ICT, Open Government, and Civil Society

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1. **Introduction**

With the rise of information and communication technologies (ICTs), a fundamental transformation has taken hold of the knowledge processes that define the operations of nearly every facet of contemporary life. Whether in the industrialized north, or in the transitional economies of the south, information and communication technologies are remaking economics, politics, and social life itself. Today, the technological organization, control, and dissemination of knowledge and information has taken centre stage in the growing debate concerning the nature and direction of democratic governance, of economic and social development, and ultimately of the limits and prospects for personal freedom in today's digital culture.

Throughout history, technology and democracy have been intimately linked. In our time, these links are more explicit, more contested, and vastly more complicated than anything seen before. The rise of the surveillance state and the simultaneous rise of new forms of political organization and action are testaments to these changes. In this context, ICTs – and more precisely, the organization and mobilization of knowledge – have a profound impact on what we might call the political economy of knowledge. Moreover, if we are speaking of a *social knowledge economy*, an economy in which knowledge is understood and promoted as a common good, the role played by ICTs is obviously pivotal.

In the discussion that follows, we examine these questions within the framework of democratic governance and the relation between the State and the broader civil society in both defining and pursuing what we have termed the common good. We propose that the use of ICTs – whether for good or ill – is fundamentally dependent on the character of this relationship and the degree to which State and civil society may be said to share a common purpose in the conscious pursuit of shared social aims.

More precisely, we explore the question of the democratization of governance – and thus of civil power – and the specific role that the social economy plays as a particular configuration of civil society in this process. [1] The advent of digital technology is a major force in this transition as is the explicit recognition by the State that aims such as Buen Vivir (Good Living) and Social Knowledge entail a fundamental affinity between the aims of government on the one hand and those of the social/solidarity economy on the other.

The question of governance – in particular the notions of "open government" and "open data" – is absolutely central to this debate as is the relation between government and civil society. Both are connected to the concept of Buen Vivir, which lies at the heart of Ecuador's National Plan and which serves as the framework for a radical transition not only to a new conception of political economy for the country, but also to a new conception of democratic practice. This approach moves beyond deliberative or representative forms of decision-making to a conception of democracy as a means of distributed social production. This, we call *generative democracy*. [2]

What role do ICTs play in this transition? More to the point, *can* the aims of democratization realistically be served given the existing power dynamics that are embedded within the structure of these technologies? The answer to this question ultimately depends on the social impetus driving their use and the extent to which the democratizing potential of these technologies is

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[1]   We are viewing the social/solidarity economy as a particular constellation of organizational forms *within* the broader civil society. In this framework, the social/solidarity economy is composed of those organizations that are engaged in the production of goods and services and that share the attributes of reciprocity, mutuality and social benefit that characterize this sphere of the economy.

[2]   I am happily indebted to Robin Murray for introduction to this term.

manifested in the interface between the State and the social economy and how their respective roles are organized to realize the common good that both binds and differentiates them.

While clearly distinct in their structures and ways of operating, the State and the social economy share fundamental social aims that are realized through their distinctive social platforms and economic logics. [3] And, as argued in Public Policy for the Social Economy (Restakis, 2014), it is this consonance of social purposes that also provides the state with its political legitimacy. In both cases, state and civil, democratic practice and the social technology of distributed power in the design and production of goods and services, offers a framework for understanding the potential of ICTs in either helping or hindering the realization of the principles and practices envisaged for a social economy of knowledge.

In the public economy, democracy is one way in which the allocation of resources, the production of services, and the distribution of outputs are determined. [4] The market does this in one way, the household in another, and the state through its various democratic forms, in yet another. The social/solidarity economy has its own forms of organization and the use of democracy for the pursuit of social aims is fundamental to its purposes. As we shall see, the principles and aims of social economy organizations offer crucial advantages for how the precepts of Buen Vivir and Social Knowledge might be realized through the activation of social relations that both reflect and reinforce these aims.

Looking at democracy through this economic lens provides a useful perspective for understanding how ICTs relate to the questions of democratic governance and civic rights raised above. This approach allows us to examine the multiple layers of design, production, distribution and discipline where citizens, individually or collectively, directly or through intermediaries, can play a part in the workings of this sphere of the economy. This is where the distributive logic of digital technology meets the distributed social logic of democratic practice.

Nevertheless, what ICTs hold for the future of democratic practice and the development of knowledge as a common good are far from certain. For many, open government and open data favor the adoption of new social patterns and the emergence of economic, technological and political formations that represent more democratic, decentralized, and commons-based alternatives to the concentrations of knowledge and power we witness in the capitalist knowledge economy.

On this view, the rise of the internet and the ubiquity of personal computers herald the dawn of a new kind of democratic polity. For the first time in history, technology has made possible the unrestricted access to human knowledge and to global communication that places the power of collaboration and the means to exercise this power in the hands of the common citizen.

For others, the ongoing centralization of the internet and ICTs generally, prefigures a very different future – one in which state and corporate surveillance and control destroy the very freedoms that open access to information and communication are meant to uphold.

To safeguard against this, there is a growing movement to ensure that ICT infrastructure and service delivery promote and protect civil and human rights, further transparency, and encourage

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[3]   For a survey of these structural differences, see J. Restakis, Public Policy for a Partner State, FLOK Society, IAEN, 2014

[4]   Much of this section incorporates a number of formulations proposed by Robin Murray in his valuable comments to the text.

citizen participation through the broadest possible distribution of democratic practice. ICT and open government policies should also enhance national sovereignty and the personal freedom of citizens. How might these aims be realized? This too, is a central concern of this paper.

In what follows, we first undertake an analysis in Section One of ICTs and how they have been used as an instrument for open government, with a particular focus on the "smart city" concept as one instance of this application. In Section Two, we track the evolution of how ICTs have been used by civil society organizations to advance their own work, including the promotion of political aims. In Section Three, we examine the nature of social knowledge and ICTs in relation to the organizational structures and aims of the social organizations that are to make use of them. Special attention is paid to the questions of co-operation, sharing, and commons values; their relationship to organizational structure; and how knowledge is accessed and diffused as a force for progressive social change. Finally in Section Four, we examine the connection between forms of technology and forms of political economy and the transforming potential of digital technology with respect to the design, organization, and production of goods and services, with particular emphasis on the public economy. Policy recommendations and case studies accompany each section of the paper.

The common thread that runs through all the sections is how ICTs can be a means of promoting a more open, just, and egalitarian society through the use of generative democracy. The common concern that also runs through the document is the many ways in which information and communication technologies, as currently structured, are equally (if not more) amenable to uses that contradict and undermine these aims.

Our policy recommendations reflect these concerns and seek to reinforce the social and democratizing purposes both of Ecuador's constitution and the vision of Buen Vivir.

The ultimate purpose of this policy document is to explore the development of a new political model based on *commons* values and the creation of knowledge as a common good. This represents a major shift in neo-liberal policies both in Latin America and around the world, and constitutes a foundation for placing the country's socioeconomic development at the service of the public good and not merely the enrichment of a privileged elite. Technology is never neutral. It serves the interests and purposes of those who have the power to mould it and to wield it.

A civic and democratic use of ICTs – whether for promoting open government or for enhancing the power and role of the citizen – is ultimately a product of many factors. These include the political will to use ICTs for these ends; the formulation and implementation of policies that democratize the technology; the education and engagement of citizens in a deliberate democratization process; the investment in institutional change – both inside and outside government; and the development of governmental and civic institutions that are able to utilize ICTs as a force for progressive economic and social transformation.

2. Section One – Promoting Open Government: The Role of Information and Communication Technologies (ICTs)

Widely viewed as a cornerstone of contemporary debates on participatory democracy, Open government is closely linked to democratic reform movements and a renewed focus on citizen participation. While the concept of open government dates back to the European Enlightenment,

the ideal of open government has expanded significantly with the rise of ICTs. [5] Contemporary claims supporting the value of open government are rooted in the notion that citizen participation enhances public scrutiny and reduces government corruption. Indeed, as the National Plan for Good Living makes clear:

"A democratic, participatory government requires the active participation of citizens and strong social movements working in open networks to address both local and national issues. Participatory democracy aims for a sort of equality that enables reciprocity among its members. This will integrate the different stakeholders in a process of dialogue in which conflicting interests and goals are assessed and ranked according to an array of criteria defined publicly among peers" (PNBV, 2013-2017: 23).

Implicit in this statement is the creation of new forms of democratic governance that are the pre-requisites for the development of an open knowledge society.

2.1. **Towards Open Government**

In contrast to neo-liberal conceptions of socio-economic development we advocate a vision of bottom-up governance that unleashes the productive capacities of a mobilized citizenry through the organizational structures of the social economy. Such a model challenges the prevailing view that closed hierarchical institutions are the best systems for developing knowledge and innovation. Instead, we propose that open, distributed, and co-operative models of production – whether for material or immaterial goods – are more efficient at propelling the kind of social and economic development envisioned in Ecuador's National Plan. This implies a kind of development and growth that is supported by engaged citizens, civic institutions, and a wide range of policy actors in a society of the commons. The ultimate goal of Buen Vivir is to defend and strengthen society by guaranteeing equitable access to goods, opportunities and conditions of life:

"Socialism for Good Living questions the dominant pattern of hegemonic accumulation, i.e., neo-liberal models of production, growth and distribution. We propose a transition toward a society in which life is the supreme asset. This demands a deep democracy and the constant involvement of its citizens in the country's public affairs. It is based on the pursuit of the common good and individual happiness, rather than excessive accumulation and consumption." (PNBV, 2013-2017: 22).

Ecuador is not alone in its desire to expand democratic participation and to develop new social and political thinking on participatory governance. In the wake of the 2008 economic crisis, grave doubt has been cast on the credibility of neo-liberal models of political economy popularized in the 1980s under U.S. President Reagan, and U.K. Prime Minister Thatcher. Building on recent literature on open government, there is rising interest in reforming the practices and institutions that now define modern democracies. This includes increased advocacy for greater openness, greater transparency in political decision-making, and the reform of public services.

Policies advocating open government in the sense described here are one consequence of this faltering trust in how governments operate. The use of technology in the furtherance of these aims has become a basic tenet of governmental reform, and the idea of open data has now become

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[5] The ICT sector comprises several industries which support the production, processing, archiving and retrieving of information through computers, telecommunication and semiconductors (Low 2002: 21) and which, despite differences in specialized subsectors, are technologically related.

integral to the concept of open government. But the political dimensions of open government are quite distinct from the uses of technology. This difference is crucial for how we understand the relation between access to information on the one hand and government transparency and accountability on the other. Open government does not necessarily entail open data – and vice versa. As eloquently stated by Harlan Yu & David G. Robinson (2012).

"… open government policies have blurred the distinction between the technologies of open data and the politics of open government. Open government and open data can each exist without the other: A government can be an open government, in the sense of being transparent, even if it does not embrace new technology (the key question is whether stakeholders know what they need to know to keep the system honest). And a government can provide open data on politically neutral topics even as it remains deeply opaque and unaccountable. The Hungarian cities of Budapest and Szeged, for example, both provide online, machine-readable transit schedules, allowing Google Maps to route users on local trips. Such data is both open and governmental, but has no bearing on the Hungarian government's troubling lack of accountability. The data may be opening up, but the country itself is "sliding into authoritarianism."

"… technological enhancements alone will not resolve debates about the best priorities for civic life, and enhancements to government services are no substitute for public accountability." [6]

This clarification of open government and open data is of fundamental importance because it places the focus where it belongs – on the nature of the decision-making structures that define the political system itself. It matters greatly whether open government merely means citizens providing input into a highly centralized and authoritarian state system, as opposed to developing governance structures that de-centralize and distribute the decision-making operations of that system.

What will determine whether or not ICTs promote or inhibit open government, in the sense of genuine transparency and public accountability, is not technological but political. And if we are speaking of open government in the sense of democratic governance and the widest possible distribution of democratic practice, we are not talking about citizen input into a system from the "outside", but rather the transformation of that system into a continuum of democratic production through the application of social economy principles extending from the individual citizen and her community, through the mediating structures of the social/solidarity economy, to the formal structures of the state.

In short, open government is much less about information input than it is about *democratic output* – an idea that will be explored more fully in Section Four below.

2.2.   ICTs and Community Mobilization

One of the main goals of the FLOK project is to achieve social transformation through policy interventions following principles outlined in the National Plan. Linking the notion of open government to ICTs and the application of technological innovation, the FLOK Society advocates experiments in new forms of participatory democracy – both economically and socially. By democratizing access to knowledge through the use of open licensing, for example, the FLOK

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[6]   The New Ambiguity of "Open government", Harlan Yu & David G. Robinson, 59 UCLA L. REV. DISC. 178

approach seeks to empower communities to participate in the production and consumption of knowledge without limitation. Indeed as Castells (2007) argues, the rise of socially driven ICTs has sparked new social movements that now have the capacity to build collaborative networks at multi-scale levels, amplifying the impact of insurgent politics across a wide spectrum of socio-political environments.

ICTs have introduced a range of new capabilities for collaboration and consequently for shaping social change. The growth of platforms that leverage next generation communication, data sharing, and application development, for example, has opened up new opportunities for bottom-up civic engagement across a range of ICT driven public services. In the United States, the Open government directive from President Obama (2009) has its foundation in regulations such as the Freedom of Information Act, the Paperwork Reduction Act, and the e-Government Act (McDermott, 2010). In Europe and East Asia, robust government-driven investments in designing and developing "smart cities" have become critical to guiding and solving complex social problems. In Italy, new initiatives and legislation have accompanied novel conceptions of the City as a Commons and building on the principles and practices that have accompanied the digital revolution (http://www.labsus.org, http://www.cittabenicomuni.it/bologna).

2.3.   Smart Cities – Models, Methods, and Alternatives

Given the fact that an estimated 70 per cent of the world's population will live in cities by the year 2050, it makes sense that "smart" urbanization has become a key feature of national planning. As a growing number of analysts suggest, the intelligence of cities "resides in the increasingly effective combination of digital telecommunication networks (the nerves), ubiquitously embedded intelligence (the brains), sensors and tags (the sensory organs), and software (the knowledge and cognitive competence)" (Mitchel, 2007, p. 5). To this, we would add the central role of social capital as a key feature of civic networks that provide the social circuits through which social knowledge – knowledge as commons – is accessed, adapted, and shared.

Perhaps the central feature of smart cities is a unique capacity to respond to feedback generated through data in order to change the action or behavior of the system as a whole. As Chourabi et al. (2012: 2290) observe: "While systems in industrial cities were mostly skeleton and skin, postindustrial cities—smart cities—are like organisms that develop an artificial nervous system, which enables them to behave in intelligently coordinated ways". Put differently, smart systems are emergent wholes made up of interdependent sub-systems of networked resources that together afford scaled technological and human "intelligence". As the OECD (2013) explains, smart technologies refer to applications or services that are "able to learn from previous situations and to communicate the results of these situations to other devices and users" (p. 4).

Building on layers of fixed internet protocol networks, "always on" broadband networks, and more recently wireless satellite and mobile networks, smart technologies leverage massive amounts of data generated by billions of Internet and mobiles devices and services around the world. Commonly portrayed as the next stage in internet technologies, smart technologies include:

1) Machine-to-Machine (M2M) communication across mobile devices.

2) Large-scale data processing via "Cloud Computing" in the processing and display of data.

3) Data analytics, linked data, and "Big Data" to correlate and interpret flows of knowledge and information.

What makes the idea of smart cities particularly important to open government is that smart cities demonstrate a shift in the relationship between citizen engagement and the evolution of public management. Part of this shift in thinking reflects an enlarged interest in designing systems that enable citizens to have a greater role in decision-making and governance. Hollands (2008), for example, makes the point that smart cities represent "territories with a high capacity for learning and innovation" that depend upon the creativity of their population as well as "their digital infrastructure for communication" (p. 306). This too, is greatly affected by the level of social capital in a community and the networks of co-operation, reciprocity, and trust that facilitate mutuality and the pursuit of shared goals.

Indeed, Hollands articulates a growing intellectual movement that is refocusing the discussion on smart cities from the promotion and administration of *services* to questions of *democratic governance* (Allwinkle & Cruickshank, 2011). Overlapping an expanded notion of government accountability is the question of new tools and technology that can now enable more potent models of participatory democracy (Osimo, 2008; Obama, 2009). Alongside questions of open data and increased transparency, there are new possibilities for strengthening the capacities of communities and stakeholders to play far more significant roles in the political life of their communities.

ICTs may be critical to serving as platforms for communication and collaboration. However, it is the people themselves and the networks of co-operation, sharing, and trust in which they participate, who solve (or do not solve) social problems. Beyond the affordances of technology, many now argue that the key to truly smart cities is their capacity to support social capital and sociocultural development. Accordingly, smart cities have the potential to remake democratic processes and promote political inclusion by connecting citizens with one another and with their government.

2.4.   Case Study 1: Smart Seoul

Building on an expansive ICT infrastructure to support government, particularly the application of government services, Seoul has introduced robust policy and planning to develop itself as a smart city (Naphade et al, 2012). Announced in 2011, "Smart Seoul" is the South Korean government's plan to develop the world's most advanced smart city. A 900 billion won ($792 million) effort to link the city with its citizens, Smart Seoul includes nearly free wireless connectivity that is ubiquitous across the city's public spaces and a variety of follow on commercial and public services. As the capital of South Korea and the country's largest metropolitan city, Seoul supports a staggering population of over 10 million people. Taken as a whole, the city faces serious challenges related to overpopulation and urbanization but has used ICTs to help manage pollution, and resource scarcity. Incorporating ICT services into health and welfare services, Seoul has managed to become one of the most advanced smart cities in the world.

The main pillars of Smart Seoul include:

> • ICT Infrastructure: Securing next-generation ICT infrastructure is critical to the success of emerging smart-city services. Efforts to develop ICT infrastructure must anticipate future service demands, rather than respond only to those that are most apparent.

• Integrated City-management Framework: A well-defined 'integrated city-management framework' is essential. The many integrated subsystems, meta-systems, and individual building-block systems of a smart city will work in harmony only through the strictest adherence to common standards.

• Smart Users: ICTs are the tools to enable a smart city, but are of no use without smart-tech users able to interact with smart services. Increasing access to smart devices and education on their use, across income levels and age groups, must remain one of a smart city's highest priorities.

Perhaps the most important feature of Smart Seoul, however, is its strategic emphasis on e-government. This includes the "Information Communication Agora", an information portal through which its citizens can view a wide variety of administrative documents even as they are still being processed. The goal of this digital platform is to enable more active citizen participation by providing all official documents within every administrative process to citizens. Indeed, according to the bi-annual e-Government survey of the United Nations, South Korea ranks first in the world in terms of e-government readiness and citizen participation (United Nations Department of Economic and Social Affairs, 2012).

2.5.   Case Study 2: Political Formation in Rural Guatemala

While conventional definitions of e-government are centered on the transmission of government services, the concept is increasingly being applied to include citizen participation *within* government. Examining the role of ICTs supporting rural Mayan communities in the Western highlands of Guatemala, for example, Garcia-Ruano et al. (2013), demonstrate that the capacity of technology to facilitate political formation is not limited to urban communities. As the study's authors explain: ICTs can be leveraged against resource differentials, including knowledge gaps and political persecution.

Despite the fact that communities may start out with traditional communications links such as community assemblies and community radio, there is the potential now to incorporate ICTs in successive stages in support of information sharing, civic journalism, and other forms of collective action. In their struggle to resist oil companies in Guatemala, rural Mayan communities have been able to use ICTs to augment their political impact. Indeed, Garcia-Ruano et al. (2013) found that the effective incorporation of ICTs as part of an integrated communication toolbox helped to amplify the voices of marginalized communities and influence decision-making in the country. As the researchers concluded, there are in fact several policy implications rooted in the experiences of the use of ICTs by civil society groups in shaping and facilitating community action. They explain:

> First, organizers of the movement recognize the value of ICTs to improve membership, increase collective efficacy, and strengthen networks of support. This recognition of the relevance of digital communication enhances the meaningfulness and ownership of its usage. This is a key feature that has been highlighted by scholars of networked mobilization (e.g., Castells, 2007a; Juris, 2008) and communication for social change (Gularte et al., 2009; Gumucio-Dagron, 2003). These writers emphasize that access to technology or a new communication medium represents a real opportunity for development and power mobilization *only if these platforms become genuinely relevant to people and empower them to achieve their goals* (italics added).

Second, this study found that networked communication has dual effects when applied to mobilization: strong and highly effective in the mobilization inside the movement, but weak and limited in its effects on policies and political decision-making processes outside the movement. Networked communication proved highly effective inside the movement by enhancing group cohesion, collective efficacy, and social capital. Nonetheless, structural exclusion, ineffective political dialogue, and blatant persecution against indigenous leaders hinders the movement's potential to effectively influence elites´ decision-making, resulting in increasing conflict and violence. Despite these limitations, the movement has reached some intermediate goals, such as influence on the media agenda, changes in corporate policies, and some modifications to public policy.

Finally, this study suggests that research on the effects of networked communication for mobilization needs to address not only its impact on public policies and elites' decisions but also—and more importantly—its impact on civic participation and sociopolitical organization norms. In general, networked communication—spontaneously developed, resonating with cultural values, and promoting inclusive forms of governance—may help to defeat marginalization in a definitive and sustained manner.

As the researchers demonstrate, the value of ICTs for developing and sustaining political formation and citizen engagement is not reserved for cities alone. Indeed, the capacity of ICTs to leverage social agency largely depends "on whether or not [ICTs] trigger certain communicative characteristics that enhance mobilization, such as civic engagement, cultural resonance, reinforcing patterns, and collective efficacy" (p.vii). What seems clear is that the material conditions for the formation, circulation, and utilization of social capital in political engagement are highly impacted by the affordances of ICT networks. In turn, how social organization itself impacts the practical utilization of ICTs in pursuit of these social aims is also significant and is explored in Section Three of the paper.

Information has become the vital element in a "new" politics and economy that both links and transforms space, knowledge and capital. However, Castells (2000) reminds us that the central issue for leveraging change across institutions and communities today – even in an age of networks – remains that of power. And, as indicated in the findings concerning the use of ICTs by civil society groups in Guatemala, the utility of ICTs for promoting social change is limited unless civil groups are able to confront with organized political force the institutional and political structures that embody repression and the curtailment of political freedom.

2.6.   ICT and the Role of the Citizen

A central goal of the FLOK project is social and economic transformation through policy intervention. Based on the premise of open government is the context of commons-based knowledge production, the FLOK project rejects any standard of government that ignores the democratic participation of citizens. Linking the notion of open government to smart cities, we advocate experiments in new forms of democracy using ICTs and the application of technological innovation as tools for civic engagement and political empowerment.

One of the key challenges confronting the development of both open government and smart cities is 'top down' design. The idea of smart cities has been widely criticized as being essentially neo-liberal-driven urban spaces and for putting an excessive weight on economic values as the sole

driver of urban development. Indeed, Lipman (2009) calls attention to the ways in which neo-liberal policies have used cities to concentrate and manage capital accumulation. As she observes, cities have become "concentrated expressions of the dynamics of extreme inequality, marginality, and centrality that characterize the global economy as a whole" (p. 242).

Harvey (1973: 16) has suggested that the world's cities mirror systemic social stratification, as a "vantage point from which to capture some salient features operating in society as a whole". This includes social hierarchies of race and class in structuring urban spaces. Closely linked to this critique is the fact that much of the planning and design of smart city systems, including the technology to be deployed, is owned and controlled by multinational corporations with little understanding or investment in the idea of open and democratically structured systems.

The question that arises is whether the design and development of smart cities can avoid the central problem of class stratification and inequity that afflicts so many cities around the world. In Ecuador, for example, the city of Yachay or "City of Knowledge" is now under development in San Miguel de Urcuquí, in northern Ecuador. Designed as a key knowledge hub in Latin America, Yachay is modeled on Songdo in South Korea, and envisioned as a smart city for Ecuador's knowledge economy. In conjunction with Ecuador's broader national innovation planning, Yachay is envisioned as a means to leverage academic and scientific research in support of technological innovation. Despite its promising potential as an incubator for commercial innovation however, the question now confronting Yachay – and other similar urban experiments – is whether it has the capacity to incubate inclusive and empowering democratic institutions and practices.

2.7. Policy Recommendations

Given the above issues and concerns, the basic principles for sustaining and amplifying smart communities in conjunction with open government should include the following:

1. Universal Internet Access
The growing importance of broadband infrastructure suggests that the Internet as a platform for participatory citizenship is not merely a market-driven luxury, but a necessary right of citizenship in the digital age. Indeed, resolving the digital divide between wealthy and poor citizens is now becoming critical to maintaining a functional democracy.

Recommendation: Government should continue to develop policies and programs that expand the ability of citizens to access the internet. The government's promotion of Community Information Centres across Ecuador is one excellent example of such a policy.

2. Free access and Net Neutrality [7] must be a national priority for the promotion of a social knowledge economy.

Recommendation: Users of an information ecosystem, including independent application service providers, should have free and open access.

Recommendation: The Ecuador government should come out publicly and forcibly in support of net neutrality and adopt policy actions that promote this principle both in Ecuador and globally.

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[7] Net neutrality means the free and equal access to the same protocols for the management and routing of internet data for all internet users and ISPs regardless of their size or content.

3. Distributed Architectures and Open Standards are also pillars for the promotion of a social knowledge economy.

Recommendation: Open standards and open formats should not be an option, but should be required criteria for the development of new infrastructure at their core.

4. Free and Open Licensing

Recommendation: Software programs and data should be available under a free and open license regime or be placed in the public domain so that citizens can build data-driven solutions and applications, along with an infrastructure of distributed data and technological neutrality with no technological restrictions.

5. Portability and Interoperability of Data

Recommendation: To avoid locks-lock-ins, data we propose that data be released under open formats that prevent entry or exit barriers without discrimination or restriction on any technology.

6. Open Distributed Platforms The National Plan for E-Government refers to the cloud, but without explaining where the data reside, whether it is encrypted, who manages it, whether open source is used, etc.

Recommendation: We propose a model of open distributed platforms for these purposes. This includes the need for distributed repositories of open data, a distributed cloud system, distributed search tools, and the creation of distributed social networks.

7. Open Data
It is becoming increasingly common for governments around the world to "open" their databases to the public. Open data is becoming a critical platform for gauging open governance practices and enabling citizens to access public services. More than simply providing transparency, open data is enabling public and private service providers to integrate and distribute this data in new and experimental ways.

Recommendation: Programs that link raw government data to visualization tools, for example, can give citizens more comprehensive information about their communities and should be promoted by the government.

8. Open Data Libraries and Application Development
Open data provided in raw form enables interested users to perform their own analysis on public data, or utilize public data to develop new and innovative applications (apps). Data provided by one government ministry can be independently combined with data from other sources to provide scalable information systems that builds on the civic commons. Machine-readable access to open data libraries, for example, enables citizens to retrieve and utilize data through third-party computer applications. This in turn provides incentives for local software developers to augment public resources.

Recommendation: The development of such open data libraries, along with the applications to use them, should be a priority for government.

9. User-control and common ownership of the infrastructure

Recommendation: We propose, to the extent possible, the development of ownership and management structures that enable user-control and collective ownership for all infrastructure focusing on public or broad social uses, or which is financed from public funding.

10. Legal Reform
Opening government also means transforming the legal structures that might impede open

government data. This includes explicit licensing that permits public use and re-use of government data without restriction. This also means ensuring free access to government-held information in the context of freedom of information. Legal reforms supporting open data can offer citizens an opportunity to provide useful feedback and offer input that drives improvements in governance itself.

Recommendation: A review of legislation and public polies that work against the development of open government as outlined here should be undertaken and where necessary, reformed.

11. ICT Driven Public Services
The growing capabilities of ICT platforms and applications are making possible an expanded horizon of possibilities for improving public services. Much as the private sector has been developing user-centric models of service delivery for some time, governments are now being challenged to identify and respond to gaps in public service systems. Data-driven analysis of services used by citizens (data analytics) can assist governments in managing resource allocation and provide more personalized public services.

Recommendation: The government should undertake a careful study of how ministries currently manage public access to ministry data and identify specific policies and procedures that promote ICT platforms and applications that facilitate public access to ministry data and which link and cross reference data from one ministry to that of others.

12. Smart Systems and Social Welfare Policy
Linking the need for new social public policy to the emerging possibilities of technology-mediated community, we argue that that the discourse on smart cities must now begin to explore new models of social welfare policy (Kanter & Litow, 2009).

Recommendation: The government should undertake higher spending on social welfare programs in the context of a social knowledge economy and enhance citizen engagement by digitally augmenting social welfare services. Such a policy also includes experimenting with new ways of supporting basic needs such as education, healthcare, and childcare through new electronic government services.

13. Citizen Participation
The ideal of participatory democracy today is about far more than simple representation. The possibility for citizens to co-produce and partner with government is becoming a reality. In the age of social networks and peer-to-peer practices, governments are increasingly expected to develop institutional frameworks that provide citizens with a means to develop and augment public services and even co-produce services rendered on their behalf. This includes both user-driven e-services and the introduction of community tools and resources that can provide citizens with a means to have their voices heard. Indeed, the challenge for open government today is less about finding new solutions to the transmission of government services, and more about empowering citizens to become agents in their own governance. This key question of the need to democratize public services is further explored in the companion papers "Public Policy for a Social Economy" and "Public Policy for a Partner State". [8]

Recommendation: The government should undertake a study to examine in what ways ICTs could become a tool for the co-production of public goods and services in collaboration with civil society organizations. The study should including the identification of specific public services that may be tested as pilots for this purpose.

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[8]   Restakis, FLOK Society Project, IAEN, 2014

14. Empowering Civil Society

Government accountability and critical feedback are now central to continuous government improvement. As key agents in shaping social and political mobilization, civil society organizations (CSOs) and nongovernmental organization (NGOs) have been foundational to the Citizens' Revolution (La Revolución Ciudadana) that is reshaping Ecuador. Building on this momentum, political changes introduced by the Correa administration have been aimed at expanding social and democratic goals outlined in the National Plan. ICT platforms offer new opportunities for civil society input by linking CSOs more closely with decision-making in co-producing governance.

Recommendation: Government efforts to expand social and democratic goals and practices should be amplified through the use of ICT platforms supporting user-driven networks and e-government platforms.

15. Safeguarding Rights to Privacy

The development of ICTs for purposes of e-government and the introduction of smart city systems have now become a kind of gold standard for promoting more open and efficient government. However without adequate safeguards, and given the current dominant role of private corporations in the design, development, and application of these systems, the implementation of ICTs on such a comprehensive scale also invites serious abuses of the right to privacy and freedom from surveillance for citizens. The technology that makes possible such a comprehensive centralized accumulation of data is the same technology that enables the surveillance of even the most minute and intimate aspects of the lives of individuals.

"Art.94 of the Constitution of the Republic of Ecuador, habeas data:" Everyone has the right to access the documents, databases and reports about himself, or his property, held by public or private entities, as well known as the use made of them and their purpose.

May apply to the respective officer, updating or data, rectification or cancellation, if erroneous or unlawfully affect their rights.

If lack of attention causes harm, the affected party may demand compensation.

The law establishes a special procedure to access the personal data contained in files related to national defense. "

Recommendation: For these reasons, we propose that the use of ICTs in the development of "smart cities" and other forms of data collection through centralized control systems not be implemented without the inclusion of comprehensive and rigorous coding protocols that monitor and prevent unsecured surveillance of citizens.

Recommendation: For these reasons, we propose that the use of ICTs for the development of smart cities and other forms of data collection through centralized control systems not be implemented without the inclusion of comprehensive and rigorous encryption protocols to prevent the unwarranted monitoring and surveillance of citizens.

These protocols should include:

a) The availability of end-to-end encryption to private individuals (not only government) for private internet and wifi communications;

b) Elimination of "back-door" access to software and hardware technologies used in Ecuador;

c) The restriction of data accumulation only to specified uses and only with the explicit authorization of the individual concerned;

d) The prevention of the general and unauthorized sharing of data on individuals by government departments and officials.

In addition, the following recommendations draw on the 'International Principles' and on 'Tshwane Principles," Principle 10E. [9]

The state should:

1. Publish sufficient information to enable individuals to fully comprehend the scope, nature and application of the laws permitting communications surveillance.

2. Authorize communications service providers to publish the procedures they apply when dealing with surveillance, adhere to those procedures, and publish records of state communications surveillance.

3. Publish, at a minimum, aggregate information on the number of requests for communications surveillance approved and rejected, and a disaggregation of the requests by service provider and by investigation type and purpose.

4. Establish independent oversight mechanisms to ensure transparency and accountability of surveillance. Oversight mechanisms should have the authority to access all potentially relevant information about surveillance, to assess whether it is conducted lawfully, and to evaluate whether the state has been transparently and accurately publishing information about the use and scope of communications surveillance techniques and powers. The independent oversight mechanism should publish periodic reports on its findings.

5. Establish training and education programs for civil servants on the requisite protocols and practices to be followed concerning the application of safeguards against the use of ICTs for purposes of unwarranted infringements of privacy.

For law enforcement agencies, the operational implications of this include the need to

1. Review police information security measures in the light of new technologies and techniques to ensure they remain robust.

2. Submit new or expanded surveillance techniques or technologies to the scrutiny of the judiciary or other democratic oversight mechanism to ascertain whether it falls into the realm of complies with constitutional protections and international human rights standards.

3. Section Two – Information Technologies and Institutional Innovation

Modern societies utilize a broad collection of information and technologies that are more or less concentrated and segmented in terms of production, access and application. This section explores the use and potential of the Internet in relation to its contribution to social innovation in rural sectors.

3.1. Public Goods and Technology

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[9] http://www.openopengovguide.com/commitments/establish-safeguards-to-ensure-that-new-technologies-used-for-police-surveilence-respect-the-right-to-privacy/

Ecuador's constitution states that knowledge is a public good and that "its development benefits society as a whole, beyond its individual or private profit."[10] Similarly, public goods are the basis for social co-existence open to a future of social innovation intended for the enhancement and reproduction of life and social well-being.

In this sense, democratization refers to the expansion of endogenous knowledge and of knowledge that constitutes the patrimony of humanity so that it may become part of the experience for all of Ecuadorian society through recognition, generation and appropriation of this common social inheritance. In accordance with the ideals of Buen Vivir, the challenge of developing public goods today is to migrate from a vertical and hierarchical pattern of producer-user relations toward a model in which everyone may contribute to the creation and dissemination of knowledge in an open and plural manner.

From a practical standpoint however, the distinction between the local and urban/global spheres is essential to understanding the political processes under discussion. Consequently, it is necessary to have an overview of state policy and the evolution of democratic practice in the recent past and to understand the relations between institutional changes, ICTs, and the state's relations with the broader civil society.

Objective 4.1 of the National Plan for Good Living promotes a reciprocal relationship between education, the productive sector, and scientific and technological research for the transformation of the productive matrix and the satisfaction of human needs. Objective 11.3 of the Plan promotes democratization in the provision of public telecommunication services, as well as information and communication technologies (ICT), including radio, television and radio-electric broadcast, as well as furthering their universal access. Under this regulatory umbrella, joint access and work is to be guaranteed for all. [11]

During the nineties traditional notions of development were closely linked to the idea of technology transfer which operated through a decentralized system and was connected with the work of national and international NGOs. [12] Rural development has thus been a pillar for Andean governments and has always been associated with economic development (Escobar: 1996). Similarly, while many perceive the internet as a growing force for advancing social and economic opportunity, the relative benefits of digital connectivity are tempered by more immediate concerns about local access to vaccination, food and electricity (Global Information Society Watch, 2008). Thus, the digital-gap concept included a series of indicators that went beyond connectivity in each region to include the financial, political and cultural viability of making the internet truly accessible to all sectors of society.

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10   Article 16 of the National Constitution of Ecuador. 2008

11   National Plan for Good Living 2009-2013.

12   The history of the Netherlands IICD and Canada ICD need to be considered, as those institutions funded, for several decades, the digital inclusion and development process through the use of communication technologies.

In the Latin American case, the role of technology transfer as a driver for development was a key rationale to justify development objectives from early on. At the same time, there are those who warn against the generalized technological optimism that is often present in this literature.

3.2. Ecuadorian Framework: From Development policies to local empowerment – The regional politics of technology and development.

Despite the fact that every developing country confronts challenges that are defined by its own cultural, political and economic conditions, as of 2000, state reports and regional policies in Latin America have emphasized the need to homogenize and spread technology on the basis that there are common issues and approaches that have been shared by those countries that were successful at implementing development strategies.

With respect to ICTs, the majority of strategies that have successfully fought the lack of infrastructure for rural communication entail some type of public, community-based access rather than individual access to the internet. And, while foreign investment has played a central role in the rise of successful technological companies, this is quite apart from ICT use for addressing social issues such as improving health and education, promoting citizen empowerment, improving gender equality, or addressing human rights and enhancing political participation, which have now become a priority that is included in the final objectives of such plans. These social attributes of ICT use are the main objects of this analysis.

The fundamental basis for this process is rooted in three arguments that have predominated the development discourse since the nineties. The first argument links ICTs with technological capability and value development and their impact on society, with the need for global connectivity and the provision of infrastructure that allows it. The second argument strengthens traditional educational systems, providing a framework through a technological model, and deals with the institutional frameworks thus established to pursue an efficient model of electronic government. Lastly, there is an argument for the use of ICT's to promote a more equitable co-operative and commons-based economic system. [13]

With respect to this, Ecuador's community info-centers and their action networks have shown that traditional patronage models can be challenged. The centres have become a new space for the development of citizenship and political participation through digital-literacy programs and the expanded use of the internet.

There is no question that the internet has given a new voice to actors who had no access to services in the past and were often not even recognized as citizens. The expectation that technology will shift towards progressive social and political organization goes hand in hand with community empowerment, the promotion of citizen values, and the development of a national conscience. Through the diffusion of internet connectivity, family members of migrants use chat, e-mail and videoconference to communicate with their loved ones. The youth of the community take advantage of the centers to meet, talk, play, and chat with other young people online. And

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[13] The InternetInternet-based paradigm change, widely spread by Manuel Castells in La Galaxia Internet (2003), speaks about the possibility of looking at InternetInternet use as part of a paradigmatic change in society. This means changing the concept of information transmission as unambiguous or message centered. Flow space transmits information swiftly and it is only the management of information that has changed the ways of constructing meaning. This vision was linked to the critical discourse about development policies based on information and communication technology transfer.

teachers benefit from having internet access to prepare for their classes, to update their teaching methods, and to expand the educational content they can offer to their students.

3.3. Case Study: Community Info- centers, Institutional innovation and Access to Information Technologies

Public services and policies on telecommunications have been an essential element in the Executive power's political vision. Pursuant to the legal mandate in the new law of communication, the state is responsible for the provision of public services and for guaranteeing that in their provision they require adherence to mandatory quality principles for consistency, efficiency, responsibility, universality, accessibility, regularity, and continuity of service. The state shall also ensure "that public-service prices and fees are equitable, and it shall set forth their control and regulation." (Art.314). With the creation of the Ministry of Telecommunication, connectivity became a primary national objective. These policy aims have direct implications for civil society and its relations with the state.

Within civil society, political action groups are among the many associations that establish contact at an information center as a key component of their political work and to put pressure and/or adapt to the actions and objectives of the state.

This type of engagement at the local level is now an essential feature of how civil society organizations expand and deepen the organizational potential of civil society as a whole. This kind of political process via the internet necessarily entails practices that are independent of the direct control of the State. This,is inherent in the autonomous character of civil society organizations. [14] The kind of interaction that is facilitated through electronic communication is part of a larger change pattern in the political process, starting from the local dynamics that comprise economic development in rural areas.

The new technology-based solutions now open possibilities that did not exist ten years ago. In this year's Report on Information Economics, the potential influence of ICTs is taken into account for the creation of new employment and to increase productivity and the range of entrepreneurial activities that are relevant to rural communities. In this context, the structure of political action among civil society organizations in rural communities increases the complexity of their political processes and the relations among political actors. [15] From the local standpoint we can identify three types of actors: A) State-Community Info-centers – Mobile Classrooms/NGO- Beacon of Citizen Knowledge; B) Civil Society – internet-service users by community actors in A; C) Local Authorities – county (parish) Boards and Mayors.

The Community Information Centers seek political counterparts within the township authorities and have developed community facilitators, with successful results. The use of the Internet by rural citizens has increased as has its applications. Consequently, the richness and diversity of organizational processes, and the availability of new communication spaces developed in the locality, have proved to be fertile soil for generating new ICT use and for providing access to

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[14]   By political processes we refer to those actions that comprise and mobilize the relation-building structures among informed citizens (organized civil society), and in which individuals take initiative as actors and citizens to influence the behavior of the state.

[15]   According to the COTAD. Territory organization law, the decentralized autonomous government (GAD) has, among other functions, the direct management of fund planning and execution.

information and extending the dissemination of knowledge. The centers have also evolved into spaces for the dissemination of local information and communication.

Past experiences and research demonstrate that these tools in the hands of organizations and projects that are rooted in local experience and relationships have a far better chance to contribute to community wellbeing and development. Access centers (public–semi-public) have become spaces for further contact and sharing, for innovation, for promoting creativity and entrepreneurship, and for supporting microenterprises (Burch, 2007).

Examples of these are the local enterprises fostered from the Infocentros. This is the case of San Placido, Manabi, with the development of candy production or Dulcinea in the province of Bolivar. San José del Tambo has become a centre for chocolate, the Infocentro Valle Hermoso has been instrumental in the creation of a jam factory, and in Santo Domingo de los Tsáchilas peanut-based products have been developed by local enterprises. Members of various associations are also using the Infocentro to market and sell their products through social networks. [16] Infocentros are playing a key role in this new generation of micro entrepreneurs and their services help them to achieve economic independence from their families, to stimulate the local economy, and to play an essential part of the productive transformation of the country.

To cite another example, the Canchagua Infocentro from Cotopaxi and the leaders of the women's organization "*Hope for the future*", are developing projects to improve the lives of their families, including activities to enhance agricultural and livestock production in order to foster sustainability for families in the area. All the programs set in place are done through the use of ICTs, and by their own initiative organization members have been working jointly with the Ministry of Agriculture to develop the Horticultural Gardens Project with organic vegetables to market them in the surrounding communities.[17]

3.4. Policy Recommendations: Communitarian empowerment through ICT.

3.4.1. *Leadership and Institutional Change*

In the context of ICT, the goal of democratization entails that priority is given to the promotion and dissemination of knowledge for the purpose of solving peoples' problems, addressing their needs, and securing the natural patrimony. But in addition, democratization in the context of Buen Vivir also entails the promotion of ICT as a support for the empowerment and autonomous self-development of civil society as an indispensible foundation of democratic political life as a whole.

As a result, a progressive and pro-active state must strive to relate ICT policy to guaranteeing universal access for civic participation in government decisions (open government), to promote civic engagement through e-government practices, and to foster economic empowerment as well as economic innovation. These guarantees require the existence of information exchange spaces (info-centers) so that families – as well as institutions, NGOs and local governments – can utilize

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16   Success stories from the use of the community info-centers can be found at:
http://www.infocentros.gob.ec/

[17]   Success stories from the use of the community infocenters can be found at:
http://www.infocentros.gob.ec/

them as a crosscutting service for their own transactions and as a center of development in their communities.

Recommendation: Government policy should promote the emergence of a digital ecosystem of trust by developing tools of direct accountability in their services. Citizens directly feel the impact of national policies and the way local government interacts with their interests. The objective of having a direct- two- way communication with officials and citizens guarantees political legitimacy and the subsequent strengthening of democratic institutions.

3.4.2. Digital competences as a basis for community relationships.

In addition to the citizen and community-building potential of ICT use, the creation of transferable knowledge from the experience of local producers entails additional possibilities. In farming communities, tacit or implicit knowledge exists in the productive processes of the individual and/or family. With the use of ICTs, farmers in rural areas have begun a new process of articulating this knowledge which allows for the collective sharing and construction of new forms of knowledge for both individual and collective benefit. ICT becomes a tool that greatly facilitates the knowledge sharing process.

From the standpoint of actual utility in the experience of users, one type of technology is not prioritized over another for its age or novelty, but is valued instead for its effectiveness in promoting the sharing of knowledge with respect to set goals and the solving of concrete problems. Participants recognized the necessity of learning about these different means for applying ICTs according to specific needs and objectives. In this way, ICTs are adapted to suit local situations and to identify the mechanisms that allow for a "friendly" encounter between these technologies and the communities in which they are embedded.

In the case of the women's organization in Cangahua, information and communication technologies have allowed the group to generate material that is useful for project management, for seeking financial support, and for pursuing marketing strategies for their products. This experience shows not only how ICTs are being incorporated into rural life, but also how communities adapt ICT models and discover new applications for their own benefit. The use of these new technologies in the communities, aided by the infocentres, is now a tangible reality. [18]

From this perspective, the local level should be considered as a priority arena where citizens are most affected by decisions and by consequence, more inclined to participate in the decision-making processes.

Recommendation: Government policies should devise tools to increase decision-making authority to local citizens and to devise tools for participatory budgeting and participatory decision-making through the design of both face-to-face and e-voting strategies.

3.4.3. Individualization of Learning and Individual Empowerment.

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[18]   For other case studies along the region, refer to: Knowledge sharing for rural development: challenges, experiences and methods, ALAI, Quito, January 2007

Despite these examples, experience also shows that these technologies do not reach everyone – in the sense that not everyone has the same skills to make use of them. There is a gender-generational dynamic around the use of ICTs and it extends to the barriers regarding the specific role of women in the community and this in turn, has led to a change in attitude in this regard. Social and solidarity economy projects had already bloomed prior to the adoption of ICT as means of production, but mainly because ICT fosters the individual's capacity to initiate actions. This has strengthened and improved the capacities of small enterprises and promoted the betterment of public institutions.[19]

ICTs have facilitated greater social inclusion for populations with few resources and, for target users such as migrants and their families, they are fulfilling the mission for which the info-centers were created. *However the benefit is not found within the ICTs as such, but rather in their potential to create powerful institutional networks, as well as to build social and economic capacity.*

The success of the infocenters, has improved local/global connectivity. Consequently, it is strategic to design programs that furnish infocentre mediators with better tools and to support small entrepreneurs so that they have access to better economic, technologic and pedagogic resources. It is also important to accelerate the pace of these social/solidarity economy experiences and to provide resources that favor communication, exchange and alliances among cyber-cafes, information centers, schools, universities, and libraries. The provision of opportunities, spaces, and technical support to introduce young people to the tools for public consultation, communication, and civic action that (hopefully) will become part of their lives is a key part of this process. Finally, there is confirmation that information centers have become a key means for collecting, valuing and diffusing local memories and stories. This aspect of their community role should be supported and expanded.

Recommendation: The government should design programs with specific ICT coursework tailored to the needs of specific members within the community.

Recommendation: Training and education programs aimed at expanding local access to online information should promote the use of local networks to share knowledge and to adapt its use for the advancement of co-operative solutions to shared local issues.

4. Section Three – ICT, Social Innovation and Social Capital

While it is clear that ICT has a key role to play in the ways a community accesses knowledge for the advancement of its social and economic goals, it is also clear that the ways in which members of a community relate to each other through social institutions is also a factor in whether knowledge is used as a social good and the degree to which ICT is used in the pursuit of social aims.

As indicated in recent research on the role of social capital in the sharing of knowledge, *how* this knowledge is created and diffused is greatly influenced by the quality of the relationships that exist among actors in a given community, and the levels of social capital that exist. For example,

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[19]   Ibid, ALAI, Quito, January: 50-58. 2007 Speech promoted by the UNPD's (United Nations Program for Development) millennium objective, together with that of the United Nations' programs for trade and development.

the more that producers or other actors engaged in local production activities are linked to their peers through networks characterized by sharing and mutual trust, the more knowledge is accessed, shared, and combined to create new solutions for common problems. *Social innovation through the use of knowledge as a commons is directly related to social capital and its effect on knowledge access, diffusion, and practical application.*

In their study of the literature, Zhihong Li1 and Fang Luo (2010) surveyed the role that social capital plays in the development of organizational learning [20] and knowledge transfer within firms. What they found is that social capital plays a direct, and often decisive, role in the development of an organization's capacity to create and adapt knowledge for purposes of competitive advantage and entrepreneurial innovation, and also for transferring knowledge both inside the firm and beyond. [21] Moreover, the evidence suggests that different types of social capital can have different effects on an organization's use of knowledge.

Social capital that is characterized by direct relations of mutual trust between two individuals (dyadic trust) is most conducive to the exchange and sharing of new knowledge.[22] However, social capital that is characterized by the common norms and expectations of a whole community (generalized trust) is especially effective for organizational learning that is geared toward innovation.[23] In both cases, social capital is a feature of networked relationships of trust and the stronger the bonds of trust that exist in a network the more these relationships can "create a platform and mechanism for careful and in-depth knowledge exchange and sharing within an organization, while promoting organizational exploitative learning." [24]

The central role of social capital as a component of successful entrepreneurial performance and of regional economic excellence has also been shown by the experience of the flexible manufacturing networks of Emilia Romagna in northern Italy. These localized networks of small and medium firms are characterized by high degrees of knowledge sharing and co-operation in the shared production of highly specialized, high value products for global markets. [25]

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[20]   Organizational learning is the development and expansion of existing knowledge and capacity in an organization to meet competitive demands and to apply this knowledge and ability to organizational action. Argyris and Schon , 1978

[21]

        Zhihong Li1, Fang Luo, The Influence Path of Social Capital on Knowledge Transfer Performance␣The Mediating Role of Organizational Learning, Proceedings of the Third International Symposium on Electronic Commerce and Security Workshops (ISECS '10) *Guangzhou, P. R. China, 29-31,July 2010, pp. 179-183*

[22]   ibid

[23]

        ibid

[24]

        Leana, C.R., Buren, H. J. Organizational social capital and employment practices [J]. Academy of Management Review, 1999(24): 538-555

[25]   Restakis, The Socialization of Capital, Humanizing the Economy – Co-operatives in the Age of Capital, 2010

A culture of co-operation has been decisive in the success of this region. The use of both formal and informal networks to access and share knowledge, to promote research and development, to analyze and access markets, and to promote training and human development has made Emilia Romagna among Italy's top performing economic regions. [26] With explicit reference to the impact of inter-firm co-operation and knowledge sharing, the region has become Italy's most intensive user of research and development facilities and now leads the country in the number of new patents registered. [27]

This same idea of open access to knowledge is crucially important in the realm of scientific research. As NASA acknowledged in in its 1995 report, *On the Full and Open Exchange of Scientific Data*

"International programs for global change research and environmental monitoring crucially depend on the principle of full and open exchange . . . . Experience has shown that increased access to scientific data, information, and related products has often led to significant scientific discoveries and the opportunity for educational enhancement."

What is true for the advancement of scientific research, or enterprise development is also true for the development and expansion of human service organizations in the social economy. The rise of social co-operatives that specialize in the provision of a vast range of social services to Italians has been based in the formation of social networks that play a key role in the sharing of information and technology that are vital to the successful operation of these social enterprises. [28] There are now over 24,000 social co-ops that employ 280,000 people. Their scale of operations, their capacity to adapt to external pressures and to innovate solutions – particularly in the face of extremely demanding economic and political pressures – would be impossible without the support provided them through their social networks and the bonds of mutual trust and sharing that they have developed.

The main point to be made is that it is the social relations of communications and knowledge which are central, whatever the technology.

For a country like Ecuador, where low ICT levels still predominate and where digital access is among the lowest in Latin America (Paraguay and Bolivia are lower [29]) an ICT policy that serves the aims of a social knowledge economy necessarily entails a careful consideration of how public policy can promote the development of those types of organizations and social institutions that are most suited to utilizing ICTs for these aims. The support and expansion of civil institutions that reinforce the generation of social capital are an essential component of progressive ICT policy.

Moreover, if ICTs are to be considered as tools for the realization of social, as oppose to purely private aims, there are implications for how ICTs are designed, managed, and deployed. As stated at the outset of this paper, one of the criticisms leveled against the concept of smart cities is the

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[26]   ibid

[27]

          A. Bardi and S. Bertini, Dinamiche territoriali e nuova industria Dai distretti alle filiere, 2005

[28]   Restakis, Social Co-ops and Social Care, Humanizing the Economy – Co-operatives in the Age of Capital, 2010

[29]   ITU-UNCTAD Digital Opportunity Index (2007)

fact that these technologies are controlled by large corporate interests with little interest in those values and applications that seek to make common goods of information technologies and the knowledge they can access. The corporate control of ICTs and the privatization of knowledge are, after all, the foundation of contemporary cognitive capitalism.

By contrast, civil organizations – and indeed, the institutions of government - should have as their primary aim the production of social goods that are available to all. It would seem therefore, that for ICTs to be realistically deployed as instruments of social benefit and the promotion of a democratic polity, there needs to be a democratization also of these technologies, with a priority emphasis on the use of open standards and technologies. The mutualization of information and communications systems should be encouraged wherever possible. In short, the use of private, corporate systems of hierarchical control is incompatible with the deployment of ICTs to promote the general welfare through citizen empowerment and the democratic process. Hierarchical command and control structures do not yield democratic outcomes.

One key area for consideration in this respect is the conversion of private telecommunications systems into public/civil enterprises in which users acquire control rights through a co-operative structure as has been done in jurisdictions like Argentina where the country's telecom provider has partnered with FECOSUR (Federation of Southern Co-operatives) – a consortium of telecom co-ops, to provide new cellular, fixed line, internet, and electricity services in rural communities.

Other examples include the telecom co-operatives of the U.S. The NRTC (National Rural Telecommunications Co-operative) currently provides high-speed internet services, integrated smart grid technologies, wireless technologies, long distance programs, mobile phone service, IP backbone services, and programming distribution rights for video providers to more than 1,500 rural utilities in 48 states. [30] The gradual mutualization of ICTs through a combination of public and co-operative models offer one means of ensuring that ICT systems will remain accountable to civil, as opposed to capital and corporate interest, with a major role being played by individual citizen users of these systems.

The establishment of user control rights through citizen membership in a co-operative ICT grid is perhaps the most effective way of promoting the democratization of these systems and the alignment of ICT use with the aims of Ecuador's National Plan..

In sum, there is an affinity between the values and aims of a social knowledge economy and those institutional structures that operate on those same principles of sharing, co-operation and social purpose that characterize a wide range of civil society organizations, and also of private and public enterprises that are networked to co-operate in the realization of mutual aims. It is these same co-operative and commons-based structures, both inside organizations and among them, that are best suited for accessing ICTs for common aims and the pursuit of those social goals that also characterize the aims of Buen Vivir.

5. Section Four – Generative Democracy: ICTs and the Distribution of Civil Power

At the heart of the debate concerning the role of ICTs in a social knowledge economy are two fundamental questions. As outlined above, the first has to do with the nature of the interface

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[30]   http://www.nrtc.coop/pub/us/about/, accessed May 6, 2014

between the state and civil society. This is essentially about the re-distribution and sharing of political power. This forms the subject matter of the final paper in this series, Public Policy for a Partner State (Restakis, 2014).

The second question has to do with the need to re-vision production for social benefit as impacted by the unprecedented organizational changes ushered in by the ICT revolution. This entails a radical shift in the state's understanding and role with respect to the economy as a whole, but especially of the public economy. The remainder of this paper will focus on this question and the emergence of what we term generative democracy as a central feature of a new, social form of governance that embodies the features and possibilities of a new, distributed paradigm of production that is now possible with the new technologies.

In the early 20th century, the state's organization of its governance and production systems was modeled on the knowledge economies of industrial capitalism and the private corporation – mass production and the eclipse of artisanship, the Fordist assembly line, and the managerial principles of Taylorism which focused on de-skilling (and de-humanizing) manual labour while concentrating design and operational control in a technical and managerial elite. Workers, as well as consumers, were not valued as conscious and self-determined subjects engaged in the productive process; they were the mute objects of an impersonal productive system. This was the classic, centralized, top-down governance model that was demanded by the industrial technology of the time and promoted by such influential figures as Andrew Ure, the high priest of this dehumanizing process. [31]

The ICT revolution has demolished – and reversed – the centralizing logic of this old model. Today, the emergent technology relies on the conscious production and application of globalized knowledge in a continuous process of innovation through de-centralized and distributed production networks. In one key respect, ICTs have returned the focus to the individual and their personal connection to what is essentially cyber-social technology. What persists however – particularly in the sphere of the public economy – are the old authoritarian power structures that struggle to manage and direct the design and provision of services with the mindset and control mechanisms of an age quickly receding into the past.

The closed and hierarchical systems of the mechanical age represent an anachronism and an impediment to the rapidly evolving needs of a social knowledge economy that thrives on open rather than proprietary knowledge, and on the co-operative social and economic networks that are the matrices within which the new production forms are being modeled. The demand for wider citizen participation in public decisions and production, as well as access to state information, are symptomatic of these changes. Another is the growing individuation and *specificity* of demand – for both public and private goods – that is a central feature of contemporary consumer society. The advent of ICTs leaves little room, or justification, for governments to ignore or oppose these calls for the empowerment of citizens in these productive processes.

ICTs have opened up opportunities for new productive systems that bear on the organization of many state services and the role of citizens and the social economy in their design and operations. Other aspects of state/civil relations that are affected by ICTs include:

- The relations of information in the operations of a Partner State, both as regards open operational information flows between partners, and the access of civil partners to the know-how of the state;

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[31]   See J. Restakis, Humanizing the Economy – Co-operatives in the Age of Capital, 2010

- The way in which the state gains its information about civil society/economy to inform the planning and delivery of its services (how the state finds out about the nature of social demand);
- The information economy *within* the state and the degree to which there is open and co-ordinated information among different sections and agencies of the Government;
- The access to global know-how about public services both by government and its agencies and by civil society;
- The development of new forms of distributed production and the potential for their decentralization to the social economy.

All of the above are part of the state's social economy of knowledge. But both the traditional and the new need to be seen in the context of the radical changes in the nature of contemporary capitalist production and distribution, and of corporate organization in the age of ICT. These include:

- The shift from mass production to mass customization and the proliferation of product variety;
- The orientation of flexible/just in time production systems around the demands/needs of the consumer/user, resulting in the shift from the supply push of Fordism to the demand pull of post-Fordism;
- The increase in 'produsage' and the involvement of the user/consumer in the circuit of design/production (from the private sphere the example of Dell computers, of Lego technics or Toyota housing, and from the public sphere, education, chronic health care, recycling, tax assessment);
- The introduction of user ideas and feedback into the design and operation of products/services;
- The flattening of organizational hierarchies and distribution of the complexity of detailed planning and operations from the centre to the periphery;
- The accompanying redesign of the information flows within organizations and between organizations and their suppliers/markets, along with innovations in stakeholder involvement;
- Further use of ICT in data mining (to further customize marketing), the crowd sourcing of innovation ideas, and in the design and performance of products.

In the private sector, those corporations that have involved their workers, suppliers and consumers directly in their planning and operation (for example Toyota, Airbus, and South West Airlines) have shown greater long-term success than those who continue to treat their stakeholders at arms length. In the Toyota case the methods of involvement include delegation of authority to the shop floor, having stakeholders participate in monthly operational meetings, establishing supply chain networks for knowledge sharing, and the adoption of techniques of user centered design.

These and other companies have pioneered a particular version of a new social knowledge economy for use in the private market. But the adoption of these participatory methods for the production of social services by the social economy has been equally successful – both with respect to the satisfaction levels of front line workers and the end users of these services. [32]

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[32]   See Restakis, Co-op Elder Care in Canada, BCCA, 2008; Borzaga, Capitale umano e qualità del lavoro nei servizi sociali. Un'analisi comparata tra modelli di gestione, FIVOL, Roma, 2000

These changes are now well established in the sphere of the private market, but they have also been part of the pioneering work of the social economy in the field of social care at least since the late seventies. [33] However, their adoption has lagged behind in the public sphere. What is clear is that any discussion of increased democracy and participation in the conduct of the state must start from an appreciation of the changes that have been enabled by the diffusion of ICT, coupled with the democratic governance structures of social economy organizations such as social co-operatives.

This is not to say that what is good for the private economy is equally good for the public, as is proclaimed – loudly and often – by the apostles of neo-liberalism. The point here has to do with the question of individual agency and the technologies that are able to harness the volition and interests of the individual, or the community, in the production of goods and services that respond to what people actually need and want.

However, the issue of democratic control and accountability is very different in the construction and operation of nuclear power plants than it is with distributed energy systems based on small scale wind turbines, solar PV, mini hydro and so on. As we stressed earlier, technology and democracy are closely linked. The use of ICTs merely to replicate the centralized and hierarchical models of the past fails to understand the revolutionary potential of these technologies to liberate the role of the citizen and of communities from being mere *commentators* or *informants* on service design and construction, to being pro-active and autonomous *generators* of services through the democratic potential of ICTs, of user-controlled social organizations, and of government policies that promote their use for these ends.

On another front, the trend towards privatization of public services has transferred much of the operational know how and data to the private sector, leaving the state leached of professional capacity and knowledge, and the scope for citizen and workforce participation even more restricted. And, whether public services are administered through traditional state structures or through private sub-contractors, the scope for social economy involvement in their design and delivery is severely restricted.

An alternative path starts from the re-design and operation of public service systems so that they are more open to citizen engagement and the incorporation of social knowledge. User-led design has been a particularly fruitful technique here, taken over from the practices of commodity design in the private sector. Intensively involving the users, the front line workers, as well as service managers, it has produced radical new designs for such things as prisons, schools, chronic disease treatments, social welfare services, elder care, and energy efficiency programmes.

In all of these, users have varied capacities, needs and aspirations. They are also active participants in the effectiveness of any service (in the case of prisoners by avoiding re-offending). In many of them a new 80:20 rule has emerged; traditional standardized state services use 80% of resources in administration and control and only 20% in the direct service. User-centered design has been able to reverse these ratios, cutting down hierarchies, engaging families and communities, and assembling different kinds of support for the active user rather than providing them with the standardized services of the classical welfare state.

These and other similar examples are from advanced industrial countries with a long tradition of welfare services. In developing economies such as Ecuador's, the issues are more complex. They face a tension. On the one hand, there are many public services that are only now being expanded

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[33]   See J. Restakis, Humanizing the Economy – Co-operatives in the Age of Capital, Social Co-operatives and Social Care, 2010

as universal. On the other, the emerging practices of customized and participative services are gathering pace internationally and paving the way for a new and more personalized model of distributed social care.

Similar tensions arise in the design and delivery of public utilities such as energy, water, waste collection and broadband, as well as for services such s housing and childcare. In all these cases there is a choice between centralized, standardized services, and customized, distributed ones that involve users directly in their design and operations. The latter provide the opportunity for a major expansion of what we can call generative democracy, where citizens participate directly in their services rather than indirectly through attempts to influence the design and operation of centralized service systems..

The management of this tension and the gradual transition to the distributed model of generative democracy presents a key challenge for government and thus entails a long-view strategy of social development, education, and training that must accompany this process. [34]

As with all such tensions, it may be that one alternative is more appropriate in one area than in another, or that some hybrid of public/civic services is more appropriate. There is one firm conclusion, however. It is that where services are primarily designed on the old standardized model, there should be an encouragement of innovative alternatives delivered locally. Let us take education and housing as examples.

5.2. Case Study – Allianza Solidaria

Allianza Solidaria is a housing co-operative in South Quito. Over 25 years, the co-op has built Ecuador's largest housing co-operative, creating quality affordable housing and a thriving community in one of Quito's poorest neighborhoods. The co-op has built 500 homes, self-financed by its members, and is on track to complete 800 more.

Through pure community effort, and using the traditional form of the Andean Minga for organizing collaborative work, the co-op has transformed a garbage-filled ravine – long abandoned by the municipality – into Quito's first reclaimed commons, providing the city with its first bicycle path and a beautiful public park. It is the only ravine that has been reclaimed and repopulated with thousands of indigenous plant species, resulting in the greatest bio-diversity in the city. This volunteer work took eight years to complete. The co-op has plans to transform the other ravines in Quito in the same way.

The co-op has also created Ecuador's first co-operative school, run jointly by its teachers, parents, students and community members. The school is not only an international model for its innovation and its inspiring educational vision, but also ranks at the top of Ecuador's schools for the academic, sports, and cultural achievements attained by its students. Here, the mode of learning, the co-operative values, and the participative structure of the school, can serve as a prototype of schooling suited to the new social knowledge economy that Ecuador is seeking to promote.

Similarly, not only has Allianza Solidaria established the co-operative school but the members of the co-op were directly involved in the co-design of their housing, in providing direction to architects and planners, and co-ordinating the contributions of volunteers and workers throughout the building process. Here was a case of public services – of education, of social housing, of public space and the promotion of bio-diversity – all developed to the highest standards by 'auto-

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[34]   See J. Restakis, Public Policy for a Partner State (2014) for a more detailed presentation of this question.

gestion', the self-organization of the social economy.

In these cases, the value of ICT is not one of tracking the views of large numbers of citizens in respect of a centralized service. The communication in the South Quito project is direct and personal. It takes place in face-to-face meetings and through involvement in voluntary working commissions organized on the traditional Minga model of the Andean communities. Where ICT is important is in the process of co-design, in the administration of the common project, and in accessing of relevant international experience. The same approach of generative democratic practice can be mobilized in countless ways across the face of Ecuador, expanding and enriching civic practice and bolstered by the tailored use of ICTs to support this model.

In today's world, the legitimacy and relevance of public services depends on governments being able to harness the power of global information and distributive technology to engage and empower citizens for realizing the collective aims of civil society, just as the private market is learning to use the unique, de-centralizing features of the same technology for the fulfillment of private ends.

The purposes to which ICTs are used will depend on the aims of those who have the power to design and deploy them. Control rights are everything. If those powers rest in the hands of corporate commercial interests there is no mystery as to how they will be used. If they are primarily in the control and service of the state without safeguards and checks on power, the attendant dangers of political abuse and surveillance are also equally clear. If the aim is to create a true social economy of knowledge whose primary purpose is the deployment of knowledge for common ends, then a new relationship based on shared goals and shared power between the social economy and the state is indispensible. The rights and powers of citizens and communities in the design and management of these systems are thus central to the nature and impact of their eventual effects.

6. Concluding Remarks

The cornerstone of the FLOK model is the free and open sharing of knowledge. Its founding philosophy is that knowledge and innovation are most efficiently developed in conditions of free and open collaboration. Far beyond neo-liberal conceptions of socioeconomic development, this worldview embodies a vision of governance that centers on citizen-driven agency and citizen-driven institutions. In this policy paper we have advocated a strong linkage between the principles of Buen Vivir and open government if coupled with the foundational principles of an informed, mobilized, and connected citizenry. The central role of the social economy in this regard is fundamental.

We have also explored the evolution of ICT use in Ecuador and the ways in which government policy has impacted the successful adoption of ICTs at the local level through progressive government initiatives such as the installation of Community Infocentres. These experiences highlight the social and educational components of successful ICT implementation strategies.

But the possibility of open government lays beyond conventional notions of representative democracy that largely focus on closed governmental institutions with citizens being largely excluded from playing a meaningful role in their operations. We have proposed instead, that the practice of open government (and the evolution of smart cities as one instance of this) must take place in the context of technologies that are not only designed to increase the efficacy of government, but even more importantly, to encourage and support new models of democratic

practice. Open government and the use of ICTs as empowering tools for civil society are essential aspects of a vision of social knowledge that both relies upon, and reinforces, those values of openness, sharing, co-operation, and democratic action in service of the common good that are the driving principles of Buen Vivir.

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