

Researching the emerging impacts of open data in developing countries (ODDC): position paper

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Overview: a global movement

The open data movement is promising opportunities for improving transparency, accountability, citizen participation and economic opportunity in developing countries. Citizens in Brazil, Nepal, and Nigeria can use publicly available data on government budgets to track and fight corruption, or to critique public spending policies. Developers and entrepreneurs across Latin America, Africa, and Asia can create web and mobile applications using government data on education, health, and crime, with the potential to promote smarter and more efficient local public services. And donors and advocacy organisations are investing in open data, opening their own datasets, or pushing for open data as part of open government reforms.

Worldwide, it is estimated that governments have already posted more than one million datasets on the Internet. Although just a small fraction of these current datasets are from developing countries, this is rapidly changing. Through the Open Government Partnership, governments from more than 50 countries have made concrete commitments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance with a strong emphasis on open data as a means to achieve this. Yet, reliable evidence on the outcomes and impact of open data initiatives remains scarce. Little is understood about how social and political context, open licenses, technical platforms and standards, and the dynamics of data use in different fields affect the outcomes that can be realised from wider sharing of data. It is even possible that well intended initiatives may result in adverse effects by exacerbating inequalities, and negatively impacting existing governance structures.

As open data initiatives spread across the globe, research is needed that can deepen our shared understanding of the potential and practice of open data. Those involved in new programs and initiatives in developing countries need to understand the full value and impact of open data in strikingly different social, economic, and cultural contexts. However, researching open data is a formidable challenge. The publication and use of open data raises many socio-technical issues, cutting across fields from budget transparency or urban governance, to innovation policy and natural resource management. Open data also connects across many levels of activity, from community-led standard setting, to the creation of data portals and APIs, to grassroots use of datasets. As this paper argues, we can only understand open data in general, and design appropriate and inclusive technical tools and platforms for open data on the web, if we have a detailed understanding of how it operates in specific situations. The Web Foundation 'Exploring the Emerging Impacts of Open Data in Developing Countries' (ODDC) research project (funded by Canada's International Development Research Centre) is developing a research agenda and evidence base to inform the future development of policy, technology and practice for open data on the web.

Understanding intermediaries, users, use and emerging impacts

The 'Open Data on the Web' workshop aim to contribute to a "*greater alignment between open data publishers and those who deliver open data products and services*"¹. The ODDC project seeks to understand how different mechanisms of open data delivery ultimately lead to data use, and to emerging impacts on substantive issues within existing systems of governance, decision-making and economic activity in developing countries. In doing so, it will contribute to both practical and normative decisions on making open data on the web work for developing countries.

To do this the project consists of two main components:

- **17 locally led case studies** of open data in different developing countries;
- **Work on common assessment methods for open data initiatives** to be used both at a macro-level to assess state, city or sector open data initiatives; and at the individual case level to support controlled comparison between cases;

The case studies, selected in response to an open call for proposal, and taking place between March 2013 and June 2014, each look at the use of open data in a particular 'governance setting'. Governance is centrally concerned with processes of decision-making and implementation, such as, for example: decision making over city budgets; the allocation of resources to higher education; or the design of public transport policy in an rural or urban area. In any governance situation, data is just one of the available inputs, and it may filter into and affect the situation through many different routes². For example, data may affect a situation through:

- **Transparency and accountability:** bringing about greater transparency, which in turn brings about greater accountability of key actors for making decisions and applying rules in the public interest;
- **Inclusion and empowerment:** removing power imbalances that result from asymmetric information, and bringing new stakeholders into policy debates, giving marginalised groups a greater say in the creation and application of rules and policy;
- **Innovation and economic development:** enabling non-state innovators to improve public services or build new products and services with social and economic value; shifting certain decision making from the state into the market;

Whether or not these different change mechanisms are available, or will be successful, can be argued to depend on both the wider governance context, and upon the way in which open data is delivered. For example, if electoral systems give voters weak control over their elected representatives, data highlighting corrupt public spending may have a limited impact through conventional transparency and accountability channels³. However, equally, even the electoral system does offer voters considerable leverage, but data is provided in forms that make it hard to automatically process and reconcile with other sources, potential insights that might highlight corruption could be missed.

¹ <http://www.w3.org/2013/04/odw/topic> (Accessed 2nd March 2013)

² Based on <http://public.webfoundation.org/2012/04/ODRS/ODR-Brasilia-Meeting-Report.pdf> (Accessed 2nd March 2013)

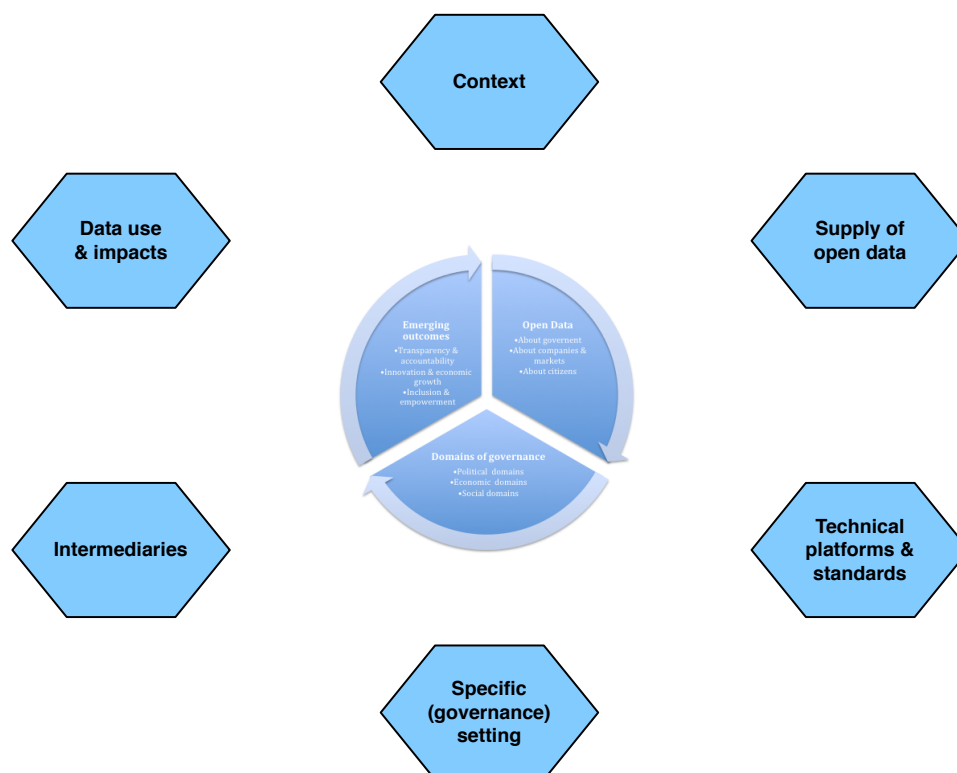
³ See for example Power, T. J., & Taylor, M. M. (2011). *Corruption and Democracy in Brazil: The struggle for accountability*. University of Notre Dame.

The appropriate means for delivery of open data may also depend on the resources available to re-users. For example, for a country without an established technology industry, civil society and citizen data re-users in the country with limited access to technical skills may be best served by Excel files where the semantics contained in presentation layer offer important insights; whereas re-users from outside the country seeking to understand global trends, or build re-usable services, would prefer CSV or XML data. Understanding how different needs relating to the use of data are balanced in different countries and contexts, how far choices over publication affect the emergence of intermediaries, and how intermediaries play a role in putting data to use, are all themes running through the ODDC project.

The research framework

Open data, governance and emerging impacts form the **three areas of focus** for the ODDC research. These are interrelated. There are many **types of open data**. These can be from or about governments, companies and markets, and citizens. Certain types of data will feed into certain **types of governance setting**, from political governance (elections, resource allocation etc.), to economic governance (market regulation, extractive industry regulation etc.), to social governance (inclusiveness, gender rights, rights of marginalised communities etc.). Data may impact on these areas of governance through a number of different mechanisms, which we term **'emerging outcomes'**. These emerging outcome areas include supporting transparency and accountability, driving innovation and economic growth, or promoting greater inclusion and empowerment of marginalised groups. The relationship of these three areas of focus is seen in the centre of the diagram below.

To support comparison and shared learning across the cases studies within the ODDC project we focus on six key components. These components may also be relevant for the design of common assessment methods to look at open data initiatives at a macro-level.



The six components are:

- **The context for open data** – including the political, organisational, legal, technical, social and economic context.
- **The supply of open data** – including data availability, legal frameworks for data, data licenses, and the stakeholders involved in providing data⁴
- **Technical platforms and standards** – including data formats and data standards use, and any data catalogues, APIs or analysis tools provided by an open data initiative
- **The context of the specific governance setting** – including a description and history of the issues in focus, details of key stakeholders, and analysis of how data plays a potential role in this setting
- **Intermediaries and data flow** – documenting the means by which data is made accessible in the governance setting: how, and by who?
- **Data use and impacts** – documenting the experience of those seeking to use data, and providing evidence of an intended or unintended consequences.

This framework for research is designed to allow us to explore a range of issues of contemporary policy and practice relevance, including:

- **Understanding the flow of data from open data initiatives, to potential users, through a range of technical and social intermediaries.** This should inform the design of open data initiatives and the design of interventions that can run alongside open data initiatives to realise certain governance outcomes.
- **Understanding how the wider context affects the potential of an open data initiative.** This should inform responses to questions of open data readiness, and whether open data initiatives are an appropriate intervention in all kinds of state. It should inform design of open data interventions that are more responsive to local contexts, as well as addressing the relative importance of issues such as legislative frameworks, political support and technical capacity.
- **Understanding how global standards, platforms, infrastructure and ‘eco-systems’ of open data affect local contexts.** As datasets, tools and standards are increasingly developed through cross-border collaborations, it is important to explore what impact the emergence of global open data ecosystems has on the use of open data in developing countries. This should support assessment of the relative importance of bringing more diverse voices into global standard setting processes.
- **Understanding the distribution of benefits from open data initiatives.** This will include addressing questions of who is empowered by open data in different settings, and exploring where potential economic and social value from open data is likely to accrue.

⁴ Note that the supply need not just be from government.

Following the research

You can follow the work of the ODDC project at www.opendataresearch.org. Over the coming year the project will share a range of research methods and tools, and will work to build a repository of shared research data.

Appendix: Research case studies

The 17 case studies taking place during the first year of the ODDC project are:

- [An Investigation of the use of the Online National Budget of Nigeria](#), University of Ilorin, Nigeria
- [Open government data for regulation of energy resource industries in India](#), The Energy and Resources Institute, New Delhi, India
- [Investigating the Impact of Kenya's Open Data Initiative on Marginalized Communities: Case Study of Urban Slums and Rural Settlements](#), Jesuit Hakimani Centre, Nairobi, Kenya
- [Open Data in the Judicial Systems: Evaluating Emerging Impact on Policy Design in Paraguay, Chile and Argentina](#), Centro de Implementacion de Politicas Publicas para la Equidad y el Crecimiento (CIPPEC), Argentina
- [Opening the Gates: Will Open Data Initiatives Make Local Governments in the Philippines More Transparent?](#), STEP UP Consulting, Philippines
- [The use of open data in the governance of South African higher education](#), University of Cape Town, South Africa
- [Understanding the impacts of Code4Kenya open data applications and services](#), iHub Research, Nairobi, Kenya
- [Exploring the use and impacts of open budget and aid data in Nepal](#), Freedom Forum, Kathmandu, Nepal
- [Open data, public budget and its relations to people's rights in Brazil](#), Instituto de Estudos Socioeconomicos - INESC, Brazil
- [Opening the Cities: Open Government Data in Local Governments of Argentina, Brazil and Uruguay](#), Instituto Pólis, Brazil
- [Exploring the impacts of online budget information at the sub-national level in Brazil – the case of the Cuidando do Meu Bairro Project in São Paulo](#), Research Group on Public Policies for Information Access (GPoPAI), University of Sao Paulo, Brazil
- [Accessing, Opening and Using Government Data in Five Indian Cities: National Policies and Non-Governmental Practices](#), HasGeek Media, Bangalore, India
- [The quality of civic data in India and the implications on the push for Open Data](#), Transparent Chennai, Institute for Financial Management and Research, India
- [How open data could contribute to poverty eradication in Kenya and Uganda through its impacts on resource allocation](#), Development Initiatives, Kenya, and Development Research and Training, Uganda
- [Open Government in the Philippines: exploring the role of open government data and the use of new technologies in the delivery of public services](#), De La Salle University, Philippines
- [Taking Stock of the Effectiveness and Efficiency of Open Data Initiatives in Sierra Leone](#), Society for Democratic Initiatives, Sierra Leone
- [Exploring the open data Initiative of the Ministry of Finance on National Budget Transparency in Indonesia](#), Sinergantara, Indonesia