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Open your data and will ‘they’ build it? A case of open data co-production in health service delivery

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Introduction

Open data policies are currently in fashion across both developed and developing countries. The assumption behind these policies is that the release of public data in structured formats will create a set of benefits such as increased transparency, efficiency and effectiveness in the public sector. The assumption of merely opening up data and waiting for members of the public to use it, is problematic. There are barriers users must face such as reliability and accessibility, quality of data, and understanding of its potential and effective use, to name the most obvious and documented barriers. Opening up data, while an important step, will not often deliver the promised value. In short, if one releases data, ‘they’ (whoever they are) may well not use it. Thus, a key question is: What kind of mechanisms allow government and users to cooperate in order to deliver on the promised value of open data?

In this chapter, I explore the case of *Atuservicio.uy*, an application designed in a partnership between Data Uruguay (a civil society organisation) and the Ministry of Public Health in Uruguay. The application allowed 60 000 citizens (in 2016) to compare information about health service providers in Uruguay during the annual window when citizens choose their health service provider.¹ I argue *Atuservicio.uy* is an example of co-production between civil society and a government regulator through the release of open data. First, I explore the connection between open data and co-production in the current literature. Second, I provide an explanation of the methodology I followed and I provide a thick description of the case. Third, based on the case, I provide a framework to

¹ This project was financed by the Ministry of Health in Uruguay and the programme Open Data for Development (OD4D) supported by IDRC and Avina Foundation through ILDA.

understand and evaluate key elements of co-production in the realm of open data. I identify a set of capacities and resources available to key stakeholders to advance co-production processes. I also argue that a clear set of rules of engagement is needed for these processes, and that this requires a new set of administrative arrangements in the public sector. Finally, I lay out a set of conclusions about the field and identify points for further research. In particular, I warn about the current ‘conceptual stretching’ that this field is facing, differentiating the concept of co-production from participation and co-creation. I argue for an agenda where co-production in the open data field serves the creation of public value, noting that merely publishing data will not be enough.

Co-production and open data: Enabling a new type of co-production?

The current state of the art in public administration between government and citizens assumes several forms. From co-creation of public policies and public services (Bason 2010), government labs (Price 2015) to open policy-making (UK Government n.d). In particular, co-production, a concept often poorly defined or understood, is considered to be a cornerstone of public policy reform across the globe (Osborne et al. 2016; OECD 2011). Co-production, broadly defined as citizens collaborating in the implementation of public services, is supposed to address several pitfalls in the current state of affairs in public management, such as democratic deficit, and is seen as a way of enhancing active citizenship.

Co-production as a concept has been around for at least 40 years in the social sciences, particularly in public administration. The work done by Ostrom and colleagues in the late 1970s pioneered the concept (Alford 2014) and was further developed through the 1980s (Whitaker 1980, 1981, Levine & Fisher 1984, Brudney & England 1983). In the days of ‘traditional’ public administration, co-production was conceived of as a way to maximise public participation in service delivery. Whitaker (1980) defines co-production as ‘the active involvement of the general public and specially of those who are beneficiaries of the service’. As the new public management paradigm emerged in public administration, co-production was also associated with ‘consumerism’, and eventually with new public governance (Osborne 2006) or with the digital era government paradigm (Dunleavy et al. 2006) as new modes through which citizens could participate in service delivery. It is important to note that most of the co-production literature describes co-production as an activity that often takes place at the delivery stage (Alford 2014). According to Osborne et al. (2016) and Pestoff (2006), the notion of co-production in the public sector does not challenge the orthodoxy that public servants are in charge of designing and providing services to citizens, who eventually demand, consume and evaluate them (Pestoff 2006, Osborne et al. 2016).

The public administration literature on co-production does not connect with the work developed in service delivery literature around co-production.

According to Osborne et al. (2016), in this approach the basic assumption is that co-production is an inalienable core component of service delivery: one cannot have service delivery without co-production. Thus, co-production assumes the participation (voluntary or otherwise) of the user at the point where the service is delivered. In this sense, co-production always involves the user (even if the user does not willingly participate). Following Osborne et al.'s (2016) framework, voluntary co-production can take place at a service level (as in most of what the public administration literature describes) or at the systemic level, leading to what they define as co-innovation which implies reshaping an entire service sector. Most of the co-production literature pre-dates the digital revolution in public services and, in particular, the open data movement. Therefore, it is appropriate to consider how open data practices link to co-production.

The notion of open data is fairly simple. It refers to data (or more appropriately, datasets) available in open formats for anyone to freely use and re-use.² There is a legal and a technical aspect embedded in this definition. Initially advocated by Tim Berners-Lee (2006) as a way to promote the evolution of the web, the field gained traction and evolved into a movement demanding open data from governments, multilaterals and the private sector. The mantra in those feverish early days was 'give us raw data' (Pollock 2007). Government engaged in building open data portals to provide data for citizens to use. Early apps using data for transport services and urban issues emerged (Warman 2010). Advocates demanded a 'flood of data from governments' to fuel citizen interest and participation (Eaves 2010). Open data portals proved themselves good repositories, but demand for datasets has remained fairly low to-date. There were (and are) several constraints on the provision of data such as availability, quality, timeliness of the provision and will to open data in the first place (World Wide Web Foundation 2016). Furthermore, not all countries have in place the legal framework and the capacity to release open data in ways that are meaningful. The recently launched International Open Data Charter aims to streamline the principles open data policies should espouse.

Open data is associated with many positive outcomes such as transparency, accountability, efficiency and efficacy in service delivery, among others (Davies 2010). But the way open data leads to these outcomes is seldom straightforward. A few practitioners have argued since the early days of the open data movement that available data should be seen as public digital infrastructure (Moncecchi 2012). Like roads, bridges or railroads, open data allows others to build on the existing infrastructure. In this way, when releasing open data, its use would contribute to public value. I have argued elsewhere (Scrollini 2015) that this would be a 'living infrastructure'. The more actors who use the data, the more data would improve and more value would be created. The ebb and flow of publication and use leads to more accurate and useful data, improving the entire system in a given

2 For a full definition see the Open Definition (OKFN 2011).

context (Scrollini 2015). Assuming that the use of data for political, social and economic outcomes is valuable, government agencies and the private sector across the developing world started to promote the use of data through events such as hackathons, datathons, and the like. Events would often gather technologists and policy experts to tackle complex issues. These events showed the potential to set up new types of communities and explore new ideas, and even promote political mobilisation, but they did not support sustained innovation as several stakeholders expected (Mochnacki 2015). Given these limits, open data (mostly published by governments) is still used to produce social and economic value across the world. The key question is how this is done and, in the particular case of this chapter, whether co-production is a useful approach.

In one of the few papers explicitly addressing the connection between open data and co-production, Juell-Skielse et al. (2014) note that re-users of data have intrinsic motivations such as intellectual challenge, joy and prestige, among others, to become re-users of open data. Examining the case of open data in public transportation in Sweden and the events organised to foster the use of data, they argue that is necessary to increase the understanding of collaborative production of digital services and design, and to evaluate new mechanisms for supporting the later phases of digital service execution and monitoring. In other words, they argue that it is necessary to refine our understanding of these processes as there is no established methodology to ensure the effective and sustainable use of open data.

In this chapter, I provide an example of a particular type of co-production based on the use of open government data. By co-production I mean the voluntary participation of different civil society organisations in co-producing and co-innovating (using Osborne et al.'s [2016] terms) services, using open government data. This type of co-production assumes an active role of public servants but it challenges the orthodoxy that public servants are completely in charge of the process (Pestoff 2006), as once data is released, actors can potentially re-use the data in unexpected ways, beyond the direct control of government.

On methods and case selection

The Latin American Open Data Initiative (or 'ILDA' in Spanish) is a research initiative seeking to understand and promote the use of open data in Latin America. The initiative is hosted by Avina Foundation and supported by the International Development Research Centre (IDRC) as part of its Open Data for Development programme (OD4D). ILDA developed a set of strategic initiatives to test and explore the value of open data, as well as conducting basic research on the topic. The health service delivery sector was considered strategic by stakeholders consulted at several Latin American open data conferences (*Abrelatam-Condatos*), and thus the initiative decided to steer its research in that direction.

To explore the value and use of open data, ILDA took a participatory action research approach. Participatory action research assumes the researcher works

alongside members of a given community to develop a solution or knowledge about a certain issue. In this way, the researchers work with counterparts to generate evidence and potentially develop new approaches to tackle practical issues (Herr & Anderson 2005). The cycle ILDA followed in this particular case was to agree with core stakeholders on the desirable objectives, develop an intervention in order to achieve those objectives, and then reflect on this practice, feeding back to relevant partners the knowledge that was collectively created.

The web-based Atuservicio.uy application was developed by DATA Uruguay, a civic technology, non-government organisation, and the Ministry of Health, supported by ILDA as part of its strategic initiatives programme. The application allows Uruguayan citizens to access and understand information about health service providers at a critical time when they choose a health service provider for the year.

Researchers at NYU's Governance Lab (GovLab) who initially documented and evaluated the case, noted that '[i]t shows the vital function of intermediaries and civil society in promoting open data, facilitating discussions with the state, and nudging government agencies to release more and higher quality data' (Sangakoya et al. 2016: 6). The researchers propose that the web application had impact in terms of use and awareness, data quality, and on other data projects. Table 1 provides a synthesis of the impact noted by the GovLab researchers.

Table 1 Beneficiaries and impact of Atuservicio.uy

INTENDED BENEFICIARIES	IMPACT
Average citizens	<ol style="list-style-type: none"> 1. Enabling the people of Uruguay to make better-informed health decisions as a result of actionable information. 2. Equipping citizens with data-driven evidence and tools to make better decisions on health care choice. 3. Catalysing citizens to act as agents of monitoring and evaluation around the health services they receive.
Health providers	<ol style="list-style-type: none"> 1. Making clear to citizens which health options are best suited to their needs. 2. Improving the quality and responsiveness of service based on data-driven demand from citizens.
Government agencies	Improving the public health system through greater efficiency, transparency and accountability.
Media	Encouraging better data journalism efforts and data driven arguments for public debate on health care.
Civil society and unions	Enabling better informed argumentation and advocacy around the status of the health care system.

Source: Sangakoya et al. (2016)

As a result of this initial evaluation and the evolution of the case, sharing the way the case was developed and identifying key variables that could be used to foster co-production in other domains, make the case of Atuservicio.uy relevant to the

open data field. Naturally, this approach has limits in terms of the generalisability of the findings and the potential replication of the case in other cases.

The co-production process of Atuservicio.uy

Context

Every February Uruguayans get to choose whether to stay with or change their health service provider. This opportunity is the result of a series of major reforms in the Uruguayan national health system that led to almost full coverage of the population. Significant amounts of public funding go into the system, which offers a mix of public, semi-public and private health providers. The more users one provider attracts, the more funding the provider gets from the government.³ As a result, competition is stiff. Providers develop marketing campaigns and even offer cash to users if they switch providers, which is an illegal practice. The Ministry of Public Health, worried about these practices, started publishing information about the performance of the system in 2008. The Ministry published this information on its website in tabular Excel format. The press used these tables to produce news stories about the system, but users seldom retrieved the tables.⁴ The language was difficult to understand, it assumed users had access to proprietary software, the information was not displayed in a user-friendly manner, and was difficult to compare among providers.

In 2013 the civil society organisation, DATA, identified an opportunity to work with the data published by the ministry. DATA partnered with a local online media outlet and developed a tool to visualise and rank health service providers according to user preferences. The tool was aptly named ‘Transfer Window’, referring to the short time-frame Uruguayans had to choose a service provider. DATA extracted the datasets from the ministry websites, cleaned them and designed an interface through which users were able to easily understand the data. The online media outlet helped to spread the word and the website received approximately 6 000 visits in February 2014. The project was based on open-source software, and treatment data received was transparent. The process did not involve the Ministry of Public Health, but authorities were aware of it.

The evolution of the case

In the context of Uruguayan Open Government Partnership⁵ process, DATA and the Ministry of Public Health explored how to team up. The ministry intended

3 Number of users is not the only criteria to disburse funds, but it is an important one.

4 An estimate from the ministry indicates that they received no more than 400 visits per year.

5 The Open Government Partnership is an international initiative promoting open, transparent and accountable governments. Uruguay joined this initiative in 2011 and has since then kept providing spaces for open government initiatives.

to create a website similar to what DATA created, but it was not possible to find a suitable provider. DATA had the expertise to carry forward this mission, but had only a basic understanding of the technical and policy nuances of health data. Eventually the ministry and DATA set up a formal partnership to co-create and co-produce the application. The partnership included a commitment from the ministry in terms of human and financial resources to assist DATA, and DATA would also commit financial and human resources to assist the ministry.⁶ Furthermore, DATA pushed for developing the application on open-source software to allow eventual replication and transparency of the process.

The process was emergent and bottom-up. DATA engaged with a group of mid-level managers with political support to proceed. DATA and the ministry's team held meetings to define the scope of the information to include. DATA would always push for more information to be published and the ministry would always be more cautious about what to publish. The ministry had initially classified part of the information they released as 'reserved' under provisions contained in the access to information law. DATA and the ministry constructively bargained for which information to include.⁷

DATA initially had a bias towards user choice. In DATA's view, the more people exercised the right to switch providers, the better. The ministry argued that switching was not the ultimate goal of the application as it could jeopardise the stability of the system. The ultimate goal for the ministry was to enable citizens' voice and to improve the system. DATA agreed to work in the framework of broader policy objectives set up by the ministry in order to move forward. This discussion was important as it affected several decisions about how information was represented, as well about what indicators users could eventually compare on the website.

Once there was agreement on what information to include, the ministry's team embarked on identifying the data sources for the required information to be published by the application. The team found that most of the data was compartmentalised across the ministry and was not in open formats. Further, collection processes were often manual. Through the identification and collection process the ministry discovered that some of the data sources had quality problems. Furthermore, the ministry noted conflicts in data from different sources. The process of collecting data helped the ministry to understand its own sources of data and to put them in order.

On DATA's side, the team initially developed the back-end of the application to import and process the data. Tests were run using the datasets from the ministry to ensure compatibility. This process was lengthy and technically challenging for both parties. Problems with data standardisation haunted the project until its first launch.

6 DATA received funding from the ILDA, supported by *Avina Americas*.

7 One particular debated issue was the number of affiliates each provider had.

As the project evolved, DATA developed the first ‘mock-ups’ of the website and started the validation process with the ministry team. Middle managers working on the project were usually on board with the design choices. The process also involved other managers and political appointees who were data providers. Most of them wanted to make sure that the data they collected or created would not be misrepresented on the website. Discussions revealed the asymmetry of technical knowledge that existed between managers and technologists. Members of DATA would act as ‘translators’ to ensure that all parties were on the same page. Also, at this stage, some managers of the ministry (not involved in the core team) viewed DATA as another ‘service provider’ rather than as a co-creator. As a result, they would initially interact with DATA by giving orders in a client-provider mode of interaction. DATA pushed back, noting that the process was effectively a partnership and that decisions were made by agreement. Eventually, most managers came to understand this logic.

DATA and the ministry made a set of basic decisions on what information to show and how to present the information to users. Users would be able to see information about waiting times, prices, users’ rights, location of services, and performance targets on the home page. Users would be able to compare up to three providers from their administrative jurisdiction, allowing users to delve extensively into the data.

Dataset standardisation on the ministry’s side and technical capacity on both sides were a threat to the project. The final stage was a sprint to get the site published before 1 February when Uruguayans would have an opportunity to choose a health service provider. Finally, both parties delivered, allowing more than 35 000 Uruguayans to access valuable information.⁸ In the second year, *Atuservicio*’s audience increased to 60 000 users.

Furthermore, the website was used in public debates and the information was re-used by several media outlets (Sangakoya et al. 2016). Even politicians from government and the opposition used *Atuservicio.uy* to debate health policy in parliament. The project survived a change of government and in the ministry’s team, and in 2016 increased its audience and impact. All the data collected was also made available via the Uruguayan national open data catalogue.

In light of the evidence available, public servants and politicians could also be considered as beneficiaries of the project. Politicians have access to another monitoring tool to check on the performance of the health system. Public servants improved their data collection processes and developed innovative techniques to engage with civil society. In the case of the Ministry of Public Health, it enhanced its position as a regulator.

Evidence indicates that in the case of the second edition of *Atuservicio.uy*, the ministry received most of the data from providers on time and with more detail.

⁸ Users spent about five minutes on the website.

Recent evidence also indicates that transparency in price and services has led to adjustments in the prices offered by service providers.⁹

Factors to consider in open data co-production

I now turn to the four main factors that contributed to the co-production process: enabling environment, broadly shared policy objectives, partners' capacity and positive feedback loops. Table 2 provides a set of possible indicators to measure these factors or variables.

Table 2: Factors and possible indicators

Factor	Possible indicators
Enabling environment	<ol style="list-style-type: none"> Which are the available governance indicators in a given country? How does the country rank in these indicators? Is there a policy forum such as the Open Government Partnership to discuss open data and potential joint projects? How does the country rank in open data measurement instruments such as the Open Data Barometer of the OKFN Open Data index?
Broadly shared policy objectives and coordination mechanisms	<ol style="list-style-type: none"> Do partners have a common policy goal? Is there a coordination mechanism that allows partners to engage in defining these goals? Are there institutional and legal arrangements to execute the delivery of agreed policy objectives?
Partners' capacity	<p>Policy capacity:</p> <ol style="list-style-type: none"> Are partners able to engage in field specific and open data policy issues? <hr/> <p>Technical capacity:</p> <ol style="list-style-type: none"> Is the data available? Is it open? Are partners able to contribute specific technical skills to the process to open, clean and use the data? <hr/> <p>Financial capacity</p> <ol style="list-style-type: none"> Are both partners able to contribute to the project? If so, to what degree?
Positive feedback loop	<ol style="list-style-type: none"> Is there any sign of positive feedback loop once the product or service was developed? If so, according to which indicators?

Enabling environment

Government–civil society relationships differ from country to country. Even in democratic countries, with legitimate governments, such relationships can be more or less cooperative. Further, there are no 'obvious' policy forums to discuss the co-production of public services. The Uruguayan case provided fertile ground for this particular co-production initiative. Uruguay is well ranked in terms of perception of government transparency (Transparency International

⁹ According to public servants in the ministry, this is due to health services providers trying to avoid being considered the most expensive provider listed on the website.

2015) and is considered a full democracy (EIU 2015). Uruguay engaged in the Open Government Partnership (OGP) process, which opened a window of opportunity to formalise previous work Uruguayans did around open data. The OGP process managed to set up a continuous dialogue among key government and civil society stakeholders (Guillen 2015). Uruguay is also one of the regional leaders in terms of open data policies as measured by the Global Open Data Index (OKFN 2015) and the Open Data Barometer (Web Foundation 2016). Thus, an environment that promotes open government with a certain degree of formalisation, plus certain institutional conditions (a democratic and transparent government), provides a good basis for co-production processes.

Broadly shared policy objectives and a mechanism to coordinate

Partners need to have a shared policy objective and mechanism to coordinate. The Uruguayan case shows that while initially DATA had a focus on promoting choice and the ministry a focus of information dissemination, there was a larger policy objective, which was the improvement of the national health system. If partners do not share the same objective, and are not able to clarify this through a dialogue mechanism, then it is likely to be difficult to engage in a co-production process. These mechanisms need to include institutional and legal arrangements on how partners will proceed. To truly share a policy objective, partners need higher-level political support to proceed. For instance, in Uruguay, the website www.quesabes.uy allows users to make freedom of information (FOI) requests. The website was developed by the same organisation with no involvement from the government, and often found resistance from several government offices (Fumega & Scrollini 2017). There was a shared objective, but no coordination mechanism with government officials. In a similar vein, the first version of Atuservicio.uy developed in isolation by DATA, had no coordination mechanism.

Partners' capacity

To engage in co-production, partners need a combination of policy, technical and financial capacity. Both organisations need to understand both the field-specific policy (in this case health) and open data policy. Early involvement of the Uruguayan E-Government Agency secured an understanding of the open data policy at the Ministry of Public Health, which evolved through the project. Also, the project organisations balanced this capacity by exchanging knowledge between field-specific policy issues and open data policy issues. Through such exchanges, partners are likely to bargain around the final form of the product.

By technical capacity I mean a set of basic systems that collect, process and publish data, as well as human resources able to work with such data at a professional level. This aspect is crucial. The government partner needs to have the technical expertise on board as well as basic systems in place to collect data. In the

case of Atuservicio.uy there were not sophisticated information systems in place; on the contrary, most of the data came from Excel sheets that were transformed into open data. Furthermore, technical capacity on the government partner's side is also helpful in the co-creation stage where issues around design choices, UX interface and hosting are likely to emerge.

On the civil society side, there is a need for capacity to work with the available data, occasionally to clean it and to structure it to serve the product's purposes. Furthermore, civil society organisations will assume responsibility for delivering the information in ways that the government could not. Design and UX interface become crucial capacities in addition to back-end and front-end development.

A co-production process assumes that government is able to invest resources in co-producing. This requires planning in advance and making available sufficient budget, which mostly goes to support the technical work done by the civil society origination. On the other hand, it also assumes that civil society organisations have their own funds to cover the costs for part of the project. To fully engage in a co-production process, civil society must be able to bring some resources to the table, either as junior, equal or major partner in the co-production process. Civil society resources allow CSOs to be more flexible with the use of resources, and to engage in activities that governments might not have the capacity or feel comfortable with (for example, social media advertising). In the Uruguayan case, civil society and the ministry contributed the same level of funding to the prototype, and government mostly covered the second version of the application.

Positive feedback loops

The co-production process needs to deliver a product or service that adds value to the existing situation. In the Uruguayan case, the impacts documented through the evolution of Atuservicio.uy provided motive to the ministry to continue its efforts. The positive feedback loop opens a conversation on how to make the co-production process sustainable. This is something Atuservicio.uy has partially succeeded in as the ministry committed to support the application until 2020.

Open data and co-production: A new way forward?

This case provided an opportunity to explore how to foster the use of open data through co-production between government and civil society organisations. First, this case shows that co-production between civil society and a government organisation is possible. As defined in the first section of this chapter, this kind of co-production is voluntary and demands specific ways in which civil society organisations and governments engage. Dialogue and engagement with the right set of capacities led (in the Atuservicio.uy case) to a particular kind of co-production which contributes to an innovative way of enabling choice for Uruguayan healthcare users. The focus is on the voluntary and active aspect of

this co-production process. In this way, while it is theoretically possible for users to engage directly with the data at the point of service (via the national open data portal), it is the engagement process that leads to genuine innovation and an improvement of the service being delivered, as well as the democratisation of the data so that users can benefit from it. These users are able to co-produce (in the sense described by Osborne et al. [2016]), as they can monitor and act to improve the service. To put this in other way: this type of co-production enables other types of co-production with a different set of users.

Second, this case shows that use of data by civil society, business or other stakeholders can also be disruptive. This was the case when the 'Transfer Window' application was produced – a type of co-production that does not require any kind of involvement of public authorities. Nevertheless, this disruption is what created an opportunity for the public sector to engage in a co-production process as described in this chapter. Disruption can be uncomfortable for public authorities, but it can also be a source of public innovation. However, Juell-Skielse et al. (2014) suggest more resources are needed if these disruptions are going to transform public services. In this chapter, I have argued that certain factors should be considered to set up sustainable co-production processes.

This understanding of co-production also has a larger implication for the open data field. Bates (2014) notes that open data is another way of fostering modern deregulation where the private sector would be in charge of leading the field. Citizens should be consumers of these new products and services and not necessarily engaged in co-producing them. Open data would be at service of the neo-liberal state. This case shows a different picture. The co-production process in the open data field offers an opportunity to pull resources towards a new relationship between government and citizens. It involves external and public oriented agents in the co-production efforts, often backed by public or philanthropic resources. Thus, co-production processes that will change the way government works (or create new services), will need an active government on board, rather than absent one.

The case also highlights that more research is needed in this area. Civic associations such as DATA are new and rare. While there is no official data, evidence from the last five years suggests that open data focused organisations form a relatively small group in Latin America (Abrelatam 2014). These organisations often lack the means to engage governments and other social organisations in co-production processes. The Uruguayan case shows that only a few organisations in the public sector have the ability to engage in co-production processes. How the public sector acquires this new set of skills is also problematic. And how and whether the *Atuservicio.uy* case can scale, is something that is yet to be proven. Nevertheless, co-production in the open data space provides a promising avenue to explore ways in which the public sector can partner with other actors to produce a new kind of value. If the process scales, it could contribute to a living 'data infrastructure' that supports participation,

transparency and better social outcomes. The concept needs further theoretical development and more systematic evidence. This case helps to highlight that while opening data is a step in the right direction, impact requires institutional, technical and financial resources provided by government, while not being totally in control of the process. Developing such arrangements, goes beyond the technical mantra of opening data and moves into the realm of policy and politics in ways that are often not explored.

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