Challenges to Open Data Institutionalisation: Insights from stakeholder groups in Nigeria

by

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Abstract
Institutionalisation of open data policies and practice both in organisations and the society is necessary for sustainability of the open data ecosystem. This paper examines the challenges to open data institutionalisation in Nigeria and aims to identify what elements exist in the system that could promote or bar institutionalisation. The methodology uses PESTLE and SWOT analyses and considers stakeholders such as government officials, civil society, media practitioners and other professionals. The findings show that Nigeria is very much at the pre-institutionalisation stage and the fate of open data hangs in the balance as the country transits from one government to another.

Keywords: Open Data, Institutionalisation, Challenges, Stakeholders

1. INTRODUCTION

Improvement of services and contribution to economic growth has been made possible by making information about services and budgets amongst other information publicly available on the web (IIEA, 2011). In Africa, the Government of Kenya launched its open data initiative in 2011 through which it made several government data sets available to researchers and the general public including students, software developers, journalists and civil societies. The World Bank (2011) reported that public engagement after the launch was impressive, as requests for new datasets on the site emerged causing software developers to respond with applications that merge datasets, map public services, and provide an SMS query tool so information can reach users in remote rural areas. However, this initial assessment is contradicted by the more recent finding that Kenyan citizens know little about the open data initiative and available data is of low quality (Mutuku & Mahihu 2014).

In the case study report investigating the use of the online national budget of Nigeria, Mejabi et al. (2014) report that on the on hand, the national budget had been published online since 2007 and on the other, Nigeria commenced activities to launch its own open government data (OGD) portal in January 2014. Since then little or no progress towards achieving the goal has been recorded. However, the same report highlights the fact that one of the 36 states of the Federal Republic of Nigeria launched its OGD portal with the help of the World Bank in September, 2013, the first arm of government in Nigeria to do so. Although, the quest for an OGD portal or portals is recorded late in 2013, open data actors and activities were recorded before 2013 in the form of intermediaries repackaging the ‘open’ national budget and activities such as code sprints and hackathons meant to create awareness of open data among citizens. However, all these activities seem fragmented. Apart from the Freedom of Information Act enacted in 2011 and the 2007 Fiscal Responsibility Act, there is no legislation to underscore the publication of open data by the federal or state governments in Nigeria. Such a disconnect between actions and impact was also identified from the multi-stakeholder approach of the Extractive Industries Transparency Initiative (EITI) in Nigeria which though created platforms for dialogue and engagement between government and other actors which did not exist previously was found to have “few discernible governance impacts, largely due to lack of links between simple EITI dissemination activities and discussions on the public sector reform” (Carter 2014, p. 13).
While it is clear that open data practice is at the very early stages in Nigeria, it is doubtful whether the elements exist for open data institutionalisation in the country. This paper examines the context of open data practice in Nigeria alongside consideration of the perceptions and views of stakeholders from the open data study by Mejabi et al. (2014) with the aim of identifying the challenges to open data institutionalisation. Overcoming such challenges require that we also identify the strengths in the existing system and the opportunities that exist for advancing the cause of open (government) data in Nigeria. We aim to answer the following research questions:

1) What elements exist in the system that could promote or bar institutionalisation of open data in Nigeria?
2) Are there any perceptions of open data that might be an impediment to open data institutionalisation?
3) If there are challenges to institutionalisation, how might these be overcome?

To answer these questions, we carry out a SWOT analysis that is anchored on ‘barrier factors’ adapted from Batagan’s (2014) elucidation of barriers to open government data. The results are then discussed from the perspective of institutionalisation parameters which helps to clarify how a system or innovation is maintained and reproduced (that is, institutionalized). This paper contributes to the theory and practice of open data institutionalisation by highlighting multiple aspects of institutionalisation of open data initiatives and policies. This paper is organized as follows. Section 2 reviews institutionalisation in society, section 3 outlines the methodology used, while section 4 presents the findings and section 5 presents this study's conclusions.

2. INSTITUTIONALISATION IN SOCIETY

Institutionalisation has meaning to practitioners and researchers in various fields such as in mental health, sociology and organisational studies. For example, the term may be used to refer to committing a particular individual or group to an institution, such as a mental or welfare institution. Institutionalisation is also used to describe the process of embedding some conception (for example a belief, norm, social role, particular value or mode of behaviour) within an organization, social system, or society as a whole. The term may also be used to apply to the creation or organization of governmental institutions or particular bodies responsible for overseeing or implementing policy. In business, the term refers to the process which translates an organization's code of conduct, mission, policies, vision, and strategic plans into action guidelines applicable to the daily activities of its officers and other employees. It aims at integrating fundamental values and objectives into the organization's culture and structure.

The word institutionalise is defined in the dictionary as ‘to subject to the deleterious effects of confinement in an institution’ or ‘to place in an institution’ or ‘to make or become an institution’. Clearly, the latter meaning applies in the context of this paper although the term institutionalisation is defined differently depending on the context. For example, institutionalisation has been described as “when an organisation takes on a life of its own, apart from any of its members, and acquires immortality” (Robbins, 2003, p. 524). Several authors have theorised on institutionalisation and conceptualised it as a multiple stream (Kingdon 1995, 2006) as a process (Tolbert & Zucker 1996), and as a web (Levy 1996).
Kingdon’s multiple streams framework has been applied to several policy related studies including policy reform in college matriculation policy for migrant workers in China (Zhou & Feng 2014) and to policy changes in national education curriculum in Hong Kong (Chow 2014). According to Kingdon’s multiple streams framework (1995, 2006), there are three streams of institutionalisation of initiatives or social process. The streams include what Kingdon called problem stream, policy stream and political stream. The main underlying assumption of the multiple-streams framework is that policymaking is dynamic, irrational and unpredictable and that the surrounding environment is always ambiguous and complex (Chow 2014). The framework centres on the policymaking environment with the problem stream being those issues that capture everyone’s attention and are so significant and urgent that they can easily attract the attention of government. The policy stream represents the formation of policy ideas, when solutions are “formed, developed, rejected and selected’ (Chow 2014, p. 52), and proposals which can survive must meet a series of criteria, including technical feasibility, congruence with values of community members and the anticipation of future ideas. The politics stream refers to public opinion, election results, and demands of interest groups and can be affected substantially by such happenings as a change of top personnel in government.

Chow (2014) identifies one of the strengths of the multiple streams framework as its usefulness in explaining how and why certain policy issues move onto a government’s agenda while others do not and another being the problem – solution matching process. Chow further identifies some limitations of the framework including not sufficiently acknowledging the significance of media effects, including social media because the media could escalate issues on the policy agenda. Another limitation outlined by Chow is the question of whether the streams are truly independent.

A different approach to studying institutionalisation is provided by Tolbert and Zucker (1996). They focus their attention on conceptualising and specifying the processes of institutionalisation. According to them, institutionalisation is both a process and qualitative state where structures are either institutionalized, or they are not. Tolbert and Zucker argue that creating new structure takes more resources than maintaining the old and that alteration and creation of organizational structures lead to costs for the organization; also that social structure is not simply a by-product of human activity but rather, human agency is required to produce it. They conclude that structures that are altered or created must be believed to have some positive value for the organization, or decision-makers typically would not allocate resources to altering or creating new formal structure. Tolbert and Zucker (1996, p. 181) outline a set of sequential processes: habitualization, objectification and sedimentation to describe the variability in levels of institutionalization – pre-institutionalisation (habitualization), semi-institutionalisation (objectification) and full institutionalisation (sedimentation). They imply that institutionalization processes among individual actors differ from that of organizational actors because the latter are affected by factors such as “hierarchical authority, potentially unlimited lifespan, unique legal responsibilities, and so forth” … which are “likely to affect the way in which institutionalization processes are played out”, and that these processes are often played out between organizations as well as within them. Each process is described as follows (Tolbert & Zucker 1996, pp. 181-184):
• Habitualisation - involves the generation of new structural arrangements in response to a specific organizational problem or set of problems, and the formalization of such arrangements in the policies and procedures of a given organization, or a set of organizations that confront the same or similar problems. These processes result in structures that can be classified as being at the pre-institutionalization stage.

• Objectification - involves the development of some degree of social consensus among organizational decision-makers concerning the value of a structure, and the increasing adoption by organizations on the basis of that consensus. Consensus may emerge through use of evidence gathered directly from a variety of sources (e.g. the news media, first-hand observation to assess the risk parameters of adopting a new structure or as a consequence of organizations' monitoring of competitors. Objectification can also be spearheaded by a 'champion' - often, in this case, a set of individuals with a material stake in the promotion of the structure.

• Sedimentation - a process that fundamentally rests on the historical continuity of structure, and especially on its survival across generations of organizational members. Sedimentation is characterized both by the virtually complete spread of structures across the group of actors theorized as appropriate adopters, and by the perpetuation of structures over a lengthy period of time.

Tolbert and Zucker represent their conceptualisation in the schematic diagram shown in Figure 1.

![Diagram](https://via.placeholder.com/150)

**Figure 1. Component processes of institutionalisation**

Source: Tolbert and Zucker 1996, p.182
Another approach to institutionalisation was proposed by Levy (1996) as a ‘web’ of institutionalisation. Although applied to gender institutionalisation in policy and planning, the approach reveals the network effect of actors, structures, organisations and society in achieving institutionalisation. The framework can be used to look at institutionalisation at different levels e.g. country level or in one organisation, and can be used as a diagnostic tool or an operational tool. To encourage a more systemic and systematic analysis of what is needed to embed a value in an organisation, Levy developed the idea of a ‘web’ of elements that all need to be in place for coherence and consistency. The web (shown in Figure 2) identifies 13 essential areas that need to be synchronised for institutionalising a normative shift, such as gender awareness, organisational learning, or power analysis. The elements are clustered into groups labelled; policy sphere, organisational sphere, citizen sphere and delivery sphere. Levy (1996) argues that the process outlined by the web of institutionalisation should help understand existing strengths and opportunities for change in a particular context to make it more able to learn. Where areas are weak or contradictory, indicate how improvements could be done.

Figure 2. The Web of Institutionalization (Levy 1996)

From the foregoing, we can conclude that institutionalisation is a complex phenomenon that requires multiple approaches in order to identify all factors at play. Applied to open data, such an approach is even more crucial as it is not likely to demand a frontal position in the policy agenda of governments given the conflicting socio-economic and political demands on resources. As Halonen (2012, p.42) points out:
In terms of open data emerging as a formidable public-policy reform, a crucial issue proves to be the inclusion of leading public-sector institutions in the formulation process of data policies from the beginning. Without a certain institutional push, there is a significant threat that the impact of new policy ideas will remain weak. In many countries there is a vibrant open-data community, but it is highly questionable whether this creative energy of individuals – however strong it may be – is enough to overcome obstacles that may be in the way of open data becoming a major factor in a wider social context.

We also identify the strong influence of socio-economic, political and technological changes taking place in society and institutions and the impact these have on institutionalisation. Thus the methodological approach utilises the use of PESTLE and SWOT analyses to help elucidate these factors.

3. METHODOLOGY

To answer these questions, data collected as part of an overarching study investigating the use of Nigeria’s open budget data are further analysed using content and comparative analysis. The data were collected from purposively selected respondents from amongst key stakeholder groups in Nigeria such as government officials and legislators (from both the supply and demand side of the budget data), civil society, media practitioners and professionals (Mejabi et al. 2014). In order to properly capture the underlying political, social, technical and legal factors that may affect institutionalisation of open data in Nigeria, we first present a PESTLE analysis. We follow this with a SWOT analysis as it is a very good tool for showing the relative strengths and weaknesses of the different actors involved with the Nigerian open data initiatives, as well as their incentives and interests with respect to open data. This approach provides an understanding of the dynamics and entry points for open data institutionalization in the country.

4. PESTLE AND SWOT ANALYSIS

4.1 PESTLE analysis for the context of open data in Nigeria

Political factors
The present-day territorial structure that is known as Nigeria had existed long before 1500 as distinct ethnic groups with diverse cultural and political background (Falola 1999), with markedly different cultural orientations and languages (Otite 1990). At the 1885 Berlin Conference when Africa territories were shared among the European imperial powers, these groups that were known to have been existing within the Niger Basin area of Africa were allotted to the British and perhaps for effective rule, the British divided the nation states into Southern and Northern Protectorates with different styles of rule and different goals or aspirations for the peoples in the two different Protectorates (Les Editions 2002).

By 1914, the British, through Lord Lugard, created Nigeria by amalgamating the Northern and Southern Protectorate, and, thereby, joining diverse peoples and regions in an artificial political entity with little sense of a common Nigerian nationality (Falola 1999). Indeed, this lack of feeling of nationhood or the lack of national identity has been enduring, and has been
the major bane of the country’s aspiration for progress, stability and development (Wright 1998). According to Falola (1999), agitations of the different peoples of the country to break into the original nation states of ethnic orientations continues, and the subtle demonstration of this might be linked with the existence of violent militias and terror groups springing up among the major ethnic groups with surreptitious ideological and political goals. This continues to be the case still. Thus, Nigeria became 100 years old in 2014, but still grapples with the economic, political and social realities that are hampering its steady growth and transformation (Wright 1998).

Politically, the country was consistently under different military rulers that came one after another through coups for more than three decades. Despite the predominance of military regimes during the three postcolonial decades, Nigerian society has retained many of the fundamental building blocks of a democratic polity: vigorous entrepreneurial classes, a broad intelligentsia and numerous centres of higher education, a dynamic legal community and judiciary, diverse and often outspoken media, and, increasingly, courageous human rights organizations (Siolium 2009). In 1999, the country was returned to civil rule and has been managing the inchoate democracy for more than 15 years now, although the challenges of pettiness, bitterness and struggle for the central political power among the different ethnic groups (Wright 1998), continues.

Nigeria is presently a Federation with 36 independent States and the Federal Capital territory (FCT) and 775 local governments across the States and FCT (Les Editions 2002). In spite of the theoretical division of spheres of control into exclusive (only for Federal Government), concurrent (for both the States and the Federal Government) and Residual (only for the States), the Federal Government has absolute control on the national revenue and its allocation to the subordinate governments in the states and local areas. Thus, the Federal Government takes the lion share of the national revenues from the Federation account, while it shares a proportion to the states and local governments. Sectors or affairs of governance that are within the exclusive and general control and administration of the Federal Government include Security, Fiscal policies and Foreign Relations, while concurrent affairs are those affairs that could be controlled or legislated upon by both the Federal and State Government, giving the federating states the freedom to initiate policies and programmes on such sectors of governance as it affects them (for instance, Education, Agriculture, Housing, Road, Taxation and Tourism). This is the case with the Fiscal Responsibility Law enacted in 2007 and the Freedom of Information law enacted in 2011 which have to be legislated upon by each state, for actualisation within the states. Residual list of legislative power is concerned with the affairs of government that are exclusively left to the states’ control and legislation without involvement or any form of control from the Federal Government.

All along its existence, during the military era and even during the civil rule in the first, second and third republic, the Nigerian political landscape and governance have been characterized by political patronage, corruption and injustice (Kukah 2007). At all levels, political leaders use a range of controls to subdue and manipulate the masses to ensure legitimacy they need from the masses. The political elites do close ranks to share the fruits of office and to prevent challenges to their positions (Ogbeidi 2012).

Results from the recently concluded 2015 general elections suggest that Nigeria is finally leaving behind the North-South and Christian-Muslim divisions. In the 2015 Presidential election which took place on March 28, the votes swung to the All Progressives Congress (APC) whose flag-bearer was General Muhammadu Buhari (a former military head of state
of Nigeria from 31 December 1983 – 27 August 1985), and will be taking over as President of Nigeria on May 29, 2015. Figure 1 shows the voting pattern by states and the Federal Capital Territory (FCT) in 2011 when the incumbent President Goodluck Jonathan of the Peoples Democratic party (PDP) won, and now in 2015 when the APC won. From an open data point of view, the election data summaries are available on the website of the Independent National Electoral Commission (INEC) at http://www.inecnigeria.org/?page_id=31

![Maps showing voting patterns by States and the FCT in the Nigeria elections in 2011 and 2015](image)

**Economic and Social factors**

It is difficult to discuss economic factors distinct from social factors in Nigeria as the two are highly intertwined. Economically, Nigeria was a promising country, particularly after independence. With 25% of Africa’s population (Oluwafemi & Ojo 2006) the country was seen as an emerging economy. With the rebasing of her economy in 2014, Nigeria is now considered the largest economy in Africa (Dana, 2014). However, the potentials or claim of being the largest economy are not manifested in the living standard of Nigerian people in reality, with more than 50% of its 170 million populace living under poverty level (World Bank Report 2014). As one of the major producers of crude oil in the world, as well as being the largest populated country in Africa, Nigeria is expected to be among the first 20 world economy. Unfortunately, a series of political, social and economic challenges have stalled Nigeria’s potentials for growth.

As the largest economy in Africa, according to the World Bank rebased economic assessment, the country generates over £147 billion a year in oil and gas revenue, and yet many of her people are among the continent’s poorest (World Bank Report 2014). According to USAID, 70% of Nigerians live on less than $1 per day, and the average life expectancy is only 47 years (USAID, 2013). The country ranks 158 of 177 countries on the United Nation’s Development Programme’s (UNDP) Human Development Index (UNDP, 2013). The U.S. State Department attributes Nigeria’s lack of social and economic development to “decades of unaccountable rule”, and a series of successive rule that lack transparency, accountability and public participation.
One of the social banes retarding the growth of the country is corruption (Gboyega, 2006). This is associated with financial recklessness, unemployment, and lack of transparency and accountability, which have pervaded all sectors of the nation (Ogbeidi 2012, Wright 1998). In spite of many civil society organizations’ efforts to drive good governance based on transparency, accountability and public participation, Nigerian rulers remain entangled in these vices along with high disrespect for public opinion. (Wright 1998).

By the 1980s, the education system in the country was turning out an increasing surplus of graduates. Dozens of university graduates lined up for a single opening, and many more for less specialized positions. Under such conditions, nepotism, ethnic favouritism, and bribery flourished in the employment process and the indirect result of these social realities is violence, which is taking on a new dimension of local terrorism (Falola & Julius, 1985).

These problems translate to issues of low voter turnout during elections, a pessimistic acceptance of the state of affairs and a general lack of civic engagement. For example, in the study by Mejabi et al. (2014), impediments to open data uptake by Nigerian citizens that were identified by respondents included illiteracy; ignorance; apathy; peoples’ lack of trust in government/corruption; and nonchalant attitude of citizens.

Technological factors
The telecommunication industry in Nigeria has one of the fastest growing telecommunications industries in the world (Hayes 2013) growing at a rate of 34% over the period of 2007-2012, and the contribution surged from 0.02% to 0.8% to GDP over the same period (Lucintel 2014). The success of mobile telephony is attributed to President Olusegun Obasanjo during his term between 1999 and 2007. It is popularly referred to with the acronym for Global System of Mobile Communication (GSM). The introduction of GSM equalised access to communication services for both the rich and the poor and due to service quality and price issues, subscribers have been known to subscribe to two or more service providers leading to the success of “dual-SIM” handsets in the Nigerian market (Tiamiyi & Mejabi 2012).

Nigeria has an estimated 1,400 internet hosts available primarily in large cities (Hayes 2013) with about 67 million internet users (about 38% of the Nigerian population) (Internet Live Stats 2014). This number may an underestimate as a large proportion of youths access the internet via ‘data bundles’ on their mobile phones through their GSM providers.

It is possible that technological advancements in Nigeria would have been even more than what it is presently but for the epileptic supply of electricity. Since the return of democracy in 1999, the various governments in power have tried several strategies to improve generation and distribution. However, citizens are yet to experience improvement in availability of electricity despite the move to privatisation and the establishment of distribution companies (called DISCOs) by the government.

In a bid to transform Nigeria using the vehicle of Information Communication Technologies (ICTs), the Government of President Goodluck Jonathan established the Ministry of Communication Technology in July 2011. Since then the Ministry has pursued the key priorities of connecting Nigeria through the ICT Infrastructure Development programme, Connecting Nigerians (through Universal Access), Local Content Development and ICT in Governance (Olaopa, 2014).
At a stakeholder workshop organised in April 2014 by the Open Data Research Group of the University of Ilorin to discuss results from its ODDC study, the keynote address was delivered by Dr. Tunji Olaopa, the Permanent Secretary, Ministry of Communication Technology. In the address, he states (Olaopa 2014):

It is in the context of this desire to ensure that Nigerians are connected and participate actively in the new economy as well as benefit from the opportunities that it presents, coupled with Government intent to make Governance more efficient and effective using ICTs, that the Ministry is championing the course of Open Data Initiative in Nigeria.

In this regard, the Ministry with the support of the World Bank and DFID organized an Open Data envisioning workshop in 2012, followed by a stakeholder’s forum. A more comprehensive stakeholder’s engagement forum, workshop and data clinic was also held on the 29th January, 2014 at the Transcorp Hilton Hotel in collaboration with the World Bank. Subsequently there is now an Open Data Working Group to coordinate all Open Data activities of Government.

It is noteworthy that our collaboration with the World Bank, DFID and the Open Government Alliance had yielded very useful reports on Nigeria’s readiness for Open Data, Open Data Technology Road Map, Open Data Action Plan and a framework for leveraging Open Data for innovation. … As we herald the berthing of Open Data on our shores, let me use this opportunity to warn that Open data research has to contend with the fact that it is still morning as far as the evolution of open data as a mainstream policy is concerned. Of all the government datasets in the world, indeed, all the NGO handled data, only a very small proportion is currently openly licensed and accessible online. Far from removing the need for research, this highlights the need to develop clear evidenced and research approaches that can equip diverse stakeholders to engage in informed dialogue and action to guide the future development of open data.

The commencement of the process made Nigeria the world’s first federal Open Data initiative to simultaneously launch inclusive and continuing consultations with both government and non-government communities on their Open Data priorities to develop the country’s national Open Data implementation plan (Ifebhor, 2014).

Although Nigeria does not yet have a formal Open Budget Data portal, the National Budget of Nigeria has been published on the website of the Budget Office of the Federation (www.budgetoffice.gov.ng) since 2007. Indeed, all Federal, and many State MDAs have websites. Whether the content on the sites are up-to-date and provide the information that citizens desire is not clear.

Legal factors
Legislation that is likely to have direct or some impact on open data institutionalisation in Nigeria include:

• The Fiscal Responsibility Act 2007
• The Freedom of Information Act 2011
So far, the awareness of Open Data within Nigeria has grown. The emerging open government data activities in Nigeria are being encouraged by the Freedom of Information Act which was signed into law in the country on the 28th of May, 2011. The law acts to make public records and information more freely available, provide for public access to public records and information, protect public records and information to the extent consistent with the public interest and the protection of personal privacy, etc. (FOIA, 2011). The Freedom of Information Act has based its mission to promote open and democratic government in Nigeria through advocacy for public access to information, participation in governance and vocal participation with diverse constituency, grass roots, civil society groups and government institutions (FOIA, 2011).

Also, the Fiscal Responsibility Act encourages open government data in Nigeria. It came into law following its signing by the Late President Musa Yar’Adua in 2007. The law provides for prudent management of the nation’s resources through greater accountability and transparency in fiscal operations, among other provisions. The law established the Fiscal Responsibility Commission, FRC, charged with the monitoring and enforcement of the Act to promote the country’s economic objectives (Premium Times, 2014).

Olagunju (2014) highlights the problem of lack of legislation covering data protection rights of Nigerian citizens in a piece for the Sahara Reporters, thus:

… why would the “President of Nigeria” and the National Assembly happily (as obvious in the launch) authorize the handover of biometric data of millions of citizens to a “foreign private firm”, without first engineering the existence of a very detailed and structured legal framework (rules, policies, and laws) that address issues of Data Protection and Privacy? Remember how oil rights were given to Shell in the early 1900s at the expense of Nigeria’s interest. The same problem of poor regulatory framework haunted the Power Sector, until the Electricity Power Sector Reform Act 2005 and the Nigerian Electricity Regulatory Commission (NERC) surfaced. In the words of the NERC Chairman, … failure in the electricity industry in Nigeria is, at heart, a failure of law. Law is the principal instrument of social development”.

Secondly, (for the National Assembly) how would a country like Nigeria not have data protection and privacy laws, in an age where Information and Communication Technology and human rights are quick to clash?

Thirdly, in the course of brokering the deal with MasterCard, did the Nigerian Government do a thorough data and privacy due diligence? Did those involved get technical expertise to review the privacy policy of MasterCard and its host country, and see where it conflicts with Nigeria’s interest?

… Now, on the matter of the need for a comprehensive Data and Privacy Protection laws, it is important to state that data and privacy laws exist to strike a balance between the rights of individuals to privacy and the ability of organizations to use data for the purposes of their personal business … When would Nigerian get hers? Is there a body that ensures that MasterCard or any other holder of data on such National scale uses it properly? What actions would be taken if data protection and privacy is breached? … These are key issues that should have been considered within a regulatory (and legal)
framework. In fact, aside the traditional roles of Nigerian Communications Commission (NCC), one wonders what regulatory (and legal) framework enforces a check on Nigeria’s Telecommunication companies with regards to data and privacy? These days unsubscribed text messages bombard ones phones about unsolicited lotteries from the network providers; even at midnight.

Environmental factors
Data management is essential for tackling environmental challenges such as the processing of energy consumption patterns to improve energy efficiency or of pollution data in traffic management (FORSEE 2012). In Nigeria, environmental issues for which citizens and policy will benefit from open data include crude oil related data in the Niger Delta region (both extraction and spillage), land use and electricity distribution/consumption patterns (Mejabi et al. 2014). The right policy and intervention decisions in these areas will depend increasingly on analysis of complete and factual data.

The beginnings of Institutionalisation of Open Data in Nigeria
It is against this background that the need and necessity to institutionalize open data initiative became inevitably desirable. The prevalence of financial recklessness, corruption, misappropriation and lack of transparency in Nigerian government spending constituted the problem stream, which presented a window of opportunity and need to provide a new direction to the national aspiration. As Kingdon (1996) noted, the problem stream refers to issues that capture everyone’s attention, including the government. Since the beginning of the 2nd Republic in Nigeria, issues of corruption and lack of transparency in governance has captured the attention of all and sundry in Nigeria, and there has been intense search and brainstorming on finding ways of resolving or minimizing the prevalence of the issues in the Nigerian political environment.

The second stream, which Kingdon conceptualised as a “policy primeval soup” (Kingdon, 1995, p.116) is the stage and circumstance in which policy ideas and solutions are formed, developed, rejected, and selected. Thus, the stage marked the beginning of the conceptualization of ideas on open data initiative as a way of institutionalizing transparency, civic engagement and curbing of corruption that has eaten deep into the fabric of Nigerian society. Policy communities comprising of specialists began to advocate open data policy as one of the next global mechanisms of stimulating civic engagement and revitalizing government transparency.

The third stream in Kingdon’s multi-stream framework is the political stream that is constituted and energized by factors such as the national mood, organized political force and events in government. Specifically, political stream refers to public opinion, election results, and demands of interest groups that intensify the desire to bring about transparency in public transaction and government businesses. Thus, it is at this stage that the open data initiative is being popularized by civil society organizations and other professional and pressure groups and calling for its institutionalization as a means of redirecting transparent government in Nigeria and energizing civic engagements among the populace.

Thus, the institutionalization of open data began when the Ministry of Communication Technology kicked off the Open Data Development Initiative to support Federal Government’s objective of driving innovation, investment and economic growth by enabling
access to government data. The institutionalization process at the national level was set in motion with stakeholder consultations from January 29th – 31st, 2014.

Meanwhile, Edo State became the first state in Nigeria to concretely institutionalize open data initiative by launching an open government data (OGD) portal making it the first of its kind within the country. The OGD portal was launched on the 13th of September, 2013, by Governor Oshiomole along with the commissioning of a data centre at the Directorate of ICT in the state with data communication links connecting all its government offices (Mejabi et al. 2014). According to Governor Adams Oshiomhole of Edo State, the only way to deal with wastages, fraud and ghost workers’ syndrome in government is to introduce information and communication technology (ICT) into governance (Techloy, 2013). Taking a cue from the Edo state government, the states in the Western region of the country are also coming together to launch a joint open portal for the state governments in the region.

However, there are those who believe that there is no need for a separate OGD initiative because that is the mandate of the National Bureau of Statistics (Mejabi et al. 2014). One of the strengths of the Nigeria Open Data Working Group is that all MDAs, including the National Bureau of Statistics are members, although there are only two representatives for civil society.

4.2 SWOT Analysis on Open Data Institutionalisation factors

Most of the information used for the SWOT analysis come from the study on Nigeria’s budget data (Mejabi et al. 2014). The analyses are presented in Tables 1 – Table 6. We make our judgement of the overall impact of a factor on institutionalisation (IZ) in an additional column of the SWOT table.

**Table 1 – Action Plan for OD or OGD**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Stakeholder</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunitie s</th>
<th>Threats</th>
<th>Impact on IZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action plan for OD or OGD</td>
<td>Government</td>
<td>Federal Ministry of Communication Technology (FMCT) is anchoring the national OGD initiative which is still at preliminary stages.</td>
<td>Unlike UK where the initiative was championed from the highest level (the Prime Minister’s Office.</td>
<td>Opportunity to copy or imitate the successes from other countries in crafting Nigeria’s vision for OD and OGD.</td>
<td>The expected change in political parties at the Presidency, come May 29th, may result in the truncation of the whole initiative if it is not in the priority list of the incoming government.</td>
<td>Very high</td>
</tr>
<tr>
<td>Edo state already</td>
<td></td>
<td>Only one of 36 states –</td>
<td>The more the States</td>
<td>Changes in Governors,</td>
<td></td>
<td>Very high</td>
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commenced OGD in 2013. so very low spread. that adopt OGD, the more institutionali zed will be the process. as from the 2015 Governorshi p elections, may result in truncation of projects and policies.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
<th>Impact on IZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSOs/NGOs/ Media practitioners /Academia /Researchers</td>
<td>Part of Nigeria’s January 2014 OD roundtable</td>
<td>Minimal influence on final action plan content.</td>
<td>Can put pressure on government to conclude and publish the OD action plan.</td>
<td>Critical mass of interest groups in OD does not exist in the country.</td>
<td>Very high</td>
</tr>
<tr>
<td>Professional Associations</td>
<td>Part of Nigeria’s January 2014 OD roundtable; including the Nigeria Computer Society &amp; Computer Professionals of Nigeria that have strong influence with the FMCT and its agencies.</td>
<td>Not enough high-level members with awareness of OD.</td>
<td>Can strongly influence the FMCT on the final action plan content.</td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 2 – Financial resources for OD work

<table>
<thead>
<tr>
<th>Factor</th>
<th>Stakeholder</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
<th>Impact on IZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial resources for OD work</td>
<td>Government</td>
<td>Supported by the World Bank and UK’s DFID.</td>
<td>Not likely to allocate funds from its national budgetary allocation to OD activities because allocations fall far short of</td>
<td>Can lobby for appropriatio n from other traditional sectors of the economy.</td>
<td>Possibility of actions on OD and OGD fizzling out once external funds are no longer available.</td>
<td>Very high</td>
</tr>
</tbody>
</table>
need across all the MDAs:

CSOs/NGOs/Professional Associations /Academia /Researchers

Do not have enough financial resources to fund advocacy and capacity building.

Can seek external funding for work that propagates the OD cause.

High

Media practitioners

A sustained media campaign does not necessarily require a lot of funds.

Do not have enough financial resources to fund independent campaigns.

Can collaborate with CSOs/NGOs /Professional Associations /Academia /Researchers.

Possibility of institutional sanctions if the media house feels threatened by the activities of their journalist.

Low

Table 3 – Knowledge of how to use OD (Technical Capacity)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Stakeholder</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
<th>Impact on IZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of how to use OD</td>
<td>Government</td>
<td>All government MDAs have formal ICT departments or Units.</td>
<td>Many top government officials do not have the ICT skills for OD usage.</td>
<td>Opportunity for targeted capacity building.</td>
<td>There is tendency not to support OD / OGD because of lack of know-how.</td>
<td>High</td>
</tr>
<tr>
<td>CSOs/NGOs/ Media practitioners /Professional Associations /Academia /Researchers</td>
<td>Few highly skilled individuals or groups.</td>
<td>Many individuals / groups without the ICT skills for OD usage.</td>
<td>Opportunity for targeted capacity building.</td>
<td>Low critical mass of skilled OD users will lead to an unsustainable OD ecosystem</td>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 – Identified preferences and attitudes to Open Data

<table>
<thead>
<tr>
<th>Factor</th>
<th>Stakeholder</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
<th>Impact on IZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD format Preference</td>
<td>Government</td>
<td>Some officials on the supply</td>
<td>All government respondents</td>
<td>Targeted Capacity building to</td>
<td>Knowledge gap even in government</td>
<td>High</td>
</tr>
</tbody>
</table>
side chose the Excel format (39% respondents) over the PDF format (26% respondents). On the demand side of budget data indicated a preference for open data in the PDF format. Expose government officials to the concepts of OD. Circles which may impede the institutionalization of open government data in Nigeria.

CSOs/NGOs/ Media practitioners /Academia /Researchers
A few highly skilled players such as BudgIT, Follow the Money, Informatics professional, understand the need for machine readable data. Predominant proportion of respondents prefer PDF mainly because they feel it is harder to tamper with and change the content of data. Opportunity for advocacy and training in data protection techniques. Possibility of sustained resistance to opening up government data in machine readable formats. Moderate

Table 5 – Integrity of published data

<table>
<thead>
<tr>
<th>Factor</th>
<th>Stakeholder</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
<th>Impact on IZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrity of published data</td>
<td>Government</td>
<td>General fear of tampering with published data to change its contents.</td>
<td>Opportunity for capacity building in data protection technologies</td>
<td>Resistance to release machine readable open data by government.</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSOs/NGOs/ Media practitioners /Professional Associations /Academia /Researchers</td>
<td>Effort, in terms of time and resources to covert PDF before re-use.</td>
<td></td>
<td></td>
<td></td>
<td>Moderate</td>
</tr>
<tr>
<td>Lack of trust in Government to</td>
<td>Government/ CSOs/NGOs/ Media practitioners</td>
<td>Opportunity to publish data in its most</td>
<td>Citizens may not use published OGD leading</td>
<td></td>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>
publish true data /Professional Associations granular form and/or in real time to lack of sustainability of the ecosystem.

Table 6 – Technical and Legal Requirements of OD

<table>
<thead>
<tr>
<th>Factor</th>
<th>Stakeholder</th>
<th>Strengths</th>
<th>Weaknesses</th>
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<th>Threats</th>
<th>Impact on IZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical and Legal Requirements of OD</td>
<td>Government/CSOs/NGOs/Media practitioners/Professional Associations/Academia/Researchers</td>
<td>Edo State initiative can be leveraged upon to provide an understanding of the technical requirement of OD such as platforms, licensing, etc.</td>
<td>Many believe that PDF documents satisfy the requirement to be called open data; and that any material on the web is free to use. The national budget data website currently has a copyright (all rights reserved) attribution on its web pages.</td>
<td>Opportunity for targeted capacity building.</td>
<td>Potential conflicts in demand for machine-readable formats of OD and enforcement of open data licensing. Non-OD formats and licensing have potential to suppress entrepreneurial benefits of OD.</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

5. CONCLUSIONS AND RECOMMENDATIONS

The following are identified from the PESTLE and SWOT analyses:

1. Political changes are identified as potentially having very high impact on institutionalisation of open data in Nigeria and effort should be made to put this on the policy agenda of the in-coming government. As Halonen (2012) puts it, the objective should be a change in the beliefs and behaviour models of political elites.

2. Technological dependency of open data is identified as an impediment which keeps potential policy advocates for open data and users away and which in turn erodes
institutionalisation. This was found to be the case in the study of the roles played by data intermediary organisations in India (Chattapadhyay 2014) and also in the study investigating how open data could impact resource allocation for poverty eradication in Kenya and Uganda (Lwanga-Ntale 2014). There was a pervasive belief that if open data is available in machine readable form, it could be tampered with, modified and falsified. This perception of open data abuse was identified as a challenge in case studies from the Philippines (Canares et al. 2014) and South Africa (Schalkwyk, Wilmers & Czerniewicz 2014). Addressing this fear of data abuse is also highlighted by Geiger and Lucke (2012).

3. A general need for targeted capacity building was identified. This may also address the issue of lack of trust in government data by Nigerian citizens, a problem identified by another study of Kenya, as a challenge to open data use (Chiliswa 2014). The problem of illiteracy and non-participation by citizens at the grassroots, leading to exclusion of a large proportion of the populace, was also highlighted by Chiliswa. Also, the provision of explanatory materials (capacity building) by relevant intermediaries that understand the technologies that support data. Another recommendation is that capacity building in the area of simple to actualise skills in technology-based data use should be promoted.

It can be argued that for governments and organisations, including the media and individuals, to open up their data or put open data to use, open data policies and procedures would have to be institutionalised. Such institutionalisation can only happen when there is a threshold of individuals, groups and organisations, who are believers of the open data philosophy; are well-informed and knowledgeable enough to craft relevant open data policies and procedures; and are skilled in the use and application of open data. We propose that was is needed at this early stage of open data adoption in Nigeria is a process of institutionalisation that is both strategic and practical.

END NOTE

REFERENCES

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