**Table 2.** Topics of open government in national action plans (2011-2013)

<b>Open government topic</b>	<b>Frequency</b>	<b>Percentage</b>
<i>Open data</i>	106	11
<i>Transparency</i>	93	10
<i>Citizen participation</i>	86	9
<i>Access to information</i>	57	6
Budget openness	54	6
General open government	12	1
Intergovernmental collaboration	7	0.7
Open innovation	6	0.6
Open education	4	0.4
Open science	3	0.3
Geographic information systems	1	0.1
Total	433	100

The systematic review of the main sub-categories of OG gives better definition and finds empirical support for the OG typologies already used by scholars (e.g., [2], [7]). If these sub-categories are all part of OG reforms they must be related in the policy design process. However, the policy design characteristics that link the sub-categories under the umbrella of OG have not been set out by public administration scholars. This

<sup>1</sup> Open Government Partnership. “OGP IRM Database”. Last accessed on 06/05/2016 from [www.opengovernmentpartnership.org/irm/ogp-irm-database-12](http://www.opengovernmentpartnership.org/irm/ogp-irm-database-12)

point addresses the second theoretical puzzle discussed above, and will be the focus of the remaining sections of the paper.

Already, some prior work has begun to take OG theory to a more fundamental level of organizational practice. In one conceptual framework for the related OG topic of transparency, Meijer [8] proposed three core interpretative lenses for understanding the practice of transparency: cognitive, strategic, and institutional. Dawes, Vidiyasa, and Parkhimovich [9] have proposed an ecosystem model of open government data (OGD) that can accommodate the complex range of strategies and barriers. In approaching the theory of OG policy design it is necessary to understand these complex factors that underlie the policy processes within OG reforms across the four sub-categories.

### **3 Theoretical framework and conceptual model of OG policy design**

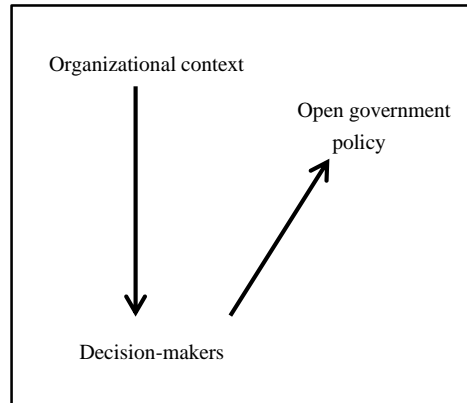
Policy design theory is a core topic in public administration scholarship. Previous scholars have studied design because government policies have important outcomes for democratic performance and public values such as health, education, public safety, and social equity [10].

The definition of design processes adopted here is the one used by Davenport [11] to describe approaches to organizational process using IT: “a structured, measured set of activities designed to produce a specific output” (p.5). Davenport’s is a basic definition of process and is especially relevant to OG policies that often rely on process involving ICT innovations.

#### **3.1. A structural approach to OG policy design processes**

Policy design theorists, such as Beierle and Konisky [12], frequently describe a policy design process in terms of two main ingredients: a context and a process. The former comprises the fixed social and institutional variables, which can also be referred to as the *structure* of the organization. On the other hand, the process includes the design and participant variables that are controlled during the design development, which can also be referred to as the *agency* of the organization.

According to Giddens’ [13] original formulation of structuration theory, organizational structures are continually enacted by the actions of members of organizations and the characteristics of their institutions. Structuration theory can be used as a micro-foundation for policy design approaches in combination with macro-level institutional processes [14]. Orlikowski [15] says that “[d]rawing on the ideas of social shaping and inscription, structural models have posited that technology is developed through a social political process which results in structures (rules and resources) being embedded within the technology” (p.405). This concept of decision-making has been adapted in Figure 1 with ‘open government policy’ taking the place of the ‘technology’ outcome in Orlikowski’s original formulation of a structuration process.



**Fig. 1.** Strategic choice model. Adapted from Orlikowski [16]

In the following theoretical framework, I examine the agentic and structural factors that contribute to OG program processes and use them to propose a unified conceptual model of OG design. To select the literature on policy design for the framework, I used the core sub-categories of OG derived from the frequency analysis of OG literature (open data, access to information, citizen participation, and transparency) as keywords in conjunction with the keywords “policy design” and “organizational design”. In order to supplement my literature review, I also expanded on this initial set of results to draw on important works on policy design theory from outside of OG research. I grouped the findings into five themes (managerial skills, institutions, technology, environment, and organizational ambiguity) and then corroborated and developed these themes using related conceptual models in section 4.

**Managerial skills and strategies.** Previous literature has addressed the role of managerial skills in the micro-level design factors and leadership planning of government programs [17], [18]. For example, the micro-level design of effective program objectives should involve a coherent strategy with clear goals and specific and measurable outcomes [19], accountable leadership [20], and, in the context of OG, management of a culture of publicizing open data, inter-organizational collaboration, and focusing on the impact of policies [21].

In the area of open data, previous literature also finds that an incremental and experimental approach by managers of open data is better than just releasing data for its own sake [22]. Open data usually fails in the goal of informing citizens of how they can make objective and intelligent decisions about policy if it does not have a mechanism for conveying context as well as content of data [23]. Bertot, McDermott, and Smith [24] say that managerial measurement of open government initiatives must include knowledge of wider impacts as well as understanding of the route to compliance. Similarly, the level of professionalism of managers, their perception of the political environment, and their attitude towards citizen input strongly shapes the use of citizen participation in budgeting processes [25].

**Institutions.** The role of institutional environments in terms of governance structures, policies, and legal approaches need to be understood for effective use of ICT for e-governance [26], [27].

Institutions underpin collaboration that is necessary for OG. A strong institutional integration agenda is important in successful interactive e-government initiatives so that design challenges and tensions can be managed [28]. Such collaboration effectiveness is determined by "process, structural and governance components, constraints and contingencies, outcomes, and accountability issues" [29].

But institutional processes can have differential impacts on different areas of OG. For the OG sub-categories of access to information and citizen participation, political institutions are important. Berliner [30] carried out multivariate analysis of antecedents of access to information laws and found that competition within political institutions was the strongest correlate. Zhang and Liao [31] found that political competition increased the likelihood of adopting participative and interactive forms of e-government tools, while institutions that mandate citizen participation have better performance of citizen participation initiatives [32].

**Technology.** Open government policies rely heavily on ICT, but empirical research shows numerous examples that contextual variables of trust, self-efficacy, and level of digital literacy are key determinants of digital government performance (e.g., [33], [34]). Bailard [33] in a multi-country study of e-governance, civic engagement, and trust found that higher levels of internet use increased frustration with e-government in undemocratic countries but increased satisfaction with e-government in democratic countries. In understanding these structural components of technology, Meijer [35] says that there are three areas of barriers in e-government performance: government, citizen, and structural-cultural.

From the perspective of structuration theory, technologies are not fixed parts of the organizational environment but are enacted through agentic and structural processes [36], [15]. The theory of technology enactment thus has special relevance to the policy design process of OG, where both environmental shifts in ICT capacity and the specific tools of ICT in individual OG policies and programs are vital.

**Environmental factors.** Environmental factors in terms of social, political, geopolitical, and economic forces have been found to play a strong role in shaping effectiveness of policymaking in the OG arena. Freedom of information reforms, for example, have repeatedly been found to be driven by improved information flow resulting from gradual social, political, and economic changes [37].

Policy reform such as OG is an essentially tension- and conflict-laden organizational process because new policy fashions threaten the stability of existing policy communities [38], [39]. The political leadership involved in OG is important because, as von Furstenberg [40] says, "without a change in power and political will, externally imposed transparency codes and standards will forever be chasing an elusive target" (p. 115). The leadership of Barack Obama was a primary motivation behind open government initiatives in the United States [1].

Finally, research on OG and related areas such as ICT use and e-government has firmly established that the citizen environment is indispensable to policy design. Citizen demands for e-government strongly determine e-government level [41], [42]. Larger population, higher growth, lower unemployment, and larger population density is associated with higher e-government adoption [43].

**Organizational ambiguity.** The theory of organizational ambiguity was originally developed by James March and Johan Olsen [44], but, for the present work, even more pertinent research on the topic of OG can be found in the work of Nils Brunsson [45], who understood well that the public character of government increases political-administrative tension. This tension inevitably leads to organizational de-coupling and hypocrisy, a natural state of organizations that is heightened in OG.

According to Brunsson [45] public organizations are *meta-organizations*. Meta-organizations are characterized by significant collaboration challenges and points of conflict, which are proliferated by OG processes that spread policy-making processes widely over a range of organizations and organizational environments. Scholars of OG have begun to elucidate the specific forms of ambiguity that are created by open, meta-organized forms of policy design. Yu and Robinson [6] refer to a kind of ambiguity where openness of data is conflated with transparency of government operations. There are also the trade-offs in OG between transparency and national security interests [46], accountability [47], and participation [36].

Another common area of open government ambiguity is the conflation of collaborative ICT platforms such as social media or wikis with open government [48]. Many government open data and transparency initiatives ostensibly enable governments to be more participative and responsive with citizens, but are ambiguously operating mainly as one-way information pathways [49].

## **4 Policy process design and open government: a conceptual model**

At this point in the paper, I have validated the concept of OG and its four sub-categories, addressed the literature on the three theoretical perspectives of this paper – open government, structuration theory, and policy design theory – and presented five themes for a theoretical framework of the supporting factors of OG policy design. In this section a conceptual model of open government processes is first proposed starting with a corroboration of the themes (factors) proposed in section 3. Secondly, the conceptual model is tested using e-participation as a hypothetical example of an OG policy.

### **4.1. A conceptual model of open government policy design processes**

Prior literature on the role of public administrators in design of open government-related program areas has started to propose similar conceptual models (e.g., [9], [50], [51]) and have identified a similar range of factors such as managerial, bureaucratic, technological, and political, but none of these has addressed OG as a common area of



policy design processes in organizational theory. Therefore, the themes are likely to have overlap but not to be identical. Gonzalez-Zapata and Heeks [51] found that OGD takes on four main stakeholder processes; bureaucratic, political, technological, and economic.

In another of the existing conceptual models, by Gil-Garcia and Pardo [50], the processes involved in successful e-government programs can be categorized as environmental or institutional, legal and regulatory, organizational and managerial, information technology, and information and data. Gil-Garcia and Pardo [50] address both the environmental (external) processes and the managerial and technology (internal) processes that contribute to the context of complex governance.

The conceptual model here also has a dualistic approach in keeping with structuration theory. In Figure 2 the institution factors sit directly at the intersection of the agentic enactment process of management strategy and technology, while environment, which is a broader socio-political structural factor, is less directly involved. On the agency side, the factors are technology and management skills. The arrows joining the agentic components of the structuration process from  $t_1$  to  $t_2$  represent a structuration enactment process connecting to the structural variables of environment and institution. However, as discussed above the organizational environment is an area of organizational ambiguity and so the structuration process encounters ambiguity during the process of change between  $t_1$  and  $t_2$  (the shaded area).

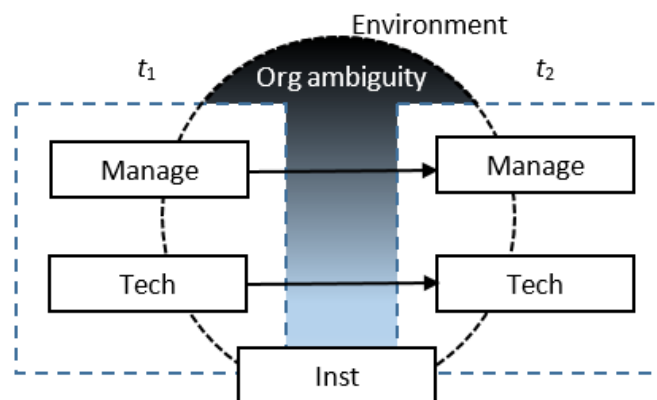


Fig. 2. Conceptual model of the open government policy design process

#### 4.2. Analysis of the conceptual model using a hypothetical example of e-participation

The management skills and the technology factors play similar roles in the structuration process. These agentic aspects interact with the institutional factors and are on the same circular plane moving from  $t_1$  to  $t_2$  in Figure 2. For example, in the design of an e-participation platform, structural enactment takes place in the decision to attain a

certain level of citizen accessibility (management skill) and the enactment of the technological knowledge and resources in the organization from previous e-participation efforts or new technology hardware or software (technology). Both these things interact with the structure of rules, regulations, and culture of the organization (institutional factors), which in the example of e-participation, pertain to legal disclosure and data privacy standards, competition with other jurisdictions, policy mandates, and organizational attitudes around the value of citizen participation.

Organizational ambiguity shown in Figure 2 in the space inside the structuration process of management, technology, and institutional factors is not continuous within any of the structuration planes. However, it is bounded by the institutional plane symbolizing that ambiguity is a unique product of the particular organization. Note that the institutional plane also divides organizational ambiguity and the environment because, while neither are structurally continuous, they are, respectively, undetermined internal and external properties impacting the organization. In e-participation policy, a broad array of environmental factors have an impact such as economic level, stability of the political situation, and public services infrastructure. These determine how many and what kinds of people participate as well as the quality of their interaction. Organizational ambiguity relates to the clarity (or lack thereof) of purpose for which the participation takes place such as budgetary outcomes, legislation decision-making, or mere process participation with no target outcome. Organizational ambiguity could also pertain to the level of accountability or authority given to participants such as whether it is informative, consultative, delegative, etc.

## **5 Conclusion**

This paper initially empirically derived a typology of OG and its core sub-categories using a systematic literature review and a multicountry categorization of OG policies. Secondly, a theoretical framework organized previous empirical findings regarding the policy design processes associated with the growing body of research on the design of OG initiatives and its sub-categories. The work of Nils Brunsson was used to frame organizational ambiguities associated with OG. It was argued that the multidimensional characteristic of OG calls for a model that combines agency and structural components of policy design in a structuration process. A conceptual model was developed along these theoretical lines and it was tested using a hypothetical example of e-participation.

The conceptual model of OG policy design process can be empirically tested in future research by operationalizing the relationships as measurable hypotheses. It can also be used as an analytic framework for evaluating the effectiveness of OG policy design processes. This paper has focused on the 'process' side of policy design and says very little about the 'outcomes' or 'impacts' side, which are also important. I expect that the conceptual model will help identify and analyze heightened effects of organizational ambiguity within OG policy design outcomes as well as ambiguities in the processes. OG 'success', referred to only in passing here, should be unpacked and studied in order to establish exactly how the OG design process relates to different kinds of

outcomes for society. A related area for further research is to see if these relationships between processes and outcomes are different among the sub-categories of OG.

The objective of this paper was to address two puzzles of OG: firstly, relating to its conceptual coherency and, secondly, to the unified character of the design processes that enables public administrators to address more effective management and technological approaches. The paper shows that research on OG does suggest unique kinds of design processes and barriers in the form of ambiguities. Further understanding the OG specific design processes and barriers will be necessary to aid policymakers and public administrators in designing OG policies and programs that are likely to be more effective in meeting their goals.

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