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Co-creating an Open Platform at the local governance level: How Openness is enacted in Zambia

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1. Introduction

Within recent years there has been a marked growth in interest in the concept of ‘openness’ in various organizational and institutional contexts (Chesbrough, 2003; von Hippel, 2005). In the government realm, openness has gained significant momentum and numerous scholars and policy makers have documented the need to open up the boundaries and allow broader involvement in the form of ‘participatory governance’, ‘integrated governance’, ‘associational democracy’, ‘networked governance’, ‘civic participation’, ‘collaborative public management’ and ‘deliberative democracy’, just to name a few terms. Hardt and Negri (2004: 340) characteristically say that an open approach to understanding democracy resembles “an open-source society, that is, a society whose source code is revealed so that we all can work collaboratively to solve its bugs and create new, better social programs”. The Open Government Partnership (OGP) initiative of the 57-member countries is a manifestation of the importance openness has had in the political agenda. The participating countries have made over 1,000 commitments to make their governments more open and accountable¹, which in turn is expected to press local politicians and civil servants to deliver better services (Goldstein, 2013).

The emergent governance mechanisms that this shift has brought about, have also allowed individuals to identify issues of importance, as well as to provide solutions. Powered by widespread and increasing access to Information and Communication Technologies (ICTs), crowdsourcing has been extensively used to track, report, and coordinate efforts in the context of natural disasters, civil wars and human rights abuses in Haiti, Pakistan, Libya and Kenya (Bott, Gigler & Young, 2014:110). For instance, Ushahidi is one of the most important crowdsourcing platforms where people can provide crisis information, FixMyStreet allows individuals to bring problems to local authorities’ attention, while

¹ <http://www.opengovpartnership.org/about>

Janaagraha, an Indian NGO, invites the crowdsourcing of bribery incidents.

Through the theoretical lens of the ‘technology enactment framework’ (TEF), we draw on the governance and open innovation in the public sector literature streams and examine the nuances of a shift towards openness in Luanshya, a town in Sub-Saharan Africa. The study presents an approach that highlights the importance of engaging citizens and the local community in designing technologies introduced by local authorities in the context of a development country without any prior experience in e-governance or any similar projects. If we look at the core open innovation processes as proposed by Gassmann and Enkel (2004), the study presents an outside-in (inbound) process whereby externals –namely citizens and other stakeholders- become actively involved in local governance. More specifically, the objective of the project has been described by the local authorities as follows: “To create an online space for Luanshya Municipal Council, citizens, public and private organizations, NGOs and anyone having an interest in the town to interact in meaningful and constructive ways for the benefit of the community as a whole”. Instead of focusing on the implementation phase and how citizens/ users adopt technologies after they have been introduced as objective artifacts, we rather explore how actors enact openness already in the design phase. The main question that arises is formulated as follows: How have actors enacted an open technology at the local governance level?

Rather than simply replicating a western approach of co-creation and open innovation in an African country, locals have been invited to express their needs and wishes, which have been subsequently embodied in the technology. Such an intervention is not to be considered as a deterministic approach implying that a technological construct per se would bring openness and consequently social value, but the focus should be placed on the negotiations that happen when locals are engaged in the design process. By using the technology enactment framework as the theoretical lens to make sense of the phenomenon and empirical

data, we propose an approach for framing the design of participatory technology projects at the local governance level, a contribution that can be further employed both by researchers and practitioners.

Before turning to the core of the argument, in the following section we introduce relevant literature streams, namely the participatory agenda, open innovation in the public sector and the use of ICT in the era of participation. The concepts discussed present the building blocks that will help us better understand the transition towards openness and participation with an emphasis on the role of technology. The technology enactment framework is then presented followed by a description of the research setting and methodology. Then the empirical material is presented and discussed in light of enactment theory and conclusions are drawn.

2. Theoretical background

2.1 Citizens' involvement: The participatory agenda

Innovation in the public sector with the aim to create value for society, although not a new idea, has lately attracted much attention mainly because of the incorporation of the citizen in the innovation process (Szkuta, Pizzicannella & Osimo, 2014). Yang and Pandey (2011) remind us that wondering 'how to make citizen involvement work' is nothing new, as it was in the late 1970s when Checkoway and Van Til asked similar questions such as, "in what ways does participation make a difference in the decisions and policy outcomes of government, and what kind of difference? (1978: p.35)". Developing methods and processes that support citizen participation towards democratization dates even earlier, back to the late 1960s and early 1970s (Geurts & Mayer, 1996; Glenn, 2003; Rask, 2013). Following the era of New Public Management (NPM), dating from the mid-1980s, the term governance made its appearance in the literature in the 1990s (Kooiman, 1993) to epitomize a transformation

from traditional forms to new modes of problem solving and decision making (Fischer, 2006). March and Olsen (1995:26) describe governance as the “rights, rules, preferences and resources that structure political outcomes”, a definition which moves beyond considering governments as the sole subjects of power.

The participatory agenda in developing countries was introduced with expectations to improve public service delivery (Andersson, 2004; Baiocchi, 2003; Ostrom, 1996), empower citizens, deepen democracy and increase local government responsiveness and accountability (Andersson & van Laerhoven, 2007; Fizebein, 1997; Goldfrank, 2002). Participatory theorists argue that meaningful citizen participation is expected to lead to better decision making, as well as facilitate social stability by developing a sense of community, increasing collective decision making, and promoting acceptance and respect of the governance process (Callahan, 2007). The rhetoric used in the governance discourse in general includes statements about an ‘enabling’ state, ‘steering’ not ‘rowing’ (Osborne & Gaebler, 1992), whereby new forms of non-hierarchical, de-central, co-operative and participatory frameworks replace top-down regimes (Bora & Hausendorf, 2006).

Based on these premises, the United Nations developed the ‘Engaged Governance’ framework with the aim to involve civil society groups in decision-making structures (Kpessa, 2011), what has been also coined as participatory governance. This latter term encompasses the mechanisms that facilitate participation of citizens in public policy (Andersson & van Laerhoven 2007; Speer, 2012). Ackerman and Fishkin (2004:447) contend that “the best way to tap into the energy of society is through co-governance, which involves inviting social actors to participate in the core activities of the state”. In this vein, ‘deliberative democracy’ (Cohen, 1989) draws our attention to the importance of pluralism of values; the existence of an open deliberation as a source of policy legitimacy and the equal opportunities to propose, criticize, or support policy ideas (Kpessa, 2011). All these liberating

terms/forms of participating are founded on the premises that more voices need to be considered at the local and global level.

2.2 Open innovation in the public sector

This pluralism through civic participation and the transition from hierarchical and top-down government to more participatory forms has also inspired a growing number of public sector organizations to adopt open innovation principles (an example is Nesta's activities and projects). Open Innovation as a management paradigm that favors the transcending of pre-defined boundaries refers to opening up the innovation process so that innovations can emerge through non-traditional mechanisms and in many cases through non-anticipated channels, what Möslein (2013:p.71) calls 'peripheral inside innovators' or 'outside innovators'. Peripheral inside innovators are insightful employees for whom innovation is not part of their job description; while outside innovators are creative customers, suppliers, value creation partners, universities, institutional research departments and other units that reside outside the boundaries of the focal organization. This latter category also incorporates the practice of crowdsourcing, a concept that has been popularized by Jeff Howe and Mark Robinson in a Wired article. According to Howe (2006) crowdsourcing can be understood as "the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call".

If we make a parallel with the public sector, we realize that citizens' involvement and participatory governance are closely related to the intrinsic principles of open innovation and crowdsourcing. In fact we can describe open innovation in the public sector as the process during which outside innovators (citizens, private sector, universities etc.) participate in government's projects, decision-making and strategy formation towards fostering innovation and social value. Even though the most popular stories of open innovation are case studies

within large corporations (such as Procter & Gamble or General Electric) there is an emerging stream that focuses on open social innovation (Chesbrough & Di Minin, 2014) and open innovation in the public sector (e.g. Seltzer & Mahmoudi, 2012; Clark, Brudney, & Jang, 2013; Budhathoki & Haythornthwaite, 2013; Mergel & Desouza, 2013). Notable examples include the identification of problems and incidents by citizens (e.g. Fixmystreet.com, Janaagraha, Change By Us), invitations to solve empirical problems (e.g. the President's Save Award and several calls by NASA on the InnoCentive platform), ideation contests and tasking 'the crowd' with analyzing large amounts of information (e.g. Open Street Map project, the Peer to Patent initiative)².

2.3 ICT in the public sector in the era of participation

Not surprisingly, the role of ICTs in nurturing participatory governance and open innovation has been integral. Government 2.0, Government as a Platform and 'We-government' denote the opening up of governmental boundaries for other stakeholders to participate on platforms inspired by Web 2.0 technologies. Government 2.0 is presented as a new way to describe how these technologies can facilitate the socialization of government services, processes, and data (DiMaio, 2009; Nam 2012; O'Reilly, 2010). Web 2.0 technologies in government include among others social networking websites (e.g. Facebook), micro-blogging (e.g. Twitter), multimedia sharing (e.g. YouTube), virtual worlds (e.g. Second Life), mashups and open data (e.g. Data.gov), User-Generated-Content questioning tools (e.g. Quora), crowdsourcing (e.g. Mechanical Turk), collaboration tools (e.g. Peer-to-Patent and Wiki Government), tagging (e.g. Digg), and content syndication (e.g. RSS) (in Criado, Sandoval-Almazan & Gil-Garcia, 2013).

A number of information systems (IS) scholars have linked governance and development to technology (Kalu, 2007) and have articulated the associated implications

² For a typology of crowdsourcing types in the public sector, please refer to Brabham (2013).

(e.g. Avgerou, 2008; Madon, 2000; Mansell & When, 1998). In the policy domain, governors in developing countries are oftentimes advocates of a utopian technologically deterministic approach that treats technology as a fix to problems. The Zambian President, Edgar Lungu, launched the E-government division in the end of October 2015 convinced that it will contribute to reducing transaction costs, improving productivity and in broad it will transform the country in a manner that will bring significant gains to businesses and consumers³. In a similar manner, Kofi Annan maintained that “[a] technological revolution is transforming society in a profound way. If harnessed and directed properly, ICTs have the potential to improve all aspects of our social, economic and cultural life” (ITU, 2002⁴). Such a causal utopian relationship has been critiqued by academics. Bailur and Gigler (2014:2) for instance suggest that we should analyze the factors necessary for empowerment instead of assuming immediate causalities. In this direction we employ the technology enactment framework to better understand the phenomenon under study.

2.4 Technology enactment framework (TEF)

The technology enactment framework has been proposed by Fountain (2001) as “a more complete and powerful explanatory framework” to study “the dynamic relationship between organizational structure and new modes of information technology” (p.88) in public organizations. Fountain draws on institutional and structuration theory to suggest a framework towards better understanding IT-related changes and innovations. More specifically, she defines TEF as a framework through which we can understand “the critical role played by the sociostructural mechanisms within organizational and institutional arrangements as public managers struggle to integrate the capabilities of a new information technology with such arrangements”. She distinguishes ‘objective information technologies’

³ <https://www.lusakatimes.com/2015/10/22/president-lungu-launches-e-government-division/>

⁴ <http://www.itu.int/itu-news/issue/2001/10/wsis.html>

(i.e. Internet, IT hardware, software and digital telecommunications) from enacted technologies by noting how perceiving, designing and using technologies is influenced by organizational forms (bureaucratic and network-based) and institutional arrangements (cognitive, cultural, social structures, and legal and formal rules) (see figure 1 for a depiction of TEF). The framework also includes certain outcomes as a result of enacting technology that are multiple, unpredictable, indeterminate, unanticipated and influenced by rational, social and political logics. The use of bidirectional arrows indicates the cyclical process that technology enactment reinforces. Outcomes therefore do not appear as the final stage of the process, but rather trigger a new set of institutional and organizational arrangements through ‘action-reaction chains’ in an ongoing process of enactment.

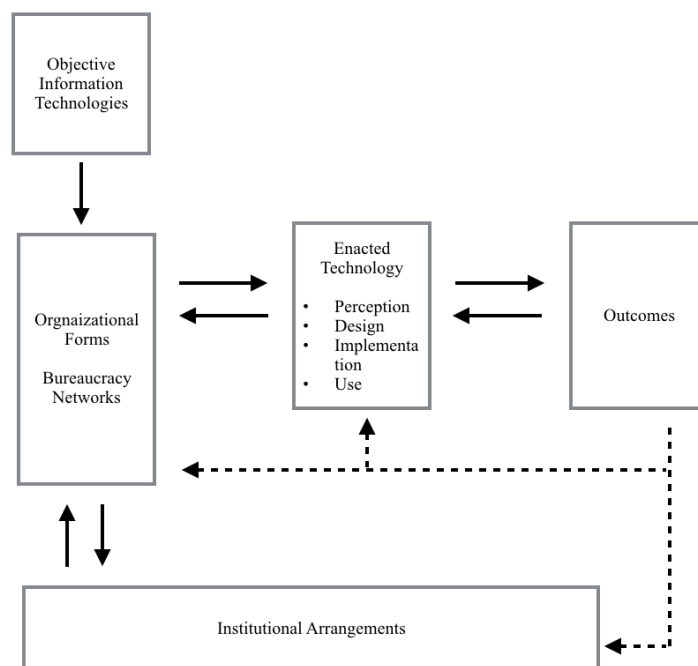


Figure 1 Technology Enactment Framework (Fountain, 2001)

This interplay between structure and agency has been an analytical puzzle that philosophers (e.g. Foucault, Bourdieu, Geertz, Habermas) and organizational theorists (e.g. DeSanctis, Poole, Orlikowski) have attempted to solve. Although it is beyond the scope of this paper to review this rich debate we should note Giddens’ conceptualization of structure

as “a property of social systems, carried in reproduced practices embedded in time and space” (1986: p.170). The mutual constitution of social systems and the practices that bring them into existence and are further influenced by them is an idea inherent in the TEF and many similar sociotechnical vignettes of theorizing IT (for instance see Leonardi and Barley (2010) for a thorough review of various constructivist perspectives such as perception, interpretation, appropriation, enactment, and alignment). Karl Weick, who is known as the father of the notion of ‘enactment’ in his later work further explicates how we can understand enactment:

“Enacting involves shaping the world (e.g. a self-fulfilling prophecy verifies itself) as well as stirring the world so that it yields what we then treat as ‘answers’. Typically, all it takes to trigger and guide enactment is a small structure such as a melody, a map (even any old map under the right circumstances), a crack in a caribou shoulder bone, a simple if-then plotline, or a nudge at a tipping point. These minimal structures often are sufficient to produce order since they animate activity, calm fears, get people in motion, and focus attention, all of which serve to update the initiating structures. These sequences are moments of enactment” (Weick, 2006).

This description of how melodies and maps as forms of structure can trigger action and activity can be used as a metaphor to understand technology enactment. In this vein, the enactment perspective sheds light on how “those who design and implement technologies can influence the social order that people enact as they use the technology” (Leonardi & Barley, 2010). Thus scholars who employ ‘enactment’ as an analytical lens treat “structures as inherently virtual, as patterned streams of action and interaction” (ibid).

TEF has been acknowledged as an important theoretical contribution in the field of e-government, yet it has also received much criticism. The main concern that scholars have expressed is that Fountain’s arguments and originality are based on the limitations of what she calls ‘shadow theories’ (i.e. technological determinism, rational actor perspectives, incrementalism, systems analysis, social psychology perspectives and discussions on technology and structure). Grafton (2003) calls Fountain a moderate technological determinist, while Norris (2003) accuses her of not recognizing prior social science research

about IT and government. Among others, Bretschneider (2003) argues that TEF is very abstract to be useful for prediction and Yang (2003) notes that the use of neoinstitutionalist theory fails to explain the relationships between agents and institutions.

Having acknowledged it as an important point of departure, scholars have adjusted and refined it towards overcoming the aforementioned limitations. For instance, Tsai, Choi and Peery (2009) adopt TEF in their study of a Geographic Information System (GIS) and Cordella and Iannacci (2010) further extend Fountain's framework by introducing the e-Government enactment framework as an enhanced version that actively accounts for the policies that shape the nature of the various technologies implemented. An alternative revision comes from Yang (2003) who draws on Werle's (1998) actor-centered institutionalism. In that sense, actors are not determined completely by institutions, but rather institutions only define "a scope of acceptable actions leaving room for diversity of strategy and choice" (ibid). Schellong (2007) also places emphasis on the role of actors. More specifically, inspired by a previous extension added by Okumura towards including the roles played by different actors, he presents a revised "hybrid form between an actor-centered and a strictly institutionalist approach". The main differentiation is that he proposes citizens and businesses as distinctive groups of actors and notes that "their enactment of technology influences the success of eGovernment services, organizational forms and institutional arrangements". This acknowledgement is particularly interesting and relevant in open innovation processes, as citizens are not any more treated as externals or as recipients of policies, but rather as integral actors who in enacting technologies they also enact institutions and organizational forms. These revisions have informed this study and how TEF has been employed to make sense of the open platform.

2.5 Research gap

Although much ink has been dedicated to keeping the discussion going about how

technologies can foster civic participation and in turn socioeconomic development, scholars have noted the dearth of research that focuses on developing nations (Meso, Datta & Mbarika, 2006). They have also suggested that more detailed theoretical models of the impact of participatory governance are needed (Speer, 2012), as well as further exploration of the current practices that contextualize and shape participation in different settings (Lombard, 2013).

To this end, we revisit openness in a developing country –a virgin context where citizens have no prior experience in e-governance practices- and in so doing we invite research participants to co-design a web-based platform. At the core lie the thoughts and beliefs of the locals, what their expectations of participating in governance are, what their priorities are and what they are afraid of. Having in mind what IS scholars have pointed out about the need to take “a holistic approach that integrates ICTs into the overall development objectives of specific programs, rather than being driven solely by technological concerns” (Gigler, 2014:18), the author adopts an action research mindset and methodology and introduces a malleable technology to the citizens of a town in Zambia.

The study builds on the analytical power of the concept of enactment in general and of the technology enactment framework in particular to analyze the co-creation of a participatory technology through the eyes of all relevant actors. Following Cordella and Ianacci’s (2010) problematization about the ‘objective’ nature of information technologies we illustrate how the dynamics change when citizens are actively involved in the early stage of design and discuss the malleability of a web-based platform, that is to be found not only in how the technology is perceived through its use but also in the very making of the technology during the design phase. It therefore becomes of particular interest to investigate the co-creation process of a technology in a context where both structure and agency are negotiated and co-shaped. As it will be explained in the following section, the technology has served as

an opportunity for negotiations, during which the different groups of people expressed how they envision their 'public sphere' and how they would like to make it happen.

3. Research setting and methodology

The research insights emerged from an action research approach conducted in the town of Luanshya, Zambia. The term 'action research' was coined in 1946 by Kurt Lewin and denotes research leading to social action. Reason and Bradbury (2001:1) define it as "a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview..." In a later study (Bradbury & Reason, 2003), they emphasize that "action research is grounded in lived experience, developed in partnership, addresses significant problems, works with (rather than simply studies) people, develops new ways of seeing/interpreting the world (i.e. theory), and leaves infrastructure in its wake". Action research emanates from a larger emancipatory vision that aims at making a social intervention in the long-term. Researchers are therefore preoccupied with improving the lives of marginalized people throughout the research (Buskens & Earl, 2008) by involving them in the inquiry process. The research process is thus to be treated as "an iterative cycle of problem identification, diagnosis, planning intervention, and evaluation of the outcomes" (Checkland, 1991; Dickens & Watkins, 1999). However, this is by no means a linear procedure, but rather a process of negotiations during which both the problem and the solutions are contested and open.

Moving on to the specificities of the study, the process started with the researcher after having spent eight months in Luanshya Town and interacting with some local people, feeling the need to intervene in some unspecified way. Over this period I happened to come in contact with civil servants, residents and NGOs. What all had in common was the desire to exchange opinions and interact for different purposes or in other words the desire to have a space where they could communicate. This is how an iterative process of co-creating such a

space began.

3.1 Data collection methods

An array of methods was employed, such as interviews, focus groups, field notes, online participant observation and archive analysis over a period of nine months divided into three phases (see Table 1). In the first phase semi-structured interviews and focus groups ranging from 40 to 160 minutes were conducted with key stakeholders and community members. All interviews took place at the Municipal Council and were corroborated through the analysis of policies, meeting minutes, pinned documents on the notice board, records of official decisions, departmental descriptions, mission statements, forms and workflows, project descriptions, archives of pictures, sports results, newspaper articles and design plans for sale (phase II). Based on this data the researcher introduced an online platform as a space where the specific needs and desires of all groups could be openly enacted. The design of the platform was co-created throughout the research phases, as it was informed by participants' input. In the third phase more interviews with the Town Clerk and council members were conducted along with online participant observation during early use of the platform.

Table 1. Data Collection Methods		
Data Collection Methods	Participants	Demographics
Phase I		
Focus Group	Municipal Council Meeting 11 participants	6 men, 5 women, all between 25-40 years old
Focus Group	Human Resource & Administration Department 20 participants	6 men, 14 women, all between 25-40 years old
Focus Group	Finance & Planning Departments 34 participants	22 men, 12 women, all between 30-50 years old
Focus Group	Environment, Housing & Social Services Department 21 participants	10 men, 11 women, all between 20-45 years old
Focus Group	Engineering Department 18 Participants	15 men, 3 women, all between 25-45 years old

Interviews	Department of Labor 2 Officers	2 men, 40 and 45 years old
Focus Group	Stakeholders Meeting I 17 participants from technology companies, District Medical Centre, banks, Rotary, district administration, hospitals	10 men, 7 women, between 20-55 years old
Focus Group	Stakeholders Meeting II 14 participants from hospitals, banks, schools, lodges, police and other public and private organizations (e.g. water supplier)	7 men, 7 women, all between 25-40 years old
Interviews	Stakeholders Meeting III 10 representatives from education, Community Based Organizations, Business Community	6 men, 4 women, all between 25-40 years old
Focus Group	Feedback and Training Representatives from the five departments of the Council (one from each)	3 men, 2 women, all between 25-40 years old
Phase II		
Document Analysis	Descriptions of policies, meeting minutes, pinned documents on the notice board, records of official decisions, departmental descriptions, mission statements, forms and workflows, project descriptions, archives of pictures, sports results, newspaper articles, design plans for sale etc.	
Phase III		
Interviews	Town Clerk and representatives from the five departments of the Council	4 men, 2 women, all between 25-40 years old
Online participant observation	Systematic study of the online interactions	306 posted items in total

3.2 Data analysis

All interactions were recorded and transcribed and notes in an ethnographic style were kept by the researcher. The data was analyzed with the use of MAXQDA qualitative software following open, axial and selective coding (Corbin & Strauss, 2014). Open coding refers to the process of breaking data apart and delineating concepts to stand for blocks of raw data, whereas axial coding describes the act of relating concepts/categories to each other (ibid: 198). More specifically, data was coded and grouped into relevant concepts and categories using informants' words and language (open coding). Then relationships and patterns between the categories were identified (axial coding). In the third stage (selective coding) we produced the final themes as a combination of theory and emerging families of categories. Four overarching themes were produced revolving around i) the need for cross

stakeholder communication, ii) civic participation towards creating social value, iii) transparency and openness as driving forces of co-creation and iv) local development through online governance. Table 2 depicts the hierarchical structure of analysis with illustrations from all levels of the analytical process (i.e. from concepts, to categories and patterns and to the overarching themes).

Concepts (examples of quotations)	Patterns	Themes
<p>“Two months ago we started an exercise of going out to meet the members of the community. We started with Mpatamatu. We’ve been addressing the difficulties that we face in the council arising from their failure to pay their debts. And it has been very effective. They appreciated it and they told us they were ignorant of most of these things. So from there we moved to another township called Roan, we came to Mikomfwa and we’ll be doing this quarterly. We would like to be meeting members of the community so that they share their problems with us, we also share our problems with them and together we find the solutions. Already they’ve raised a lot of queries and in certain cases we committed ourselves to implement some of them. So at the next meeting they would like us to give them a progress report. Through a website it will be easier, I think it will help a lot. This will bring us closer to the people”.</p>	<p>Top-down reporting</p> <p>Bottom-up problem/opportunity identification</p>	<p>Need for cross stakeholder communication</p>
<p>“I would like to contribute to community development. People are mostly farmers but they rely on the rain season. People in areas like Mikomfwa cannot even afford to have a garden in their back yard. I was thinking if an NGO or a business can buy a drilling machine for those people and get into an agreement and let them pay slowly. At least it will empower them... People who start earning a little bit of money can’t get a loan form the bank. If something can come like that, we can achieve something”.</p>		
<p>“...We are dealing with disease prevention, so it would be useful to include something related. Especially health surveillance area hot spots on the map. Lets say in Mpatamatu there is an outbreak of typhus. We could post something like ‘please avoid the Mpatamatu area in this section’”.</p>	<p>Publishing teaching material</p> <p>Announcing free slots at hospitals</p>	<p>Civic participation towards creating social value</p>
<p>“Many miss their dates with doctors, we can advertise when they can see the doctor and when not to. Some walk a long distance only to hear that today you cannot see the doctor”.</p>	<p>Health and safety hot spots</p>	
<p>“This tool is not only for marketing but also shows the evidence of what is happening in the district. If nothing</p>	<p>Reporting about</p>	<p>Transparency and</p>

has been posted how has the money been used?"	implementation of projects	openness as driving forces of co-creation
"Each Department can be submitting their reports through the Public Relations department. Every week each department writes a report and we submit to the Town Clerk through the directors. One from each department should feel responsible and publish on a specific day. Not that they can't publish on the other days but on Monday let's say is the day for the administration to report. Wednesday for housing... We have to be forcing this".	Finance and budget details	
"It [referring to the technology] will definitely put Luanshya on the world map. We have to promise continuous building up".	Opportunities for change	Local development through online governance
"For me this is a resource mobilization tool, something should come from this if we profile it well. Someone should come and say I'm going to come and work at the rugby pitch".	Dissemination of information about local activities	
"Even those who are not here in Zambia they should be able to click and they will find us, also they will know where activities are happening in Luanshya and what they can get from Luanshya. A lot of activities are going on, but the potential of Luanshya is not exposed. Through this platform we can expose what people can get from Luanshya and how best we are contributing to a number of activities".		

4. Empirical material

4.1 Embarking on the co-creation of an open space

Luanshya is located in the Copperbelt Province, 337 kilometers away from Zambia's capital city of Lusaka. As for the local political authority, the Luanshya Municipal Council (LMC) is headed by the Mayor, who is the ceremonial head of the Council, while a full time chief executive officer, the Town Clerk, is managing the day-to-day affairs⁵.

The LMC was an obligatory passage point for any discussions and interactions with citizens and other stakeholders. It was therefore the departure point that allowed and subsequently encouraged opening up the space for more groups to participate. The Town Clerk organized the first meeting with representatives from all local government's

⁵ (Information provided by Mr. Thole, Public Relations Officer, LMC)

departments being present. He was the first to introduce the purpose “of creating some sort of technology for public administration and communication”. With this being the general purpose and agenda, he continued with defining the problems that the local authorities have been facing focusing on the lack of a proper communication platform between the private and public sector. This major challenge emerged several times in the conversations with civil servants who shared their priorities and routines.

4.1.1 Civil servants’ priorities

Participants from all departments in all meetings passionately pointed to the need for communication within and across departments, as well as with externals. Openness for them would be first and foremost translated into a chance for communicating their activities with the public. Many treated the potential of a web-based technology as an opportunity to report to the citizens and national authorities about progress. This need was particularly strong especially given the main communication platform in place at the time, namely the radio. Citizens were phoning to the radio station whenever they wanted to report a problem with the hope that someone from the council would listen and take action. The local radio has been a key communication medium in rural areas with certain expectations inscribed, such as to strengthen citizenship ideas, contest established social and political structures and facilitate the collaboration among the local community members (Navarro, 2009). It thus came as no surprise that the radio has been the main platform for citizens of Luanshya through which they have been expressing their views, questions and complaints. Acknowledging the shortcomings of the medium, civil servants further elaborated on the challenges they have been facing in their work practices, as well as their wishes and fears in general.

The Director of Finance shared a communication practice that his department had recently adopted. It was “an exercise” they launched in an effort to come closer to citizens and entailed traveling to different areas to meet and talk with people. The exercise started

from a rural area called Mpatamatu, where the council's finance team explained the problems the council had been facing due to the delays in paying debts and taxes. The practice was effective, in that, citizens appreciated the precise reporting and the updates on the council's initiatives. They continued with more townships like Roan and Mikomfwa and based on the feedback they decided to be traveling on a quarterly basis to meet citizens and discuss with them. Not only citizens were interested in receiving information about plans and agendas, but they also wanted to somehow express their own problems and questions. During the first visits citizens raised a lot of queries and in certain cases the council committed to implement some of them. In the following meetings they would therefore need to prepare a progress report to show them in which ways their ideas and problems have been taken into consideration.

This emerging practice of 'coming closer to the people' was one of the main priorities local governors wanted to systematize. The Town Clerk suggested that an online equivalent of the process would simplify interactions and could potentially open up the space for more voices to be heard. This would also allow civil servants to transparently report on projects' progress, so that the relevant ministries and other municipalities could also track which initiatives are pending, completed or in progress. Furthermore, participants passionately expressed the desire for designing a space for questions and ideas and gradually replace the practice of replying to the 200-300 letters that arrive at the council every day.

Designing together with participants such a space required a deep understanding of their day-to-day tasks, official job descriptions and wishes. What they wanted most was to communicate their routine with the citizens and make them feel part of that routine. Activities such as grass cutting, street light installations, unblocking drainages, developing pre-school activities, indoor residual mosquito spraying were among the many micro practices that citizens were not aware of. It became thus apparent in all interviews and focus groups with

departmental heads and civil servants that both top-down reporting and bottom-up communication would substantially improve awareness about local needs and priorities. Along these lines, they suggested to arrange a series of stakeholders meetings so that more groups could be involved in the creation of the space for interaction and communication.

4.1.2 Citizens' and other stakeholders' priorities

Businesses people, NGOs, Social Clubs, governmental departments and citizens were invited by the council to participate through open calls and announcements on the council's notice board. In those meetings openness took a different shape through the eyes of the participants. After a short introduction of the purpose of gathering, participants engaged in conversations in which they brought their priorities and desires to the fore. A citizen referred to the importance of being able to be reporting incidents to the police online. He explained that anonymity and immediacy would enable people to report suspicious behavior or criminal actions. Many agreed with prioritizing security by engaging citizens in the process and added that citizens together with health authorities could be actively involved in the identification of health surveillance hot spots. In a region where disease prevention is a major survival challenge participants agreed that citizens could play a role by reporting outbreaks of transmittable diseases, such as typhus.

In the meetings that followed, the different stakeholders shared their own priorities and concerns. Business people expressed the need to foster local development. They described that the insufficient information about demand and supply of workforce and materials has been the reason why business people have been reaching agreements with suppliers from other countries. A systematization of announcing job ads, tenders and news would help towards supporting local economy but also in strengthening community bonds. When a businessperson spontaneously asked participants whether they were aware of the new leach plant in the mines no one reacted, even though this was a big development project.

Similar news and requests passed unnoticed due to the ephemeral nature of the prevalent communication media in place, namely newspapers, radio and notice boards.

Providing the means to improve awareness has been a major issue of interest; awareness about issues ranging from council's initiatives and business news to disease hot spots and free slots at the hospitals. A doctor from Thompson hospital mentioned the need to somehow coordinate the process of informing patients about the available slots instead of asking them to walk 30 km just to find out there is no available doctor. Yet, the need for educating citizens has been the most important priority in most meetings. With education being a luxury good that only a few can afford in Sub-Saharan Africa, high school teachers suggested the creation of online repositories with well-organized teaching material. The learning experience in the majority of schools in the country includes teachers writing on the blackboard and students being introduced to the limited material that can fit on the blackboard's surface. Teachers suggested not only the creation of online repositories but also the creation of a space where students would be able to interact online with each other and with other teachers.

In the spirit of educating people, an officer from the labor ministry committed to upload the labor laws and a bank manager proposed the creation of an online financial advisory with relevant information about incorporating a new company and funding possibilities. It was at this point that a citizen owning a small lodge mentioned the need to support entrepreneurship through micro financing. In her words:

“People in areas like Mikomfwa cannot even afford to have a garden in their back yard. I was thinking that a NGO or a business could buy a drilling machine for those people, get into an agreement and let them pay slowly. At least this will empower them... People who earn a little bit of money can't get a loan form the bank. If this can happen, we can achieve something”.

This idea was warmly supported by many and in turn inspired the introduction of a peer-to-peer solidarity system through which citizens could request for help from other citizens or organizations. Examples include requests for covering school fees, orphan care, senior care and disability equipment.

Encouraging local development has been a further priority. Participants demonstrated their genuine desire to promote their town beyond the physical boundaries through disseminating information about activities, innovations and achievements. Representatives from NGOs extensively described their missions and activities and noted how the platform could attract interest from investors, volunteers, and the ministry, but more importantly how it would engage citizens. The director of the Community Health Restoration Program (NGO) eloquently noted that such a platform ‘would put Luanshya on the map’.

The promotion of Luanshya as a destination has been a key priority that was shared by many research participants. They were asking whether content would be visible from outside Zambia and the town’s reputation emerged as a theme during the interviews and focus groups. They also concluded that an open platform could potentially allow them to participate in the making of local agendas. For instance, if there were many comments in the online space about the condition of the sports complex, this might act as a mechanism for change. And even if not, local governors would be accountable to explain the rationale behind their decisions and inaction. A young lady was the first to illuminate this aspect and the conversation then flourished:

“If enough of the public say what is happening with our sports complex, enough people question it on a public forum, enough people comment, it will come up. That gives a strong foot holding for a change”.

Throughout a lengthy co-creation process that moved beyond requirements analysis, citizens put particular emphasis on education, entrepreneurship, health and security issues, businesses people welcomed the participation in agenda making and Community Based

Organizations asked for exposure that would allow them to ‘put Luanshya on the global map’. The common thread was the genuine need and intention of the different actors to openly communicate and interact in all possible directions in one single space; a need that Luanshyan people articulated very powerfully.

4.2 The Open Technology in the hands of the local government authorities and citizens

One could claim that any research endeavor entails taking an active positioning with the researcher being immersed in the setting under study. However, when it comes to action research the distinction between researchers and subjects becomes even more blurred in the course of the collaborative relationship (Bradbury & Reason, 2003). The most evident intervention was the implementation of the online platform⁶. The technology that has been used was a social Web-Content-Management-System developed by a research group of which the researcher is a member. Throughout the research phases the platform has been customized with all menus, submenus, presentation formats, user groups and access rights being informed by every comment and thought participants expressed.

In fact, the foundation of the co-creation aspect of the process has been the negotiation of priorities. Gigler (2014) is clear about the importance of this stage: “[The information needs assessment] stage is critical because ICTs are not introduced into communities in isolation from existing information and communication ecologies; rather, they should be embedded in these existing structures in order to strengthen the community’s informational capital, be accepted by the community’s principal stakeholders, and be sustainable in the long term”. This warning has been expressed by many IS and development scholars. For instance Gebremichael and Jackson (2006) note that the objective should be to

⁶ A major challenge, as in any developing country, has been Internet connectivity. However, according to the Zambia Information and Communications Technology Authority, by the third quarter of 2014 over 3.300.000 people used mobile Internet with a penetration rate of 23% compared to that of 3% in 2011⁶.

integrate Sub-Saharan Africa into the Information Age, as opposed to simply adapting Western technologies. The researcher has been continuously modifying the architecture of the platform based on the negotiations with the participants who have been actively involved in the feedback loop. Thus in this study ‘information needs assessment’ has not been a stage but the whole research process. Participants could track any changes, as the platform has been online from the very beginning. With the platform being an open, malleable object, only temporary closure has been reached. For the purpose of documentation the menus are presented below as the result of participants’ priorities (Figure 2).

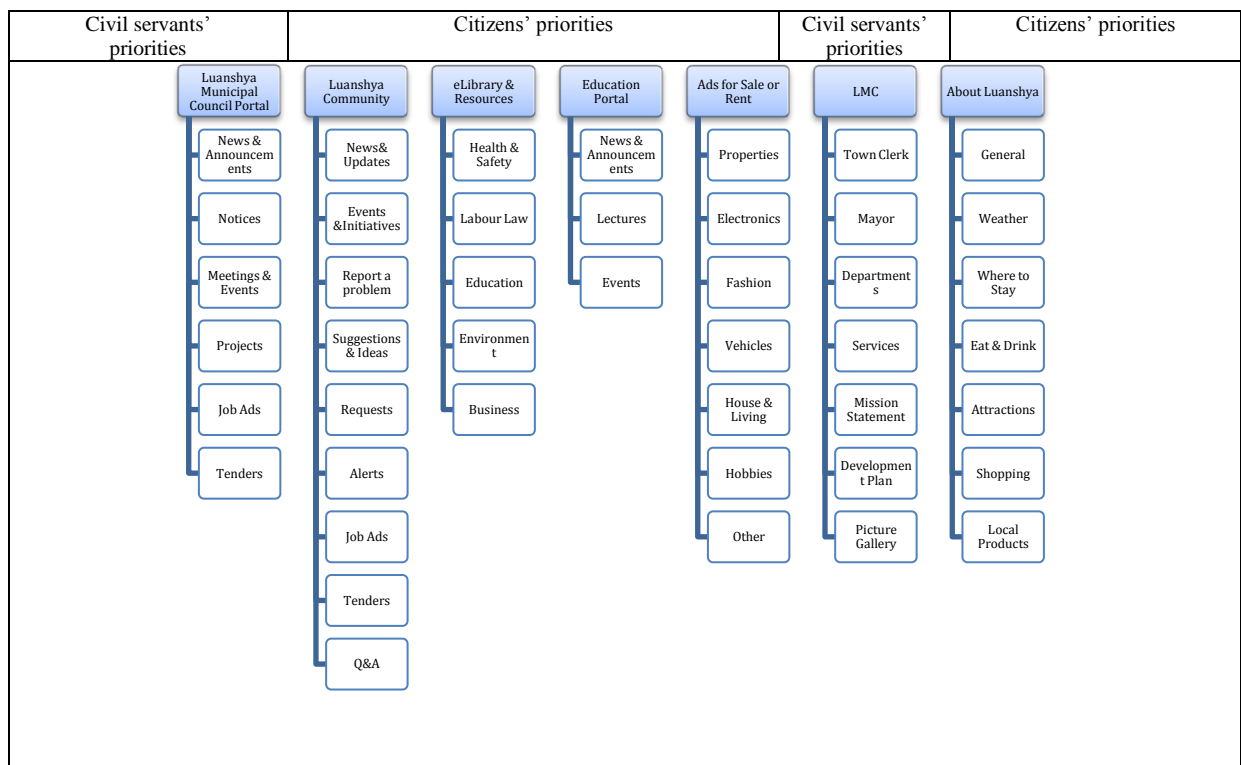


Figure 2 The structure of the menus as this has been co-created by participants

Although discussing the architecture of the platform is beyond the scope of the paper, its flexible nature has played a major role in the iterative co-creation process. Luna-Reyes and Gil-Garcia (2014) give an account of how the Content Management System used in the development of the Puebla State Government Portal was initially hard to change and manage. On the contrary, the technology employed in this study has been in line with its open nature

and enabled decentralization and autonomy during technical implementation.

4.3 Organizational forms and institutional arrangements

Nine months after the launch of the co-design process, follow-up meetings with the council's members were arranged to discuss their impressions and decide whether time was right to publicly launch the platform. The Town Clerk explained the bureaucratic organizational forms; he referred to the standard procedure that they had to follow and explained that it took three months for the ministry to approve the project. As paradoxical as this sounds and irrespective of the local government's will, the *open* platform under development had to be formally approved through the hierarchical governmental scheme by the Ministry of Local Government and Housing. The letter that the Town Clerk and his team wrote to the ministry after the first round of co-designing is indicative of how the council made sense of the initiative or in other words how they enacted the potentiality of the open platform.

“Luanshya Municipal Council management has embarked on an ambitious program of using a Web-based platform to expedite local economic growth through residents and private sector participation in promoting the development process. The website and Internet based platform aims at helping overcome challenges being faced in sectors such as sustainable, social, economical and cultural development, participatory governance, community engagement and public dialogue.

The Council intends to use the website to promote local business development, to create synergies with foreign development partners and to establish a new approach to citizens' participation in diversifying the local economy dependence on the mining industry. The platform will be offering a wide range of functionalities, such as investment opportunities, employment offers, existing and upcoming real estate and property development projects, news and updates from members and community driven social, economic and cultural projects being undertaken by the local authority.

As Council Management we are obliged to inform you, our parent ministry, about the website which is currently under construction and once it is fully operational it will play a crucial role in contributing towards shaping the future of Luanshya through the use of the interactive technology, which is also effective in providing the much needed feedback immediately”.

Part of the letter sent to the Ministry for approval

The local authorities treated the project as an opportunity for development, community engagement and public dialogue. It took months for the ministry to respond but in the end the green light was given and the Permanent Secretary expressed ‘heartiness about the initiative’ and in the response letter ‘has noted the Council’s innovation with appreciation’. The timing was also a significant factor, as it coincided with the digitization policy and the E-Government strategy at the national level.

In this third research phase initial online interactions were observed and council members were asked to reflect on how they have been engaging with the platform. While waiting for the official approval, representatives from all council’s departments mainly used the platform to report on their progress with pictures that they used as ‘evidence’. Examples of this type of reporting can be seen in figures 3 and 4.



Figure 3 A member from the council posting about progress on a construction project



Figure 4 A post about engineering department’s routines (unblocking drainages)

Even though participants reported major problems related to Internet connectivity and speed, 250 members of the local community had already registered through word-of-mouth and limited promotion by the council (for instance during the Local Government Week) at the time of the third phase of the research process. Online interactions in this phase were limited with users mostly consuming information rather than responding or commenting. It remains to be seen whether the actual use will correlate with the anticipated one, as this has been imagined by the participants.

5. Discussion

The implications of this study focus on the design phase of technologies at the local governance level through the lenses of the technology enactment framework. TEF in its original version as suggested by Fountain has three main elements. First, IT is applied within an organizational setting and while being adjusted to organizational forms it changes. Then, the two-way interaction between organizational forms and institutional arrangements implies the mutual constitution of both and third, throughout the process, the objective IT takes its enacted form with multiple, indeterminate and unanticipated outcomes (Yildiz, 2007).

Fountain's technology enactment framework, not without its critics (e.g. Grafton 2003; Norris, 2003) provides an instrument to study technologies in the public sector and invites us to "show how the embeddedness of government actors in cognitive, cultural, social, and institutional structures influences the design, perceptions, and uses of the Internet and related IT" (Danzinger, 2004). The suggested framework as presented through the case study in Luanshya is inspired by refinements of TEF as proposed by scholars such as Yang (2003) or Schellong (2007). Yet, it is also different, in that, citizens are treated as active co-creators throughout the process. Rather than looking at how technologies are implemented and used after being introduced by a top-down hierarchical governmental structure, we study how

actors enact the technology by co-creating it already in the design phase, which we suggest is a form of inbound open innovation process in the public sector. Figure 5 illustrates the suggested adaptation of Fountain's TEF that can be used to frame open and participatory governance technology projects.

Our departure point is therefore slightly different from Fountain, as in our case the technology is not 'objective' but open and malleable. Hence the enactment process refers to perception and design and informs the architecture of the technology through the organizational forms in place, as well as the institutional arrangements. Institutions and organizational forms are very unique in the context of a developing country, but paradoxically enough the pace of change is both quick and slow at the same time. If we turn our attention to the micro level of institutions (i.e. procedures, habits, cognitive patterns and cultural elements such as stories, myths, symbols, rituals and world-views (Fountain, 2001)), the local authorities were quick in embarking on the co-creation of what they called 'an innovative technology'. Citizens enthusiastically adopted and further designed the open possibilities of the technology and integrated it into their habits and daily lives (e.g. in education, health, entrepreneurship, social care etc.). When moving to the macro level of institutions and hierarchies (that include other branches of government, legal, regulatory, political and financial systems) change became a lengthy process. This was for instance the case when the ministry had to approve the initiative for change. Yet, enacting the technology through co-creating it encouraged the revision of organizational forms and institutional arrangements in a very evident mutual constitution of agency and structure. Illustrations from this co-constitutive relationship include the ways citizens are informed about council's agendas and also the ways in which they can suggest ideas and potentially become part of the decision-making process. Four outcomes emerged as important themes throughout the co-creation of the design and are discussed below.

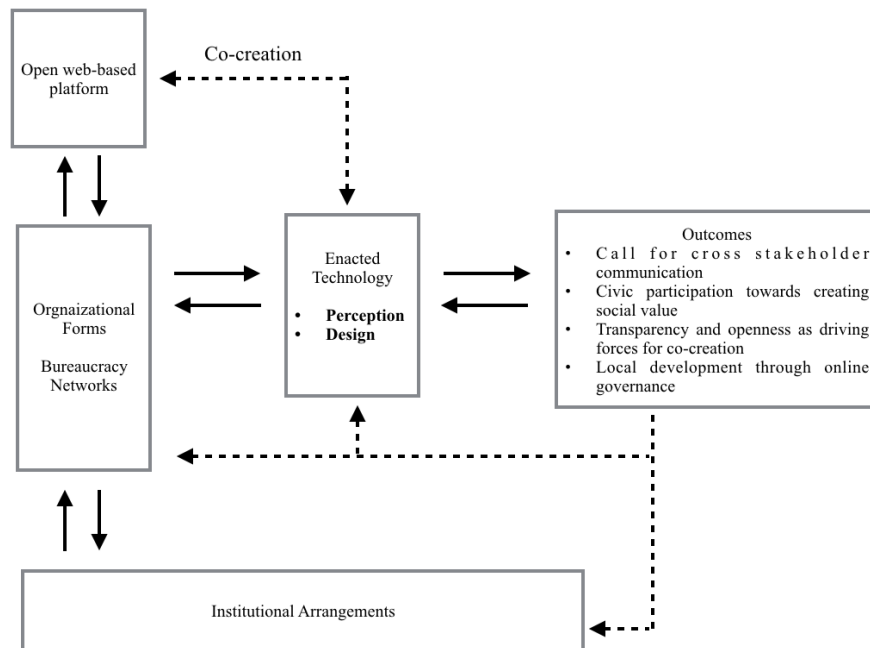


Figure 5 The suggested framework for the design of participatory technology projects (adapted from Fountain, 2001)

5.1 A call for cross stakeholder communication

The need for cross stakeholder communication whereby all stakeholders actively participate in performing governance has been well documented. Janssen, Charalabidis and Zuiderwijk (2012) point to the need to treat government as an open system interacting with its environment. Birner and Wittmer (2006) reinforce such a need when they note that “stakeholders from the private sector, civil society, education institutions and local governments offer a promising approach to improving the public administration”. Bogason and Musso (2006) draw our attention to the increased cross-sectoral involvement of NGOs in policy making and management and citizen demand for participation in public affairs with the development of network governance. In the African context, Rorissa and Demissie (2010) also mention the need for government-to-business (G2B), government-to-government (G2G), government-to-employees (G2E), and other modes of interaction and communication. However, in real contexts stakeholders are mostly presented with isolated spaces imbued with certain affordances, within which they are expected to communicate and interact.

The invitation to be involved in the design (co-creation) process encouraged the different groups of people to express their needs and negotiate how interactions could be enacted. But first and foremost, it was them who clearly and genuinely identified the need for interaction. All possible directions and types of interactions have been articulated, in that, participants have perceived openness both in the form of top-down reporting and bottom-up problem and opportunity identification. The council expressed the desire to communicate and interact with citizens, governmental departments and businesses. The different council's departments shared how they imagined taking pictures when installing street lighting, fixing road issues or cutting the grass. They also felt that an open online space would help them in replacing the process of receiving letters from citizens and listening to their complaints on the radio or the recently adopted practice of traveling from town to town to listen to citizens' thoughts and report in person.

Citizens also showed interest in receiving information about the agendas and strategies along the way of implementation, with the possibility to comment and suggest ideas. They also suggested the possibility of introducing a peer-to-peer solidarity system through which citizens could openly request for help from other citizens or organizations. Furthermore, top-down problem identification, such as reporting road maintenance issues, waste management, theft and health issues has been considered an interesting possibility. They have been equally interested in sharing opportunities with the community in the form of uploading business ideas and asking for funding (through micro financing).

5.2 Civic participation towards creating social value

As Danziger (2004) notes, “over time the innovation might be abandoned or it might result in an array of impacts at the collective and individual levels, ranging in magnitude from trivial to transformational”. Participants in the study provided specific examples of what

they perceived as ‘transformational impact’ and ‘value’ in the technology that the ministry in the response letter called ‘innovation’. In a deterministic logic, through their eyes technology should enhance public services. Citizens during the design process put an emphasis on education, entrepreneurship, community development, health and security issues and on the interactions with the local authorities. Business people proposed the idea of posting news, job ads and tenders and showed much interest in following the council’s decisions, as well as in actively influencing the decision-making process. Many public institutions such as the police, the library, hospitals and educational institutions expressed the need to upload informative material, digitize some of their resources, communicate with patients and create resources for students.

Open innovation as a paradigm encourages organizations to transcend strictly defined boundaries and to engage non-traditional actors in the innovation processes. In this study through their various roles citizens and other stakeholders have participated in public organization design and have enacted the malleable technology as an engine towards enhancing public services and creating social value.

5.3. Transparency and openness as driving forces of co-creation

Identifying malleability as a characteristic of information technology in public organizations is not new. Danziger (2004) reminds us that oftentimes “IT is adopted and implemented in ways that are highly contingent on the interests and agendas of key organizational actors”. It is these key actors who are empowered to take decisions and strategize, or as Fountain (2001) coined it, it is the ‘embeddedness’, namely organizational norms and perceptions of how information technology could serve their interests and values.

Open innovation initiatives in the public sector are in their majority undertaken by a public authority (top-down) that asks the crowd/citizens to give solutions, perform micro-

tasks, contribute ideas or report specific problems with both the problem and the rules of participation being pre-defined by the public authority. The current study embraces the notion of openness and actively involves the participants in defining the flow of interactions, who will constitute the potential crowd and who will be the seeker posting the problems or challenges.

The meaning of openness and transparency is twofold. Participants appreciated openness and transparency in designing the architecture of the platform and referred to these values as important ones in their online interactions. What was important to them too was the possibility of transparently following the implementation of ideas, the budget allocations, the delivery time and the leaders accountable for each project. Even before the introduction of the web-based technology, civil servants were well aware of citizens' and other stakeholders' desire to be following council's activities and progress. It was therefore them who suggested opening up the reporting process by publishing weekly departmental reports online. Initial engagement with the platform also indicated this intrinsic need of sharing their daily routines and in some cases also the new policies.

Following scholars who emphasize the importance of not merely copying objectives and implementation schemes from industrialized societies into developing countries, the co-creation process has encouraged the locals to define what would create value for them. Inescapably though a large percentage of the population, especially those living in the rural areas, has been excluded from the process, which is an important limitation.

5.4. Local development through online governance

In co-designing the architecture of the platform participants discussed two dimensions of local development: the creation of opportunities for change and the dissemination of information about the town and the local activities. The first aspect is inextricably bound up

with influencing political agendas, a desirable yet also debatable outcome of IT implementation. Advocates of a deterministic approach would claim that technology is introduced with the aim to lead to social change and to push local government towards taking action, which is also in line with participants' views about driving change. In their words, if enough people mention a problem online this will "give a strong foot holding for a change".

The technology enactment framework invites us to appreciate the more complex negotiations and relationships throughout the process. Yet by focusing on the design phase we show that the technology is not neither 'objective', nor it becomes malleable only after its introduction. Rather by engaging actors in design, the possibilities for action (structure if you prefer) are also co-decided by actors, organizational forms and institutional arrangements. To make the point clear in the context of local development, citizens have asked to be bringing infrastructure problems into council's attention. For this to be approved and translated into a menu with specific user rights, bureaucratic, cultural, cognitive and legal frames have been rearranged and *enacted* through a lengthy process.

Fountain (2001) notes the general resistance of public authorities to change; "political regimes resist changes that would alter the power of those in control". She also poses questions related to the interplay between structure and agency, "to what extent and in what ways does structure constrain individual action? How do these constraints change over time? Who or what changes them?" It becomes apparent that all these questions are approached in new light when citizens are co-creators of structure.

The second aspect exemplifies participants' wish to promote their town beyond the limited physical boundaries, or as they aptly put it to 'put Luanshya on the global map'. Both citizens and Community Based Organizations asked for exposure that would allow them to disseminate information about their activities and missions. This "will also bring more

interest from the public and supporters” who will in turn continue to be supporting them financially and morally. Online public reporting is therefore expected according to participants to create awareness, increase accountability and facilitate local development.

6. Conclusions and implications

Focusing on the intersection of participatory governance, open innovation and technology this study contributes an analysis of how actors enacted an open technology at the local governance level in a town in Zambia. Over a period of nine months divided in three phases we grounded our discussion in data from an action research study and explored how openness was perceived. Different groups of local people have co-created the technology under study, including Luanshya Municipal Council officials, NGOs, Social Clubs, public and private organizations and citizens. All participants contributed to what an open space meant to them and how they would like to make use of it. Being theoretically inspired by the technology enactment framework, we propose an approach for framing the design of participatory technology projects at the local governance level.

Following Hardt and Negris’ (2004: 340) conceptualization of ‘the open-source society, whose source code is revealed so that we all can work collaboratively to solve its bugs and create new, better social programs’, citizens and other actors have been actively engaged in the design of an open technology. This very possibility of co-creation has been a clear manifestation of adopting the principles of open innovation in the public sector. Yet, the project can be considered an open innovation initiative in two ways. First it involved ‘outside innovators’ (citizens and other stakeholders) in the design phase, which is thus a manifestation of an inbound open innovation process, and second it resulted in the co-creation of an open platform expected to generate more innovations.

In the so-called developed world, even though there are several types of openness in

all sectors especially with reference to participatory governance, interactions remain somehow fragmented, in that they allow specific groups to interact in pre-specified ways. There are indeed examples of Government-to-Citizen and Citizen-to-Government interactions, where mostly citizens download/submit forms online and governmental authorities ask their feedback and ideas in discussion fora. Furthermore, organizations and institutions have their own closed websites (Business-to-Customer) -imbued with anticipated affordances- whereas lately crowdsourcing and social media have allowed more bottom-up (Customer-to-Business) interactions. Revisiting openness from the eyes of local people in Zambia has been a highly informative journey. Participants have through multiple negotiations collaboratively called for cross stakeholder communication in all possible directions (G2C, C2G, G2B, B2G, C2B, B2C, C2C, B2B, G2G etc.).

The explanatory elements of the proposed framework comprise the open technology (note that it is not objective), the organizational forms and institutional arrangements that influence enactment while technologies are perceived, designed and further co-created and specific outcomes to be taken into consideration when co-designing governance projects. Outcomes in the study include: the call for cross stakeholder communication, civic participation towards creating social value, transparency and openness as driving forces of co-creation and local development through online governance. These outcomes further shape institutional arrangements, enactment and co-creation in a mutually constitutive relationship between structure and agency.

The proposed framework has implications for both practice and research. Yet, we need to cautiously employ 'openness' towards democracy. Brabham (2012) among others questions all that which is made "by us and for us carrying the hollow slogan of democracy" and figures as automatically better. Especially in the context of a developing country much caution is required in how both openness and innovation are perceived. By no means is it

implied that the introduction of any platform can improve democracy or automatically lead to public good. Surviving challenges and infrastructure problems remain the top priorities in the agenda of developing countries. However, it is argued that the open approach suggested is a small step towards empowering local people to connect in meaningful ways and participate in the agenda making. By actively engaging local people in defining their problems and by letting them co-design a space where participatory governance can be enacted through all possible interactions, there is a *potential* for creative solutions to be found which remains to be examined in the course of time.

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Figures

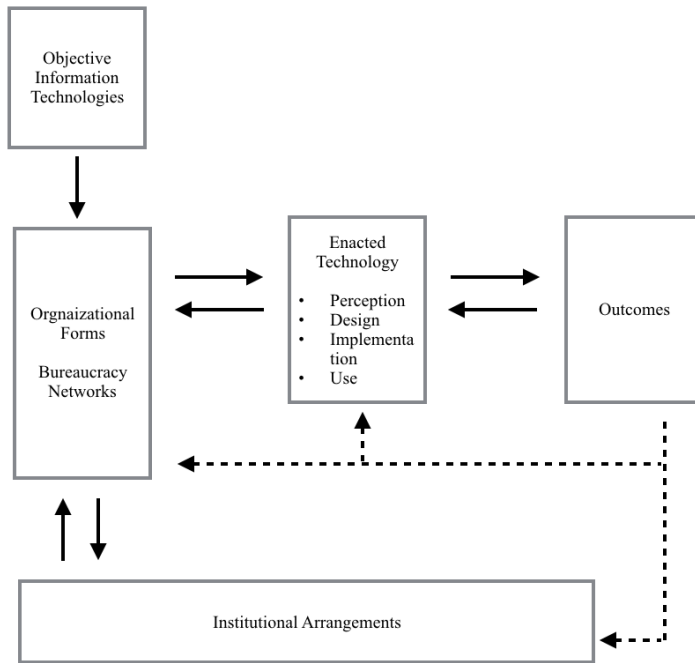


Figure 1 Technology Enactment Framework (Fountain, 2001)

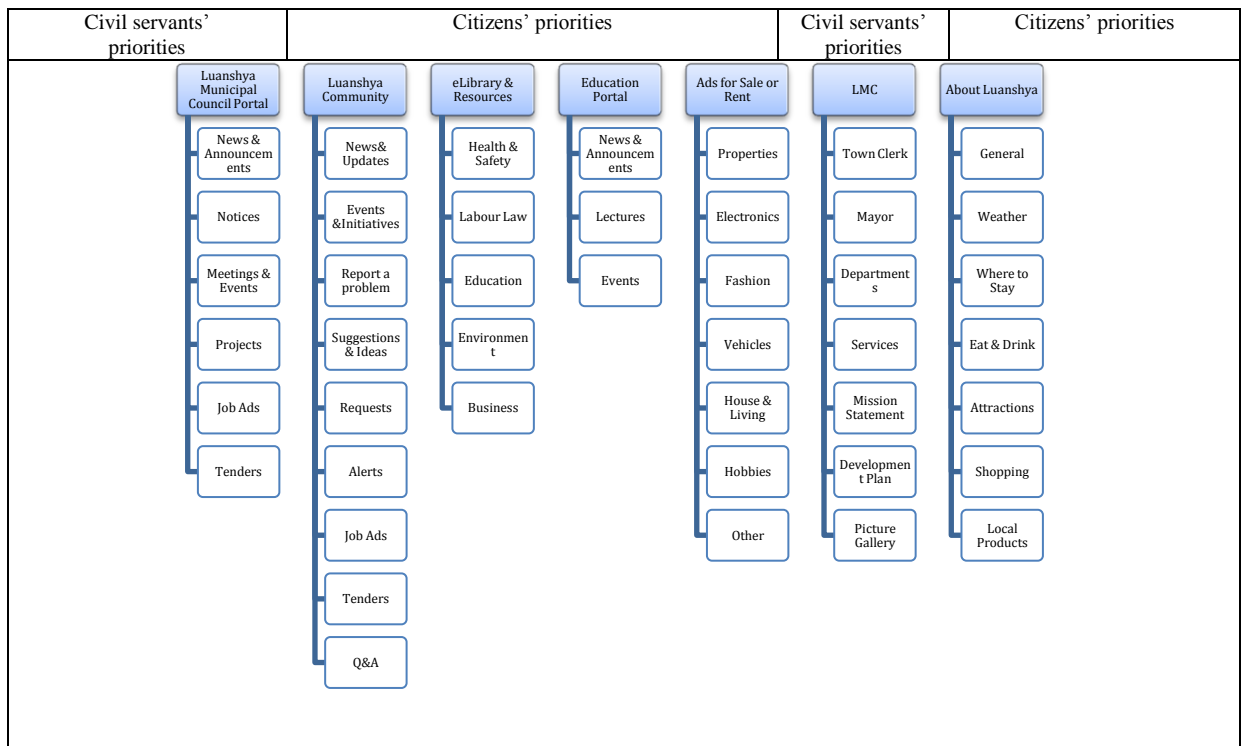


Figure 2 The structure of the menus as this has been co-created by participants

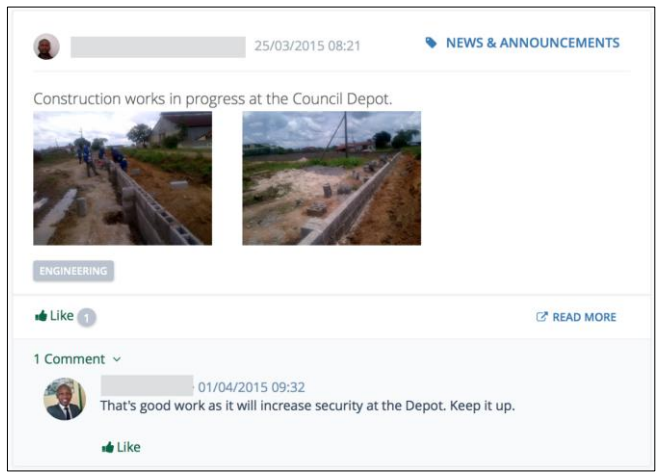


Figure 3 A member from the council posting about progress on a construction project



Figure 4 A post about engineering department's routines (unblocking drainages)

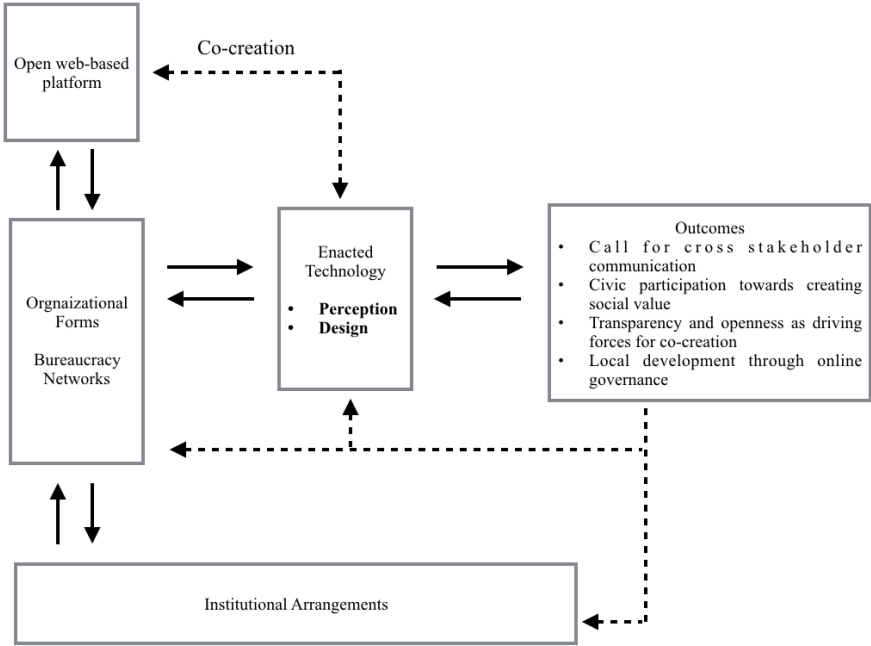


Figure 5 The suggested framework for the design of participatory technology projects (adapted from Fountain, 2001)

Tables

Table 1. Data Collection Methods		
Data Collection Methods	Participants	Demographics
Phase I		
Focus Group	Municipal Council Meeting 11 participants	6 men, 5 women, all between 25-40 years old
Focus Group	Human Resource & Administration Department 20 participants	6 men, 14 women, all between 25-40 years old
Focus Group	Finance & Planning Departments 34 participants	22 men, 12 women, all between 30-50 years old
Focus Group	Environment, Housing & Social Services Department 21 participants	10 men, 11 women, all between 20-45 years old
Focus Group	Engineering Department 18 Participants	15 men, 3 women, all between 25-45 years old
Interviews	Department of Labor 2 Officers	2 men, 40 and 45 years old
Focus Group	Stakeholders Meeting I 17 participants from technology companies, District Medical Centre, banks, Rotary, district administration, hospitals	10 men, 7 women, between 20-55 years old
Focus Group	Stakeholders Meeting II 14 participants from hospitals, banks, schools, lodges, police and other public and private organizations (e.g. water supplier)	7 men, 7 women, all between 25-40 years old
Interviews	Stakeholders Meeting III 10 representatives from education, Community Based Organizations, Business Community	6 men, 4 women, all between 25-40 years old
Focus Group	Feedback and Training Representatives from the five departments of the Council (one from each)	3 men, 2 women, all between 25-40 years old
Phase II		
Document Analysis	Descriptions of policies, meeting minutes, pinned documents on the notice board, records of official decisions, departmental descriptions, mission statements, forms and workflows, project descriptions, archives of pictures, sports results, newspaper articles, design plans for sale etc.	
Phase III		
Interviews	Town Clerk and representatives from the five departments of the Council	4 men, 2 women, all between 25-40 years old
Online participant observation	Systematic study of the online interactions	306 posted items in total

Table 1 Data collection methods

Table 2. The Data Analysis Process

Concepts (examples of quotations)	Patterns	Themes
<p>“Two months ago we started an exercise of going out to meet the members of the community. We started with Mpatamatu. We’ve been addressing the difficulties that we face in the council arising from their failure to pay their debts. And it has been very effective. They appreciated it and they told us they were ignorant of most of these things. So from there we moved to another township called Roan, we came to Mikomfwa and we’ll be doing this quarterly. We would like to be meeting members of the community so that they share their problems with us, we also share our problems with them and together we find the solutions. Already they’ve raised a lot of queries and in certain cases we committed ourselves to implement some of them. So at the next meeting they would like us to give them a progress report. Through a website it will be easier, I think it will help a lot. This will bring us closer to the people”.</p>	<p>Top-down reporting</p> <p>Bottom-up problem/opportunity identification</p>	<p>Need for cross stakeholder communication</p>
<p>“I would like to contribute to community development. People are mostly farmers but they rely on the rain season. People in areas like Mikomfwa cannot even afford to have a garden in their back yard. I was thinking if an NGO or a business can buy a drilling machine for those people and get into an agreement and let them pay slowly. At least it will empower them... People who start earning a little bit of money can’t get a loan form the bank. If something can come like that, we can achieve something”.</p>		
<p>“... We are dealing with disease prevention, so it would be useful to include something related. Especially health surveillance area hot spots on the map. Lets say in Mpatamatu there is an outbreak of typhus. We could post something like ‘please avoid the Mpatamatu area in this section’”.</p>	<p>Publishing teaching material</p> <p>Announcing free slots at hospitals</p> <p>Health and safety hot spots</p>	<p>Civic participation towards creating social value</p>
<p>“Many miss their dates with doctors, we can advertise when they can see the doctor and when not to. Some walk a long distance only to hear that today you cannot see the doctor”.</p>		
<p>“This tool is not only for marketing but also shows the evidence of what is happening in the district. If nothing has been posted how has the money been used?”</p>	<p>Reporting about implementation of</p>	<p>Transparency and openness as driving forces for</p>

<p>“Each Department can be submitting their reports through the Public Relations department. Every week each department writes a report and we submit to the Town Clerk through the directors. One from each department should feel responsible and publish on a specific day. Not that they can’t publish on the other days but on Monday let’s say is the day for the administration to report. Wednesday for housing... We have to be forcing this”.</p>	<p>projects</p> <p>Finance and budget details</p>	<p>co-creation</p>
<p>“It [referring to the technology] will definitely put Luanshya on the world map. We have to promise continuous building up”.</p>	<p>Opportunities for change</p>	<p>Local development through online governance</p>
<p>“For me this is a resource mobilization tool, something should come from this if we profile it well. Someone should come and say I’m going to come and work at the rugby pitch”.</p>	<p>Dissemination of information about local activities</p>	
<p>“Even those who are not here in Zambia they should be able to click and they will find us, also they will know where activities are happening in Luanshya and what they can get from Luanshya. A lot of activities are going on, but the potential of Luanshya is not exposed. Through this platform we can expose what people can get from Luanshya and how best we are contributing to a number of activities”.</p>		

Table 2 The Data Analysis Process

Response to Reviewers' Comments

The table presents a description of how comments have been incorporated in this second revision.

Points to revise	Response
	<p>General comments: First of all, we would like to thank the reviewers and the editor for the additional comments and suggestions. As for the three comments suggested by reviewer #1, they have been addressed in specific ways explained below. Reviewer #2 in one of the comments mentioned that the open innovation issues highlighted in the previous round have not been satisfactorily resolved. Therefore we once again revisited (all) comments from the first round and included a revised response for both rounds below.</p>
Reviewer #1	
<p>The current version of the paper significantly improved from the initial one. I commended the authors for thoroughly revising the paper. The discussion of the paper is easier to follow with the inclusion of theoretical framework underlying the studies. Hence, I suggest the paper to be accepted with revisions. I have three revisions related to the current version of the paper:</p>	
<p>I implore the authors to specify explicitly in the introduction of the paper what kind of open innovation project being address in Luansha? If not the name of the project, then perhaps the description of the initiative. So that the readers have clearer understanding in advance the types of open innovation as the object of the paper.</p>	<p>In the revised version a description of the initiative is provided already in the introduction (page 3). The additional description includes the following:</p> <p>“If we look at the core open innovation processes as proposed by Gassmann and Enkel (2004), the study presents an outside-in (inbound) process whereby externals –namely citizens and other stakeholders- become actively involved in local governance. More specifically, the objective of the project has been described by the local authorities as follows: “To create an online space for Luanshya Municipal Council, citizens, public and private organizations, NGOs and anyone having an interest in the town to interact in meaningful and constructive ways for the benefit of the community as a whole”.</p>
<p>In page 26, the authors refitted Fountain's (2001) technology enactment framework to the case. I implore the authors to explain about the refitted framework. The authors explain in detail about the outcome but they did not explain the other components and the relationships. I realize that they explain the component and relationships as described in Fountain (2001) book in the literature</p>	<p>In this second revision the discussion section (5) starts with a more thorough explanation of the refitted framework, its components and the associated relationships. An illustration follows below:</p> <p>“Fountain’s technology enactment framework, not without its critics (e.g. Grafton 2003; Norris, 2003) provides an instrument to study technologies in the public sector and invites us to “show how the embeddedness of government actors in cognitive, cultural, social, and institutional structures influences the design, perceptions, and uses of the Internet and</p>

<p>review section. However, considering the possible distinctive contexts in Luansha case as compare to Fountain's case, I implore the author to briefly explain the relationships and components from the perspective of their case - the Luansha open innovation case.</p>	<p>related IT” (Danzinger, 2004). The suggested framework as presented through the case study in Luanshya is inspired by refinements of TEF as proposed by scholars such as Yang (2003) or Schellong (2007). Yet, it is also different, in that, citizens are treated as active co-creators throughout the process. Rather than looking at how technologies are implemented and used after being introduced by a top-down hierarchical governmental structure, we study how actors enact the technology by co-creating it already in the design phase, which we suggest is a form of inbound open innovation process in the public sector. Figure 5 illustrates the suggested adaptation of Fountain’s TEF that can be used to frame open and participatory governance technology projects.</p> <p>Our departure point is therefore slightly different from Fountain, as in our case the technology is not ‘objective’ but open and malleable. Hence the enactment process refers to perception and design and informs the architecture of the technology through the organizational forms in place, as well as the institutional arrangements. Institutions and organizational forms are very unique in the context of a developing country, but paradoxically enough the pace of change is both quick and slow at the same time. If we turn our attention to the micro level of institutions (i.e. procedures, habits, cognitive patterns and cultural elements such as stories, myths, symbols, rituals and world-views (Fountain, 2001)), the local authorities were quick in embarking on the co-creation of what they called ‘an innovative technology’. Citizens enthusiastically adopted and further designed the open possibilities of the technology and integrated it into their habits and daily lives (e.g. in education, health, entrepreneurship, social care etc.). When moving to the macro level of institutions and hierarchies (that include other branches of government, legal, regulatory, political and financial systems) change became a lengthy process. This was for instance the case when the ministry had to approve the initiative for change. Yet, enacting the technology through co-creating it encouraged the revision of organizational forms and institutional arrangements in a very evident mutual constitution of agency and structure. Illustrations from this co-constitutive relationship include the ways citizens are informed about council’s agendas and also the ways in which they can suggest ideas and potentially become part of the decision-making process”.</p>
<p>Kaifeng Yang (2003) criticizes the technology enactment framework particularly due to its neglect to include the role of agent and the impact of agent - institutions relationships on technology enactment. Studies have extended Fountain's framework by accentuating the roles of agent (citizens, business, CIO, policy makers) - see Schellong (2007). Given that the case the authors presented heavily discussed the role of agents</p>	<p>Both the criticism and the extensions of Fountain’s framework have been more thoroughly reviewed in section 2.4. This indeed helped in explicating how TEF was employed in this particular study and what the contribution of the refitted framework is. The work suggested (Yang, 2003; Schellong, 2007) has been explicitly included. An illustration is copied below:</p> <p>“TEF has been acknowledged as an important theoretical contribution in the field of e-government, yet it has also received much criticism. The main concern that scholars have</p>

<p>(citizens and government officials). I implore the authors to discuss more about the relationship between the citizens and the institutions. Thus, revision point number 2 above. Or else, perhaps specify in their concluding remarks, the possible limitations of their study.</p>	<p>expressed is that Fountain’s arguments and originality are based on the limitations of what she calls ‘shadow theories’ (i.e. technological determinism, rational actor perspectives, incrementalism, systems analysis, social psychology perspectives and discussions on technology and structure). Grafton (2003) calls Fountain a moderate technological determinist, while Norris (2003) accuses her of not recognizing prior social science research about IT and government. Among others, Bretschneider (2003) argues that TEF is very abstract to be useful for prediction and Yang (2003) notes that the use of neoinstitutionalist theory fails to explain the relationships between agents and institutions. Having acknowledged it as an important point of departure, scholars have adjusted and refined it towards overcoming the aforementioned limitations. Among others, Tsai, Choi and Peery (2009) adopt TEF in their study of a Geographic Information System (GIS) and Cordella and Iannacci (2010) further extend Fountain’s framework by introducing the e-Government enactment framework as an enhanced version that actively accounts for the policies that shape the nature of the various technologies implemented. An alternative revision comes from Yang (2003) who draws on Werle’s (1998) actor-centered institutionalism. In that sense, actors are not determined completely by institutions, but rather institutions only define “a scope of acceptable actions leaving room for diversity of strategy and choice” (ibid). Schellong (2007) also places emphasis on the role of actors. More specifically, inspired by a previous extension added by Okumura towards including the roles played by different actors, he presents a revised “hybrid form between an actor-centered and a strictly institutionalist approach”. The main differentiation is that he proposes citizens and businesses as distinctive groups of actors and notes that “their enactment of technology influences the success of eGovernment services, organizational forms and institutional arrangements”. This acknowledgement is particularly interesting and relevant in open innovation processes, as citizens are not any more treated as externals or as recipients of policies, but rather as integral actors who in enacting technologies they also enact institutions and organizational forms. These revisions have informed this study and how TEF has been employed to make sense of the open platform”.</p>
<p>Reviewer #2 Second Round comments</p>	
<p>The open innovation issues highlighted in my previous revision have not been resolved and the attempts made by the author(s) have perhaps made the argument murkier. There is in fact a big debate on inbound and outbound open innovation for R&D and Innovation management, and open social innovation and other open innovation constructs that may be relevant but the author(s) relies on a narrow literature to inform on a vast</p>	<p>Indeed, there are a lot of studies looking at inbound and outbound open innovation processes in corporate contexts and increasingly at open social innovation and open innovation in the public sector –with this Special Issue being a major manifestation of this tendency-. However, one of the contributions of this study, and in fact a foundational basis, has been the merging of three literature sets, namely the participatory agenda, open innovation in the public sector and the use of ICT in the era of participation (and not just open innovation literature per se). This is claimed to be substantiating the argument about co-creating openness and to be helping towards illustrating the relationships between</p>

<p>range of problematic whilst in fact it would have suffice strengthening the arguments advanced in the previous version of the manuscript as advised.</p>	<p>structure and agency at the local governance level.</p> <p>As for strengthening the arguments already made in the first version, we believe the theoretical elucidation –TEF- and the general restructuring really helped towards that direction, as also acknowledged by reviewer #1.</p>
<p>The elucidation on basic concepts, as suggested in the previous round of revision, I have to say, has not been thoroughly enacted, measures have been taken and the effort is evident, but these seem to have had a paradoxical effect. Taking as example the concept of 'enactment': the author(s) talked of technology enactment framework since the abstract; then in the text, this framework is amply discussed with examples, figures (Fontaine, 2001) and historical background - at times 'poetic' - as defined by the author(s) it perhaps would have sufficed to define the 'basic TEF' and provide an updated version to be applied for the case at hand (and perhaps some critique?). But no clear '1 sentence' definition of what is TEF is provided and no consideration on how it is used in this context is provided.</p> <p>In other words, in some cases such as TEF, there is a lot of redundant new arguments but the point is not made, whilst in other cases (such as the OI argument) large debates have been introduced (even if not strictly necessary) and tackled with a narrow approach.</p>	<p>Thank you for the comment. In this second revision we provide a one sentence definition (“Fountain defines TEF as a framework through which we can understand “the critical role played by the sociostructural mechanisms within organizational and institutional arrangements as public managers struggle to integrate the capabilities of a new information technology with such arrangements”), a critique of the framework and subsequent adjustments to it (please refer to the response to the third comment above).</p> <p>That said and specifically talking about enactment, it was reviewer’s #1 suggestion to include a section on it and we also believe it advanced the flow of the paper. Hence, it was considered appropriate not only to present ‘the basic TEF’, but also examples, the original figure and more importantly an account of the notion of enactment itself.</p> <p>As for the OI argument, in this version it is more explicitly clarified that the case manifests an outside-in (inbound) OI process throughout the paper in several places.</p> <p>As for the other cases implied, we were a bit unclear about which ones were meant, but nevertheless the paper has been revised once again having in mind the clarification of non-intuitive concepts as also stated in the previous round.</p>
<p>Another issue I feel strongly about regards the case study. Instead of simplifying and give it a structure in order to highlight and made points more relevant, the case has been reworked so that it appears more complex and difficult to follow than in the previous version of the manuscript. In other words, the level of details in the case study was increased. The storyline appears fragmented and the main points constituting it are difficult to find, piece together and assess.</p>	<p>With regards to the case study (section 4), the slight increase of the level of detail was based on the premise of simplifying the storyline rather than the opposite, as well as on changing the style of presentation following a previous comment by reviewer #2 about the extensive use of quotes, which was indeed very helpful.</p> <p>Following reviewer’s #2 comment about the need to further work on the structure, in this new revision the section is divided into subsections that are both in line with the hierarchical structure presented in the methodology, as well as the menus presented in figure 2 (figure 2 has been also edited for clarity). The reader can therefore follow exactly how the priorities of i) civil servants and ii) of citizens and other stakeholders have been translated into menus and affordances online, which we believe gives a clear structure. This division into subsections does not disturb the flow, which still remains</p>

	in line with TEF and prepares the ground for the discussion in section 5.
Reviewer #2 First Round comments	
<p>Perhaps the most pressing issues are in section 4. Whilst very rich of original material, the section seems that has been put together in haste. The various aspects of the empirical material are somehow presented in a disorganised fashion, without a framework that would guide the reader throughout the various issues and sub-issues. Moreover, in section 5, where one would expect some systematisation, the author(s) introduce new aspects obtained from the empirical analysis, though the effort to link these to the theoretical background is noticeable.</p> <p>My main recommendation would therefore be to systematise the empirical material, make it readable and understandable, perhaps by using a hierarchical structure, informed by the one provided to illustrate the structure of the menu. This systematisation should first identify, describe and analyse the main issues emerging from the data, then the sub-issues, which will have to be linked at each hierarchical level.</p> <p>After this exercise I believe that the next section 5, after some minor adjustments, will read much sharper!</p>	<p>The recommendation suggested by reviewer #2 was precisely followed:</p> <p>In section 4 we discuss the patterns that led to the overarching themes (please refer to table 2 in the manuscript). Material of all patterns was presented in the previous version too. In the second revision though, as also stated in the previous comment, the signposts were reworked. In this vein, participants' priorities are clearly indicated with evidence of how they have been translated (please refer to figure 2 in the manuscript).</p> <p>This systematization continues in the discussion (section 5) where the overarching themes are discussed: i) The need for cross stakeholder communication, ii) civic participation towards creating social value, iii) transparency and openness as driving forces of co-creation and iv) local development through online governance.</p> <p>Hence, the main issues are clearly identified, described and analyzed in the form of concepts, patterns and themes.</p>
<p>Also, in several instances, some sentences are somehow too vague to convey a meaningful message; again in the abstract (but also elsewhere in the rest of the manuscript) a reader might read: "Our specific interest is in how participants negotiate openness and how these negotiations are transforming (what?) when an online open platform..."</p> <p>In the same area, introducing the works of Chesborough and von Hippel the author(s) mentions that they are based on different "ontological assumptions". This won't suffice to give the reader a feel for what the author(s) means, is aiming at/what message wants to convey.</p>	<p>These issues were already (hopefully) resolved in the first revision. There is also no further comment about this in the second round comments.</p> <p>Please see response from the previous revision:</p> <p>Considerable effort has been made to identify vague areas and explain further where necessary. For instance, the concept of vertical, horizontal and diagonal communication has been abandoned and replaced by the cross stakeholder communication that more accurately captures what is meant.</p>

<p>In particular, the author(s), even in the abstract but also throughout the text, introduces concepts which are non-intuitive or of immediate understanding without defining its/their meaning(s) and relevance for the arguments advanced in the work. It is in fact the case of vertical/horizontal and diagonal communication, crowdsourcing or innovation in the PA. Similar shortcomings are very common in the rest of the manuscript!</p>	
<p>Another minor, yet significant, issue concerns the methodological section. Therein, all steps are described with some precision and linked to past methodological work, and that is just great! However, in places it seems that there is something left hanging... so I suggest that the author(s) make sure that methodology is conveyed with precision to the reader and the implications of the methodological choices are expressed in the section and discussed in the discussion/conclusion section - for example, in the section it would have been better to have highlighted that the project is still ongoing from the onset and then discuss the implications of this aspect? In the methodology section one can read several of such shortcomings.</p>	<p>This was already resolved in the first revision. There is also no further comment about this in the second round comments.</p> <p>Please see response from the previous revision:</p> <p>The methodology section has been revised for clarity and precision. Data collection has been divided into three phases with more details on the demographics. Especially the coding and data analysis in section 3.2 has been more thoroughly described with the use of a hierarchical structure as suggested by one of the reviewers and the coding process has been substantiated with the use of literature. Indicative concepts are presented that led to patterns and overarching themes –following open, axial and selective coding-. The four themes that are also the outcomes of the design process inform the discussion that follows. The corpus construction throughout the three phases and triangulation with document analysis has increased validity.</p>
<p>Another minor concern regards the extensive use of quotes. Perhaps this concern is to do more with my personal taste rather than actually current practice. The fact is that a carefully placed quote does just what it is supposed to do: reinforce a statement/finding. Extensive use of quotes, in my opinion, somehow weakens the message and may even indicate lack of effort in the analysis. I am sure the latter is not the case, but, for preference, I would like to see a much sharper empirical section, with a coherent and consistent narrative and one or two flash-quotes to underscore a point that has already been made.</p>	<p>Only a few characteristic/evocative quotations have been included in the revised versions, as the presentation of the storyline has been reworked.</p>